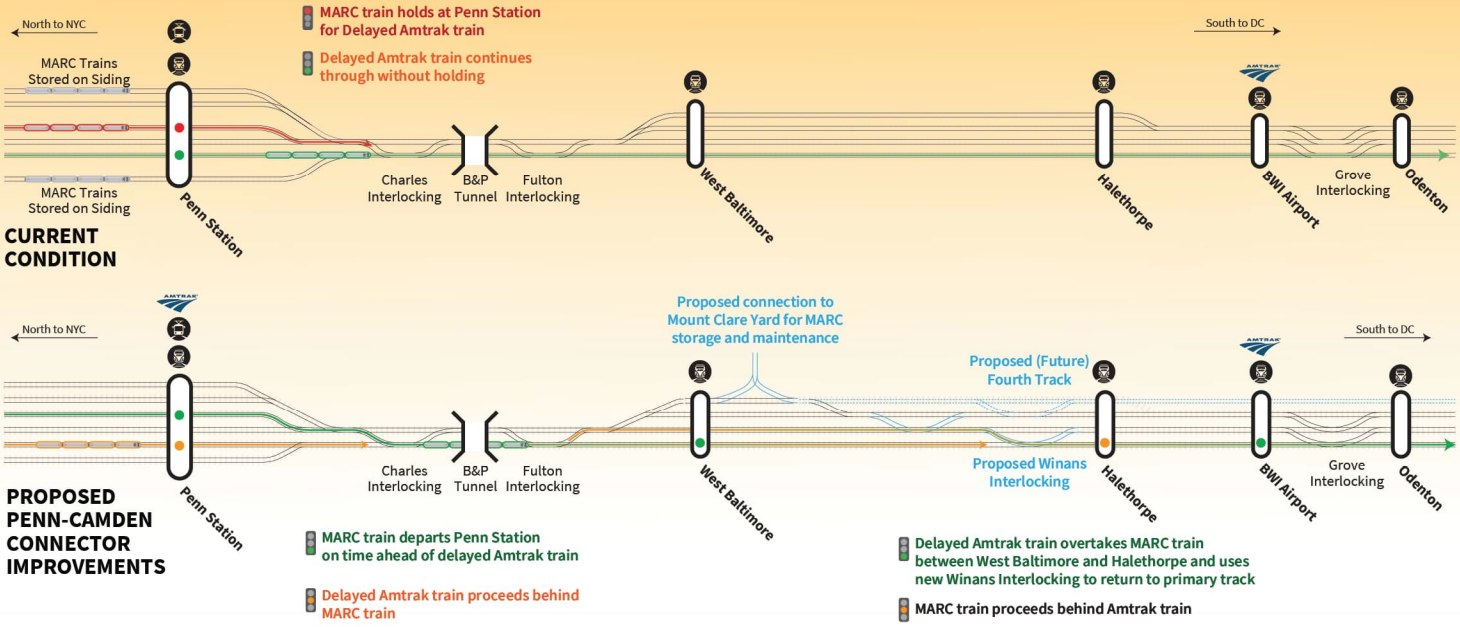

Penn-Camden Connector

DOT MPDG Mega Grant Application

FY 2025-26

Project Outcome Criteria

MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND TRANSIT ADMINISTRATION

Project Outcome Criteria

Safety

Currently there are safety issues regarding train conflicts with the increased need for freight rail service and increased demand on Northeast Corridor and MARC services as the population in MARC's core service area continues to grow. Based on forecasted demand, MARC operations into Washington Union Station are projected to increase by 50 percent by the year 2035, with Amtrak traffic on the Penn Line projected to increase by 20 percent over this same period. There is a wide variation in the future level of traffic governed by the extent MARC service is improved. Even the low end of the pre-pandemic forecast range shows almost a twofold increase in traffic through the year 2035, reflective of population growth in the MARC service area. Separating modes and reducing unnecessary non-revenue trips between Baltimore and Washington, DC will reduce conflict, and prevent collisions and derailment which measures for enhancing overall safety.

State of Good Repair

CONSISTENCY WITH ASSET MANAGEMENT PLANS

The PCC is included in both the MTA Transit Asset Management Plan (TAMP) and Capital Needs Inventory (CNI). The MTA CNI, consistent with ongoing transit asset management analyses, is a legislatively mandated document that outlines the unconstrained investment needs between 2022 and 2031 that will help MTA meet current and future service demands and system performance goals. While the MTA plans to replace some assets in kind, the agency also strategically leverages the need to replace aging assets as an opportunity to achieve necessary enhancements to the system that meet current and future service demand. The prioritization of state-of-good-repair (SGR) and enhancement needs described in the TAMP and CNI is based on six criteria: Asset Condition, Safety and Security Impact, Service Reliability, Operations and Maintenance Impact, Equity Impact, and Customer Impact.

The PCC, listed within the TAMP and CNI as 'MARC Penn Line Storage', is included within the prioritized list of highest scoring enhancement projects at #13. However, the project has the largest budget of any of the enhancement projects. While the MTA TAMP and CNI bundle together the regional mass transit system and the statewide MARC system, it is worth noting that the PCC is the third highest need for the statewide MARC system. The top two MARC enhancement priorities included in the TAMP and CNI have a fraction of the budget requirement of the PCC and are both partially – or entirely – funded already.

REDUCING LOWER LONG-TERM MAINTENANCE

The Penn-Camden Connector (PCC) will update, repurpose, and modernize current rail facilities to improve service reliability and add up to 100 years of asset service life. In addition to installing new rail infrastructure, the PCC will avoid significant deadhead miles travelled by MARC rail cars. This will reduce the wear-and-tear of transportation assets, lower the long-term maintenance needs of those vehicles, and extend their useful life.

ADDRESSING REGIONAL VULNERABILITY

The PCC provides a connection between the Penn Line and Camden Line, which introduces redundancy within the nationally significant Northeast Corridor (NEC) between Baltimore and Washington D.C. This redundancy will address vulnerabilities within the transportation system and safeguard both the movement of goods and people from any blockages along either the NEC or rail freight corridor. The need for such redundancy in the transportation network through Maryland has been highlighted by the recent collapse of the Francis Scott Key Bridge and resulting challenges to regional automobile and freight traffic.

PRIORITIZING SGR

MTA embarked on its asset management journey early, even before federal transit asset management rules went into effect. Today, as a multimodal agency operating Local Bus, Commuter Bus, MARC Train, Metro Subway, Light Rail, and paratransit service, MTA is responsible for approximately $12.6 billion in capital assets that support its transit operations. MTA's TAM planning process yields a hierarchy of documentation, starting with the development of TAM vision elements (that align with MTA's mission and strategy), MTA's Asset Management Goals and Strategy, followed by the overall TAM, and ultimately resulting in individual lifecycle management plans (LMPs) for each mode within MTA. These LMPs guide the modes to deliver the strategic asset management objectives and strategies defined at an asset class level, establishing "line of sight" from the frontline of the agency to the Administrator and Chief Executive Officer. Since 2019, the relative size of MTA's SGR backlog has decreased, and expected levels of state and federal funding will meet 98 percent of SGR needs over the next 10 years. It is with this focus and priority on maintaining SGR of the agency's assets that MTA will uphold the condition of the PCC following construction.

Economic Impacts, Freight Movement, and Job Creation

ELIMINATING FREIGHT BOTTLENECKS

The PCC will enable free-flowing freight and commuter rail service by improving operational flexibility and reducing intermodal conflicts. Shared use of the corridor by CSXT freight and operation of both freight and passenger service can result in congestion and delays, particularly during the morning and evening periods when three CSXT northbound and two southbound trains share the same tracks as nine MARC commuter trains. The new wye connection allowing CSX freight trains to bypass commuter traffic will separate these modes, alleviating congestion. Making the new connection improves service and integration between and amongst the different rail services and the redevelopment potential of Penn Station includes improved multimodal connections.

EFFECTS ON LONG-TERM COST STRUCTURES OR OVERALL LIFE-CYCLE COSTS

The Project is expected to include facilities, parking, and support operations on property adjacent to Mount Clare Yard. A prefabricated crew quarters measuring 24 feet by 50 feet will be constructed on the south side of the existing building. A service road will be constructed to

provide delivery access to the locomotive servicing tanks, sand tower, and storage containers for equipment and materials.

Security and access control features will be provided to support the Mount Clare Yard and triangular property including CCTV and access control systems and infrastructure. Fiberoptic connectivity between the Mount Clare Yard and MDOT's GigE backbone will be established from the I-95 overpass. The construction of crash walls to protect the I-95 overpass piers is anticipated.

Improvements at the Mount Clare Yard, which is currently owned by CSXT, will maximize storage for MARC trainsets and provide yard servicing facilities. The proposed Mount Clare Yard layout allows for overnight and midday storage, staging and running repair of seven sets of trains consisting of two locomotives and ten coaches, with an option for a future eighth track with the capacity to store two locomotives and seven coaches. A protect track is also proposed at the north end of the yard with the capacity to store two locomotives for rescuing trains and ensuring reliable service. Two full-length inspection pits are also provided to allow MARC trains to undergo federally mandated five-day pit inspections.

The improvements will allow the use of larger trainsets and reduce the time those trainsets are out of revenue-service, increasing both capacity and service. The new storage capacity will allow Amtrak to expand Acela intercity train service in the future.

TRANSIT IMPROVEMENTS

The Project will facilitate improved commuting conditions for the Baltimore-Washington region for workers traveling to and from jobs at local employment centers. These include the examples in Washington D.C. such as the tech and government job hubs in the city and surrounding regions. The government job sector makes up approximately 235,000 jobs in Washington, D.C. and substantial numbers in cities and counties in the surrounding region. Additionally, many tech firms located in the metropolitan region in areas such as Loudoun County, VA occupy as much as 26 million square feet in the county, most of it concentrated in Ashburn and southeastern Loudoun. This is a key data and AI hub in the United States and sees thousands of company servers and technology supported by the region. Baltimore has key industry and job centers such as Johns Hopkins University and Medical Center as well as the Port of Baltimore. The Port of Baltimore is a significant hub for the import and export of motorized vehicles. In 2023, nearly 850,000 cars and light trucks flowed through the port, more than any other U.S. port. In addition, the port is one of the closest to the many important manufacturing regions in the U.S. including Central Appalachia, and the Midwest in the Rust Belt. Reducing congestion along the Penn-Camden corridor and expanding capacity will improve commute times for workers at these employment hubs and can facilitate further job growth in this region.

Climate Change, Resiliency, and the Environment

The Project will help to reduce transportation-related air pollution by reducing the number of unnecessary movements of MARC vehicles, or "deadhead miles." By creating a more efficient route with higher capacity, and freeing up storage, the PCC will reduce the time and distance out-of-service trains travel and reduce intermodal congestion and related delays for MARC, Amtrak,

and CSX. As a result, the project will reduce diesel usage by approximately 9,266,328 gallons over a 30-year lifespan, eliminating 94,933 metric tons of greenhouse gas emissions, leading to both environmental and health improvements. By improving service and expanding capacity for MARC service, the Project may also encourage a mode-shift away from cars indirectly leading to further reductions in harmful GHG emissions.

ENVIRONMENTAL IMPACTS ON VULNERABLE COMMUNITIES

The Project will help to reduce exposure to airborne pollutants and noise coming from trains in nearby Census Tracts 2102, 2503.03, 2006, and 2008 which fall under Historically Disadvantaged Communities (HDC) in Baltimore. These communities face adverse health impacts due to the idling and congestion the train traffic creates. In tracts 2503.03 and 2006, the rates of asthma are above the 90th percentile nationwide. By installing ground power for each track, including the protect track, to power the trainsets during layover and minimize diesel engine idling, the Project will create a by 94,933 metric ton reduction in harmful emissions and lower noise pollution, ultimately benefiting health outcomes and quality of life for vulnerable communities in the project area.

Additionally, by re-purposing an existing facility instead of building a new greenfield development, the PCC reduces environmental impact. Based upon the 1999 FONSI and recent evaluation of environmental resources and impacts, MTA believes the appropriate class of action is Categorical Exclusion (CE). This emphasizes the minimal impact on stormwater runoff and possible damages to aquatic life/ecosystems. As a result of using existing track ROW and rehabilitating existing facilities, the project exhibits fiscally responsible land use and transportation-efficient design. This will reduce emissions in relation to both the construction and the use of the infrastructure.

Equity, **Multimodal Options, and Quality of Life**

The existing rail infrastructure surrounding the Penn and Camden lines is inflexible and stifled by congestion due to intermodal conflicts with both Amtrak and CSX traffic. The Project will increase flexibility and capacity on both lines by providing a new connection for off-service vehicles to transit for storage and maintenance. Constructing the lynchpin PCC will allow follow-on investments in intercity and rail connectivity, thus increasing overall access to job opportunities, including for carless households. This project also advances progress toward enabling the replacement of the Frederick Douglass Tunnel, which will facilitate significant improvements to the West Baltimore MARC Station. Transportation investments are chain reactions. The PCC will be the first crucial step in a series of transformational transportation infrastructure investments for Baltimore City and the surrounding metropolitan area, which will unlock co-benefits of decreasing auto-dependence, removing barriers to job access, increasing economic vitality, and meeting the mobility needs of a growing population. In addition, the Project will encourage ridership for other local transportation modes.(e.g., Light Rail Link, BaltimoreLink Bus, etc.).

QUALITY OF LIFE

By reducing intermodal congestion, allowing for 10-car trains (not just eight), and eliminating unneeded deadhead miles, the PCC will lead to improved on-time-performance for MARC trains, accommodate a larger ridership, and reduce freight and Amtrak delays. Better service benefits quality of life for transit users and makes transit a more desirable travel option.

Additionally, the reduction of train traffic through the area to Washington Union Station – instead diverting through the project area – would reduce overall emissions within the project area, which already faces environmental justice (EJ) issues, such as asthma. According to BCA calculations, Project implementation will result in a 142,400 metric ton drop in emissions, due largely to the elimination of excess deadhead miles and turn backs for MARC trains. The project will create a safer, healthier, and more inviting atmosphere for walking and other non-motorized travel within the PCC Project area, which will promote healthier lifestyles. A reduction in air pollution and harmful emissions will also generate positive effects on air quality that can reduce the high rates of asthma and other health conditions that affect area residents.

Table: Emissions Benefits, Millions of 2022 Dollars

	Project Lifecycle		
Benefit	**Metric Tons**	**Undiscounted**	**Discounted (3.1%)**
CO2 Emissions Reduction*	94,677	$30.6	$18.8
NOx Emissions Reduction	236.0	$5.2	$2.6
PM2.5 Emissions Reduction	3.2	$3.4	$1.8
S02 Emissions Reduction	17.4	$1.1	$0.5
Total Emissions Reduction	94,933	$40.3	$23.8

The PCC project contributes to environmental justice by reducing emissions and crash potential in historically disadvantaged areas. The reduction in harmful emissions falls under Baltimore City's climate goals in line with the GHG emissions plan for Maryland in 2050. The project will also engage in targeted outreach to underserved groups, as part of the projects ongoing effort to avoid or mitigate potential impacts to EJ and vulnerable populations.

Innovation Areas: Technology, Project Delivery, and Financing

An accelerated project delivery model through single-contractor design epitomizes efficiency and punctuality, highlighting the Project's commitment to project delivery innovation.

MTA plans to conduct an internal workshop to identify efficient, context-driven, innovative project delivery mechanisms based on guidance from the Transit Cooperative Research Program (TCRP), housed within the Transportation Research Board. Sponsored by the Federal Transit

Administration, the TCRP serves as one of the principal research institutions developing innovative near-term solutions that meet the increasing demands placed on the public transportation industry.

The PCC project will encourage innovative approaches to project delivery by considering use of multiple Construction Manager at Risk (CMARs) and Guaranteed Maximum Price (GMPs) to de-risk the project and accelerate final design and construction, especially during critical early stages.