



MEADOWLANDS BEB SOLAR CHARGING FACILITY

Submitted by:

NJ Transit Corporation

**One Penn Plaza
East Newark, NJ 07105-2246**

**John P. Gray
Chief, Capital Compliance, Budget, & Administration**

NJ TRANSIT
The Way To Go.



Cover Page

Applicant Information: New Jersey Transit Corp

Primary contact name - John P. Gray

Phone number - 973-491-8553

Email address - JPGray@njtransit.com

Type of Application: Individual application

Funding Requested:

Facility Option A - \$223,570,393 for 180,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 175 battery-electric buses (BEB).

Facility Option B - \$176,307,613 for 142,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 138 BEB/

Facility Option C - \$134,412,235 for 108,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 105 BEB.

Facility Option D- \$58,767,075 for 48,300 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 46 BEB.

Application Meadowlands BEB Solar Charging Facility

Brief Description of GHG Measures: The scalable project consists of a solar canopy array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging battery electric buses (BEB). The solar array will also charge the BEB which also produces zero emissions out the tailpipe, therefore increasing GHG reductions.

Sector(s): Electricity Generation & Transportation.

Expected Total Cumulative GHG Emission Reductions: See Appendix C & D.

Project	Total GHG Reductions 2025 to 2030 (MT)	Total GHG Reductions 2025 to 2050 (MT)
1. Facility Option A - Charging equipment, infrastructure, and 180,000 Sq Ft solar canopy for 175 BEB depot	78,107	390,536
2. Facility Option B - Charging equipment, infrastructure, and 142,000 Sq Ft solar canopy for 138 BEB depot	61,599	307,996
3. Facility Option C - Charging equipment, infrastructure, and 108,000 Sq Ft solar canopy for 105 BEB depot	46,865	234,327

MEADOWLANDS BEB SOLAR CHARGING FACILITY

4. Facility Option D - Charging equipment, infrastructure, and 48,300 Sq Ft solar canopy for 46 BEB depot	20,601	103,007
---	--------	---------

MT= Metric Tons CO2e

Location(s): 2600 Penhorn Avenue, North Bergen, New Jersey 07047.

Applicable PCAP Reference(s):

The lead agencies are New Jersey Department of Environmental Protection, New Jersey Board of Public Utilities, and the Governor's Office of Climate Action and the Green Economy.

New Jersey's Priority Climate Action Plan (PCAP), March 2024 can be found at:

<https://dep.nj.gov/climatechange/mitigation/cprg/>. For the full document, see attachment:

NJPCAP_NJTRANSIT.pdf.

This project falls under GHG reduction priority measure Transportation 01 Achieve 30% zero-emission medium- and heavy-duty vehicle sales by 2030 and 100% by 2050, page 15 & 99 and Electric Generation 07 Achieve 12.2 GW of solar in-state by 2030, page 48 & 101.

Workplan

SECTION 1: OVERALL PROJECT SUMMARY AND APPROACH

a. Description of GHG Reduction Measures

NJ TRANSIT is proposing a solar canopy array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of battery-electric buses (BEBs) with scalable options. Solar energy is a renewable resource, thus generating electricity from solar releases zero greenhouse gas (GHG) emissions. Additionally, the solar array charging the BEBs produces zero emissions from the tailpipe, therefore increasing the total GHG reductions from the project's implementation.

The project can consist any of the following scaled options: The project's scalable options include:

Facility Option A - \$224 M for 180,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 175 BEBs.

Facility Option B - \$180 M for 142,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 138 BEBs.

Facility Option C - \$134 M for 108,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 105 BEBs.

Facility Option D- \$60 M for 48,300 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 46 BEBs.

All project options would include battery storage to provide resilience during extreme events to help keep the system running. This outdoor solar charging facility will help increase the capacity for more BEBs as NJ TRANSIT continues to electrify its bus fleet. The area will allow for further storage of BEBs at the garage as some operations shift to the Meadowlands Garage location while infrastructure upgrades are performed at other garages.

Solar energy is a renewable resource, thus generating electricity from solar releases zero harmful emissions. Using The National Renewable Energy Lab, NREL's PVWatts, a 180,000 Sq Foot Solar Canopy Array at the Meadowlands Garage parking lot, located at 2600 Penhorn Avenue, North Bergen, NJ 07047, requires a 2,675 kW DC system that has an estimated output of ~3,582,307 kWh/Year. Per the Environmental Protection Agency (EPA) GHG Equivalencies Calculator this is an avoidance of 2,503 Metric Tons (MT) of CO₂e per year. This is equivalent to greenhouse gas emissions from 557 gasoline-powered passenger vehicles driven and 315 homes' energy use for one year. See Appendix C Technical Appendix for detailed methodology and Appendix D GHG emission reduction calculations spreadsheet.

The solar array and charging facility will house future articulated BEBs. Room to store larger buses will increase ridership capacity and may reduce trips. More riders on public transit means less emissions from private automobiles.

Using the EPA's Diesel Emission Quantifier tool, 175 BEBs would reduce 13,118 MT of GHG emissions annually. This is equivalent to greenhouse gas emissions from 2,919 gasoline-powered passenger vehicles driven and 1,653 homes' energy use for one year. See Appendix D GHG emission reduction calculations spreadsheet. BEBs also reduce dependence on fossil fuels because they are typically charged using electricity from the greater power grid. As the power grid becomes cleaner through the increasing use of renewable energy sources, the overall emissions associated with the electricity used to charge BEBs decreases.

Additionally, the community and state will benefit from an overall reduction in tailpipe emissions. Unlike traditional internal combustion engines, BEBs do not emit toxic co-pollutants such as nitrogen oxides (NOx), particulate matter (PM), carbon monoxide (CO), sulfur dioxide (SO₂), & volatile organic compounds (VOCs). Unlike fossil fuel production, there is no release of additional co-pollutants from renewable energy that would negatively impact communities. The solar array will be used to power and charge the BEBs onsite, furthering the GHG and co-pollutant reductions via the BEBs themselves. In fact, for Facility Option A the annual solar output from the 180,000 sq ft solar canopy is 3,582,307 kWh/year. Using the following assumptions below, the estimated annual energy required by 175 buses is 3,832,500 kWh per year. Therefore, the solar canopy can fully charge the buses with onsite, clean, and pollution-free electricity.

Efficiency 2.5 kWh/mile

Miles drove per day 150 miles

Number of buses 175 buses

Energy/bus 60 kWh

Energy Required 10,500 all buses/day

Transitioning NJ TRANSIT's vast bus fleet to zero-emission buses requires a complete overhaul of our 18 bus garages, fleet, and transit network. Funding constraints for both vehicles and infrastructure continue to be a challenge to meet the aggressive zero-emission bus deployment mandate. Global supply chain issues for BEB components continue to hinder swift BEB procurements and delivery of vehicles, while inflation continues to keep costs high.

Implementing and procuring solar electricity via a power purchase agreement is an ongoing discussion at NJ TRANSIT and offers unique challenges as a new form of contract mechanism for NJ TRANSIT. Ongoing operation and maintenance of the solar array will take careful coordination with a vendor. Further regulatory constraints, such as Buy America, can also delay procurement and implementation of projects due to higher costs, limited supplier options, and supply chain issues.

The New Jersey Priority Climate Action Plan (PCAP) prioritizes the transportation and electric generation sectors because they are the top emitting sectors (see attachment: NJPCAP_NJTRANSIT.pdf). In 2021, the transportation sector, the largest GHG source in the State, contributed 37.3 million metric tons of carbon dioxide equivalent (MMT CO₂e) (GWP100), or 38% of total net statewide emissions. The electric generation sector in 2021 contributed 19.1 million metric tons of carbon dioxide equivalent (MMT CO₂e) (GWP100) or 20% of net statewide emissions. This project addresses the specific priority measures of Transportation 01: Achieve 30% zero-emission medium- and heavy-duty vehicle sales by 2030 and 100% by 2050, and Electric Generation 07: Achieve 12.2 GW of solar in-state by 2030. The solar array charging depot will support renewable instate solar and this solar array charging depot will allow NJ TRANSIT to expand its BEB fleet, thus supporting zero-emission vehicle sales and further GHG reductions.

b. Demonstration of Funding Need

NJ TRANSIT is committed to meeting the statutory mandate that all NJ TRANSIT bus purchases made on or after December 2024 must include at least 10% zero-emission buses, escalating to 50% by December 2026, and 100% by December 2032. Transitioning NJ TRANSIT's vast bus fleet to zero-emission buses requires a complete overhaul of our 18 bus garages, fleet, and transit statewide network. Fundings constraints for both vehicle and infrastructure continue to be a challenge to meeting the aggressive zero-emission bus deployment mandate.

Currently dedicated federal funds for this project include a Federal Highway Administration (FHWA) funding award of \$38M in September 2023. NJ TRANSIT is anticipating programming state funds (Transportation Trust Fund) in the absence of additional federal funds. CPRG funds are needed to realize the maximum size and charging and storage capabilities that the site can accommodate.

The Meadowlands charging and solar canopy project will be a key piece of the overall Bus Garage Modernization, allowing for more storage and charging of BEBs as operations shift to the Meadowlands to allow for infrastructure upgrades at other garages. The Meadowlands Bus Garage is a critical element of NJ TRANSIT's statewide bus network. Improving and expanding BEB charging infrastructure is essential to the efficiency of the Garage and ultimately for providing safe, reliable transportation to thousands of residents that are dependent on this robust regional transit system. The Garage houses 238 buses (comprising 12% of NJ TRANSIT's total fleet) servicing 32 routes located primarily in Bergen, Passaic, and Hudson Counties. Additionally, fifteen bus routes terminate at NYC's Port Authority Bus Terminal, making the Garage a vital element of NJ TRANSIT's Trans-Hudson service offerings.

c. Transformative Impact

Installing solar and storage to charge battery-electric buses will magnify the GHG reductions from NJ TRANSIT operations. This type of project would be a first for NJ TRANSIT and will help the agency build resilient and sustainable operations. This project can then be replicated and scalable at other NJ TRANSIT bus garages, bringing additional resiliency and GHG reductions to

operation and fleet. This project supports the State's transition to zero-emission vehicles where modern buses and faster, more frequent service would greatly enhance transit attractiveness, reliability, and increase accessibility and mobility. This is especially true given that the majority of NJ TRANSIT's current fleet are beyond or nearing their useful life, with over 53% of the fleet ten years or older.

SECTION 2: IMPACT OF GHG REDUCTION MEASURES

a. Magnitude of GHG Reductions from 2025 through 2030

Facility Option A would build a 180,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 175 BEBs. Using the EPA's Diesel Emissions Quantifier (DEQ) tool, this number of BEBs will lead to annual GHG reductions of 13,118 MT. A solar canopy array of this size can output 3,582,307 kWh per year according to the NREL PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 2,503 MT in annual GHG reduction. Therefore, total GHG reductions equal 15,621 MT per year. From 2025 through 2030, these annual reductions will result in 78,107 MT of GHG reductions. Per the EPA GHG Equivalencies Calculator this is equivalent to the greenhouse gas emissions from 18,590 gasoline-powered passenger vehicles driven and 10,186 homes' energy use for one year. This is equivalent to greenhouse gas emissions avoided by 20.6 wind turbines running for one year.

Facility Option B would build a 142,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 138 BEBs. Using the EPA's DEQ tool, this number of BEBs will lead to annual GHG reductions of 10,345 MT. A solar canopy array of this size can output 2,827,028 kWh per year according to NREL's PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 1,975 MT in annual GHG reductions. Therefore, total GHG reductions equal 12,320 MT per year. From 2025 through 2030, these annual reductions will result in 61,599 MT of GHG reductions.

Facility Option C would build a 108,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 105 BEBs. Using the EPA's DEQ tool, this number of BEBs will lead to annual GHG reductions of 7,871 MT. A solar canopy array of this size can output 2,149,955 kWh per year according to NREL's PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 1,502 MT in annual GHG reduction. Therefore, total GHG reductions equal 9,373 MT per year. From 2025 through 2030, these annual reductions will result in 46,865 MT of GHG reductions.

Facility Option D would build a 48,300 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 46 BEB. Using the EPA's DEQ tool, this number of BEBs will lead to annual GHG reductions of 3,448 MT. A solar canopy array of this size can output 961,581 kWh per year according to NREL's PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 672 MT in annual GHG reductions. Therefore, total GHG reductions equal 4,120 MT per year. From 2025 through 2030, these annual reductions will result in 20,601 MT of GHG reductions.

Utilizing solar power to charge the BEBs will result in a permanent reduction in emissions. First, electricity production from solar causes a reduction in emissions, compared to traditional grid electricity, which often relies on fossil fuels. Second, BEBs produce zero GHG emissions and do not emit toxic co-pollutants such as NO_x, PM, CO, SO₂ & VOCs compared to diesel-powered buses. These reductions will be realized immediately in the community and will remain over time.

b. Magnitude of GHG Reductions from 2025 through 2050

Facility Option A would build a 180,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 175 BEBs. Using the EPA's Diesel Emissions Quantifier (DEQ) tool, this number of BEBs will lead to annual GHG reductions of 13,118 MT. A solar canopy array of this size can output 3,582,307 kWh per year according to the NREL PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 2,503 MT in annual GHG reductions. Therefore, total GHG reductions equal 15,621 MT per year. From 2025 through 2050, these annual reductions will result in 390,536 MT in GHG reductions. Per the EPA GHG Equivalencies Calculator, this is equivalent to greenhouse gas emissions from 92,948 gasoline-powered passenger vehicles driven and 50,930 homes' energy use for one year. This is equivalent to greenhouse gas emissions avoided by 103 wind turbines running for one year.

Facility Option B would build a 142,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 138 BEBs. Using the EPA's DEQ tool, this number of BEBs will lead to annual GHG reductions of 10,345 MT. A solar canopy array of this size can output 2,827,028 kWh per year according to NREL's PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 1,975 MT in annual GHG reductions. Therefore, total GHG reductions equal 12,320 MT per year. From 2025 through 2050, these annual reductions will result in 307,996 MT in GHG reductions.

Facility Option C would build a 108,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 105 BEBs. Using the EPA's DEQ tool, this number of BEBs will lead to annual GHG reductions of 7,871 MT. A solar canopy array of this size can output 2,149,955 kWh per year according to NREL's PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 1,502 MT in annual GHG reductions. Therefore, total GHG reductions equal 9,373 MT per year. From 2025 through 2050, these annual reductions will result in 234,327 MT in GHG reductions.

Facility Option D would build a 48,300 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 46 BEBs. Using the EPA's DEQ tool, this number of BEBs will lead to annual GHG reductions of 3,448 MT. A solar canopy array of this size can output 961,581 kWh per year according to NREL's PVWatts Calculator. According to the EPA GHG Equivalencies Calculator this amounts to 672 MT

in annual GHG reductions. Therefore, total GHG reductions equal 4,120 MT per year. From 2025 through 2050, these annual reductions will result in 103,007 MT in GHG reductions.

Overtime, the cumulative impact of using renewable solar energy for charging BEB will be substantial. As more buses are electrified, more solar canopies are deployed, and the grid becomes cleaner, the cumulative reduction in GHG emissions will grow and remain permanent, contributing to long-term climate mitigation efforts and healthier communities in New Jersey.

c. Cost Effectiveness of GHG Reductions

Facility Option A would build a 180,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 175 BEBs. This option is estimated to cost \$223,570,393 and constitutes the funding request for this option. From 2025 to 2030 the total GHG reductions are expected to total 78,107 MT. Therefore, this option will cost \$2,862.35 per MT of GHG reductions from 2025 to 2030.

Facility Option B would build a 142,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 138 BEBs. This option is estimated to cost \$176,307,612 and constitutes the funding request for this option. From 2025 to 2030 the total GHG reductions are expected to total 61,599 MT. Therefore, this option will cost \$2,862.18 per MT of GHG reductions from 2025 to 2030.

Facility Option C would build a 108,000 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 105 BEBs. This option is estimated to cost \$134,142,236 and constitutes the funding request for this option. From 2025 to 2030 the total GHG reductions are expected to total 46,865 MT. Therefore, this option will cost \$2,862.29 per MT of GHG reduction from 2025 to 2030.

Facility Option D would build a 48,300 Sq Foot Solar Canopy Array, charging equipment, and related infrastructure at the Meadowlands Bus Depot to support the housing and charging of 46 BEBs. This option is estimated to cost \$58,767,074 and constitutes the funding request for this option. From 2025 to 2030 the total GHG reductions are expected to total 20,601 MT. Therefore, this option will cost \$2,852.58 per MT of GHG reduction from 2025 to 2030.

Some factors that may affect the cost effectiveness of the project include the costs of the solar panels, inverters, canopy structure materials and battery equipment may vary or increase depending on inflation, market conditions, or global supply chain disruptions. These factors, along with further regulatory constraints such as Buy America, can delay procurement and implementation of projects due to higher costs, limited supplier options, and supply chain issues.

d. Documentation of GHG Reduction Assumptions

See Appendix C Technical Appendix and Appendix D GHG emission reduction calculations spreadsheet, file names: Techappx_NJTRANSIT.docx and GHGcalcs_NJTRANSIT.xlsx

SECTION 3: ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES

a. Expected Outputs and Outcomes

Federally, this project supports the FY 2022 – FY 2026 EPA Strategic Plan’s Goal 1: Tackle the Climate Crisis Objective 1.1: Reduce Emissions that Cause Climate Change and the underlying strategy of Reducing GHG Emissions from the Transportation Sector; Goal 4: Ensure Clean and Healthy Air for All Communities Objective; 4.1: Improve Air Quality and Reduce Localized Pollution and Health Impacts is reinforced by this project.

At the State level, this project supports NJ’s efforts in the Energy Master Plan to decarbonize the transportation sector and accelerate deployment of renewable energy. This project supports NJ TRANSIT meeting the statutory mandate that all NJ TRANSIT bus purchases made on or after December 2024 must include at least 10% zero-emission buses, escalating to 50% by December 2026, and 100% by December 2032. It also support’s New Jersey’s Priority PCAP priority measure Transportation 01: Achieve 30% zero-emission medium- and heavy-duty vehicle sales by 2030 and 100% by 2050, and Electric Generation 07: Achieve 12.2 GW of solar in-state by 2030.

Outputs from Facility Option A include the construction of a 180,000 Sq Foot Solar Canopy Array, charging equipment, battery storage, and related infrastructure to support the housing and charging of 175 BEBs. Additionally, there will be progress reports and a final report as required by the grant award. The outcome of this option will result in a total GHG reduction of 78,107 MT from 2025 to 2030 and 390,536 MT from 2025 to 2050.

Outputs from Facility Option B include the construction of a 142,000 Sq Foot Solar Canopy Array, charging equipment, battery storage, and related infrastructure to support the housing and charging of 138 BEBs. Additionally, there will be progress reports and a final report as required by the grant award. The outcome of this option will result in a total GHG reduction of 61,599 MT from 2025 to 2030 and 307,996 MT from 2025 to 2050.

Outputs from Facility Option C include the construction of a 108,000 Sq Foot Solar Canopy Array, charging equipment, battery storage, and related infrastructure to support the housing and charging of 105 BEBs. Additionally, there will be progress reports and a final report as required by the grant award. The outcome of this option will result in a total GHG reduction of 46,865 MT from 2025 to 2030 and 234,327 MT from 2025 to 2050.

Outputs from Facility Option D include the construction of a 48,300 Sq Foot Solar Canopy Array, charging equipment, battery storage, and related infrastructure to support the housing and charging of 46 BEBs. Additionally, there will be progress reports and a final report as required by the grant award. The outcome of this option will result in a total GHG reduction of 20,601 MT from 2025 to 2030 and 103,007 MT from 2025 to 2050.

All the options listed above will have similar outcomes in bringing cleaner air to the immediate communities and the routes served because of the reduction in GHG emissions from solar-charged BEBs. Furthermore, there will be a reduction in harmful criteria air pollutants (CAP) such as, NO_x, PM, CO, SO₂ & VOCs. This can lead to greater health benefits in communities where respiratory diseases are common.

In addition to emissions reductions, the transition to a ZEB fleet will eventually lessen the use and presence of diesel fuel at NJ TRANSIT bus facilities. Diesel fuel is considered a dirty fuel source that directly contributes to climate change. As of 2023, NJ TRANSIT uses more than 18,000,000 gallons of diesel on an annual basis for over 86,000,000 vehicle miles. Per the EPA, one gallon of diesel emits 22.44 pounds (10,180 grams) of CO₂ and driving one mile on average emits 404 grams of CO₂. That means over 414 million pounds of CO₂ are emitted on annual basis from NJ TRANSIT's diesel bus fleet. The proposed project will enable NJ TRANSIT to no longer be dependent on diesel fuel for its bus fleet and drastically reduce harmful emissions within the service area.

Additionally, the proposed battery storage component will support greater reliability and resiliency to help minimize disruptions. This is crucial to the disadvantaged communities who depend on public transportation.

b. Performance Measures and Plan

Upon receipt of the award, NJ TRANSIT will submit the required information into the Transit Award Management System (TrAMS), Federal Transit Administration's (FTA) platform to award and manage grants. NJ TRANSIT will then enter the project into the Capital Program Accounting System (CPAS) where project costs are tracked.

Through CPAS, detailed financial information is available for labor charges incurred by in-house personnel, as well as purchased services, materials, and other activities. Data is tracked via established project charge codes. This ensures expenditures and commitments are tracked and reported in the same categories as the budget. Commitments against established project funds are also recorded to allow future expenditures to be monitored.

This system is available online and monthly reports are generated to provide project staff with the ability to oversee, monitor, and manage the project budget for compliance with established levels as well as address emerging issues and variances. Also, the system is used to create the required quarterly reports to the FTA.

NJ TRANSIT's Capital Programs (CP) Project Procedures document (referred to as the CP4 document) was developed to assist CP Project Managers and staff to successfully execute project scope, contracts, cost, timely schedule, and quality to ensure success.

This document is frequently updated and with regular use contributes to effective project management, aids in avoiding litigation and claims, and assists with delivering projects within budget and on schedule. This document assists NJ TRANSIT's CP Project Managers and staff with defining project requirements, performing project activities, monitoring progress, and making adjustments as required. General adherence to the document minimizes scope changes, schedule slippages, cost overruns, and quality problems. This contributes to fully meeting all the performance objectives of NJ TRANSIT's CP capital projects and ensures grant funds are expended in an efficient manner within the grant period. NJ TRANSIT has listed its vast experience and competence in large grant reporting in section 6a.

Additionally, as a part of NJ TRANSIT's Sustainability Plan, NJ TRANSIT already tracks and monitors passenger miles traveled, vehicle miles traveled, fuel usage and energy usage to calculate the performance measures, GHG emissions and CAP emissions for the agency. As a part of tracking for this specific project and grant requirements, NJ TRANSIT will use best practices from its Sustainability Plan metrics, federal tools available and industry protocols such as American Public Transportation Association (APTA), Quantifying Greenhouse Gas Emissions from Transit Recommend Practice to track, measure, and report progress on the performance measures GHG emissions and CAP emissions from the project.

c. Authorities, Implementation Timeline, and Milestones

NJ TRANSIT is the responsible party for implementation of this GHG reduction measure. The Capital Planning Team, Capital Project Management, procured consultants, and Meadowlands Garage operations staff will coordinate to successfully deliver the project. The Capital Planning team oversees the overall Zero Emission Bus Transition and will serve as the subject matter experts. A Project Manager will be assigned to this project to manage the project and the hired consultants as well as coordinate with onsite garage staff.

NJ TRANSIT is committed to meeting the statutory mandate that all NJ TRANSIT bus purchases made on or after December 2024 must include at least 10% zero-emission buses, escalating to 50% by December 2026, and 100% by December 2032. NJ TRANSIT anticipates that, if funded, the project will take approximately 3.5 years.

Timeline

DESCRIPTION	MONTH/YEAR	DURATION
Develop Scope and Prepare Design RFP	January 2, 2024 - May 31, 2024	5 months
Existing Conditions - AECOM	March 1, 2024 - May 31, 2024	3 months
Procurement - Design	June 3, 2024 - December 31, 2024	7 months
Board - Design	January 2, 2025 - March 31, 2025	3 months
Design	April 1, 2025 - November 28, 2025	8 months
DCA	December 1, 2025 - February 27, 2026	3 months

Procurement- Construction Management	February 2, 2026 - August 31, 2026	7 months
Board Approval - Construction Management	September 1, 2026 – November 30, 2026	3 months
Construction Management	December 1, 2026 - June 30, 2028	19 months
Procurement - Construction	March 2, 2026 - September 30, 2026	7 months
Board Approval - Construction	October 1, 2026 - December 31, 2026	3 months
Construction	January 4, 2027 - June 30, 2028	18 months

SECTION 4: LOW-INCOME AND DISADVANTAGED COMMUNITIES

a. Community Benefits

Low-income and disadvantaged communities disproportionately bear the burden of the ongoing effects of climate change, poor air quality, and negative health effects. Renewable energy like solar supports clean, green, and local energy. Generating electricity from solar releases no harmful GHG emissions or co-pollutants, and a reduction in air pollution levels leads to cleaner and healthier populations in environmental justice communities.

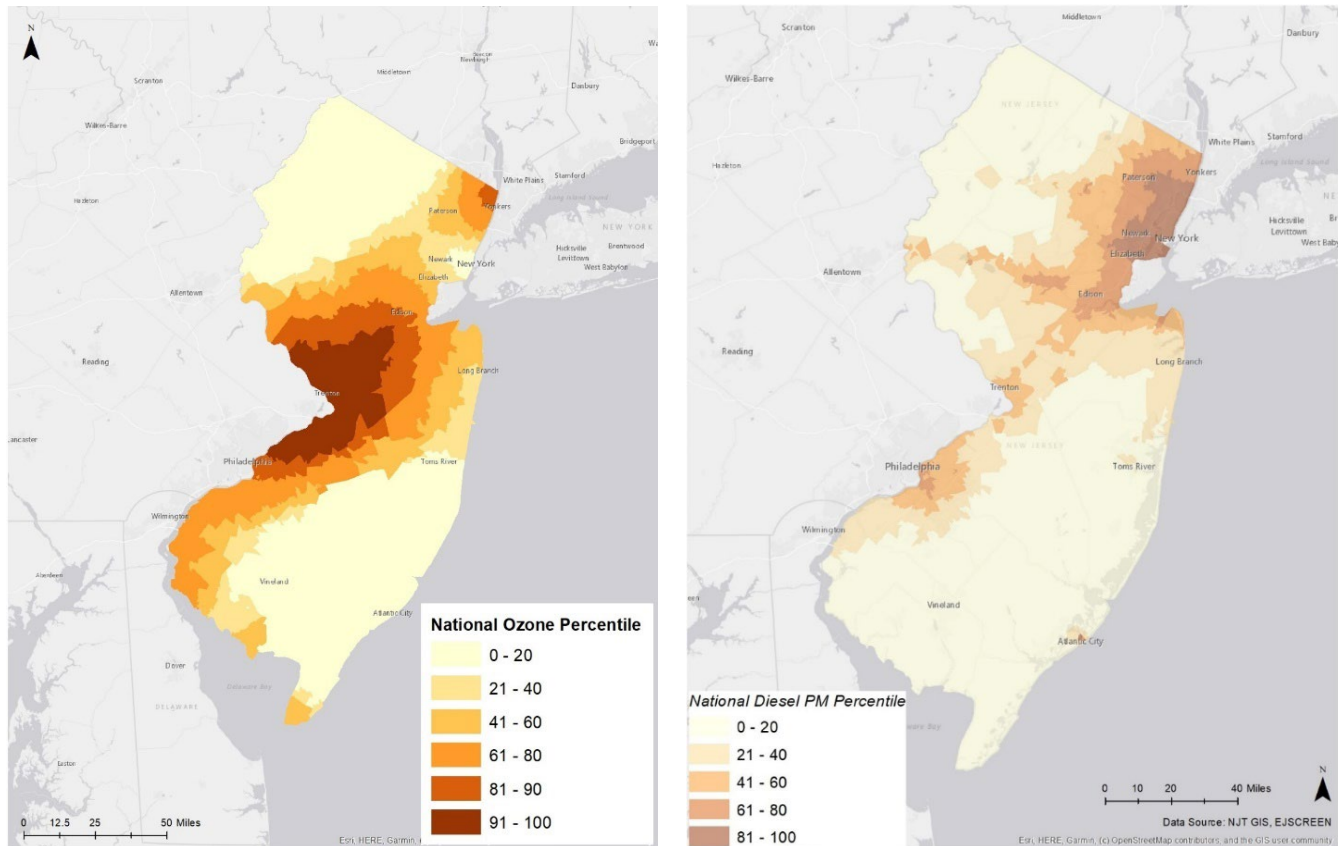
The proposed battery storage component will support greater reliability and resiliency to help minimize operation disruptions during extreme weather events. This allows for an improved transit experience for these communities who rely on public transit in their everyday lives.

BEBs charged by solar panels will bring cleaner air to the immediate communities and the routes served by decreasing energy demand from power stations and producing no harmful tailpipe emissions. This can lead to greater health benefits in communities where respiratory diseases are common. More than 700,000 New Jerseyans suffer from asthma. Another 300,000 more live with chronic obstructive pulmonary disease (COPD). Given this, there are a total of one million people whose airpaths may become even more constricted as climate change heats New Jersey at a staggering pace. Climate Central analysts found, when examining temperature records, that New Jersey has experienced a 3°F increase in annual average temperatures since 1970, making it one of the fastest-warming states in the nation. The last 20 years have seen 11 of New Jersey's 15 hottest summers, according to state climate records that date back to 1895. The state's warming is largely the result of GHG-driven climate change and urban development. Hotter weather combined with population growth — driven by suburbs in the 1980s and '90s and by urban centers more recently — and steadily rising motor vehicle use on New Jersey's roads boost the ingredients for smog formation.

Ozone resting near the Earth's surface is synonymous with smog. It forms when gases from tailpipe and smokestack pollution mix in the air and combine with hot, sunny conditions, and the resulting ozone directly attacks the human lungs. New Jersey currently experiences about 22.5 days each year when outdoor air has too much ozone, according to the New Jersey Department of Environmental Protection's Bureau of Air. The New Jersey Department of Health (NJDOH) reports an average of about 100 deaths from asthma each year, with asthma-related emergency room visits highest in Essex, Camden, and Cumberland counties: while lowest in Morris, Somerset, and Hunterdon counties. Additionally, the NJDOH data shows that for every 100,000

residents with asthma, 7.3 ended up in the emergency room in 2017. These numbers only capture the worst cases of respiratory attacks, and they do not account for the episodes managed without hospitalization.

Figure 1. NJ TRANSIT Service Area: National Ozone and Diesel PM Percentiles



The project supports the transitioning to zero-emission vehicles that bring clean air benefits and reduction to health risks, especially to those vulnerable communities and populations. Additionally, BEBs are often quieter than internal combustion engines and help decrease noise pollution and improve the quality of life.

See the figures below of the Overburdened Communities and Justice40 (CEJST) tracts located by the Meadowlands Bus Garage and the bus routes served from that garage.

Figure 2. Overburdened Communities

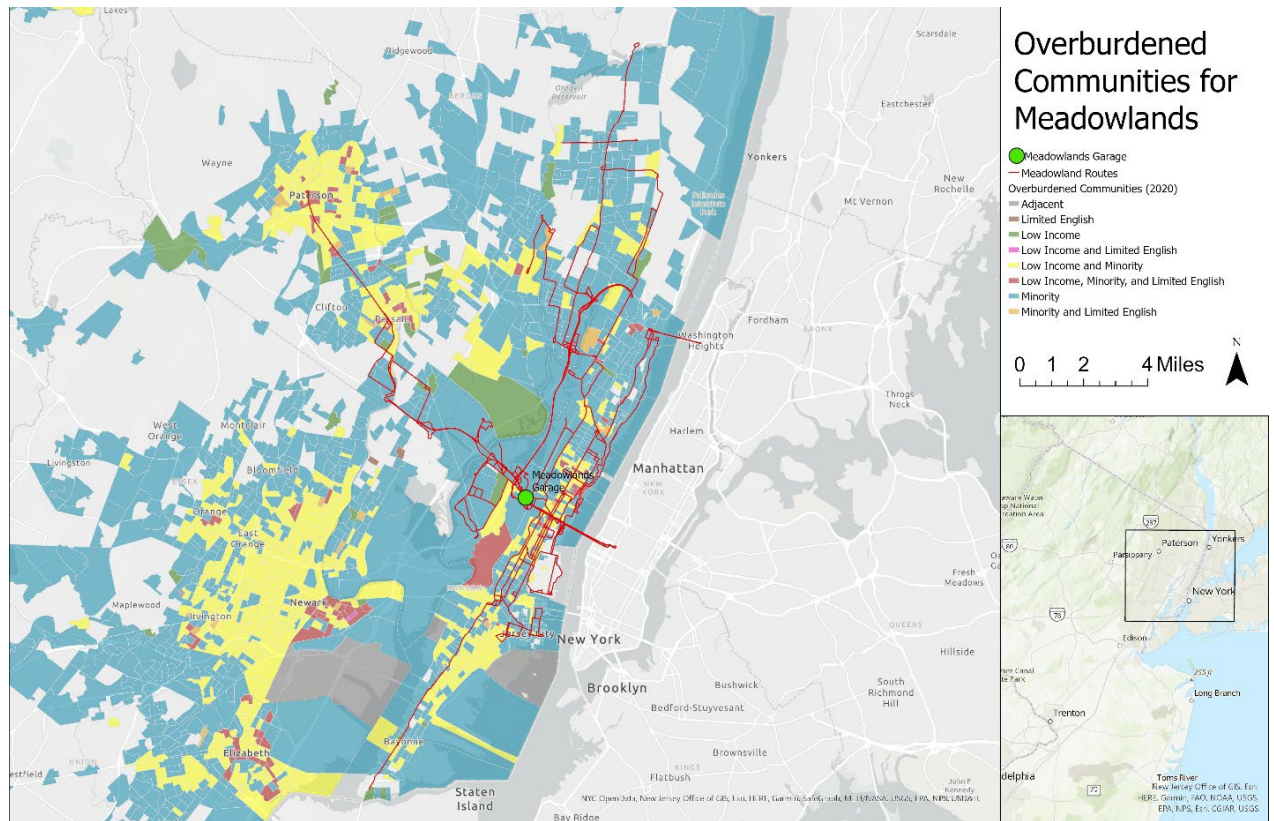
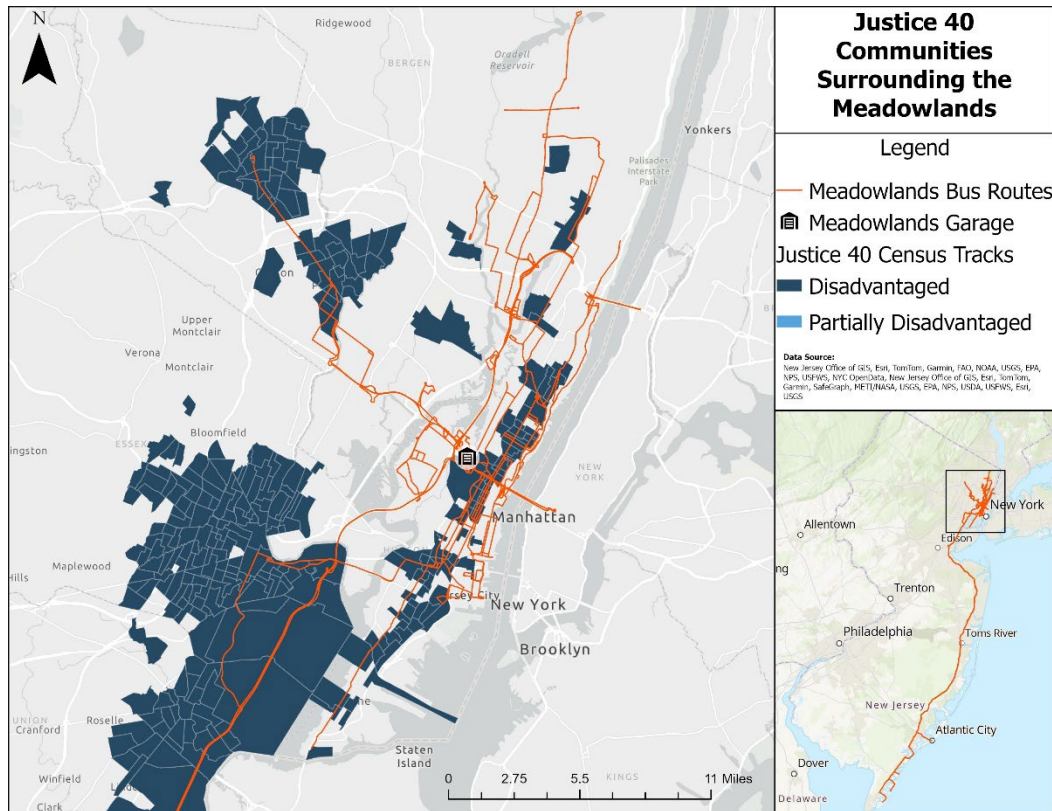


Figure 3. Justice 40 (CEJST)



The project will directly impact underserved populations 53% of census tracts within one mile of the Meadowlands garage bus routes are defined as Overburdened Communities. See attachment file name, Areas_NJTRANSIT.xlsx, with the list of Climate and Economic Justice Screening Tool (CEJST) Census tract IDs within a mile of the proposed project.

Based on U.S. Census Data for the census tracts covered by NJ TRANSIT bus routes, there is a total population of 17 million people and 6.9 million households within 1/4 mile of all NJ TRANSIT routes. Of this population, 2.5 million are disabled, 2.4 million are elderly, 5.8 million are minority, and 5.1 million are low income. There are 198 million passenger trips each year (Fiscal Year 2023) on NJ TRANSIT. These transit passengers are predominantly minority/people of color, low income, and elderly/disabled. With these higher rates of underserved and disadvantaged populations use of NJ TRANSIT services, the GHG reduction measures will directly benefit those targeted populations.

NJ TRANSIT's fleet will fully meet customer expectations with emerging, reliable BEBs likely resulting in a modest shift away from single-occupancy vehicles to an electrified bus service. Therefore, the following reduction in vehicle miles travelled (VMT) and the associated reduction in fuel will decrease the emissions of several criteria air pollutants, including NO_x, PM, CO, SO₂ & VOCs. In addition to emissions reductions, the transition to a BEB fleet will eventually lessen

the use and presence of diesel fuel at NJ TRANSIT bus facilities. Diesel fuel is considered a dirty fuel source that directly contributes to climate change.

Solar powered electric buses generate zero emissions when in operation, decreasing the environmental impact of public transit in communities. Since solar energy is a natural resource, it lowers operating expenses for public transit, leading to cost savings for commuters and operators. It also utilizes an energy efficient technology, solar power, which uses energy from the sun to fuel the bus's electric engines.

Integrating solar technology in Low Income Disadvantaged Communities also offers the benefit of work force development with a clear training-to-career pipeline in New Jersey. Installing such facilities increases the demand for skilled workforce to support new technologies. 67% of solar jobs are in installation and project development, which reveals a need to support training in communities that can lead to employment opportunities for overburdened communities.

The proposed project will enable NJ TRANSIT to eliminate dependency on diesel fuel for its bus fleet and drastically reduce harmful emissions within the service area. Additionally, this will remove the risk of environmental incidents, such as leaks or spills from diesel fuel storage tanks or directly from the buses themselves. Spilled fuel can seep into nearby soil and groundwater, causing environmental damage, and posing potential human health risks. Avoided fuel contamination events are not quantified yet due to the uncertainty of the event but should be considered as a qualitative benefit resulting from planned improvements.

Poor air quality in New Jersey is largely a result of the on-road vehicles which contributes to much of the state being in the highest national percentiles of contamination. Disadvantaged communities are particularly likely to live in proximity to highways and vehicle traffic. Since the levels of contamination are so high, any reduction in emissions by transitioning to battery-electric public transit vehicles is a net “win” for public health. By transitioning away from diesel buses, the increase in air quality will provide clean air benefits and reduction to health risks to Historically Disadvantaged Communities throughout the state.

The proposed project can improve the daily lives of residents and workers, especially in disadvantaged communities. The BEB transition, with modern buses and improved services, would enhance transit attractiveness in communities, provide greater reliability, and increase accessibility and mobility for low-income individual travelers. NJ TRANSIT intends to explore end-of-use recycling of the batteries in procurement language to prevent further degradation of the environment.

NJ TRANSIT developed a bus Transit Propensity Analysis Tool to identify the populations that are more likely to use public transit and evaluate where transit can best meet the needs of the following socio-demographic characteristics: Disabled, Elderly, Minority, Population that Commutes by Public Transit, Low-Income Households, and Zero-Car Households. See attachment, file name: NJTRANSIT_ZEB_Transit Propensity Analysis Tool.xlsx. The analysis produces a Transit Propensity score for each route, the service area for each garage, and the

neighborhood around each garage. The higher the score, the more dependent the population is on transportation. The methodology to obtain the overall scores are:

- Utilized ¼ mile buffer for each route and garage to identify the Census Tracts the routes run through and those nearby each garage
- Calculated the percentage of each tract that falls within the study area to determine the population for each socio-demographic characteristic
- For each metric, determined quintiles to equally distribute percentages and assign each characteristic a ranking (1 being the least likely to use transit and 5 being the most likely)
- Added quintile scores for all metrics to get a Transit Propensity score for each route, the service area for each garage, and the neighborhood around each garage.

The Tool's result for Garage Service Area produced a Transit Propensity Score of 20 for Meadowlands. This indicates the Meadowland Bus Service Area and the pollution, compared to other NJ TRANSIT service areas, is very reliant on public transit. This project will benefit the low-income and minority communities served by the Meadowlands bus routes by bringing cleaner air to these communities who are so dependent on NJ TRANSIT.

Figure 4. Transit Propensity Analysis

Bus Depot	Transit Propensity Score
Ironbound	26
Fairview	22
Hilton	22
Big Tree	20
Egg Harbor Township	20
Meadowlands	20
Orange	20
Greenville	19
Oradell	18
Washington Twp.	18
Hamilton	17
Market Street	17
Newton Avenue	17
Wayne	17
Westwood	17
Howell	15
Morris	10

Considering the number of bus routes from the Meadowlands garage, the communities will have easier access to employment hubs. Consequently, the low-income and disadvantaged communities will also have access to well-paying jobs and increased employment opportunities in parts of New Jersey where car ownership is necessary to access job sites.

As described in section 3.b, NJ TRANSIT will effectively report, track, monitor GHG emissions and CAP emissions as a part of its ongoing Sustainability Plan efforts and grant reporting

requirements. NJ TRANSIT will evaluate and incorporate additional methodology that refine calculations to better quantify the impacts directly to the affected communities.

b. Community Engagement

The New Jersey PCAP stakeholder engagement focused on raising awareness of the CPRG program among community leaders and eligible entities (see PCAP section 7.3 Stakeholder Engagement Report). The engagement process established relationships to drive greenhouse gas reduction efforts across the State and ensured meaningful engagement of overburdened communities. The stakeholder activities included offering five sector-specific workshops, one of which was Transportation, and hosting two local government meetings to highlight key emerging themes, including the need for electric vehicle charging infrastructure and community solar projects.

Additionally, voices from New Jersey's environmental justice communities were prioritized throughout the development of PCAP. One of the primary discussions with the New Jersey Department of Environmental Protection (NJDEP) Environmental Justice Advisory Committee was centered around air pollution and the urgency of reducing the effect of toxic pollutants.

Although public transit contributes to environmental and public health outcomes, transit operations also generate negative impacts, which can be eliminated by electrifying the bus fleet using renewable energy. The stakeholder engagement activities for transportation focused on expanding current incentives for EV adoption and specifically dedicating funding for all EV incentive programs to benefit low-income, disadvantaged, and overburdened communities. They also focused on expanding zero and low carbon transit options by establishing a dedicated funding source for NJ TRANSIT that includes specific funding for electrification initiatives. The activities also indicated adopting efforts to expand resources for reducing travel demand by analyzing a potential adoption of a 2050 VMT reduction goal with associated emissions reductions. Participated stakeholders insisted that the current financial incentive programs for transportation electrification (purchasing, leasing, installation of charging infrastructure) were insufficient to meet the demand and more funding centered on low-income disadvantaged communities is needed.

NJ TRANSIT is committed to advancing environmental justice. The deployment of our zero-emission bus fleet will continue to prioritize disadvantaged communities who disproportionately bear the burden of the ongoing effects of climate change. The deployments of battery-electric buses in Camden and Newark will provide these historically marginalized communities with cleaner public transportation options and improved air quality. This project will support the disadvantaged communities of Patterson, Passaic, and Jersey City. Zero-emission buses, in combination with inclusive and equitable redesigns of the bus network, demonstrate NJ TRANSIT's commitment to environmental justice and transportation equity.

NJ TRANSIT's respective Government and External Affairs, Communications and Civil Rights & Diversity Programs departments engage and work daily with New Jersey communities to ensure

their voices are being heard throughout this project. Additionally, NJ TRANSIT staff engages the public through its quarterly Board Energy Sustainability Policy Committee meetings. The public is invited to participate in person or remotely to engage specifically on green and sustainable initiatives.

SECTION 5: JOB QUALITY

The transition to BEB and solar charging offers new opportunities, workforce development and training in BEB charging infrastructure, equipment, and maintenance to all employees. The air quality improvements from the BEBs benefit not only the community but those who work at the bus garage. The transition to zero-emission vehicles is also expected to reduce safety risks to NJ TRANSIT operations and maintenance staff due to the reduction of maintenance activities, minimized use of diesel fuel, and upgrades made to the facilities. This includes minimized exposure to flammable diesel fuels, reconfiguration of the facility to make it a safer workplace, and the overall reduction of risk-prone maintenance activities due to bus components for conventional-fueled buses.

New technologies, such as BEB and solar energy, require specialized knowledge, specific skills, and enhanced training. The ongoing operation and maintenance of the large solar canopy will take careful coordination with a vendor as NJ TRANSIT staff has limited experience with solar canopies. NJ TRANSIT staff will need workforce training in BEB propulsion components, battery management, charging infrastructure, and safety to properly operate and maintain these assets. The transition to BEB from traditional buses will require a shift in operations with new technology, schedules, safety, and procedures. NJ TRANSIT will apply the BEB lessons learned from the Newton Avenue Garage in Camden where 8 BEBs are in revenue service and associated infrastructure has been installed and apply it to this project.

The State of New Jersey Office of Climate Action and the Green Economy's Council on the Green Economy has released a *Green Jobs For A Sustainable Future* report (See Attachment: CGE Roadmap.pdf). This document lays the foundation for the path forward for New Jersey's clean energy economy and represents areas of continued and future investment. The PCAP, Appendix 7.5 Workforce Planning Analysis, references the Green Jobs For A Sustainable Future report and outlines the strengths, weaknesses, opportunities, and barriers for the priority measures and six sectors. Strategies to overcome the barriers include:

- Embedding job quality and diversity standards in procurement processes at the State and local levels;
- Creating and/or expanding specialized workforce training programs for electric vehicles (EVs);
- Investing in the creation of solar design and installation training programs that provide a clear training to-career pipeline in New Jersey;
- Addressing the employment barriers from a historic lack of investment in workforce development infrastructure in overburdened communities.

Additionally, NJ TRANSIT plans to use labor management partnerships, prioritizing those who face systemic barriers to employment. Delivery and implementation of the project will use Project Labor Agreements in the contract to construct improvements to the garage. NJ TRANSIT's workforce planning efforts will work to ensure minorities and women will be included in job candidate slates. NJ TRANSIT Health and Safety Operations staff will consult workforce representatives to develop a tailored zero-emission workforce plan that is a part of NJ TRANSIT's Zero Emission Bus Investment Planning Study effort. See <https://www.njtransit.com/zero-emission-buses> for more information.

SECTION 6: PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

a. Past Performance

As an established FTA grantee, NJ TRANSIT has a standardized template and process in place to meet all reporting requirements. Customarily, the reports are prepared and submitted to the grantor on a quarterly basis or within the required timeline and frequency. NJT has a designated department where staff prepare and submit reports on period performance. The template includes project name, scope, budget, funding, expenditures, schedule, issues, resolution to any issues, milestone changes with explanation, and vendors.

1) Project Title: Hybrid Electric Purchase

Assistance agreement number (if applicable):

Federal or non-federal funding agency and assistance listing number (formerly known as the CFDA number) (if applicable): 20.500 CFDA Number

Brief description of the agreement (no more than two sentences):

Funds will be used to purchase seven wheelchair lift equipped, diesel -electric hybrid powered buses.

Contact from organization that funded the assistance agreement:

How the applicant was able to successfully complete and manage the listed agreements: As an established FTA grantee, NJ TRANSIT has standardized processes to meet all reporting requirements. During the procurement process, the project was advertised, and two vehicle manufactures were selected. Four cruiser type Hybrid buses, and three transit style buses were designed and purchased from the two vendors. Vehicle prototypes were tested and accepted prior to the delivery of the remaining vehicles.

2) Project Title: Newton Bus Garage BEB Charging Stations

Assistance agreement number (if applicable):

Federal or non-federal funding agency and assistance listing number (formerly known as the CFDA number) (if applicable):

Brief description of the agreement (no more than two sentences): This project involves the construction and installation of Electrical Vehicle Chargers (EVC) equipment and related infrastructure necessary to support eight (8) Battery Electric Buses (BEB) at Newton Avenue Bus Garage located in Camden, New Jersey.

Contact from organization that funded the assistance agreement: NJ Transportation Trust Fund

How the applicant was able to successfully complete and manage the listed agreements: As an established FTA grantee, NJ TRANSIT has standardized processes to meet all reporting requirements.

- 3) Project Title: Study and Development – North Jersey Sustainable Community Consort
 Assistance agreement number (if applicable):
 Federal or non-federal funding agency and assistance listing number (formerly known as the CFDA number) (if applicable): N/A
 Brief description of the agreement (no more than two sentences): Funds were provided for system infrastructure planning studies to ready project for design, as well as demand forecasting and other related planning work.
 Contact from organization that funded the assistance agreement:
 How the applicant was able to successfully complete and manage the listed agreements: NJ TRANSIT is the designated recipient of federal transportation funding in New Jersey and is required to maintain partnership with Metropolitan Planning Organizations (MPO). North Jersey Transportation Planning Authority (NJTPA) is the MPO for the northern New Jersey region. With funds identified in the attached report, NJ TRANSIT worked with NJTPA to establish a Regional Sustainable Plan for that respective region.

- 4) Project Title: MMC Energy PV Solar Generating Systems MMC
 Assistance agreement number (if applicable):
 Federal or non-federal funding agency and assistance listing number (formerly known as the CFDA number) (if applicable):
 Brief description of the agreement (no more than two sentences): This project involves the design and installation of complete and fully functioning roof mounted DC Photovoltaic (PV) Systems grid connected at NJ TRANSIT's Meadowlands Complex (MMC) in Kearny, NJ. The photovoltaic panels are planned to be installed on the roof of MMC Building 1.
 Contact from organization that funded the assistance agreement:
 How the applicant was able to successfully complete and manage the listed agreements: As an established FTA grantee, NJ TRANSIT has standardized processes to meet all reporting requirements. The board began the procurement process in July 2011 and selected a contracted organization to perform the installation on July 2011. Installation was completed on April 2012.

- 5) Project Title: ZEB Emissions Bus System Design and Investment Planning
 Assistance agreement number (if applicable):
 Federal or non-federal funding agency and assistance listing number (formerly known as the CFDA number) (if applicable):
 Brief description of the agreement (no more than two sentences): Engineering, planning, and support for the conversion of diesel fuel-focused infrastructure into a system capable of supporting zero-emission vehicles. This includes reviewing existing operations, facilities, and bus service structure, development of best practices, for equipment, technologies, and operational practices, and final reports and drafts.
 Contact from organization that funded the assistance agreement:

How the applicant was able to successfully complete and manage the listed agreements: This project is a part of NJ TRANSIT's 5-Year Capital Plan, and is in alignment New Jersey's Energy Master Plan. The existing operations, facilities, and bus structure is being reviewed, and a transition plan will be developed. At the end of the process an implementation plan will be documented.

b. Reporting Requirements

NJ TRANSIT has successfully met and will continue to meet the reporting requirements under the agreements listed in Section 6.a.

NJ TRANSIT is a designated recipient of federal transportation funding in the State of New Jersey. NJ TRANSIT is an established FTA grantee and has an established record of successfully completing federally funded projects for discretionary and formula funded FTA programs. There are established processes in place to meet the FTA requirements, which can be adapted to meet EPA requirements. Quarterly reports are submitted to the FTA through NJ TRANSIT's Capital Program Accounting System (CPAS), which tracks the costs of individual projects. Quarterly reports continues to be submitted for each project that is ongoing.

c. Staff Expertise

NJ TRANSIT has a well-rounded team of subject matters experts, project managers and operational staff to execute this project.

NJ TRANSIT assigns Project Managers to oversee each of its capital projects. The Project Managers are trained in project management skills and have the requisite education and experience in the disciplines required for managing transit projects. The technical designs, under the direction of the NJ TRANSIT Project Managers, are prepared by staff who are either credentialed or have sufficient education and experience in engineering disciplines. When NJ TRANSIT uses outside consulting firms to provide design and engineering services, NJ TRANSIT selects the most qualified firms based on the firms' experience in similar projects, technical expertise of staff, and technical approach in designing solutions for a given project. Consultants are required to provide proof of their credentials and experience by submitting a technical proposal as well as resumes of key personnel to be engaged in the design and engineering of the subject project prior to award. The consulting team's work is managed by the assigned NJ TRANSIT Project Manager and reviewed by the subject matter experts within NJ TRANSIT.

The subject matter experts for this project include:

Warren Berry, Director Zero Emissions Systems Planning
 Laura O'Grady, Assistant Director of Facility Planning & Technology Integration
 Joesph Murtagh, Alternative Fuels & New Technology Integration
 John McCarthy, DGM Bus Vehicle Maintenance

Resumes have been attached.

SECTION 7: BUDGET

a. Budget Detail

See Appendix A Budget Narrative.

b. Expenditure of Awarded Funds

Upon receipt of the award, NJ TRANSIT will submit the required information into the Transit Award Management System (TrAMS), FTA's platform to award and manage grants. NJ TRANSIT will then enter the project into the Capital Program Accounting System (CPAS) where project costs are tracked.

Through CPAS, detailed financial information is available for labor charges incurred by in-house personnel, as well as purchased services, materials, and other activities. Data is tracked via established project charge codes. This ensures expenditures and commitments are tracked and reported in the same categories as the budget. Commitments against established project funds are also recorded to allow future expenditures to be monitored.

This system is available online and monthly reports are generated to provide project staff with the ability to oversee, monitor, and manage the project budget for compliance with established levels as well as address emerging issues and variances. Also, the system is used to create the required quarterly reports to the FTA.

NJ TRANSIT's Capital Planning (CP) Project Procedures document (referred to as the CP4 document) was developed to assist CP Project Managers and staff to successfully execute project scope, contracts, cost, timely schedule, and quality to ensure success.

This document is frequently updated and with regular use contributes to effective project management, aids in avoiding litigation and claims, and assists with delivering projects within budget and on schedule. This document assists NJ TRANSIT's CP Project Managers and staff with defining project requirements, performing project activities, monitoring progress, and making adjustments as required. General adherence to the document minimizes scope changes, schedule slippages, cost overruns, and quality problems. This contributes to fully meeting all the performance objectives of NJ TRANSIT's CP capital projects and ensures grant funds are expended in an efficient manner within the grant period.

NJ TRANSIT follows a rigorous development process from the planning, designing, construction, testing, start-up, and revenue-ready phases of transit projects. The CP4 document is developed for CP Project Managers and covers the Preliminary Engineering (PE), Final Design (FD), Construction, Testing and Start-up, and Revenue Service phases.

c. Reasonableness of Costs

NJ TRANSIT is New Jersey's public transportation corporation. Its mission is to move New Jersey and the region by providing safe, reliable and affordable public transportation that connects people to their everyday lives. NJ TRANSIT is a designated direct recipient of USDOT funds and is fully compliant with all applicable requirements. NJ TRANSIT has extensive experience managing these and other local funding sources. The reasonableness of each budget line item in this application relates to the first measure of the project: a new, stand-alone GHG reduction measure that will be implemented solely through CPRG funding. This application centers around NJ TRANSIT's methodology of delivering federal and local projects within budget and on schedule.

The current budget originated from a cost estimate by NJ TRANSIT's project management team and is within the range of current industry rates for the services and equipment required for the planned implementation in this area. The contingency amount is also considered reasonable since the current rates are estimates until project selection and award. As a public service agency, NJ TRANSIT is keen on maintaining sound business stewardship for all funds received. Upon funding award, NJ TRANSIT's Capital Programs Department will manage the project. Customarily, NJ TRANSIT's Project Management practice is structured by NJ TRANSIT's Capital Programs (CP) Project Procedures document called CP4. The purpose of this document is to assist CP Project Managers and staff to successfully execute the projects and deliver them within reasonable budget and on schedule.

Personnel costs include NJ TRANSIT's Project Management staff overseeing the operations of this project. The extent of this work is to include administration and reporting on all grant activities. The internal NJ TRANSIT costs for Project Management are within the industry accepted practices and are based on a percentage of the anticipated total construction costs. The estimated personnel cost for the duration of this project is \$1,861,348 for the full build out. Costs for equipment and supplies are calculated by Project Manager subject experts and verified by an independent consultant team.

A contingency plan is in place in anticipation of cost changes during the scope of the project's implementation. This fund is only used to extend authorized direct cost items that are already included in the budget in order to carry out the scope of the work. The contingency cost is calculated based on 20% of the total construction cost, which will be \$29,781,658 for the full build out.