

World-Class Rail and Economic Prosperity:

Investing in a More Modern, Reliable, and Connected
Northeast Corridor





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Investing in a More Modern, Reliable, and Connected Northeast Corridor

15-Year Service and Infrastructure Development Plan and 5-Year Capital Investment Plan for the Northeast Corridor



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) | CTrail
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) | (MARC)
District Department of Transportation (DDOT)
Virginia Railway Express (VRE)
Amtrak
U.S. Department of Transportation (USDOT)



Introduction

The need for a world-class rail network has never been more urgent

The Northeast Corridor (NEC) is the busiest passenger rail corridor in the western hemisphere and a critical economic engine for the United States. **Its mainline, extending from Boston, MA to Washington D.C., connects four of the nation's largest metropolitan areas and moves 628,000 passengers each weekday on over 2,000 daily trains.** The region is home to over 55 million people, generates a \$5.9 trillion economy, and boasts some of the world's most important financial institutions, universities, hospitals, and cultural centers. If it were its own country, the NEC would be the world's third largest economy.

Despite its national and global significance, much of the NEC's infrastructure is outdated and in urgent need of repair or replacement, including century-old major bridges and tunnels as well as basic infrastructure like electric traction power and signal systems. As rail infrastructure remains in service beyond its useful life, the system is vulnerable to infrastructure failures and unplanned service disruptions, which delay passengers and impact the region's productivity. Current estimates indicate that an unplanned, one-day shutdown of the NEC would cost the economy over \$170 million, even accounting for new ways of working.

Recognizing the value of this important national asset, Congress created the Northeast Corridor Commission (the Commission) to facilitate collaborative planning and decision making for the NEC. This document, **CONNECT NEC 2040 (C40), represents the latest iteration of the Commission's long-term service development and capital investment plan.** All elements of C40 support the Commission's long-term vision for the corridor: providing NEC passengers with more reliable train service, world-class fleet and stations, and more and faster travel options.

While federal and state investments spurred by the Infrastructure Investment and Jobs Act (IIJA) have provided a significant downpayment on long-deferred NEC infrastructure investments, continued investment is essential to ensuring this critical asset can provide the level of service and amenities needed to maintain America's economic leadership in the world.



The Northeast Region covers only 2% of the nation's land area and it...



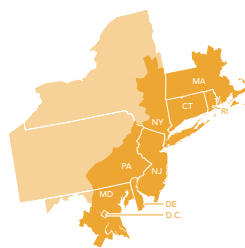
Is home to
55 Million People
or 1 out of 6 Americans



Contains
17%
of all U.S. jobs



Produces
20%
of U.S. GDP



Generates
\$5.9 T
in economic output
making it the world's 3rd
largest economy if it were its
own country

The Northeast Region is also home to...



8
of the nation's
best hospitals



8
of the top 10
universities in
the nation



23
professional sports
arenas & stadiums

The Northeast Corridor



The Northeast Corridor is a highly complex rail network consisting of a main line between Boston, MA and Washington D.C., and branch lines to Harrisburg, PA, Springfield, MA, and Spuyten Duyvil, NY. Four agencies own portions of the corridor's right-of-way and nine passenger rail operators and five freight rail operators rely on the corridor to move people and goods throughout the region.



Moves 628,000 passengers each weekday on over 2,000 trains





CONNECT 2040

CONNECT NEC is an ongoing collaborative planning process to identify—and as needed, update—the long-term vision for the NEC and the infrastructure investments required to achieve it. The plan documents progress being made toward that vision through funded investments, and further progress that could be made over the next fifteen years if additional funding were made available.

CONNECT NEC's cornerstone delivery analysis estimates the resources required to deliver the capital plan, including workforce levels, track outage needs, and service impacts. Its operations analysis identifies the extent to which planned infrastructure supports planned service levels and patterns.

This CONNECT NEC iteration, C40, is focused on tracking delivery of capital projects in construction, identifying near-term plans to continue to modernize the NEC, and documenting long-term investments needed to achieve the full NEC vision.

The Northeast Corridor Today

The NEC powers America's economy—connecting millions to jobs, cities, and opportunities

The NEC is the most heavily traveled passenger rail corridor in the western hemisphere and the only one in the country that supports intercity and commuter rail service at its scale. Two tracks under the Hudson River carry more people each day than the six-lane Lincoln Tunnel. Without the NEC, a twelve-lane tunnel would be required to accommodate today's intercity and commuter rail passengers. This critical transportation asset supports a workforce that contributes trillions of dollars annually to the U.S. economy.

Despite its significant role in regional mobility, today's NEC faces challenges with its aging infrastructure, fleet, and stations that limit its ability to deliver reliable services and offer a world-class passenger experience. Over time these challenges could reduce its attractiveness to customers who rely on the network for work and leisure travel.

The Northeast Corridor is essential to the economic prosperity of the nation

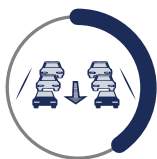


An unplanned, single-day NEC outage would cost the national economy over
\$170M
due to increased travel times and lost productivity

The cost of a shutdown has increased over the past decade given increased economic productivity and worsening congestion in the region, even while accounting for new ways of working and inflation



The region's highways and airports are already at capacity



4

of the 10 most congested highways in the U.S. are in the Northeast



88 hours

on average spent in congestion per year, per driver in the Northeast



38%

of the nation's flight delays originate from major airports in the Northeast

If the NEC ceased service for a day, accommodating its ridership would...



Require a

54%

increase in flights, far exceeding available air network capacity



Add more than

30 mins.

to daily commutes for over 120,000 drivers in the New York City region

The Economic Contribution of the Northeast Corridor to America

After reaching a pre-pandemic peak of approximately 900,000 daily trips, NEC ridership has been steadily increasing to 628,000 trips today. Despite the pandemic's impact on ridership, the NEC carries more passengers throughout the Northeast than all airlines combined within the region. As a core component of the region's transportation network, the NEC relieves pressure on northeast highways and airports, which are among the most congested in the nation. This congestion, along with the density of people and jobs in the region, drives strong demand for reliable and high-capacity passenger rail service.

Cities within the NEC generate a higher GDP than any other rail corridor in the world—surpassing those in Japan, China, Germany, or the United Kingdom. One in three Fortune 100 companies and six of the world's ten largest financial institutions are headquartered along the corridor. Companies such as Panasonic and Capital One have cited access to the NEC's intercity and commuter rail services as a decisive factor in choosing to locate on the corridor (in Newark, NJ, and Wilmington, DE, respectively).

The NEC also plays a vital role in the U.S.'s leisure and tourism economy by providing convenient, car-free access to major museums, historical sites, professional sports arenas and stadiums, and other entertainment venues. New York, Philadelphia, Washington, D.C., and Boston—four of the nation's largest cities—consistently rank among the top U.S. destinations for international travelers. **Three Northeast cities are among the 11 cities nationwide selected to host the 2026 FIFA World Cup**, a once-in-a-generation economic opportunity for the nation and region that coincides with America's 250th birthday. The NEC will play an integral role in transporting World Cup spectators and visitors to the games and between cities.

The scale of the corridor is such that NEC operations and on-going capital renewal work supports tens of thousands of jobs. On top of this, NEC construction activity to improve or renew major infrastructure assets creates good-paying construction jobs. With every \$100,000 invested in the corridor, two jobs are produced. **More broadly, studies have shown that every \$1 invested in rail produces \$4 of economic output** while every \$1 billion in investment creates 24,000 jobs. The next page highlights how specific C40 investments create jobs for blue-collar workers and support the revitalization of the manufacturing industry.

The role of freight on the Northeast Corridor



The NEC provides the primary connections for freight rail shippers in Maryland, Southern New Jersey, Harrisburg, PA, Long Island, NY, and the Port of Davisville, Rhode Island. The NEC is pivotal in both national and global supply chains due to its connection to East Coast ports and major inland distribution centers. Freight carriers depend on the reliability of the NEC and its national rail network connections for shipments of automobiles, lumber, plastic pellets, and other commodities.

In many areas, the volume of NEC freight activity has been steadily increasing to support local economies in the Northeast. For example, freight trains carrying crushed stone from a quarry in Connecticut have increased in recent years to meet growing demand for concrete in New York City and Long Island.

The NEC is a catalyst for regional and national economic growth by attracting businesses, creating jobs, and spurring manufacturing throughout the country.

Attracting
Businesses



Philadelphia's Schuylkill Yards project, a **\$3.5 billion development** adjacent to William H. Gray III 30th Street Station, has attracted several businesses citing the importance of locating their headquarters close to the NEC.

This development is expected to generate

10,000 & **40,000**
construction jobs permanent office jobs

Creating
Jobs



Mega-projects on the NEC are **creating tens of thousands of good-paying construction jobs**, and jobs in other industries that support this work directly and indirectly.

For example, when complete, the Portal North Bridge Project will have generated:

20,000 with **50%**
jobs nationwide of these jobs
in states outside of NY & NJ

Spurring
Manufacturing



Steel plants
supporting NEC Projects

Critical projects and maintenance work across the NEC rely on steel from manufacturers across the country - including those located in Alabama, Indiana, and Colorado.

Understanding the Corridor's Challenges

Despite its critical role in regional mobility, the NEC faces several interrelated challenges that limit its ability to deliver reliable services and attract new passengers. Overcoming these challenges requires sustained commitment, cooperation, and coordination among all NEC stakeholders, including infrastructure owners; service operators; federal, state, and local governments; and private sector partners.

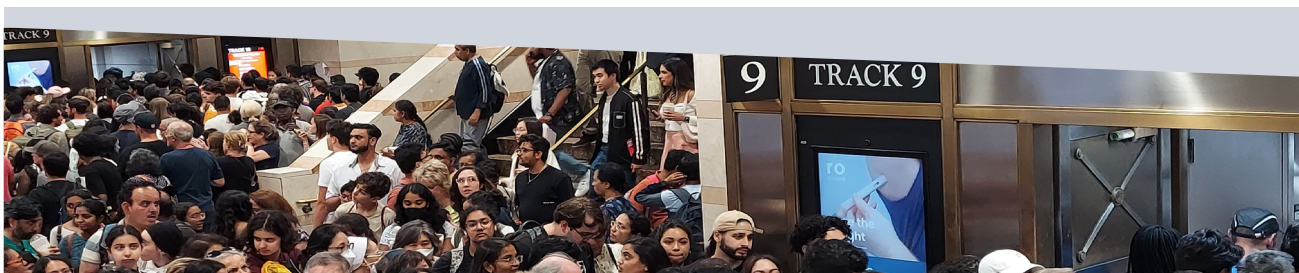
State-of-Good-Repair Backlog



The NEC state-of-good-repair (SOGR) backlog is the product of decades of underinvestment and deferred maintenance under private and public ownership. The SOGR backlog consists of “major backlog” assets (century-old major bridges and tunnels that require repair or replacement), currently valued at \$49B (over half of which is funded thanks to IIJA), and “basic infrastructure” assets (components of signal systems and electric traction power systems, track infrastructure, and undergrade bridges that have exceeded their useful life), currently valued at approximately \$40B.

NEC assets that are not in a state of good repair are prone to failure, malfunctioning, or otherwise not operating as intended—all of which contribute to delays and can result in cancelled trains. For example, ten intercity trains were delayed an average of three hours each on a single day in 2020 when the overhead catenary system on the Bush River Bridge could not be reconnected after opening for maritime traffic. As discussed further in Chapter 5, significantly reducing the SOGR backlog over the next several decades will require a massive and aggressive scale of capital investment, some of which is already underway.

Outdated Fleet and Station Amenities



As NEC observers readily point out, much of the fleet operating on the corridor today and most major stations are significantly outdated and lack modern-day amenities. Worse, aging and unreliable equipment frequently contributes to train delays and cancellations.

Although several fleet procurements and station redevelopment projects are in various stages of planning and execution, these projects are among the most complex and costly corridor investments—and in some cases, only minimally or partially funded. As demonstrated by Amtrak's Next Gen Acela trainsets, new fleet deployment is a years-long process, complicated by the fact that modern equipment is not readily compatible with some NEC legacy infrastructure.

In addition, several of the largest and busiest NEC stations—Washington Union Station, William H. Gray III 30th Street Station, and Baltimore Penn Station—are historic structures requiring careful planning and specialized contractors to perform construction work.

Reliability



Too frequently, NEC trains do not arrive at their destination on time and in some cases, are cancelled all together, posing significant reliability challenges and frustrating passengers. Delays and cancellations, such as those that occurred during the summer of 2024 for NJ TRANSIT and Amtrak passengers in northern New Jersey, erode public confidence in rail. With these repeated problems, travellers are less likely to see rail as a viable alternative to congested highways and airports.

NEC service disruptions can result from many causes, though most commonly they are associated with infrastructure, train congestion, and/or rail fleet issues. In fiscal year 2024, NEC passengers experienced 1.2 million minutes of delay (that is 833 days), with over half of those minutes from these three categories alone.

The economic cost of train and passenger delays is substantial. The Commission estimates that NEC service disruptions cost the region over \$1.1B annually in lost productivity. Addressing the NEC SOGR backlog, eliminating key chokepoints, and investing in new fleet will help stem these losses and restore valuable time to the traveling public.

Funding Paradigm



Large-scale NEC investments have long been stymied by the amount, stability, and structure of funding provided to NEC agencies, in particular Amtrak. For much of its history, Amtrak has relied on annual appropriations from Congress to fund NEC capital renewal of basic infrastructure and stand-alone capital projects.

Historically, Amtrak's annual appropriations have been unpredictable. With this funding paradigm, critical major capital projects were stalled and most received minimal life support funding each year to progress early planning and design work. Though annual appropriations have stabilized in recent years, they remain insufficient given the magnitude of the corridor's capital needs.

With the recent infusion of funding through IIJA, Amtrak and other NEC agencies are now progressing an unprecedented amount of major capital projects and capital renewal work simultaneously. However, once additional funding became available after decades of insufficient funding, it took Amtrak several years to ramp up workforce levels, upgrade legacy systems, and procure contractors and materials to support this historic scale of investment. Today, as a result of this ramp up, NEC investment levels are at record highs.

Establishing a predictable, consistent funding paradigm for the NEC would ensure that Amtrak and other agencies can avoid the pitfalls of unpredictable funding, and efficiently deliver the investments needed to provide world-class train service on the NEC.

The Vision for the Northeast Corridor

Reliable train service, world-class fleet and stations, and more and faster travel options

The foundation of this plan is a long-term vision for the NEC: a modern, resilient railroad that delivers a safe, reliable, and enjoyable travel experience. In this vision, today's challenges have been addressed, and this vital economic asset has been protected for future generations.

This vision can only be realized with significant operational, capital, and fleet investment, the majority of which will be underway in the next 15 years if funding were made available. However, given the significant funding needs for many of these investments, the exact timeline for realizing the full vision is not known. Nevertheless, agencies have already started to make progress through service enhancements, moving major backlog projects into construction, advancing other SOGR and stations projects into design, and engaging in planning for the remaining work. Given the various stages of development, elements of the vision will be realized incrementally as work is completed.

Elements of the Long-Term Vision



A Reliable and Safe Corridor

The NEC is in a state of good repair. There is minimal risk of major service disruption due to infrastructure and annual steady state investments are sufficient to keep the NEC in prime condition and prevent infrastructure owners from backsliding on state of good repair progress.

Passengers experience 50% fewer train delays compared with today thanks to infrastructure investment and new fleet.



World-Class Fleet and Stations

Passengers ride on new Acela and Airo trainsets that operate at higher speeds, accommodate more passengers, and improve the train travel experience. Diesel commuter trains have been replaced with electrified fleet, saving travel time for commuter rail passengers.

Outdated major stations have been upgraded and expanded where necessary to meet demand. Passengers now benefit from improved station flows with more intuitive wayfinding. They can also enjoy safer, cleaner, and more beautiful waiting areas and public spaces, along with expanded retail and dining options to suit a variety of traveler preferences. Passenger service growth has been accommodated at the busiest stations.



More and Faster Travel Options

Families and commuters have more connections to education and job opportunities in cities and surrounding areas thanks to 59% more daily commuter trains. Intercity travelers have more options with 72% more intercity trains, facilitating more business trips and leisure travel between cities.

Train schedules fit the needs of a modern workforce and support tourism with additional weekend and all-day service, with new service offerings in Connecticut, New York, Pennsylvania, Delaware, and Virginia.

Acela trips between New York and Boston and between New York and Washington are 3 hours and 15 minutes and 2 hours and 30 minutes, respectively, saving travelers 30 minutes between these major cities. Commuter rail trips are 17 minutes faster between Boston and Providence, 15 minutes faster between New Haven and New York, and 11 minutes faster between Baltimore and Washington.

How do we achieve the vision?

Achieving this vision will be a complex undertaking requiring interrelated improvements to realize the full potential of the corridor. For example, simply installing new tracks cannot optimize train performance without having a modern signal system in place to allow trains to run at high speeds. However, as demonstrated below, many investments—especially targeted basic infrastructure upgrades—advance the NEC toward more than one component of the future vision.

To create a reliable and safe corridor:



Replace signal systems

Eliminating wayside signals will protect against human error and allow trains to operate safely and reliably at higher speeds.



Rebuild aging bridges and tunnels

Replacing aging structures will prevent service disruptions, eliminate slow orders based on infrastructure conditions, and improve operational reliability across the corridor.



Upgrade traction power systems

Ensuring stable power delivery through electrical substation and other traction power supply improvements will reduce service interruptions.



Reduce operating conflicts

Upgrading tracks to segregate faster intercity trains from slower, local commuter trains and heavy freight services will reduce operating conflicts, improving reliability.



Improve station safety

Enhancing wayfinding within stations, creating passenger waiting areas that are more secure and inviting, improving station lighting, and installing state-of-the-art security cameras, will increase passenger safety.



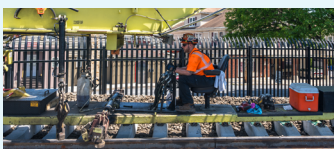
Replace aging fleet

Modernizing rail fleet will prevent common mechanical failures currently responsible for 18% of delays along the corridor.



Add right-of-way fencing

Adding continuous fencing along the entire right-of-way will improve safety and reduce delays by preventing the majority of trespasser strikes and track vandalism.



Renew tracks

Upgrading and replacing worn track systems, including rail, ties, fasteners, and switches along with roadbed improvements, will result in a smoother, more reliable ride.

To achieve a world class fleet and stations:



Deploy new and improved trains

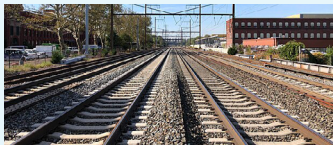
Deploying new fleets like NextGen Acela and Airo, and constructing the required maintenance facilities to support these new fleets, will boost passenger capacity and enhance rider experience.



Upgrade and modernize stations

Restoring historic structures and equipping stations with new amenities, improved designs, and modern features will improve passengers' travel experience and attract private investment.

To provide more and faster travel options:



Straighten track geometry

Reconfiguring tight curves in targeted locations into new alignments will allow trains to maintain higher speeds while reducing electrical energy demand and maintenance needs.



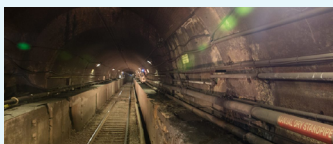
Eliminate slow zones

Upgrading infrastructure, especially major bridges and tunnels, to address capacity limits, poor condition, or tight geometry will reduce travel times and increase operating efficiency.



Optimize station tracks and passenger concourses

Optimizing station track and passenger concourse areas at major stations, such as Washington Union Station and New York Penn Station, will reduce dwell times, address passenger congestion, and accommodate passenger service growth.



Eliminate bottlenecks

Building new track in critical locations and reconfiguring interlockings will address areas with insufficient capacity to run more service, such as between Newark, NJ and New York.



Install modern signal systems

Installing new, modern signal systems will enable operators to run more frequent services at higher speeds.



Upgrade catenary

Upgrading historic sections of the NEC's catenary system to modern systems including independent registration and constant tension will allow for higher speeds.

The Vision in Practice

The following real-world examples illustrate what a reliable and safe corridor, world-class fleet and stations, and more and faster travel options will look like for everyday riders.



Who is Roberto?

Roberto runs a start-up in the cybersecurity industry in Boston. He regularly travels to New York City to meet and pitch various investors to grow his company. The ability to meet with his potential investors in-person is a critical need for his company.

Roberto's Travel Before the Long-Term Vision

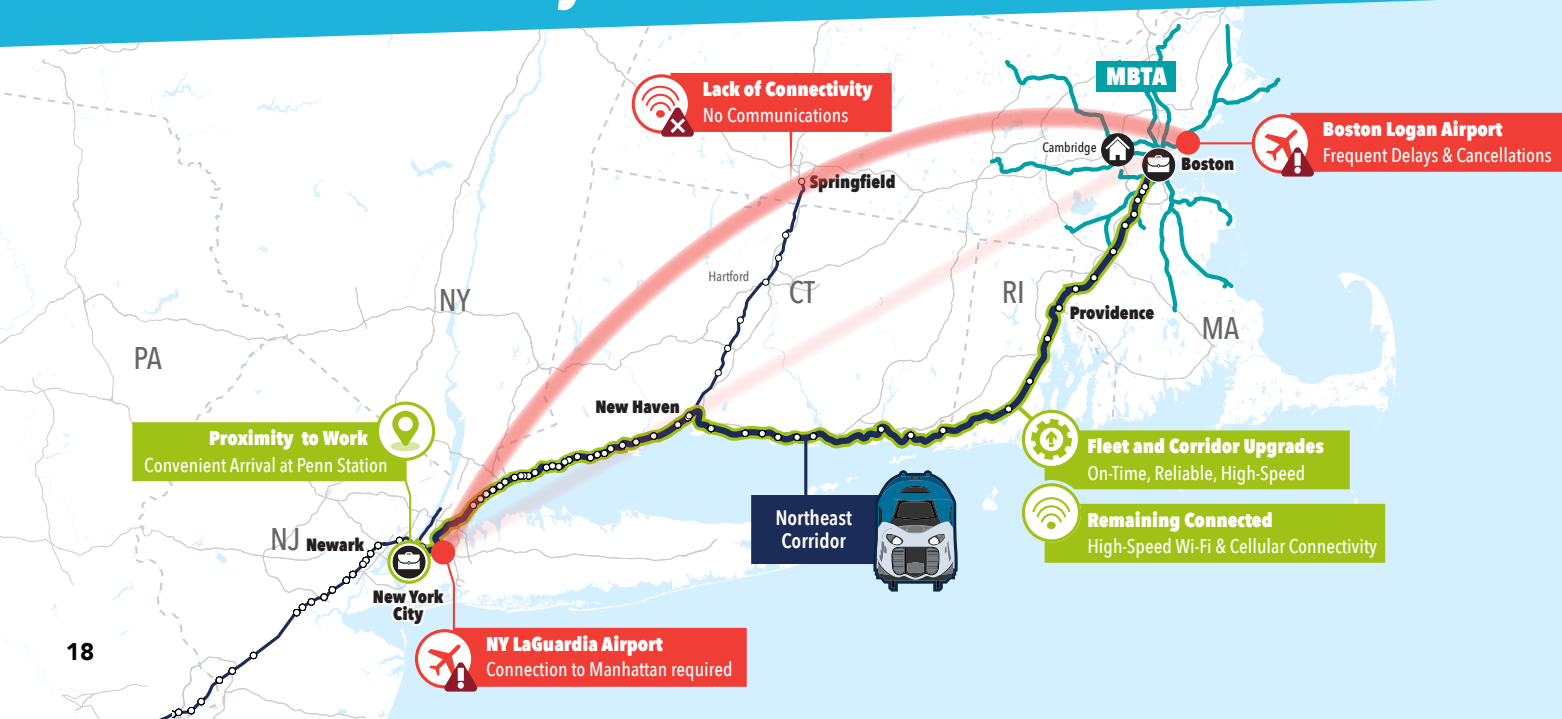
When traveling to New York, Roberto wakes up in the morning at 6am. He can get to the airport by 7:30am to catch a flight into La Guardia airport. Due to security and time to travel into the city, he is only able to work - without Wi-Fi or the ability to make calls - for about 30 minutes on the plane to prepare for his investor meetings. If he's lucky and his flight isn't delayed (which it often is), he's able to make his first meeting at 12:00pm, before meeting three prospective investors throughout the day. Roberto finishes his last meeting at 4:00pm, before traveling outside of the city to the airport with enough time to get through security, flying back to Boston, and arriving home at 9:30pm.

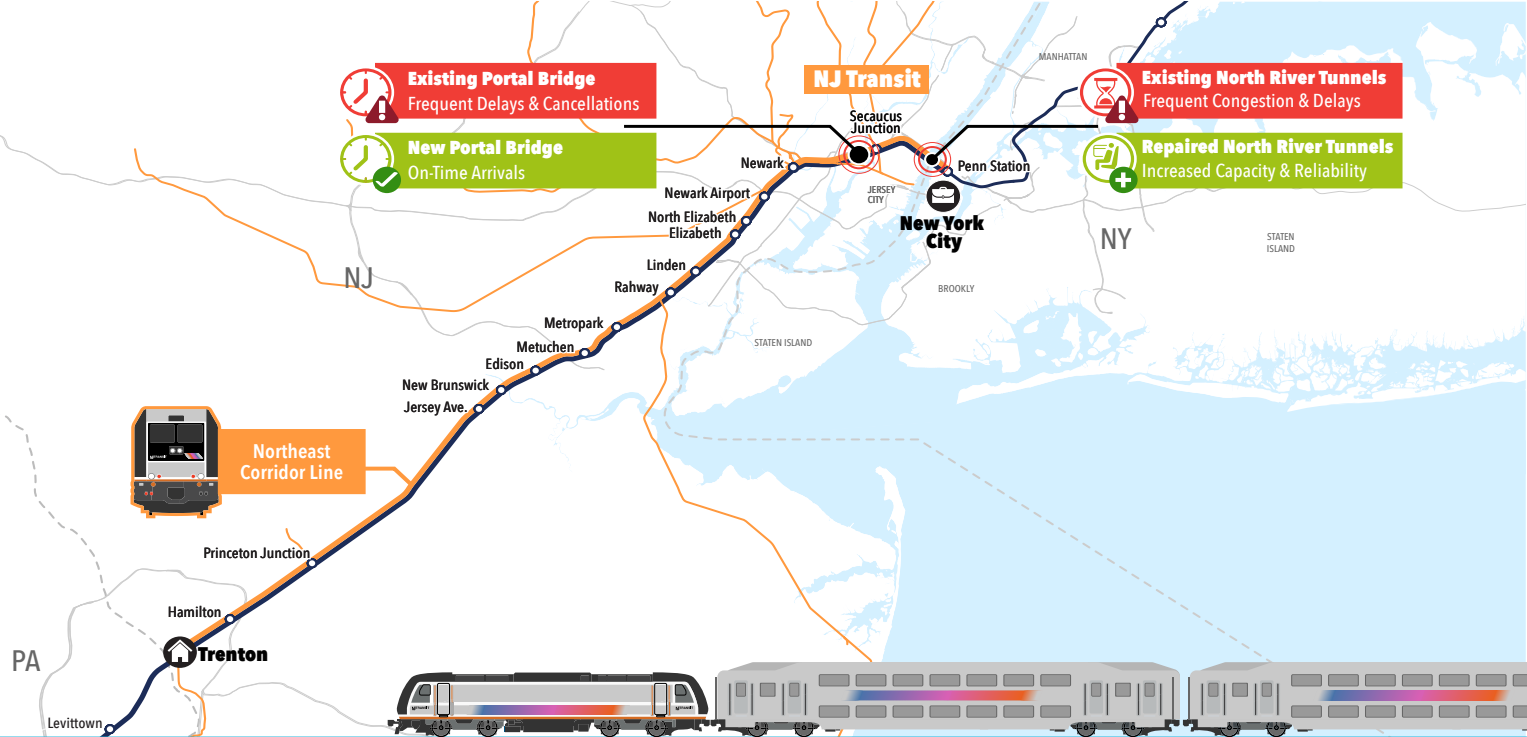
How Roberto Benefits from Implementation of the Long-Term Vision

With the NextGen Acela and upgrades to the NEC, Roberto is now able to meet with the investors throughout the day while having more time to spend at home. He wakes up in the morning at 6am, gets work done on the train due to the train's high-speed Internet, and is now able to make his first meeting by 11:00am. He is still able to meet the same number of investors throughout his day in New York, before catching an early train and arriving back home in time for dinner with his family by 7:30pm. Because of investments in a new train fleet and upgrades to track infrastructure, Roberto is able to get more work done on the train and save two hours of travel time per work trip.



Roberto's Journey





Anne's Journey



Who is Anne?

Anne works as a social worker in Manhattan while supporting her two children in elementary school. She lives in Trenton, New Jersey, as she is unable to afford rent in New York City. Her job requires her to travel to work every day, and she cannot afford to pay for parking in New York nor waste time in traffic. Therefore, she is reliant on the NJ TRANSIT Northeast Corridor Line to travel into work and maintain her employment.

Anne's Commute Before the Long-Term Vision

Between March and September 2024, seven train cancellations and delays left Anne repeatedly arriving late into work because of electrical system failures and bridge outages. While her manager gave her a warning after the first incident, repeated lateness resulted in deducted pay. When the Portal Bridge was stuck open for several hours, Anne ended up missing a day's work and lost a full day's pay. Normally, Anne's commute is reliable when the trains are running on schedule, but these disruptions have had a significant impact on her work life.

How Anne Benefits from Implementation of the Long-Term Vision

With the new Portal North Bridge and infrastructure renewals along this section of the corridor, Anne now can trust that she will be able to commute to work on-time every day. She is able to maintain her employment, no longer receives docked pay, and is able to use the extra money to support her children's education. Projects like the Gateway: Portal North Bridge project are expected to reduce delays across the corridor by up to 50%, allowing riders to depend on timely arrivals, smoother journeys, and a rail experience that meets the expectations of today's travelers.

Building a Modern Corridor

Implementing the long-term vision for the Northeast Corridor

C40 identifies the work planned over the next 15 years to advance toward the NEC vision. Importantly, this work is at various stages of development due to project sequencing, workforce availability (construction and design), and funding status.

As a result of an influx of federal funding from IIJA, an unprecedented amount of active, fully funded work is now under construction. Agencies are also planning, developing, and designing projects to address overdue SOGR and station upgrades, creating a pipeline of work to continue advancing toward a better future for the NEC. Even with this new era of investment, significant work remains to scope and plan investments needed to realize the full vision. The following pages highlight examples of investments in various stages of completion (construction, development/design, and conceptual planning) that are critical to realizing the long-term vision for the NEC.

C40 Investment Status



Shovels in the Ground

Projects fully funded for construction and/or construction underway



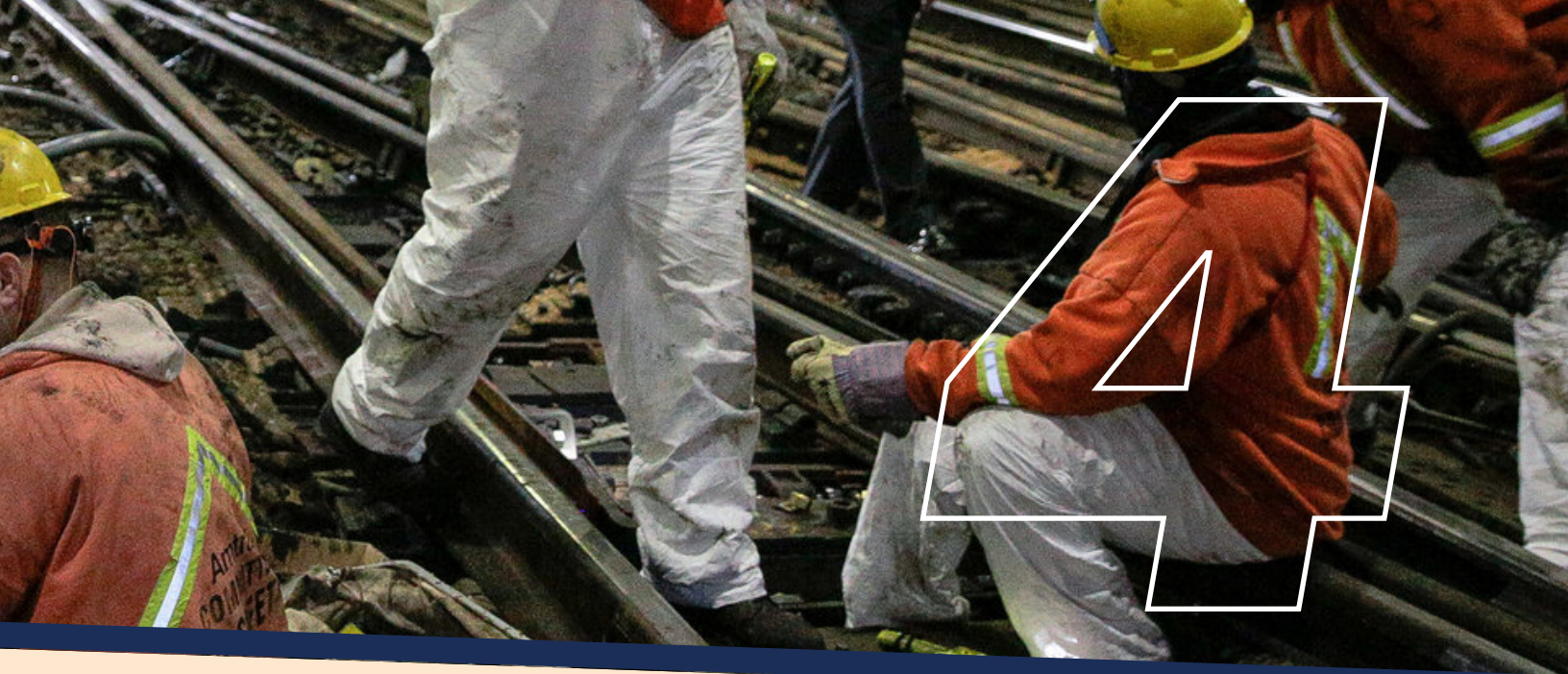
Designing an Upgraded NEC

Projects partially funded for construction and/or actively in design, development, or planning



Focusing on the Future

Unfunded projects essential to delivering the long-term vision



The importance of capital renewal programs

Through capital renewal programs, agencies repair or replace basic infrastructure assets—such as rail, ties, undergrade bridges, and catenary wire—that are reaching the end of their useful life or no longer functioning as intended. This ongoing, essential work supports reliable and safe train operations and helps prevent slow orders and ride quality issues that can negatively affect passengers’ travel experiences. Some capital renewal work is performed as part of large-scale, highly efficient operations, such as Amtrak’s track laying system, which can replace up to half a mile of track in a single shift (that is, replacing over 1,300 ties). Right-of-way owners fund a significant portion of their annual capital renewal programs through baseline capital charges paid by operators in accordance with the Commission’s Cost Allocation Policy. If other consistent funding sources can be identified for capital renewal programs, agencies could more quickly make progress in eliminating the basic infrastructure state of good repair backlog (see page 28 for further discussion on long-term programmatic capital renewal needs).



C40 Investments

The projects in C40 span the entire corridor, with active construction in every region, often visible to travelers from the train. Meanwhile, agencies are moving forward to define subsequent phases of work. Amtrak, state, and federal partners are planning work of historic scale and complexity which will create over 900,000 jobs in the process. The level of investment and collaboration among NEC agencies is unprecedented, as they work collectively to modernize infrastructure and enhance services for their customers.



More than 300 projects are in various stages of implementation to advance the corridor toward a state-of-good-repair and its long-term vision.



**Harrisburg Line:
Villa-Bryn
Mawr Project**

Harrisburg



**Bush River Bridge
Replacement
Program**

Lancaster



**Mid-Atlantic South
Signal System
Upgrades**

Baltimore

Washington D.C.

Newark

NJ

PA

Trenton

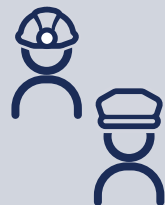
Philadelphia

Wilmington

MD

DE

VA



C40 investments will spur economic growth and create over 900,000 jobs in hundreds of communities across the region and the country.



Shovels in the Ground: Construction Underway

Through recent federal investment, many major projects are now fully funded with construction underway. 118 of the over 300 C40 projects are currently under construction and/or fully funded, including 25 projects with construction funding through the FSP program. Once complete, half of the NEC’s major backlog will be eliminated. Additionally, these 118 projects will reduce minutes of delay by up to 8% and enable new service destinations. The following highlights feature major projects currently under construction.



Connecticut River Bridge Replacement

Scope: This project will replace the existing 118-year old deteriorated bridge just east of New London, CT with a resilient two-track bridge structure.

Cost: \$1.5B **Completion Date:** October 2030 **Sponsor:** Amtrak

Outcomes: Increased maximum train operating speed, improved maritime navigation and safety, and increased reliability



Walk Bridge Replacement

Scope: The existing bridge, built in 1896, will be replaced by a new bridge with two movable spans carrying two tracks each which can be operated individually in the event of a track outage.

Cost: \$1.7B **Completion Date:** May 2030 **Sponsor:** Connecticut DOT

Outcomes: Improved reliability and safety while maintaining maritime navigation and operations



Penn Station Access

Scope: This project will provide a new Metro-North New Haven Line service to Penn Station NY, improve Amtrak’s Hell Gate Line towards a state-of-good-repair, and construct four new stations in the Bronx.

Cost: \$2.9B **Completion Date:** November 2027 **Sponsor:** MTA

Outcomes: Improved reliability for Amtrak while enabling new Metro-North service



East River Tunnel Rehabilitation Project

Scope: The existing century-old tunnels have reached the end of their useful lives and must be completely rehabilitated for another 100 years of service.

Cost: \$1.6B

Completion Date: May 2027

Sponsor: Amtrak

Outcomes: Improved safety, reliability, and security



Gateway: Hudson Tunnel Project

Scope: This project will construct a new two-track rail tunnel beneath the Hudson River, and then rehabilitate and modernize the existing 117-year old two-track North River Tunnel.

Cost: \$16B

Completion Date: June 2038

Sponsor: Gateway Development Commission

Outcomes: Increased reliability, removal of major capacity constraints, additional operational redundancy and flexibility for rail operators



Gateway: Portal North Bridge Project

Scope: The project will result in a new, two-track fixed-structure railroad bridge across the Hackensack River to replace the existing, century-old swing-span Portal Bridge.

Cost: \$2.4B

Completion Date: October 2027

Sponsor: NJ TRANSIT

Outcomes: Improved reliability, reduced maintenance and operating costs, increased capacity by over 14%, and increased speeds from 60 mph up to 90 mph



Baltimore & Potomac Tunnel Replacement Program

Scope: The program of projects includes a new tunnel which replaces the existing civil war era Baltimore and Potomac (B&P) Tunnel, track improvements, and improved tunnel approaches.

Cost: \$6B

Completion Date: April 2036

Sponsor: Amtrak

Outcomes: Increased speeds from 30 mph up to 100 mph, minimized operational conflicts, and increased throughput capacity



Designing an Upgraded Northeast Corridor: On-going Planning, Development, and Design

86 of the over 300 ongoing projects are partially funded for development or design work but need additional investment to progress all the way to completion. From modernizing century-old catenary systems to reconfiguring legacy stations, these investments would improve speeds and reliability while enhancing service quality and passengers' experience. Transformative work is underway but the full benefits of projects already in construction cannot be realized without also completing the projects currently in planning, development, or design phases.

Capital Renewal

With 37 capital renewal projects partially funded or under planning, development, or design, these projects will ensure safety and reliability for hundreds of thousands of daily passengers.

Massachusetts & Rhode Island



Improvements to pedestrian access through the State Street Crossing Improvement Project will enhance safety and connectivity between Riverfront Park and its amenities west of the Amtrak right-of-way in Springfield, MA, while projects like the Canton Junction Drainage Improvements will upgrade drainage infrastructure and track undercutting to reduce flooding impacts and improve reliability along this segment.

Projects to renew undergrade bridges like the 136-year old Pawcatuck River bridge will improve reliability, while the Westerly Station Platform Replacement project will repair the existing platform and install a 50 foot long high-level boarding assists system, creating a safer and more accessible experience for passengers. Signal systems replacements, which coincide with end-of-life for the old system, will improve capacity, speed, and reliability.

New York & New Jersey



Programs such as the New York Metro Signal System Upgrades to 562 Program (Phase 1 and 2) target the modernization of signal systems currently limiting operational efficiency and reliability across the region. Phase 1 of this comprehensive overhaul project will address the section between New Brunswick and Elizabeth, NJ and is currently in the design phase.

The aging overhead catenary system in New Jersey, much of it dating to the 1930s, is increasingly prone to failure. Several projects underway will progressively renew the overhead catenary system that has reached the end of its useful life, such as the section of catenary structures between Princeton Junction and Trenton and between New Brunswick and Newark. These projects, in construction and early development phases respectively, will replace outdated infrastructure with modern catenary structures, improving service reliability and compliance with current standards.

Maryland



The antiquated signal system on the south end of the NEC creates an operational bottleneck. The Mid-Atlantic South Signal System Upgrades to 562 Program will sequentially replace trackside and in-cab signals with a more modern and maintainable system that uses only in-cab signals to support increased capacity and higher train speeds. While construction is underway, additional design work is required to complete the project, as it is divided into sequential geographic components.



Major Backlog: Next Steps

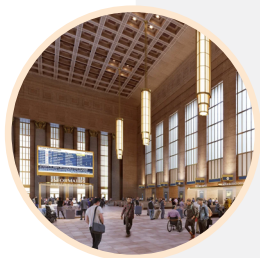
While there are a historic number of major backlog projects under construction (eight projects are fully funded), completely bringing the corridor to a state-of-good-repair will take significant effort over decades, including continuing to advance major backlog projects currently in development or design stages.

Gateway: Sawtooth Bridges Replacement Project will replace two Amtrak bridges and introduce two additional tracks at a complex interchange in Kearny, New Jersey, collectively referred to as the “Sawtooth Bridges”. The project will also renew the surrounding 1.9-mile long segment of the corridor, as well as increase speeds from 60 mph up to 90 mph

Pelham Bay Bridge Replacement Project will replace the century-old movable Pelham Bay Bridge over the Hutchinson River in the Bronx NY, along with new approaches, will feature new track, signals, catenary, and power, communication, and security systems, as well as increase speeds from 45 mph up to 70 mph

Saugatuck River Bridge (TIME-4) and Devon Bridge Replacement Projects will replace the aging movable bridges in Westport and Stratford, Connecticut built in 1905 and 1911 respectively. These projects will improve safety, reliability, and maximum authorized speeds.

Bush River Bridge and Gunpowder River Bridge Replacement Program will replace two of Amtrak’s century-old Maryland bridges and approaches, enable higher operating speeds, and reduce delay from the recurring need to open the Bush River Bridge to maritime traffic.



Station Improvements

NEC agencies are progressing over 30 station improvement projects essential to enhancing passenger experience, accessibility, and operational efficiency, such as streamlining train movements and accommodating increased ridership.

Improving the Passenger Experience across the Corridor

Investments across the Northeast Corridor will transform major stations to enhance the passenger experience. At **Washington Union Station**, the Station Expansion Project will improve rail facilities and expand concourse capacity to strengthen connections with Amtrak services. The **William H. Gray III 30th Street Station Redevelopment** will increase terminal and layover rail capacity to meet current and future high-speed, intercity, regional, and urban rail service needs. In New York, significant work on **Penn Station** will modernize infrastructure, accommodate passenger service growth, improve accessibility, and enhance comfort, safety, and the overall experience for travelers.



Focusing on the Future: Concept Identified

“Focusing on the Future” refers to those unfunded projects essential to delivering the Northeast Corridor’s long-term vision. These projects are in the earliest stages of conceptual planning. C40 analysis accounts for these investments to support workforce planning and strategy for NEC operators. While not yet shovel-ready or funded for formal planning, development, or design, they represent the next generation of transformative investment—ensuring the corridor can grow with demand and meet future service goals while also sustaining a skilled labor pipeline for decades to come. The following page highlights key initiatives and system improvements that will enhance corridor wide capacity, complete major backlog, and prioritize programmatic capital renewal.



Long-term capital renewal needs

Long-term capital renewal needs to address the basic infrastructure backlog are significant, and if unaddressed pose a real risk to operational performance and NEC reliability. Today, owners plan in detail for near-term programmatic capital renewal, particularly in the upcoming year as this work tends to require significant track outage coordination. This near-term planning also relies heavily on annual funding levels that may fluctuate, particularly for Amtrak. To address the state-of-good-repair backlog, long-term capital renewal plans must incorporate additional work well above today’s investment levels. Owners’ ability to plan for and implement this additional capital renewal work hinges significantly on future funding availability and consistency (see Chapter 5 for further discussion).

For this plan, the Commission completed an analysis to identify a range of long-term capital renewal work that could be undertaken in the next fifteen years based on asset needs, including the age or condition of undergrade bridges, rail, catenary systems, ballast, and other assets not already being addressed through scoped projects. This plan assumes as much SOGR work as is reasonable (based on resource requirements) will be delivered through capital renewal programs in the out-years of the plan. In reality, the actual levels of programmatic investment will take shape based on future funding availability and whether some of these needs are scoped into future projects.

Example potential future capital renewal projects include:

- Replacing rail and ties at South Station to enhance operational reliability
- Completing the continual replacement of the New Haven Line’s aging bridges and signals
- Modernizing remaining signal systems such as the area between Trenton and North Philadelphia to improve reliability, trip times, and service frequency
- Replacing century-old overhead catenary systems not currently included in project scopes underway such as in the section between Paoli and Thorndale in Pennsylvania



Complete major backlog

The two major backlog projects which are not currently funded for construction, development, or design are the Gateway: Highline Renewal and State of Good Repair in New Jersey and the Cos Cob Bridge Replacement in Connecticut. The Highline Renewal and state-of-good-repair project, also a final step of the Gateway program, will bring existing infrastructure between Newark, NJ and New York Penn Station to a world-class standard, in line with the rest of the completed Gateway projects. The existing Cos Cob Bridge over the Mianus River was constructed in 1904 and is nearing the end of its useful life. The Cos Cob Bridge Replacement Project will replace the busiest movable bridge on the New Haven Line, and is currently in preliminary planning.



Investing in more capacity and faster trip times

To meet growing demand and realize the vision for a world-class Northeast Corridor, NEC agencies are planning a series of capacity-enhancing projects that address critical bottlenecks and enable faster, more frequent, and reliable service.

Examples include:

- Traction power upgrades are needed between Boston and Providence to support MBTA electrification and increased NEC train volumes in the future without compromising reliability.
- An upgrade to the current power supply will likely be required to support increasing Amtrak service between New London and New Haven.
- To unlock the full capacity benefits of the four rail tunnels provided through the Hudson Tunnel Project, additional investments such as a second new bridge over the Hackensack River, known as Portal South Bridge, will be required.
- A new connection for westbound trains from the NJ TRANSIT Hoboken Terminal to the NEC will be necessary to address another longstanding chokepoint on the corridor and improve rail service options between New Jersey and Manhattan. In addition, the Hunter Flyover project will provide additional chokepoint relief benefits south of Newark Penn Station by constructing an elevated viaduct structure to allow for NJ TRANSIT's Newark-bound Line trains to cross over and above the NEC to continue towards Newark.
- A reconfiguration of Paul Interlocking will be required to support increased capacity, improve maintainability, and enhance ride quality for trains operating around the Baltimore Penn Station area.
- Advancing planning concepts into design and construction for projects such as the Frankford Junction Improvement Project, are needed to enable faster speeds and reduce trip times for Amtrak trains traveling through the Philadelphia region.

Bringing it All Together

As demonstrated on the previous pages, each of the over 300 projects under construction, in active development, or planned for the future will provide inherent benefits to NEC riders and make incremental progress toward to NEC long-term vision. Importantly, it is often combinations of projects that make the most transformative improvements for the corridor, the region, and the country. Below are examples of project combinations that will improve safety and reliability, deliver world-class fleet and stations, and provide more and faster travel options for passengers.

MA

New Fleet and Connections in New England

A suite of projects led by the MBTA will modernize regional rail service in the Boston metro area. New yards, maintenance buildings, traction power, a third track between Readville and Canton Junction, and improved interlockings will expand capacity and improve reliability, while simultaneously overhauling the onboard customer experience. Through these investments, MBTA riders will experience faster trip times and all-day service representing a 135% increase versus today's service levels.

What Projects are Needed?



Shovels in the Ground

- Tower 1 and Cove Interlocking Improvements



Designing an Upgraded NEC

- Boston South Station Expansion



Focusing on the Future

- Readville to Canton Junction - Third Track Improvements
- Widett Layover Facility
- Cove to Canton Junction - High Capacity Signaling Improvements
- Boston to Providence - Traction Power Upgrades
- New England Signal System Upgrades to 562 Project



A Reliable and Safe Corridor



World Class Fleet and Stations

MA

CT

Enhanced Service between Hartford and Springfield

Adding a second track to the Springfield Line, which runs from New Haven, CT, to Springfield, MA, will enable significantly enhanced intercity service on this branch line including 80% more trains per day. Connecticut's Hartford Line service will also grow by 50% providing additional travel to more passengers through a joint ticketing program with Amtrak.

What Projects are Needed?



Shovels in the Ground

- Windsor Locks Station
- Enfield Station



Designing an Upgraded NEC

- New Haven Union Station Improvements
- Hartford Rail Line Program: Phase 3B Double Track



Focusing on the Future

- Springfield Station MA New High Level Platform
- Springfield Line: Connecticut River Crossing Improvements
- North Haven Station
- Newington Station
- West Hartford Station
- Hartford Station Relocation
- Windsor Station



More and Faster Travel Options



World Class Fleet and Stations



Reliability & Mobility Upgrades in New York and New Jersey

Several major projects in the New York region will improve service and advance the NEC towards a state of good repair by replacing aging infrastructure nearing the end of its design life and building new connections on the existing right-of-way. These projects will work together to create an upgraded level of mobility for customers throughout New Jersey, New York, and Connecticut including the addition of four new Metro-North stations in the Bronx.

What Projects are Needed?



Shovels in the Ground

- Gateway: Hudson Tunnel Project
- East River Tunnel Rehabilitation
- Penn Station Access
- Gateway: Portal North Bridge
- Gateway: Dock Bridge Rehabilitation Project



Designing an Upgraded NEC

- Gateway: Sawtooth Bridges Replacement Project
- Pelham Bay Bridge Replacement Project
- New York Penn Station Transformation
- Gateway: Newark to Harrison Systems Modernization Project



Focusing on the Future

- Gateway: Portal South Bridge



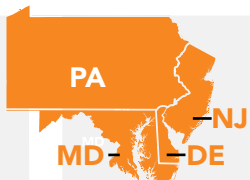
A Reliable and Safe Corridor



More and Faster Travel Options



World Class Fleet and Stations



Faster Trips & Fewer Delays on the NEC South End

Major projects between New York and Washington, such as the B&P Tunnel, include the replacement of legacy NEC corridor signal and electric traction systems to unlock capacity, reliability, and speed, ultimately allowing for more trains to reach even more people, faster. The new signal system architecture eliminates most maintenance-intensive trackside signals, promoting efficiency and increasing service reliability for Amtrak, NJ TRANSIT, SEPTA, and MARC. The new signal system will join similar service-proven installations on the New Haven Line between New Rochelle and New Haven, as well as on the NEC to Boston.

What Projects are Needed?



Shovels in the Ground

- Baltimore and Potomac Tunnel Replacement Program, West Baltimore to Baltimore, MD
- Mid-Atlantic South Signal System Upgrades to 562



Designing an Upgraded NEC

- N.Y. Metro Signal System Upgrades New Brunswick to Elizabeth, NJ



Focusing on the Future

- Gateway: Newark to Harrison Systems Modernization Project
- N.Y. Metro Signal System Upgrades Holmesburg, PA to Trenton, NJ



A Reliable and Safe Corridor



More and Faster Travel Options

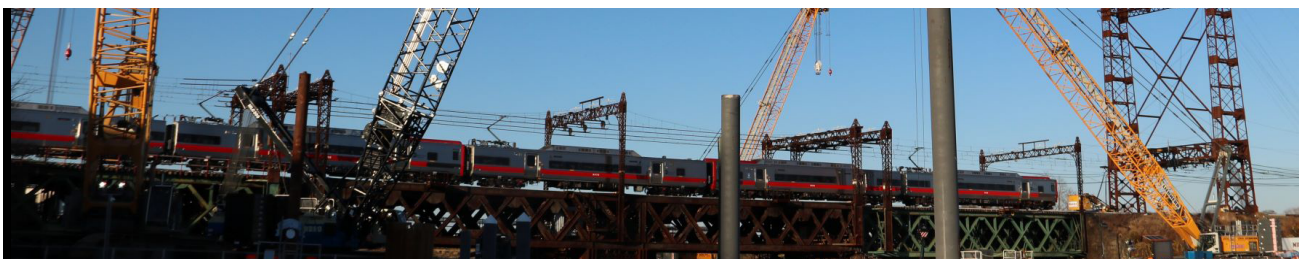


Advancing the Plan

Reliable funding will help unlock the full potential of the Northeast Corridor.

Achieving the long-term vision outlined in this plan—including completing on-going projects that have additional funding needs—hinges on the corridor’s ability to secure predictable and reliable federal funding. Predictable federal funding allows project sponsors to move projects through development, final design, and construction efficiently and effectively. Importantly, it provides railroads the confidence needed to hire, train, and retain the workforce necessary to advance their capital programs and ensures the private sector is positioned to support the planned scale of investment. **When funding for NEC infrastructure projects isn’t available—or arrives unpredictably—costs inevitably rise, and inefficiencies inevitably increase due to project delays and the maintenance needs of aging infrastructure.** Further, NEC agencies risk under-utilizing the significant resource investments they have made in recent years to right size their workforces, upgrade legacy systems, and procure contractors and materials to support today’s historic investment levels.

While shifting the NEC’s funding paradigm from relying on annual appropriations to leveraging a predictable, multi-year funding stream would position the corridor for long-term stability and success, the Commission recognizes that traditional funding mechanisms alone are insufficient to meet the scale and urgency of NEC capital investment needs identified in this plan. As such, Commission stakeholders are actively pursuing a range of funding sources and financing tools—including federal grants, low-interest loans, public-private partnerships, and new or expanded revenue-generating opportunities—to close funding gaps and accelerate delivery of the C40 program.





Effective planning and coordination for key resources—such as workforce, track outages, equipment, and materials—requires multi-year funding certainty.

Workforce

Having an appropriately-sized and skilled workforce is essential to delivering projects on-time and on-budget while ensuring critical railroad maintenance and operations work can continue uninterrupted. This includes agencies' in-house maintenance and construction workers (i.e., force account employees), management employees (i.e., engineers, project managers, procurement specialists), as well as external contractor support. Certain force account positions—such as Electric Traction (ET) linemen, signal maintainers, and track foremen—take several years to hire and train. Furthermore, private sector firms, such as design and construction contractors, materials suppliers, and equipment manufacturers, may require time to right-size their workforce and operations to meet demand.

Track Outage & Schedule Coordination

Executing an ambitious capital program such as C40 cannot occur without some impact to passengers and train service given the amount of construction taking place along the busy right-of-way and in stations. However, carefully coordinated, multi-year track outage plans that balance train service and outage needs can minimize impacts to passengers, maximize the amount of work taking place within outage locations, and provide operators sufficient time to adjust and optimize their service plans and train schedules.

Specialized Equipment & Construction Materials

Performing work along the right-of-way and in stations almost always requires specialized equipment—ranging from large-scale units, such as track laying and undercutting machines, to smaller units, such as catenary and track inspection cars. Procuring new specialized equipment can take several years, in addition to the time needed to hire and train equipment operators. With sufficient levels of equipment in circulation, agencies can accomplish more work and perform more equipment maintenance, which can help extend the useful life of these crucial machines. Likewise, some construction materials, such as track switches and signal structures, are long lead items that must be ordered years in advance from a small number of domestic manufacturers.

Costs & Near-term Funding Needs

The C40 plan, if fully implemented, will transform the Northeast Corridor and the travel experience of its 200+ million (and growing) annual passengers. Based on current schedule assumptions, the plan costs an estimated \$120 billion in 2025 dollars—or \$163 billion in year-of-expenditure dollars over the next fifteen years to substantially address aging infrastructure, improve service reliability, and meet future demand and service goals. While this investment is critical to advancing the corridor’s long-range vision, the immediate focus is on securing approximately \$34 billion from a variety of funding sources between FY26 and FY30, as shown in the table below.

Five-Year Funding Needs for the Northeast Corridor

	State	FY26-30 Funding Need	Phase Requiring Funding
Projects Total		\$27,920 M	
Major Backlog Total		\$9,905 M	
Devon Bridge Replacement	CT	\$2,752 M	Construction
Gunpowder River Bridge Replacement Program	MD	\$2,408 M	Construction
Bush River Bridge Replacement Program	MD	\$1,920 M	Construction
Sawtooth Bridges Replacement Project	NJ	\$1,542 M	Construction
Other Major Backlog		\$1,283 M	
Capital Renewal Total		\$8,637 M	
TIME-1 (Bridgeport area)	CT	\$1,374 M	Construction
TIME-5 (Greenwich - NY State)	CT, NY	\$1,271 M	Construction
Mid-Atlantic OCS Replacement Program Phase 2: Brill to Landlith	PA, DE	\$1,089 M	Construction
Mid-Atlantic OCS Replacement Program Phase 1: Zoo to Paoli	PA	\$545 M	Construction
Other Capital Renewal		\$4,357 M	
Improvement Total		\$5,650 M	
Hunter Flyover	NJ	\$752 M	Construction
South-Side Maintenance and Layover Facility	MA	\$730 M	Construction
Stamford Yard Catenary Improvement	CT	\$515 M	Construction
BWI 4th Track Phase 1	MD	\$442 M	Construction
Other Improvement		\$3,212 M	
Stations Total		\$3,727 M	
New York Penn Station Transformation	NY	TBD	Construction
Washington Union Station: Station Expansion Project	D.C.	TBD	Construction
William H. Gray III 30th Street Station Redevelopment	PA	\$540 M	Construction
South Station Expansion	MA	\$500 M	Pre-construction
Other Stations		\$2,688 M	
Capital Renewal Programs Total		\$6,400 M	
Grand Total		\$34,320 M	

Table notes: Totals do not include two major stations with currently undetermined funding needs in the next five years (shown as TBD). Funding needs account for previously awarded funding sources, but this table does not make assumptions on FY26-30 funding levels from existing sources including baseline capital charges, Amtrak appropriations, unawarded FY25-26 Federal-State Partnership for Intercity Passenger Rail Program funds, or potential new FSP funding. Numbers may not sum due to rounding.

NEC Funding Sources: A Collaborative Approach to Funding the Vision

Federal-State Partnership



The **Federal-State Partnership for Intercity Passenger Rail Program (FSP)** provides funding for capital projects that reduce the SOGR backlog, improve performance, and/or expand or establish new intercity passenger rail service. Through IIJA, Congress substantially increased FSP funding and since FY22 has awarded nearly \$18 billion to 39 projects on the NEC. Through the use of advance appropriations and phased funding agreements, this program provides project sponsors the multi-year funding certainty needed to efficiently and effectively move major capital projects through design and construction.

Federal Grants & Loans



NEC infrastructure investment is an eligible activity under a variety of **federal competitive grants, formula funding, and loan programs** to which agencies may apply for funding, including:

Federal Transit Administration (FTA) Sec. 5309 Capital Investment Grants

FTA Sec. 5307 Urbanized Area Formula Funding Program

Federal Railroad Administration (FRA) Railroad Rehabilitation & Improvement Financing (RRIF) Program

USDOT Transportation Infrastructure Finance and Innovation Act (TIFIA) program

Amtrak's Appropriations



Funding for **Amtrak's NEC and National Network Accounts** is provided by Congress, typically as part of the annual appropriations process. All funding provided to the NEC Account is invested in NEC infrastructure and other NEC needs like rolling stock, while a portion of funding for the National Network account is invested in the NEC's connecting corridors.

Operator Payments



Baseline Capital Charges (BCCs) are annual payments from NEC passenger rail operators to NEC infrastructure owners that fund a significant share of owners' annual capital renewal programs. BCCs are calculated based on a standardized methodology reflecting operators' relative use of NEC infrastructure and the estimated annual cost to sustain the NEC in a state of good repair, as agreed to in the Cost Allocation Policy.

State & Agency Revenues



When Amtrak's NEC services generate an operating surplus, such as the \$237M generated in FY24, Amtrak reinvests these funds back into corridor infrastructure and other NEC needs like rolling stock. **Each NEC state and transit agency has its own funding sources** that fund transportation investments, local matches for federal grants, and annual BCC and operating payments made through the Cost Allocation Policy. In addition, leased assets, such as rolling stock and stations, maintenance and service contracts, and other real estate holdings generate revenue for some NEC agencies.

Private Investment



As the nation's preeminent rail corridor, the NEC is ripe for private investment, including through **public private partnerships (P3s)** and the joint development of publicly owned assets. Beyond attracting upfront capital investment in stations and rail infrastructure, some P3 arrangements provide an ongoing funding source by investing a portion of the revenue generated back into rail and transit systems.

To reach the overall vision, time, efficiency, and cost are all trade-offs

As noted in Chapter 3, the exact timeline for realizing the full C40 vision is not known given the significant funding needs for many of these investments. What is known, however, is that higher levels of sustained investment would allow NEC stakeholders to reach the long-term vision sooner and with greater efficiencies than lower levels of investment, especially if those lower levels are unpredictable year-to-year.

Looking at various basic infrastructure SOGR backlog reduction scenarios can help illustrate the trade-offs involved in NEC investment decisions. Based on the Commission's analysis, if annual capital renewal investment levels were gradually ramped up to approximately \$4B and then sustained at those levels increasing for inflation, today's basic infrastructure backlog could be addressed by 2050 at a total cost of approximately \$150B (in year-of-expenditure dollars). Alternatively, if annual SOGR investment is held constant based on today's levels (\$1B) and increased only for inflation, it would take another 50 years beyond 2050 to eliminate today's backlog and the total cost could rise by over \$350 billion.

The Commission recognizes that the NEC's investment needs are significant and competing with other national priorities for limited available resources. Through C40, member agencies are providing a clear vision and credible investment plan for the future of passenger rail on the NEC, ensuring they can act quickly and decisively to turn this vision into reality as funding is made available.

Tradeoffs: Addressing the basic infrastructure backlog

2050 vs. 2100

the year when the basic infrastructure backlog would be addressed, depending on annual level of investment over time

\$350B+

the additional cost of addressing the basic infrastructure backlog by 2050 vs 2100

As part of the Commission's capital renewal analysis (described further in Chapter 4), the Commission identified the basic infrastructure backlog that exists today—and is projected to exist through 2040. The analysis relies on asset data provided by NEC right-of-way owners, including asset location, age, useful life, and condition if available.

Importantly, the analysis does not account for assets which will fall out of a SOGR after 2040, and those needs could be significant. In addition, the analysis uses age as a proxy for condition for most asset types due to unavailable condition data. Owners are actively moving toward condition-based assessments of SOGR for those asset types that do not currently use condition. It is expected that basic infrastructure backlog estimates will change once condition data become more readily available.

Cost and Time Estimates to Address State-of-Good-Repair Backlog

Major Backlog	State	Total Project Cost (\$M, Year of Expenditure)	Total Funding Need (\$M, Year of Expenditure)	Construction End Date
Funded through construction				
East River Tunnel Rehabilitation Project	NY	\$1,645	\$0	05/2027
Gateway: Portal North Bridge	NJ	\$2,363	\$0	10/2027
Gateway: Dock Bridge Rehabilitation Project	NJ	\$243	\$0	09/2028
Walk Bridge Replacement ¹	CT	\$1,670	\$239	05/2030
Connecticut River Bridge Replacement Project ¹	CT	\$1,511	\$240	10/2030
Baltimore & Potomac Tunnel Replacement Program	MD	\$6,028	\$0	04/2036
Susquehanna River Bridge Replacement Program	MD	\$2,677	\$0	12/2036
Gateway: Hudson Tunnel Project	NY, NJ	\$16,041	\$0	06/2038
Funded for planning, development, or design				
Pelham Bay Bridge Replacement Project	NY	\$720	\$635	2034
Bush River Bridge Replacement Program	MD	\$1,944	\$1,920	2034
Gunpowder River Bridge Replacement Program	MD	\$2,446	\$2,408	2036
Saugatuck River Bridge Replacement (TIME-4)	CT	\$1,071	\$1,042	2038
Gateway: Sawtooth Bridges Replacement Project	NJ	\$2,062	\$1,542	2038
Devon Bridge Replacement	CT	\$3,074	\$2,752	2038
Cos Cob Bridge Replacement Project (TIME-8)	CT	\$3,354	\$3,346	2044
Unfunded				
Gateway: Highline Renewal and SOGR	NJ	\$300	\$300	2038
Total		\$47,148	\$14,424	

Basic Infrastructure Backlog	2040 SOGR Need ² (\$M, 2025 Year dollars)	Cost to Address (\$M, Year of Expenditure)	Years to Address
Track	\$10,200	\$150,000 to \$500,000+	25 to 75+
Electric Traction	\$15,900		
Structures	\$40,700		
Communications & Signals	\$17,300		
Total	\$84,100		

Table notes:

¹These projects are funded through construction but have a remaining funding need due to construction cost increases.

²Current SOGR Need is based on assets at the end of their useful life in 2025 and is valued at \$40 billion. 2040 SOGR Need is based on replacement value for assets projected to reach the end of their useful life by 2040. Cost to Address the basic infrastructure backlog is based on Commission analysis to schedule SOGR work to address assets projected to reach their useful life by 2040, taking into account projected reasonable investment levels, workforce required, track outages, and service impacts.

Sources

Page 4: "Its mainline connects four of the nation's largest metropolitan areas"; Source: United States Census Bureau (2025)

Page 4: "(The NEC) moves over 628,000 passengers each weekday on over 2,000 daily trains"; Source: NECC Annual Report: Infrastructure + Operations (2025)

Page 4: "The region is home to over 55 million people"; Source: United States Census Bureau (2025)

Page 4: "(The region) generates a \$5.9 trillion economy"; Source: Bureau of Economic Analysis (2024)

Page 4: "If it were its own country, the NEC would be the world's third largest economy"; Source: World Bank (2025)

Page 4: "Current estimates indicate that an unplanned, one-day shutdown of the NEC would cost the economy over \$170 million, even accounting for new ways of working"; Source: NECC analysis (2025)

Page 5: "The Northeast Region covers only 2% of the nation's land area"; Source: The Northeast Corridor and the American Economy (2014)

Page 5: "(The Northeast Region) is home to 1 out of 6 Americans"; Source: United States Census Bureau (2025)

Page 5: "(The Northeast Region) contains 17% of all U.S. jobs"; Source: U.S. Bureau of Labor Statistics (2025)

Page 5: "(The Northeast Region) produces 20% of all U.S. GDP"; Source: Bureau of Economic Analysis (2025)

Page 5: "The Northeast Region is home to 8 of the nation's best hospitals"; Source: U.S. News (2025)

Page 5: "The Northeast Region is home to 8 of the top 10 universities in the nation"; Source: Forbes (2025)

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Page 8: "Two tracks under New York carry more people each day than the six-lane Lincoln Tunnel. Without the NEC, a further six lanes of traffic would be required to accommodate this additional demand across the Hudson River"; Source: NECC analysis (2025)

Page 9: "4 of the 10 most congested highways in the U.S. are in the Northeast"; Source: Inrix (2024)

Page 9: "88 hours on average spent in congestion per year by a driver in major Northeast cities"; Source: Inrix (2024)

Page 9: "38% of the nation's flight delays originate from major airports in the Northeast"; Source: Federal Aviation Administration (2024)

Page 9: "If the NEC ceased service for a day, accommodating its ridership would require a 79% increase in regional flights"; Source: NECC analysis (2025)

Page 9: "If the NEC ceased service for a day, accommodating its ridership would add more than 30 mins. to daily commutes for over 120,000 drivers in the New York City region"; Source: Regional Plan Association (2019)

Page 10: "NEC ridership has been steadily increasing closer to its pre-pandemic peak of approximately 900,000 daily riders in recent years"; Source: NECC Annual Report: Infrastructure + Operations (2025)

Page 10: "The NEC carries more passengers between Northeast cities than all airlines combined within the region"; Source: Northeast Corridor Intercity Travel Study (2015)

Page 10: "The NEC generates a higher GDP than any other rail corridor in the world—surpassing those in Japan, China, Germany, or the United Kingdom"; Source: NECC analysis (2025)

Page 10: "One in three Fortune 100 companies and six of the world's ten largest financial institutions are headquartered along the corridor"; Source: Fortune (2025), S&P Global (2025), IG (2018)

Page 10: "More broadly, studies have shown that every \$1 invested in rail produces \$4 of economic output while every \$1 billion in investment creates 24,000 jobs"; Source: American Public Transportation Association (2021)

Page 11: "Philadelphia's Schuylkill Yards project, a \$3.5 billion development... is expected to generate 10,000 construction jobs and 40,000 permanent office jobs"; Source: The Philadelphia Inquirer (2016)

Page 11: "The Portal North Bridge Project will have generated 20,000 jobs nationwide with 50% of these jobs in states outside of NY and NJ"; Source: Portal North Bridge: Distribution of Economic Benefits (2023)

Page 12: "For example, ten intercity trains were delayed an average of three hours each on a single day in 2020 when the overhead catenary system on the Bush River Bridge could not be reconnected after opening for maritime traffic"; Source: NECC Major Incident Database

Page 13: "The Commission estimates that NEC service disruptions cost the region over \$1.1B annually in lost productivity"; Source: NECC analysis (2020)

Page 21: "Amtrak's track laying system, which can replace up to half a mile of track in a single shift (that is replacing over 1,300 ties)"; Source: Amtrak (2024)

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C40:

Cover Page: "NextGen Acela at Wilmington Station;" courtesy of Amtrak.

Page 3: "MBTA and RI State Capitol 2" courtesy of Bill Lipfert.

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