July 2021

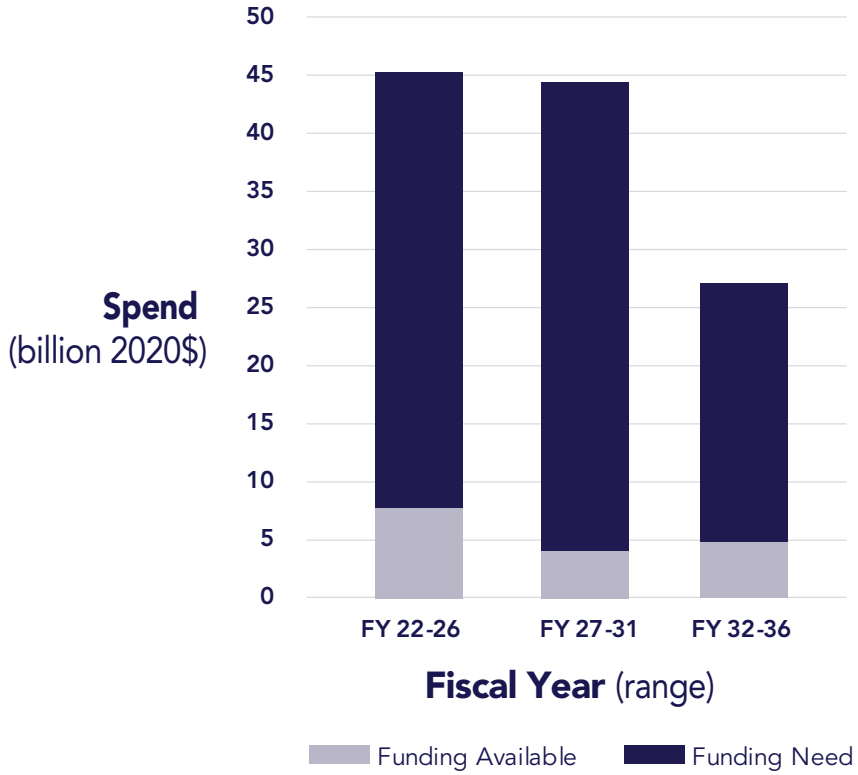
CHAPTER 9

Financial Strategy

Ongoing investments by the federal government, Congress, and Commission member agencies have stabilized the condition of the corridor. But far higher levels of investment must be generated to implement C35, replace the NEC's 100-year-old-plus major bridges and tunnels, move the corridor to a SOGR, and improve service. While some funding is already identified, such as the Baseline Capital Charges (BCCs) shared through the Commission's Cost Allocation Policy and funding for Gateway Portal North Bridge in New Jersey, the funding gap for C35 is estimated to be approximately $100 billion.

Passengers waiting for a SEPTA train at 30th Street Station (PA)

Figure 9-1: C35 Estimated Spend & Funding Need



Source: C35 Analysis, 2021

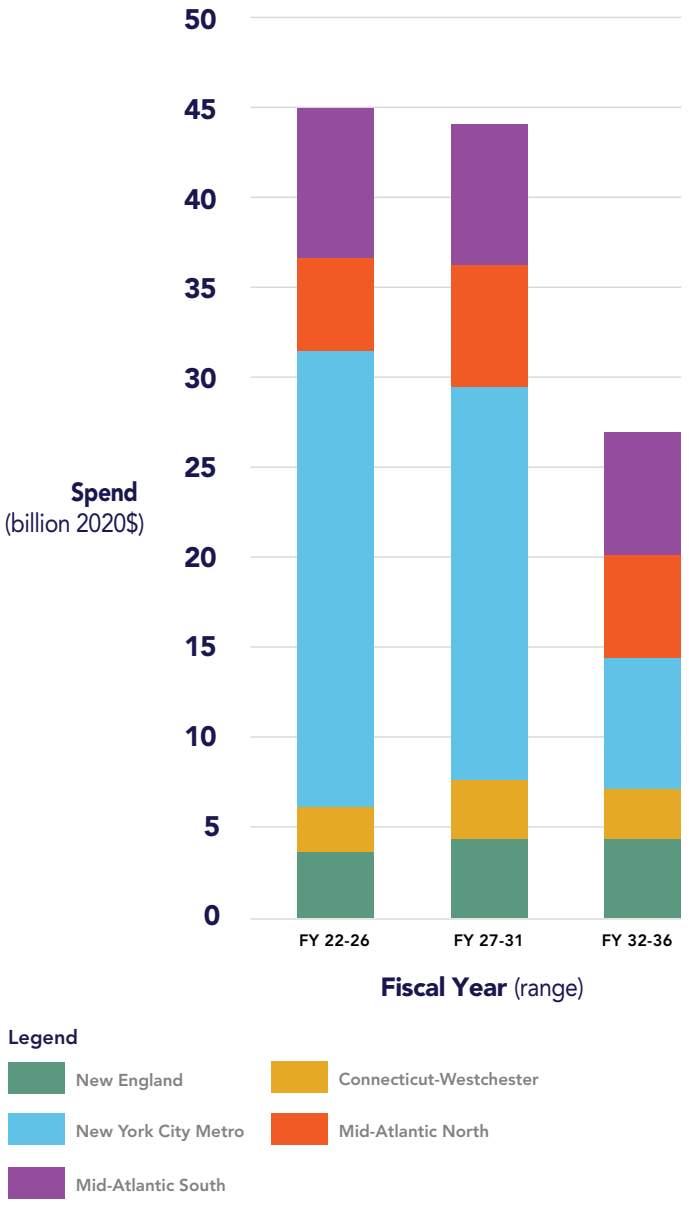
This chapter presents estimated cash flows for implementing C35 according to its proposed 15-year sequence, identifies challenges within existing programs that fund the NEC, and lays out principles, designed around the unique needs of the NEC, for a new or revised program to close the gap between existing fund sources and the capital needs to renew and improve the corridor.

Cash Flow Estimates

The total investment needed to implement C35 over the 15-year period is estimated to be $117 billion in 2020 dollars. Figure 9-2 includes cost estimates for special projects and capital renewal. Special project cost estimates were primarily prepared by project sponsors. For some near-term special projects, sponsors have completed designs and projected costs are based on detailed engineering estimates. For other projects, particularly those in the later stages of the 15-year period, detailed designs have not yet been developed, so cost estimates are preliminary and based on early conceptual design.

Capital renewal includes annual needs for the routine replacement of assets, like rail and ties, plus bringing down the backlog of older and more expensive assets, like undergrade bridges and overhead catenary structures. The capital renewal analysis targeted replacement of most assets that reach or exceed 95 percent of their projected useful life during the 15-year period.

Figure 9-2: Estimated Capital Spending by Territory

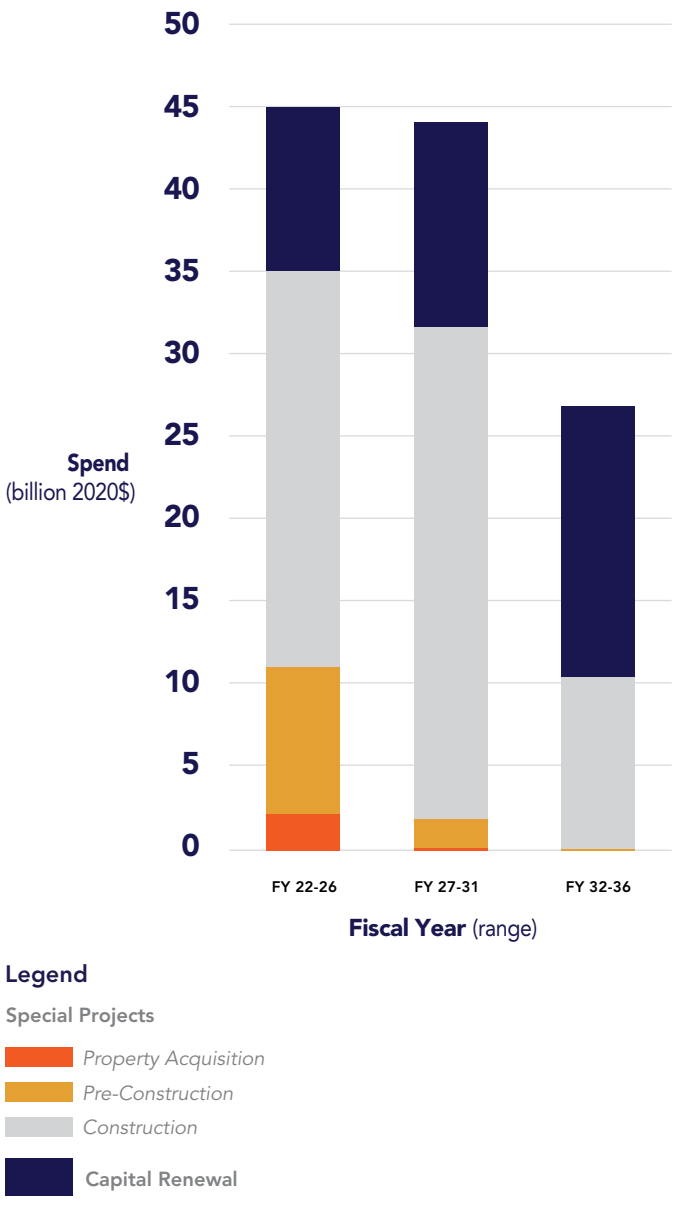


Source: C35 Analysis, 2021

The profile of expenditure estimates over time and by geography correspond to the project delivery sequence outlined in previous chapters, based on proposed project schedules and track outage constraints that limit the pace at which work can be performed without causing unacceptable service disruptions. While track outage availability is a major factor that can limit feasible capital expenditure rates, many major bridge and tunnel projects will be constructed adjacent to the existing NEC, requiring track outages only at the end of construction when new assets are tied into the existing corridor. Workforce availability is also a limiting factor and one that will require more review and analysis, as described in Chapter 10. Off-corridor construction projects like major bridges and tunnels are opportunities to bring on contracted construction forces which can be put to work more quickly, although current agency labor agreements require in-house forces to conduct certain tasks.

While the profile of expenditures is much more ambitious than historic spending levels, current spending levels do not reflect any significant construction related to major bridges and tunnels. However, two such projects, Gateway Portal North Bridge and Walk Bridge, have already completed their design and approval phases, have most or all of their funding committed, and are already or soon to be under construction. A similar example is the Gateway Hudson Tunnel Project where design work began more than a decade ago and the major factor delaying implementation is availability of funding. Billions of dollars over the next five years will be spent on these three projects alone.

Figure 9-3: Estimated Capital Spending by Activity



Source: C35 Analysis, 2021

What these figures represent

The estimates presented show projected cash outlays, or expenditures, which would be made up largely of payments for materials and labor. These cash expenditures generally occur pursuant to construction contracts issued by sponsor agencies. In most cases, agencies may sign such contracts only when they have all funding for the full value of the work either in hand or legally committed.

This has important consequences for how a federal funding program is structured. For example, a $100 million bridge project might generate $25 million per year in actual expenses over four years. Unfortunately, four one-year grants of $20 million to the project sponsor (80 percent federal share) without an upfront commitment for the full $80 million would not allow the project to proceed efficiently. Ideally the sponsor would have committed funding for the full amount, $100 million ($80 million federal and $20 million local), to sign contracts and get started. This full funding would avoid start-stop inefficiencies in project delivery.

There are two potential ways to address this issue:

- **Create multi-year funding certainty to give agencies the authority to enter into contracts.** The Federal Transit Administration's (FTA's) Capital Investment Grant program provides this certainty through what are called Full Funding Grant Agreements. There is more discussion on this as a principle for an NEC funding program later in this chapter.
- **Fully fund multi-year projects at their start, rather than granting funds for each annual expenditure.** If such an approach were pursued, the estimated funding graphs in this chapter would not accurately represent the annual funding commitments that would be required to generate the outlay profile shown. Commitments would need to be significantly more front-loaded than expected outlays. That approach could be challenging given the fact that many individual C35 projects total in the billions of dollars.

Passengers waiting for a train at Trenton Transit Center (NJ)

C35 is the first iteration of a 15-year plan to eliminate the NEC SOGR backlog and improve the corridor to meet 2035 service and travel time goals. C35 focused on sequencing construction to maximize productivity of track outages and minimize service impacts and is not yet constrained by funding, workforce, and equipment needs. Schedules for capital renewal and special projects will continue to be analyzed in light of these additional constraints and it is likely that some work in early years may be shifted to later years based on future analyses, potentially reducing early-year costs and increasing out-year costs. The next round of analysis will begin in FY22.

Current Investment Levels and Sources

Significant investments are already being made in the NEC. Spending on capital renewal and special projects has totaled over $1 billion per year in each of the last five years and reached $1.4 billion in fiscal year 2020. Stakeholders raise these funds from a variety of sources, including many at the state and local level. However, every state and transit agency has significant competing capital needs off the NEC and it is unlikely these sources alone could meaningfully address the C35 funding gap. Some project sponsors utilize loan programs that are also ultimately repaid through a combination of the following sources.

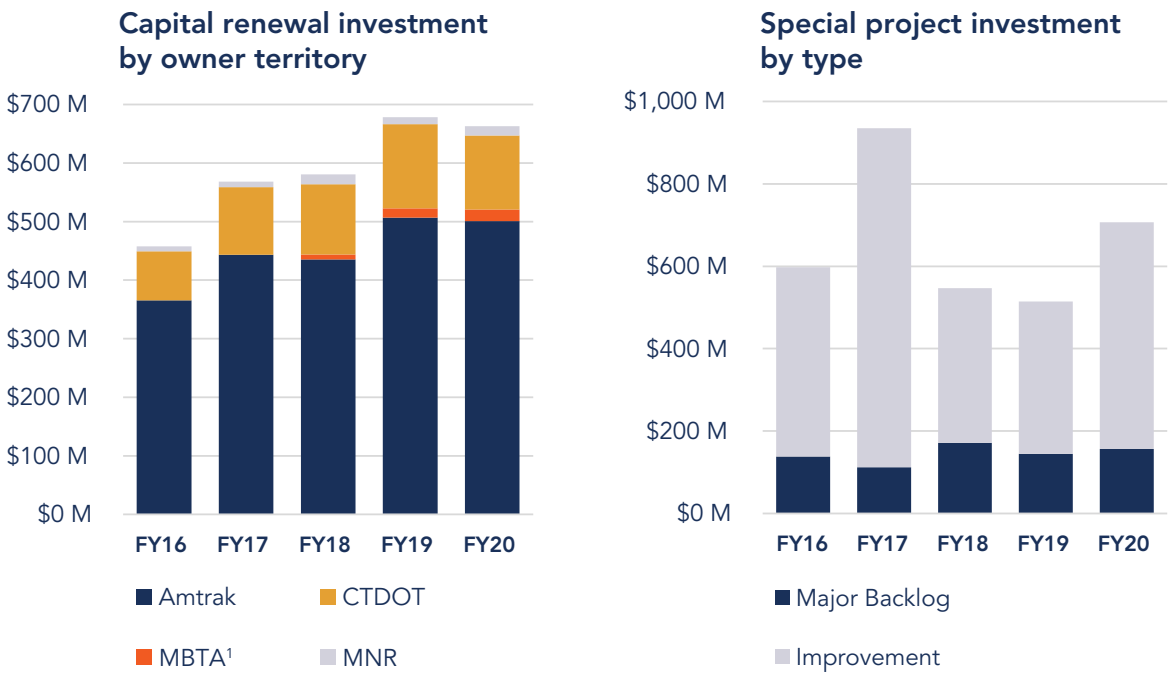
Baseline Capital Charges (BCCs). In September 2015, the Commission adopted the first Northeast Corridor Commuter and Intercity Rail Cost Allocation Policy. Under this policy, all passenger railroads operating on the NEC agreed to contribute funding toward the capital needs of the corridor based on a consistent formula to be followed by all parties. For fiscal year 2021, the level set by the Policy for these contributions was $616 million.

While BCCs are not themselves an original source (i.e., they are raised from a variety of sources at the disposal of each individual operator), they do represent an ongoing commitment from rail operators to fund the NEC's basic capital needs. To supplement other sources, BCC payments flow from operators to the four infrastructure owners (Amtrak, MBTA, CTDOT, and MTA Metro-North) who invest the funds provided in renewal or replacement of the corridor's basic infrastructure assets, such as track, structures, electric power supply systems, and communication and signal systems. Only by exception can they be used on major bridges and tunnels or improvements.

Amtrak's NEC Operating Surplus. Prior to the pandemic, Amtrak's NEC services consistently earned more in revenue each year than they cost to operate and generated an operating surplus. This surplus was as much as several hundred million dollars per year and was in part supported by several hundred million dollars per year in operating payments made by other railroad operators through the Cost Allocation Policy. Amtrak reinvests these funds back into the corridor, into both the infrastructure needs described in this report, and into other NEC needs such as rolling stock.

Amtrak's Northeast Corridor Account. Amtrak is both a major NEC infrastructure owner, and a major operator. Therefore, it both receives funding from other operators and contributes its own funds to invest in the corridor. Required contributions that are not funded by Amtrak's NEC operating surplus come out of its Northeast Corridor Account. Each year, as part of its annual legislative and grant request to Congress, Amtrak requests funding for the NEC account. Amounts for this account that are provided by Congress are invested in NEC infrastructure and other NEC needs, such as rolling stock.

Figure 9-4: Historic Capital Renewal and Special Project Investment



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

Source: NEC Commission Annual Report, FY 2020

State and Agency Sources. Each state and transit agency along the NEC has its own revenue sources that fund transportation investment. In some cases, states and transit agencies use these sources on NEC projects, sometimes as local matches for federal grants described below or as a means of sourcing their BCC payments.

Federal Formula-Based Sources. FTA has several formula-based grant programs allocated to geographic areas and, ultimately, transit agencies or providers. Agencies have some discretion in how to spend such funds within defined allowable uses. In some cases, states and transit agencies decide to spend some of their allocation on NEC projects, either as contributions to special projects or as a means of sourcing their BCC payments.

Federal Project-Based Competitive Grants. NEC infrastructure investment is an eligible activity under a variety of past and present federal competitive grant programs. Agencies may apply for funding, and occasionally awards are made for NEC projects. Some programs may only be applied for by commuter railroads because of their status as transit agencies under federal law, while others are open to all NEC agencies. Current competitive grant programs funding NEC projects include:

- USDOT's Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program (formerly known as the TIGER or BUILD program)
- FTA Sec. 5309 Capital Investment Grants
- FRA Consolidated Rail Infrastructure and Safety Improvements (CRISI) Grant Program
- FRA Federal-State Partnership for State of Good Repair Grant Program

These programs, while currently beneficial for the NEC, present several challenges for implementing C35. First, they are national programs and the funding needs of the NEC are so large that C35 could vastly reduce the amount of funding available for projects elsewhere in the country.

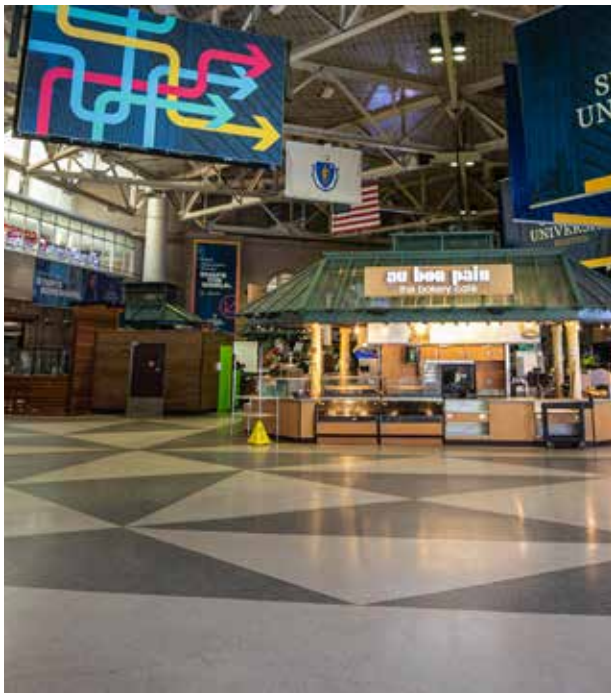
Second, these programs can be intensely competitive and often receive double, triple, or more in applications than available funds. This dynamic results in "grant bingo" where year-on-year agencies have no certainty which, if any, of their projects will be able to advance. This funding uncertainty makes it difficult to advance design and acquire the resources (e.g., workforce, equipment, materials) to implement projects in an efficient and timely fashion. As a result, the sequencing identified in C35 could not be implemented and there would potentially be a greater disruption to customers, with the same tracks and services impacted more than once.

Third, these programs implement individual projects, and often only those meeting narrow criteria, not coordinated plans. C35 analyses were tailored to the unique circumstances of constructing projects on the nation's busiest passenger railroad. The resulting plan is an elaborate choreography of interdependent track outages that advances project construction while supporting over 2,000 daily trains in as efficient a manner as possible. Project-based competitive grants and their associated uncertainty would not ensure that all projects sequenced to occur at a particular time would have funding to do so.

Public-Private Partnerships

The Commission embraces and encourages opportunities for the real estate value created by the existing NEC and future C35 investments to help close the funding gap. Value capture strategies like tax increment financing, special assessments, and joint development projects are financing tools that can create revenue streams to pay back loans that cover the upfront costs of building infrastructure. Stations are the components of passenger rail infrastructure that most directly affect real estate value and are the most feasible projects for which value capture strategies can help raise revenue to finance investment.

However, most C35 investments are in track, bridges, tunnels, power supply, and signal systems. While those assets comprise the system that delivers NEC service, such individual projects have a less direct connection with real estate value. Other than real estate value, the only revenue generated by the NEC that is available to fund or finance NEC investment is the operating surplus from Amtrak's intercity service ticket sales. However, those funds historically help defray other existing NEC costs, such as those related to buying and maintaining train equipment and paying Amtrak's BCC obligation for ongoing infrastructure capital renewal. Those operating surpluses have also at least temporarily become a victim of the coronavirus pandemic. These realities reinforce the importance of the proposed federal-state partnership to close the funding gap for advancing C35.



Interior of Boston South Station (MA)

Principles for an NEC Funding Program

The Commission established principles for a federal-state funding partnership in its original Cost Allocation Policy approved in 2015, particularly for the elimination of the SOGR backlog and the improvement of service. The C35 planning process has only reaffirmed the importance of these original principles as the magnitude of the NEC's investment need and the complexities of construction on the nation's busiest passenger railroad were analyzed in greater detail. Below are principles for a new or restructured funding program to implement C35.

Make Funding Predictable. C35's immense workforce and other resource needs and the project development process make funding predictability critically important. While agencies are currently hiring to fill existing gaps, agencies cannot hire workers and buy equipment to allow for higher investment levels when there is no certainty that funding will be available in the future. Agencies are reluctant to invest time and money in advancing projects through the design and development process when there is no certainty that funding will be available to construct them. The only way agencies can do this preparatory work in an efficient manner is when they know what funding is on the way.

Fund the Plan Rather than Individual Projects. C35 is a detailed 15-year sequence of NEC investment focused on maximizing the productivity and efficiency of track outages and minimizing service impacts to passengers. Commuter rail agencies and Amtrak will need to carry out different parts of this plan according to a specific timeline. The uncertainty inherent in project-based annual grant competitions and relying on a patchwork of FRA and FTA funding sources prevents agencies from executing work according to this kind of plan efficiently. Funding allocations should be made in a manner that supports advancing projects in a coordinated fashion. The program that built the Interstate Highway System addressed this challenge by giving each state annual grants eligible to fund any and all designated projects in a pre-approved plan.

Many C35 outcomes are achievable not through the implementation of individual projects, but by the synergies created by multiple projects at multiple locations, in some cases in multiple states. Travel time benefits, for example, are generated by dozens of slight curve modifications made during track rehabilitation and hundreds of miles of overhead catenary reconstruction. Less than full funding for the plan simply means those benefits will take longer than 15 years to achieve. Though C35's funding needs are large, they represent a once-in-many-generations investment to restore a vital asset and build a foundation for growth.

Passenger waiting for a train at Baltimore Penn Station (MD)

Table 9-1: C35 Estimated Funding Need - Special Projects and Capital Renewal (billion 2020$)

Project		State	TOTAL Remaining Project Cost	SPEND BY FEDERAL FISCAL YEAR			TOTAL Spend Between FY22-FY36	TOTAL Available Funding	TOTAL C35 Funding Need Yr 1-15
				Yr 1-5 FY22-FY26	Yr 6-10 FY27-FY31	Yr 11-15 FY32-FY36			
SPECIAL PROJECTS									
Boston South Station Expansion		MA	$2.25	$0.05	$0.82	$1.39	$2.25		$2.25
Massachusetts Third Track (Readville to Canton)		MA	$0.14	$0.05	$0.08		$0.14		$0.14
RIDOT Stations: Warwick/ T.F. Green Airport		RI	$0.18	$0.18			$0.18	$0.00	$0.18
Connecticut River Bridge Replacement (SLE)	*	CT	$0.42	$0.18	$0.25		$0.42	$0.07	$0.37
SPG Line: Hartford Station Relocation		CT	$0.51	$0.05	$0.46		$0.51		$0.51
Devon Bridge Replacement	*	CT	$0.95	$0.17	$0.78		$0.95	$0.01	$0.95
Saugatuck River Bridge Replacement	*	CT	$0.36	$0.01	$0.18	$0.17	$0.36	$0.01	$0.35
Walk Bridge Program	*	CT	$0.68	$0.68			$0.68	$0.57	$0.69
Cos Cob Bridge Replacement	*	CT	$1.00	$0.10	$0.79	$0.10	$1.00		$1.00
Penn Station Access		NY	$1.51	$1.51			$1.51	$0.03	$1.55
Pelham Bay Bridge Replacement	*	NY	$0.59	$0.05	$0.30	$0.24	$0.59		$0.59
East River Tunnel Rehabilitation	*	NY	$1.16	$1.16			$1.16	$0.00	$1.16
Gateway: Penn Station Expansion		NY	$9.15	$4.75	$4.40		$9.15	$0.00	$9.15
Gateway: Penn Station Expansion Property Acquisition		NY	$1.75	$1.60	$0.15		$1.75		$1.75
Penn Station New York: Reconstruction Master Plan		NY	$6.53	$4.10	$2.42		$6.53	$0.03	$6.85
Penn Station New York Reconstruction Master Plan Property Acquisition		NY	$0.25	$0.25			$0.25		$0.25
Gateway: Hudson Tunnel Project	*	NY/ NJ	$11.56	$4.68	$6.18	$0.70	$11.56		$11.60
Gateway: Highline Renewal and State of Good Repair	*	NJ	$0.24		$0.08	$0.16	$0.24		$0.24
Gateway: Secaucus Station and Loop Tracks		NJ	$1.62		$0.73	$0.89	$1.62		$1.62
Gateway: Portal North Bridge	*	NJ	$1.74	$1.74			$1.74	$1.80	
Gateway: Portal South Bridge		NJ	$3.77	$0.28	$2.23	$1.25	$3.77		$3.77
Gateway: Sawtooth Bridge	*	NJ	$1.43	$0.68	$0.75		$1.43		$1.44
Gateway: Dock Bridge Rehabilitation		NJ	$0.06	$0.06			$0.06	$0.01	$0.05
Gateway: NJT Storage Yard		NJ	$1.88	$0.56	$1.33		$1.88		$1.88
Gateway: Harrison Fourth Track Phase 1		NJ	$0.07	$0.07			$0.07		$0.08

Pre-construction *Construction* *Property Acquisition* * *Major Backlog Project*

Project	State	TOTAL Remaining Project Cost	SPEND BY FEDERAL FISCAL YEAR			TOTAL Spend Between FY22-FY36	TOTAL Available Funding	TOTAL C35 Funding Need Yr 1-15
			Yr 1-5 FY22-FY26	Yr 6-10 FY27-FY31	Yr 11-15 FY32-FY36			
SPECIAL PROJECTS								
Newark Penn Station: NJ TRANSIT Projects	NJ	$0.53	$0.21	$0.31	$0.01	$0.53	$0.02	$0.51
Philadelphia 30th Street Station District Plan Implementation	PA	$0.35	$0.35			$0.35	$0.01	$0.35
SEPTA Airport Line Separation Project	PA	$0.07		$0.01	$0.06	$0.07		$0.07
Harrisburg Line Interlocking Improvement Program	PA	$0.31	$0.13	$0.18		$0.31	$0.00	$0.31
Harrisburg Line Catenary & Signal	PA	$0.26	$0.07	$0.19		$0.26	$0.02	$0.25
Landlith Interlocking - Wine Interlocking NEC Section Improvement Project	DE	$0.73	$0.10	$0.62		$0.73		$0.73
Susquehanna River Bridge Replacement (Phase 1) *	MD	$2.07	$1.72	$0.35		$2.07	$0.01	$2.08
Susquehanna River Bridge Replacement (Phase 2)	MD	$0.56	$0.11	$0.45		$0.56		$0.56
Bush River Bridge Major Rehabilitation *	MD	$0.35		$0.25	$0.10	$0.35		$0.35
Gunpowder River Bridge Major Rehabilitation *	MD	$0.48		$0.05	$0.43	$0.48		$0.48
Baltimore Penn Station Master Plan	MD	$0.10	$0.10			$0.10		$0.12
Baltimore & Potomac Tunnel Replacement: Enabling Components *	MD	$0.33	$0.16	$0.17		$0.33	$0.01	$0.34
Baltimore & Potomac Tunnel Replacement: The Tunnel Proper *	MD	$3.60	$0.90	$2.14	$0.56	$3.60	$0.04	$3.62
Washington Union Station: All phases (near term, subbasement and long term)	DC	$10.48	$2.20	$2.26	$3.37	$7.84	$0.02	$7.91
Washington Union Station: Property Acquisition	DC	$0.45	$0.45			$0.45		$0.45
ALL OTHER PROJECTS – shared and intercity benefit		$8.42	$4.82	$2.57	$1.02	$8.42	$1.16	$8.22
ALL OTHER PROJECTS – commuter benefit		$1.53	$1.07	$0.38	$0.08	$1.53	$0.43	$1.27
TOTAL Special Projects		$80.43	$35.36	$31.89	$10.53	$77.78	$4.27	$76.01
CAPITAL RENEWAL								
New England Territory (NE)			$2.52	$2.09	$2.41	$7.01		
Connecticut-Westchester Territory (CTW)			$0.65	$1.26	$2.39	$4.29		
New York City Metro Territory (NYM)			$1.10	$ 2.12	$3.81	$7.03		
Mid-Atlantic North Territory (MAN)			$3.68	$5.26	$5.67	$14.62		
Mid-Atlantic South Territory (MAS)			$1.97	$1.70	$2.24	$5.91		
TOTAL Capital Renewal			$9.92	$12.43	$16.52	$38.86	$12.50*	$26.36
TOTAL C35 - Capital Renewal and Special Projects			$45.28	$44.32	$27.05	$116.64	$16.77	$102.37

**Annual BCC funding levels subject to annual approvals and will be impacted over time by escalation, service changes, and other factors.*

Source: C35 Analysis, 2021