

Benefits of a Renewed NEC and a Thriving Northeast

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The implementation of C35 will renew the NEC and tackle the backlog of projects necessary to bring it to a state of good repair and improve overall rail system reliability. Targeted investments to eliminate chokepoints and add capacity will extend the reach of the rail system and make it more accessible with:

- Faster, more frequent, and reliable connections for both commuter and intercity travelers
 - New services in response to underserved and emerging travel markets
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Metro-North train at New Haven Union Station (CT)

C35 will achieve meaningful, measurable progress in advancing the NEC FUTURE vision. The NEC in Connecticut and Westchester County will offer faster travel times for both commuter and intercity passengers, shaving up to 25 minutes off trips to New York City through speed upgrades and new express services. New Jersey commuters will have twice as much trans-Hudson service into a new, expanded Penn Station New York (PSNY).

Many customers on the NEC will experience faster travel. While Amtrak Acela service will have the largest reduction in per trip travel time, smaller reductions in travel time on commuter rail systems will impact significantly more people, given their much higher ridership levels. New infrastructure will improve reliability and on-time performance for all NEC operators.

Table 3-1: C35 Estimated Progress Toward the NEC FUTURE Vision

		Current	C35 Phase 1 Delivers	NEC FUTURE Target
Intercity Frequency (per peak hour peak direction)	DC-PHL	1-2	3	10
	PHL-NYC	2-3	4-5	10
	NYC-NHV	1-2	2	10
	NHV-BOS	1-2	2	6-8
Acela Travel Time (h:mm)	DC-NYC	2:55	2:29	2:10
	NYC-BOS	3:36	3:08	2:45
Design Speed (mph)	Existing Segments	150	160	160
	Dedicated High-Speed Segments	-	-	220

Source: C35 Analysis, 2021 based on NEC FUTURE, 2017

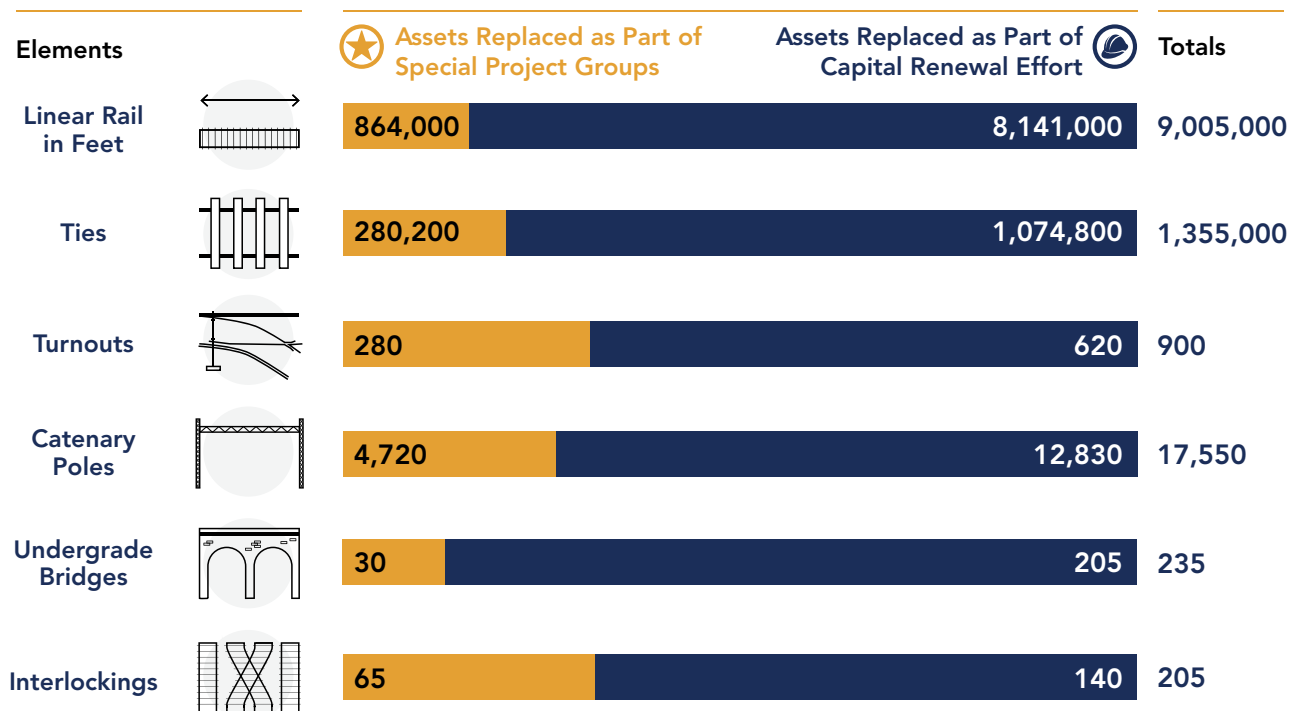


Passengers at Baltimore Penn Station (MD)

C35 by the Numbers

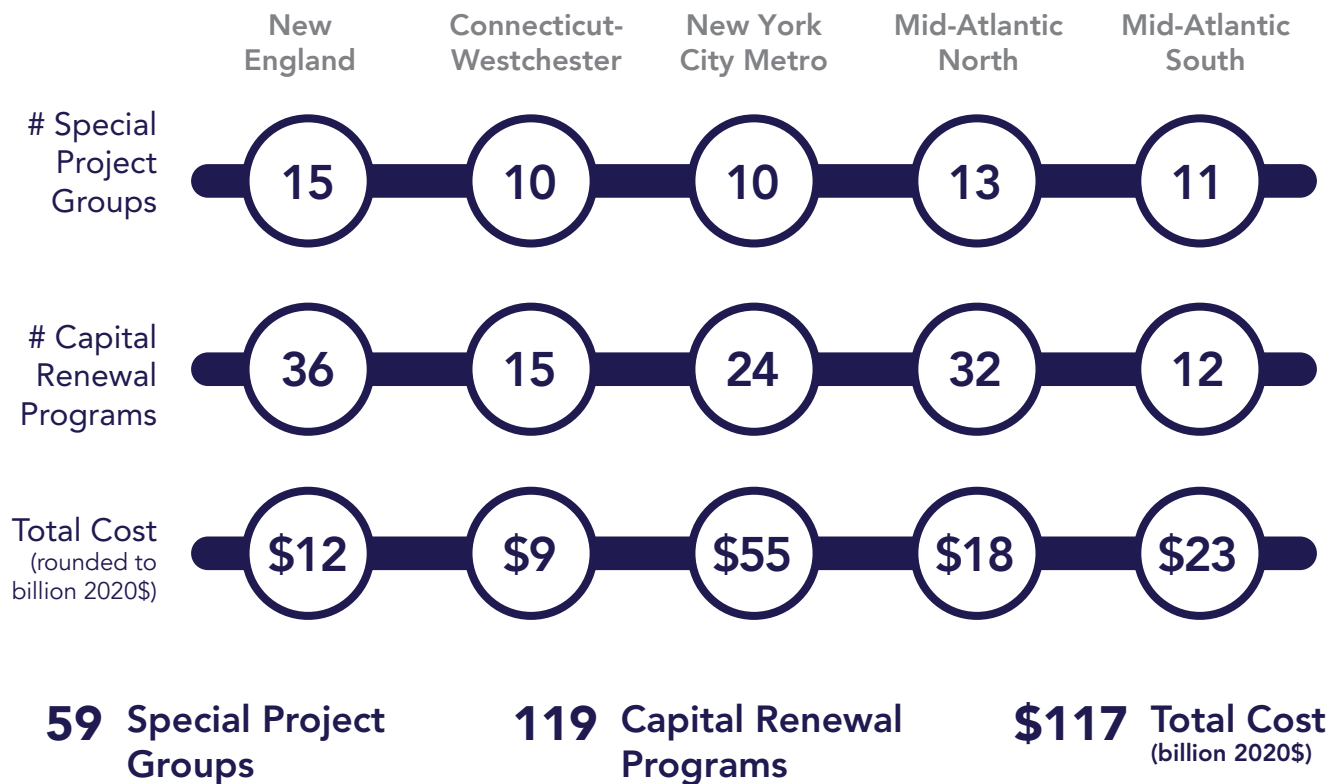
The 15-year plan includes over 150 projects within 59 special project groups, and 119 capital renewal programs. Special projects and capital renewal are grouped to create delivery efficiencies, minimize service impacts, and reduce community impacts by staying within the existing railroad rights-of-way. The C35 plan can be implemented while continuing to operate service, but it will require both intercity and commuter peak-period service reductions throughout the NEC to accommodate necessary track outages longer than a midday, overnight, or weekend period. These peak-period service reductions could last up to several months at a time over the 15-year time frame. As the C35 plan advances, member agencies will continue to refine the project delivery approach and identify ways to further mitigate or minimize service disruptions. Agencies will also work on strategies for communicating service impacts to customers to minimize their inconvenience.

Figure 3-1: Corridor-Wide Estimated Special Project and Capital Renewal Elements



Source: C35 Analysis, 2021

Figure 3-2: Corridor-Wide Groups/Programs and Estimated Capital Cost by Territory



Source: C35 Analysis, 2021

C35 infrastructure investments are foundational to improving and expanding future rail service on the NEC. Agency capital programs and operating budgets will need to be revisited to incorporate and support the future capital investment and rail services detailed in this report. Of note is the necessary investment in an expanded fleet, storage and maintenance facilities, operating costs for additional service, and workforce which was not included in the C35 analysis.

Improve Mobility and Connections

C35 will make significant improvements to NEC rail service for existing and new riders, on both commuter rail systems and Amtrak.

- Amtrak Acela service will be nearly 30 minutes faster from both New York City to Washington, DC and New York City to Boston, MA.
- In Massachusetts, Rhode Island, Connecticut/New York, Pennsylvania, Delaware, and Maryland, infrastructure modifications and new express service patterns will also speed up select commuter rail trips.
- Daily NEC trains will grow by a third for Amtrak and double for several commuter railroads.
- New stations will introduce service to underserved communities and expanded one-seat services will create new direct connections.

Better access and improved connections between cities along the NEC will attract more travelers to rail. With the C35 plan ridership is expected to grow by approximately 60 million annual trips by 2035 when compared to 2019.

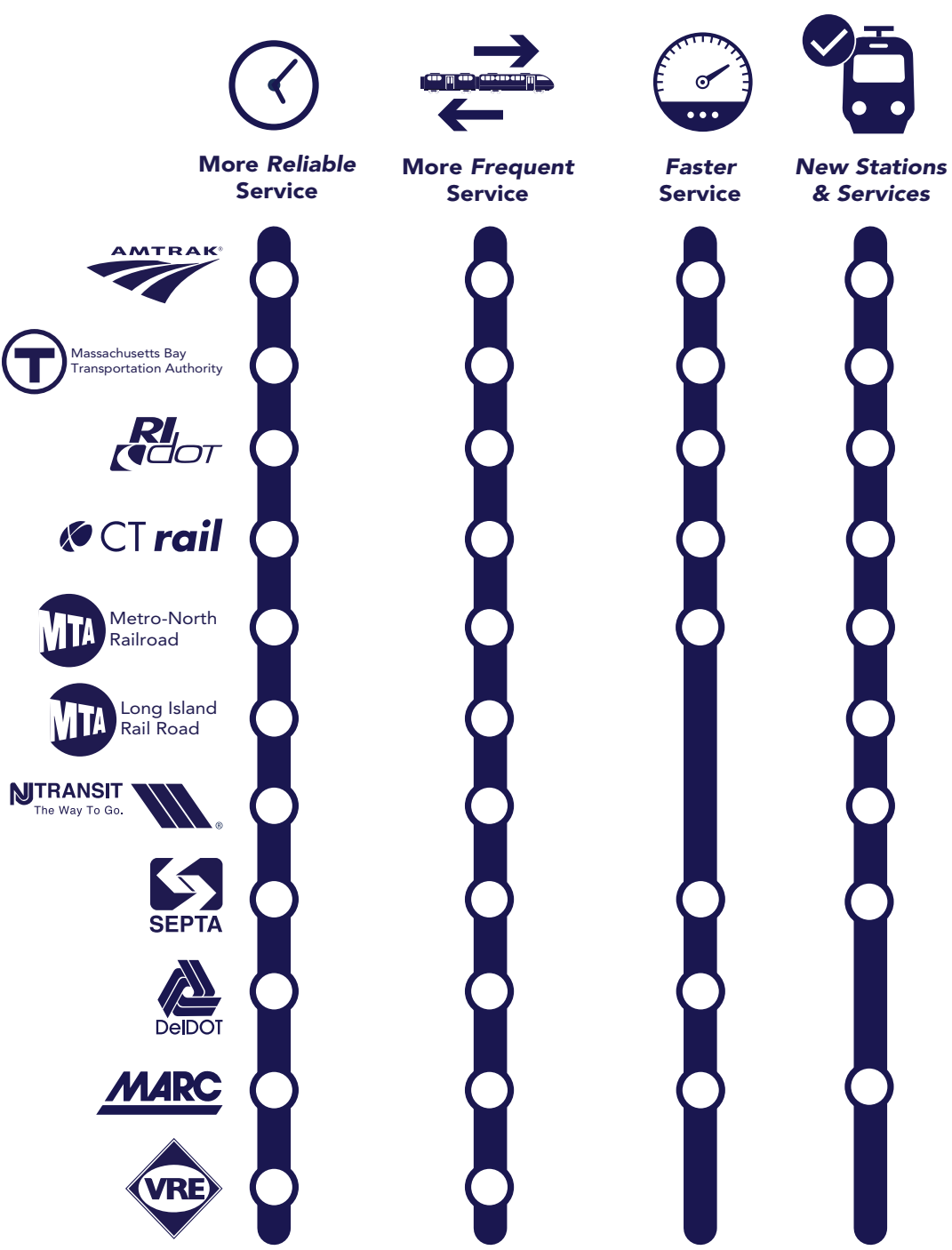


What happens without C35?

Current investment levels in the NEC, about \$1 to \$1.5 billion annually over the last five years, will not continue to support the service quality (reliability, speed, frequency) we enjoy today. As a result, ridership would degrade by 2035. But we cannot predict exactly how and when our aging assets will break down and how that will impact service levels and ridership.

Maintaining today's service and ridership by 2035 will be more expensive. We do not know exactly how much more expensive for the same reason that we cannot predict how and when our aging assets will break down. But we do know what we can build by 2035 to ensure service quality improves, ridership grows, and the NEC continues to support a thriving regional and national economy.

Figure 3-3: CONNECT NEC 2035 Service Objectives Summary



Source: C35 Analysis, 2021

Reliable Service

Failures and limitations of today's aging or outdated infrastructure contribute to train delays. In FY2019, Amtrak NEC trains were delayed over 5,200 hours and 19 percent of trains were late.¹⁰ Riders on the NEC already suffer approximately \$1 billion annually in lost productivity due to service disruptions.¹¹

C35 will significantly invest in reducing the backlog of assets beyond their useful life and mitigating or eliminating existing chokepoints that exacerbate disruptions with cascading impacts across a mix of services. Signal system improvements, new interlockings, additional mainline tracks, and expanded station capacity will allow on-time trains to bypass delayed trains and better support trains with different stopping patterns.



Passengers waiting as a Metro-North train arrives at Bridgeport Station (CT)

A more reliable NEC means that passengers can expect their train to arrive on-time. This means existing and new passengers will consider the NEC a preferred method for traveling within the Northeast.

New Services and Stations

C35 will improve mobility and access through the introduction of service to new stations and between new station pairs. Projects in Rhode Island and New York will build stations in underserved communities bypassed by the current NEC. New commuter and intercity services in Massachusetts, Connecticut, New Jersey, and Pennsylvania will provide new one-seat rides both between market pairs on the NEC and between markets not currently directly connected to the NEC.



EXPRESS AND ONE-SEAT RIDE

Express and one-seat ride services expand the market area and create new travel options and opportunities throughout the Northeast. New one-seat ride express services connecting Hartford, CT/Springfield, MA and New London, CT to New York City will take advantage of speed increases and become flagship CTDOT services with significant travel time reductions.



OFF-PEAK AND REVERSE-PEAK

Off-peak and reverse-peak services fill existing service gaps for underserved markets. The 2035 operating plan includes more off-peak and reverse-peak service for each of the commuter railroads. These services allow NEC operators to better serve those who commute to work or travel outside the typical peak hours.



NEW STATIONS

New stations expand the reach of the existing commuter rail networks to underserved markets along the NEC. C35 includes four new commuter stations in the Bronx, NY with Metro-North Railroad's (Metro-North) new Penn Station Access project; a new MBTA commuter station in Pawtucket, RI; a new NJ TRANSIT station in North Brunswick, NJ; and a new MARC station in West Baltimore, MD.

Frequent Service

C35 will deliver more frequent service throughout the day for all commuter railroads and Amtrak. This additional service will boost peak-direction frequency, supplement existing or introduce new reverse-peak trains, and address service ‘gaps’ in certain territories during off-peak periods. Additional reverse-peak and off-peak services create opportunities to grow ridership in response to changing travel patterns that may emerge as we recover from the pandemic with more flexible work schedules or people looking to travel when trains are less crowded.



Amtrak New Acela crosses the Susquehanna River (MD) on its first 2020 test trip to Washington Union Station (DC)

Figure 3-4: Estimated Maximum Time Between Amtrak Trains (minutes)



Source: C35 Analysis, 2021

Faster Service

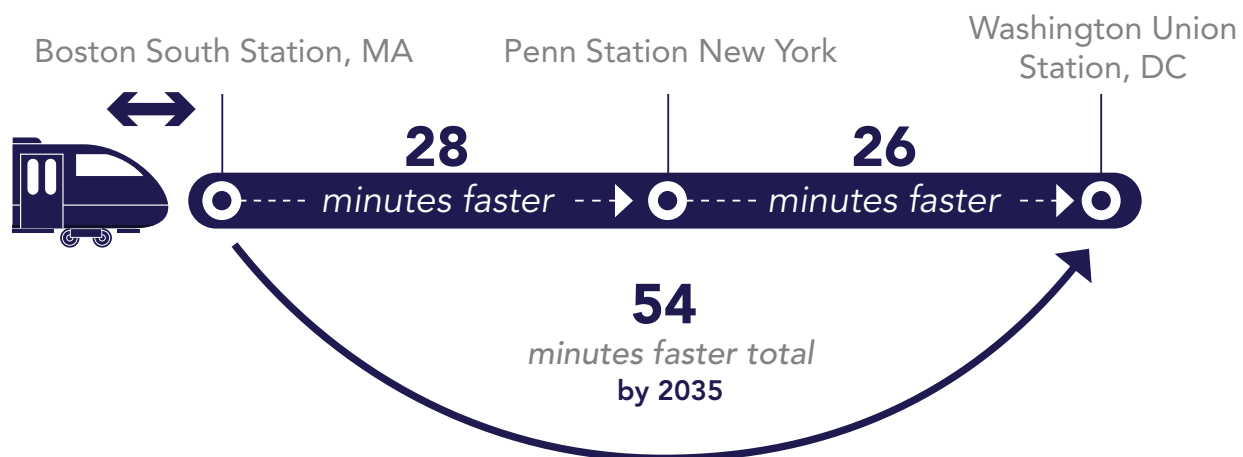
C35 will upgrade track and signals, smooth curves, and replace power supply assets that currently limit speeds between Boston, MA and Washington, DC. These improvements will allow for end-to-end travel time reductions of almost an hour. Curve and track speed improvements will increase the existing 32 route-miles of 150-mph operation to a future 132 route-miles capable of supporting 160-mph operation, an over 310 percent increase.

Infrastructure investments, like new or reconfigured interlockings and new mainline track, will support faster travel times between select commuter rail market pairs by enabling the introduction of new express services. Express commuter services will create smaller travel time reductions, but for larger numbers of riders.

Many investments that support higher speeds, such as replacement of power supply systems, have collateral reliability benefits for all NEC riders. More reliable services also create opportunities for reducing travel time by removing time added to schedules to account for anticipated delays. Future iterations of CONNECT NEC will examine how to incorporate this issue.

Corridor-wide, intercity and commuter rail passengers will save more than 6 million hours a year in travel time. The total value of these saved hours is nearly \$140 million annually.

Figure 3-5: C35 Estimated Acela Travel Time - Boston, MA to Washington, DC



Source: C35 Analysis, 2021

Advancing High-Performance Rail

C35 will make early progress towards meeting the NEC FUTURE performance objectives by reducing Boston-Washington travel time by nearly an hour and increasing intercity service by a third. The C35 effort has shown that these achievements are possible with investments primarily within the existing footprint of the NEC while its infrastructure continues to support over 1,850 daily commuter and 150 intercity trains.¹² Some localized projects will reduce track curves that currently limit train speeds. Other programs, like replacement of the aging electric power supply system between New Rochelle, NY and Washington, DC, will both enable faster train speeds and replace failure-prone infrastructure that disrupts service.

Even more ambitious travel time goals are feasible by 2035. The NEC FUTURE Record of Decision called for higher speed segments to be evaluated in select locations, such as between Baltimore, MD, and Wilmington, DE, and between New Haven, CT, and Providence, RI. While such initiatives are currently at the conceptual stage, Amtrak and certain states are developing strategies to advance the planning, design, environmental review, and community engagement necessary to develop these new segments and outline the necessary funding requirements.

C35 includes planning studies to analyze new dedicated NEC high-speed segments critical to achieving the NEC FUTURE objectives. If planning and project development is expedited, some of these segments could be operational by 2035. Bringing the NEC to a state of good repair, addressing capacity constraints, and extending 160 mph operation with catenary replacement are a necessary first step.

C35 will fix and improve the existing NEC as a foundation for future high-speed service and put in motion the development of new high-speed segments capable of delivering world-class service to the region.



Concept Drawing of Amtrak New Acela



Passengers boarding an Amtrak Acela train

Create Economic Opportunity

In the aftermath of the pandemic and its associated economic challenges, implementing as much as \$117 billion in capital investments through the 15-year C35 plan will generate over \$90 billion in earnings throughout the U.S. which will contribute to the growth of state and local economies. As new stations and rail services in the C35 plan are put into service, better transportation options will support continued economic growth for urban centers along the NEC and for communities poorly served or entirely bypassed by today's railroad.

Job Creation

C35 investment will generate nearly 1 million total new jobs in the Northeast over the 15-year plan. These new public and private sector construction-related direct, indirect, and induced jobs will in turn generate \$60 billion in earnings. An additional 700,000 jobs and \$34 billion in earnings will be generated in the U.S. beyond the Northeast in industries providing materials and equipment for the C35 plan.

The C35 plan is expected to support more than 6,000 specialized railroad construction jobs annually over the 15-year implementation time frame. This workforce requirement is well above existing railroad staff resources and will require a combination of hiring in-house workforces, contracting with the private sector, and innovative approaches working across the NEC and partnering with labor.

Since C35 is not constrained to current resource levels, workforce development is a critical early action necessary to deliver C35 and an opportunity for low-income and disadvantaged populations in the Northeast to gain new skills and become qualified for higher paying employment. Infrastructure occupations pay up to 30 percent more than the average wage. Such jobs are important opportunities for the two-thirds of U.S. workers who lack four-year college degrees. Member agencies are committed to working with federal, state, local, labor, and education partners to create these workforce development initiatives.



Putting Infrastructure Dollars to Work

C35 capital spending will generate direct, indirect, and induced jobs. Direct construction-related jobs are occupations that work directly on delivering the C35 plan, such as project planners, designers, engineers, and construction workers. Direct jobs include railroad construction jobs that require specific training and certification for work on the NEC. Indirect jobs are non-construction positions at suppliers of materials, such as steel, concrete, wood, and specialized railroad equipment. Induced jobs are created by the spending of monies provided as project salaries for items such as groceries, gas, entertainment, etc.

Within the category of direct construction-related jobs are specialized railroad construction jobs. These positions cover key safety activities such as employee protection and supervision on an active railroad, as well as specialized skills in constructing track, signal, and electric power systems. Many such functions are covered by railroad employees but can in some cases be performed by contractors or a combination of contractors and employees.

Equity and Access

The NEC serves diverse populations throughout the corridor. Ninety-five percent of riders use commuter services which create access to economic opportunity for a variety of high, medium, and lower income communities.

Commuter rail is especially effective in connecting higher-wage job centers to an array of residential communities. The benefits of these connections are broad: central business districts and employers gain access to a larger pool of potential employees, workers gain access to more affordable housing options, and residents gain access to higher-wage jobs. C35 will enhance and expand connections between job centers, healthcare facilities, and educational institutions along the NEC with hundreds of communities.

Of the over 18 million people who live within five miles of an NEC station, 23 percent live in low-income households and a third do not own an automobile. Fifty-seven percent belong to racial or ethnic minority groups.¹³ It is especially critical to make investments that will benefit these communities. C35 includes several new commuter stations in locations with high proportions of minority and low-income households. C35 will also introduce new reverse-peak and off-peak services, particularly suited to workers in industries with non-traditional hours.

The cost of passenger rail service can be a barrier to access for low-income communities. This can be an issue for both commuter and intercity fares but is more pronounced for Amtrak intercity fares which are market-driven and not structured to meet the needs of daily commuters. The C35 plan will open up more options for a market that is underserved. Improved equity in access to these new services requires a collaborative effort between federal, state, and local partners and specific arrangements between transit providers and localities.

Metro-North

Penn Station Access

This project will provide new direct Metro-North service to PSNY with four new stations in the East Bronx at Co-op City, Morris Park, Parkchester/Van Nest, and Hunts Point, where 90 percent of residents belong to a racial or ethnic minority and 25 percent of households are low-income. New service will provide these residents with access to jobs, education centers, and other opportunities in Midtown Manhattan, Westchester, and Connecticut. Future riders will save up to 50 minutes on their commute to Manhattan and up to 75 minutes on trips to Connecticut compared to transit options available today.



Rendering of proposed Metro-North Co-op City Station (NY)

Combat Climate Change

The Northeast's robust transit network provides a carbon-efficient transportation option for the region's travelers. The average transportation-related CO₂ emissions per capita in the Northeast are approximately 25 percent lower than the national average.¹⁴ The NEC is the backbone of this interconnected network of rail and bus services that provides an attractive alternative to car or air travel. C35 will make rail an even more appealing option for travelers and ensure the long-term viability of NEC service through investments in hardening its infrastructure.



Though transportation is the largest source of GHG emissions in the U.S., passenger rail generates significantly less than other modes and plays a critical role in supporting climate change reduction goals.

The NEC, where 93 percent of weekday trains are electric, already limits the region's GHG emissions today. If rail were no longer a viable transportation option and all of the NEC's current travelers were diverted to other modes it is estimated that associated GHG emissions in the region would be six times higher for those trips, rising from 0.8 million metric tons (MMT) CO₂ per year to 4.7 MMT CO₂ per year. The change is the same amount of carbon generated by 2.9 million cross-country trips by car between New York City and Los Angeles, CA.¹⁵



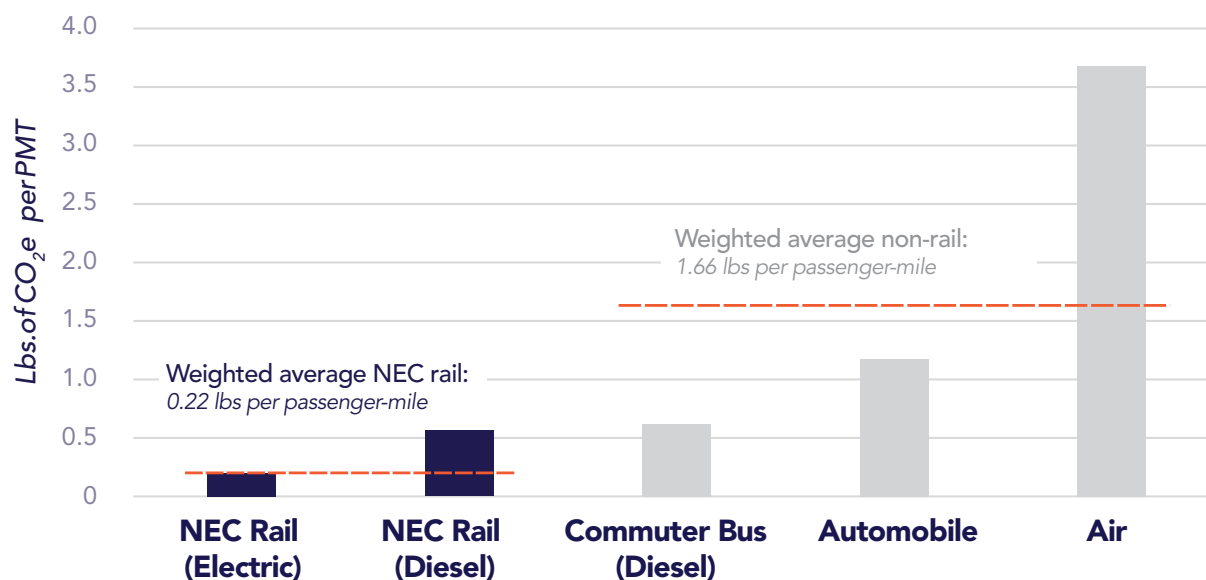
Downed trees after Hurricane Isaias in Metro-North Territory

Reduced Carbon Footprint

Without C35, the nearly 60 million annual additional commuter and intercity trips would need to be accommodated by less efficient modes such as auto, bus, or air, causing increased congestion and carbon emissions.

C35 will also support the region's dense and walkable land use patterns that further reduce carbon emissions. Vehicle miles traveled per capita in compact residential, retail, and commercial developments range from 20 to 40 percent less than environments where robust public transportation options are unavailable.¹⁸

Figure 3-6: CO₂ Emission per Passenger-Mile Traveled
(NEC Rail vs. Non-Rail Modes)



Source: C35 Analysis, 2021

Amtrak Environment and Sustainability Practices

Since 2010, Amtrak has reduced emissions by 20 percent with a target to achieve 40 percent reduction by 2030 from 2010 baseline figures.¹⁶ Initiatives such as reducing locomotive idling, making energy efficiency upgrades in Amtrak-owned buildings, fuel conservation, introduction of new energy-efficient fleets, and increasing the amount of renewable energy in their purchased electricity contracts will help Amtrak achieve energy and emissions reduction targets. Amtrak customers can reduce up to 83 percent of their GHG emissions compared to driving and up to 73 percent compared to flying.¹⁷ Additionally, Amtrak has partnered with Carbonfund.org, allowing passengers to offset the carbon emissions footprint generated by their individual rail travel.

Resilient Infrastructure

C35 special projects and capital renewal together make the NEC more resilient to the type of severe weather conditions the region is already facing and that are expected to be a threat into the future. Planned upgrades to culverts, drainage systems, and undergrade bridges will reduce vulnerability to flooding and major bridge replacements and tunnel designs will incorporate features to withstand severe weather conditions and flooding. Throughout the NEC, installing constant tension catenary allows wires to remain the same tension despite shifting temperatures, making them less likely to snap in cold weather or sag and get pulled down by passing trains in hot weather. In many locations, signal and substation assets can be raised above floodplains to prevent periodic damage that would disrupt train service.



Amtrak crews at A Interlocking in Penn Station New York (NY)

Examples of a More Resilient NEC

- Replace the overhead catenary power supply system south of New Rochelle, NY, much of which dates back to the 1930s, to reduce the frequency with which wires snap in extreme temperatures
- Improve the Bell to Landlith interlocking in Pennsylvania to include new “portal” structures to hold catenary which are stronger than a singular pole and can last 100 years
- Implement the NJTRANSITGRID project to provide backup to the regional power network, and several projects which provide hardened infrastructure and/or move it to less flood-prone locations, including Gateway NJ TRANSIT Storage Yard and Delco Lead
- Add redundancy and resiliency through the Gateway and Penn Station Access projects which provide alternative routes in case of an outage in the North River Tunnels or Grand Central Terminal

Support Desirable Cities and Communities

C35 will enhance access to locations within the Northeast that are growing and projected to grow in the future. The Northeast is home to four of the nation's eleven largest metropolitan areas. These cities have NEC stations in or near their historic city centers with vibrant, walkable business districts and residential neighborhoods. As shown in Table 3-2, over the past decade, both population and employment within a half-mile of NEC rail stations have grown at faster rates than their metropolitan average.¹⁹



Table 3-2: Percent Change in Population and Jobs Within a Half-Mile of Key NEC Stations, 2011-2019

Station	1/2-mile Buffer	
	Population	Jobs
Boston South Station	26%	20%
Penn Station New York	16%	37%
Philadelphia 30th Street Station	10%	31%
Washington Union Station	37%	26%
Total	20%	31%

Source: U.S. Census Bureau

Mid-sized cities along the NEC benefit from good connections to these larger metropolitan areas and the Northeast economy. C35 will improve travel times and increase service frequency to places like Springfield, MA; Providence, RI; New Haven, CT; Hartford, CT; Newark, NJ; Harrisburg, PA; and Wilmington, DE, making them increasingly attractive locations for growth with relatively low costs of living and doing business, paired with convenient access to the region's largest markets.

The C35 plan will enhance the connections between affordable housing and the higher-value jobs in major markets. As shown in Table 3-3, metropolitan areas with the highest paying jobs can be brought within commuting distance of areas with more affordable housing costs.

Table 3-3: Average Income and Property Value Comparison for Employment Centers and Nearby Markets

Major Job Center	Wages	Median Home Value (Owner-Occupied Units)	Housing Markets with Commuting Distance	Average Annual Wages	Median Home Value (Owner-Occupied Units)
New York County, NY (Manhattan)	\$127, 525	\$987,700	Philadelphia County, PA	\$69,140	\$163,000
			Middlesex County, NJ	\$66,395	\$344,100
Washington, DC	\$98,050	\$601,500	Anne Arundel County, MD	\$61,260	\$361,200
			City of Baltimore, MD	\$68,550	\$160,100
Suffolk County, MA (includes Boston, Chelsea, Revere and Winthrop, MA)	\$103,720	\$496,500	Providence County, RI	\$56,580	\$233,500

Source: Annual Average Wages: Bureau of Labor Statistics, QCEW, Average Annual Pay in Total Covered Total, all industries for All establishment sizes, 2019

Station Area Development

Transit station areas are increasingly being seen as desirable places for development. Transit-oriented development (TOD) is a development style that promotes mixed-use development in close proximity to a transit station. NJ TRANSIT defines TOD as station area development supporting sustainable places in which people can live, work, and play all in the same community, without requiring the use of a car.²⁰ C35 provides the reliable, frequent access necessary to support and sustain TOD development. TOD can play a critical role in providing a range of housing options that meet the needs of young professionals, students, families, and seniors.

For example, Union Station is an important asset for New Haven, CT, not only as a transportation hub, but also as a welcome center and economic catalyst. In the half-mile surrounding New Haven Union Station, a new TOD program is encouraging several mixed-use developments featuring commercial and residential space. The city and state are pursuing such policies to re-link New Haven Union Station and the Hill neighborhood to Downtown.²¹



Rendering of Hill to Downtown District in New Haven (CT)

In Washington, DC, the Burnham Place development at Washington Union Station will anchor a new urban neighborhood with a mix of housing, office, retail, hotels, as well as parks and plazas. Burnham Place will fill a gap in the urban fabric of the city created by the station's track and platforms. The proposed three-million square-foot development will be built above Union Station's rail yard, providing direct access into a newly expanded and improved station facility.²²

Innovation Districts

Innovation districts are where anchor institutions and companies co-locate with clusters of start-ups, business incubators, and accelerators, particularly in the education, research, healthcare, and technology sectors. Unlike the suburban office parks of the late 20th century, innovation districts are physically compact, walkable, mixed-use, and transit accessible. As the transit backbone for an entire mega-region, the NEC is a catalyst for expanding and planned innovation districts in Newark, DE; Philadelphia, PA; Providence, RI; and Boston, MA.

Construction is currently underway for a new train station, the Newark Regional Transportation Center, adjacent to the University of Delaware STAR Campus. The STAR Campus in Newark, DE will include over one million square feet of real estate and features lab, office, clinical, incubation, and co-working spaces within less than an hour train ride to downtown Philadelphia, PA and Baltimore, MD.²³

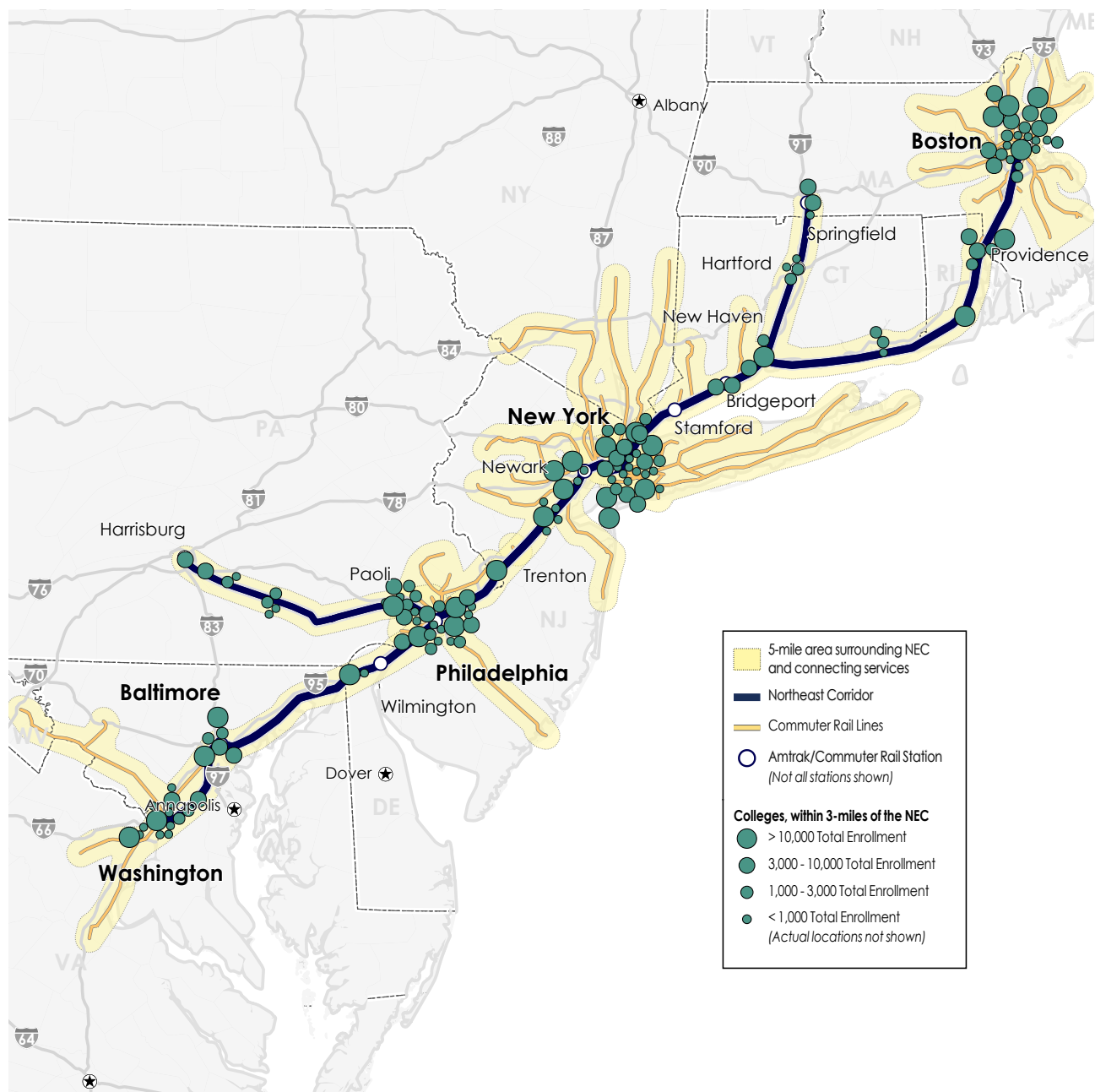
The Providence Innovation and Design District is being developed on a 26-acre site connected to the Amtrak/MBTA Providence train station. The Providence Innovation District is home to Brown University's Warren Alpert Medical School and the Rhode Island Nursing Education Center.²⁴

Located near Boston's South Station, the 1,000-acre Seaport District is a hub for technology, creative firms, life sciences, and green technology.²⁵ The Seaport District is a hub for start-ups and has also attracted relocations from a broad range of established companies including Alexion Pharmaceuticals, General Electric, and MassMutual, among others.²⁶



Burnham Place looking west along H Street in Washington, DC

Figure 3-7: Map of Colleges along the NEC



Source: C35 Analysis, 2021

The Territories of the NEC

The NEC is comprised of five territories:

New England (NE)

Boundaries:

- Boston, MA to New Haven, CT (NEC Main Line)
- Springfield, MA to New Haven, CT (NEC Connecting Corridor)

Agencies:

- Massachusetts Bay Transportation Authority (MBTA)
- Massachusetts Department of Transportation (MassDOT)
- Rhode Island Department of Transportation (RIDOT)
- Connecticut Department of Transportation (CTDOT)/CTrail
- Amtrak

Mid-Atlantic North (MAN)

Boundaries:

- Morrisville, PA to Perryville, MD (NEC Main Line)
- Harrisburg, PA to Philadelphia, PA (NEC Connecting Corridor)

Agencies:

- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Pennsylvania Department of Transportation (PennDOT)
- New Jersey Transit (NJ TRANSIT)
- Delaware Department of Transportation (DelDOT)
- Amtrak

Connecticut-Westchester (CTW)

Boundaries:

- New Haven, CT to New Rochelle, NY

Agencies:

- MTA Metro-North Railroad (Metro-North)
- CTDOT/CTrail
- Amtrak

Mid-Atlantic South (MAS)

Boundaries:

- Perryville, MD to Washington, DC

Agencies:

- Maryland Department of Transportation (MDOT), Maryland Transit Administration (MTA)/Maryland Area Regional Commuter (MARC)
- Virginia Railway Express (VRE)
- Amtrak
- The District of Columbia Department of Transportation (DDOT)

New York City Metro (NYM)

Boundaries:

- New Rochelle, NY to Morrisville, PA

Agencies:

- New Jersey Transit (NJ TRANSIT)
- MTA Long Island Rail Road (LIRR)
- MTA Metro-North Railroad (Metro-North) (future)
- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Amtrak

C35 is an unprecedented effort to coordinate and deliver the special projects and capital renewal in each Commission member agency's jurisdiction. Each territory has multiple capital projects, grouped into the following categories:

★ Special Project Groups

A grouping of special projects geographically combined with capital renewal efforts in the same area.

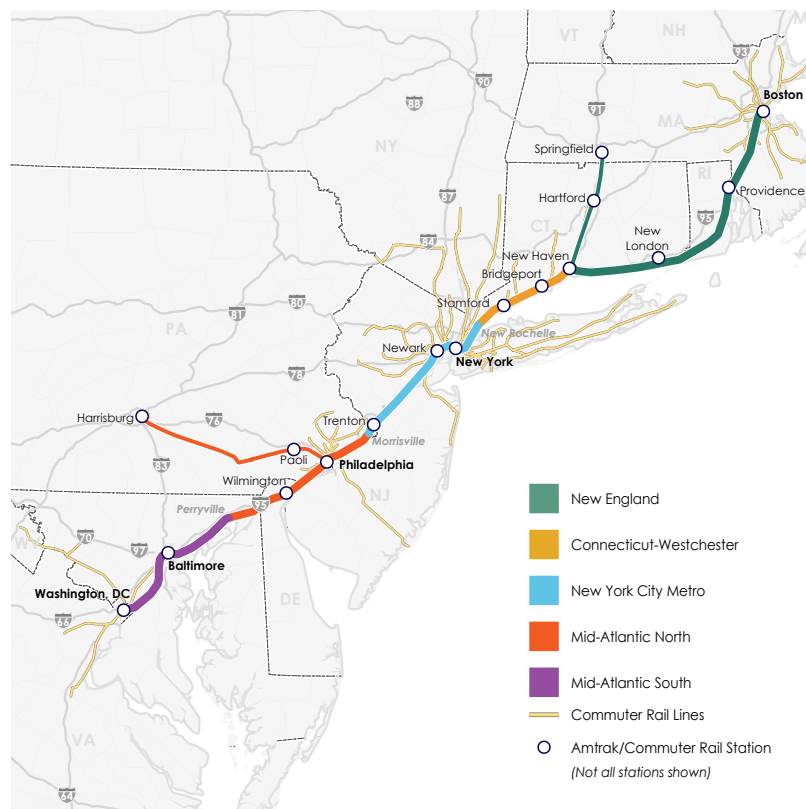
🛠 Capital Renewal Programs

Capital renewal efforts were combined within capital renewal sections to optimize project delivery and minimize rider impact.

🟡 C35 C35 Delivery Analysis

Packaging of special project groups and capital renewal programs to gain efficiencies in project delivery and optimize the use of available track outages and other railroad resources. All C35 improvements are focused on improved frequency, reliability, safety, speed, and operational flexibility.

Figure T-1: C35 Territory Map



Source: C35 Analysis, 2021

Special project groups and capital renewal programs were analyzed year-over-year to ensure that the railroad can be successfully renewed without unreasonable service interruptions. The C35 projects for all territories are included in the Appendix.