



GREATER NASHVILLE
REGIONAL COUNCIL

Expansion of Regional Passenger Rail Options

Climate Pollution Reduction Grant Program
Implementation Grant Application

April 1, 2024

Greater Nashville Regional Council

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GNRC.org

SUMMARY

About this Application

This application is being submitted to the U.S. Environmental Protection Agency (EPA) by the Greater Nashville Regional Council (GNRC, lead entity) on behalf of a coalition that includes GNRC and the Regional Transportation Authority of Middle Tennessee dba WeGo Public Transit. The Coalition is seeking an Implementation Grant in the amount of \$485.8 million through EPA's Climate Pollution Reduction Grant (CPRG) Program to convert an existing commuter rail fleet to zero emission vehicles and to upgrade and expand passenger rail options within and between Davidson and Wilson counties in Middle Tennessee. The application is in response to a Notice of Funding Opportunity for CPRG Implementation Grants - General Competition (EPA-R-OAR-CPRGI-23-07).

This proposal has been developed by the Greater Nashville Regional Council in partnership with the Regional Transportation Authority of Middle Tennessee, the Metropolitan Government of Nashville-Davidson County, Wilson County Government, the City of Mt. Juliet, and the City of Lebanon with assistance provided by the Office of Mayor Freddie O'Connell, the Civic Design Center, and Think Tennessee.

About GNRC

The Greater Nashville Regional Council (GNRC) is a public agency established by the Tennessee Development District Act of 1965 and further empowered by Title 64, Chapter 7, Part 1, Tennessee Code Annotated (T.C.A.), as amended. GNRC is an association of local governments charged with convening local and state leaders for the purposes of planning and programming state and federal investments into a range of social services and public infrastructure projects.

As part of its programming, GNRC serves as EPA's Climate Pollution Reduction Grant Program lead planning entity for the Nashville-Davidson-Murfreesboro-Franklin, TN MSA and administers the Nashville Area Metropolitan Planning Organization (MPO). The MPO is the federally recognized transportation planning agency for Davidson, Maury, Robertson, Rutherford, Sumner, Williamson, and Wilson counties. GNRC also serves as a member of the Clarksville MPO and Middle Tennessee Rural Planning Organization (RPO). Through the M/RPO process, local partners develop and manage long-range transportation plans and short-range transportation improvement priorities. GNRC's plans and programs identify and prioritize transportation needs for federal and state funding.

Non-Discrimination Policy

GNRC does not discriminate on the basis of race, color, religion, sex (including pregnancy, gender identity, and sexual orientation), family status, national origin, age, disability, genetic information, political affiliation, military service, limited English proficiency, any other class protected by applicable law. A copy of the Non-Discrimination Policy is available at www.GNRC.org/Legal. Complaints or request for accommodation should be directed to Grant Kehler, Non-Discrimination Coordinator, 44 Vantage Way, Ste 450, Nashville, TN 37228, or by calling 615-862-8828.

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COVER PAGE

Applicant Information	
Applicant Organization:	Greater Nashville Regional Council
Primary Contact Name, Phone Number, and Email Address:	Michael Skipper 615-880-3540 mskipper@gnrc.org
Type of Application	Coalition Application
Other Coalition Members: Local Government Partners:	Regional Transportation Authority (Subgrantee) Metropolitan Government of Nashville-Davidson County Wilson County Government City of Lebanon, TN City of Mt. Juliet, TN
Funding Requested	\$485,791,913 requested with 10.2% cost share (\$55m)
Application Title	Expansion of Regional Passenger Rail Options
Brief Description of GHG Measures	PCAP Measure 1.3 (Electrification or Hydrogen Conversion of Commuter Rail Fleet) will introduce the region's first zero emissions transit fleet by replacing the current Tier 0 diesel locomotives with a hydrogen powered or battery electric multiple unit vehicle. PCAP Measure 3.1 (Implement TDM Programming and Expand Transit Options) will implement the infrastructure improvements necessary to significantly expand passenger rail service to capture a larger market share of the region's daily on-road travel.
Sector(s)	Transportation
Expected Total Cumulative GHG Emission Reductions	Xxxxxx CO2e thru 2050
Location(s)	TN counties of Davidson and Wilson including cities of Nashville, Mt. Juliet, and Lebanon
Applicable PCAP Reference(s)	
Lead Organization:	Greater Nashville Regional Council
PCAP Title:	Nashville-Davidson-Murfreesboro-Franklin, TN MSA PCAP
Website Link:	www.gnrc.org/cprg
GHG Reduction Measure(s):	Measure 1.3 Zero Emission Conversion of Rail Fleet Measure 3.1 Expand Public Transit Options
PCAP Page Numbers:	PCAP Section 4.2, Pages 15-17

WORK PLAN

Section 1. Overall Project Summary and Approach

This application is being submitted to the U.S. Environmental Protection Agency (EPA) by the Greater Nashville Regional Council (GNRC, lead entity) on behalf of a coalition that includes **GNRC** and the Regional Transportation Authority (RTA) of Middle Tennessee dba **WeGo Public Transit**. The Coalition is seeking an Implementation Grant in the amount of \$485.8 million through EPA's Climate Pollution Reduction Grant (CPRG) Program to **convert the existing WeGo Star commuter rail fleet to zero emission vehicles** and to **improve rail infrastructure to expand high capacity, rapid transit options** within and between Davidson and Wilson counties in Middle Tennessee. The application is in response to a Notice of Funding Opportunity (NOFO) for CPRG Implementation Grants - General Competition (EPA-R-OAR-CPRGI-23-07).

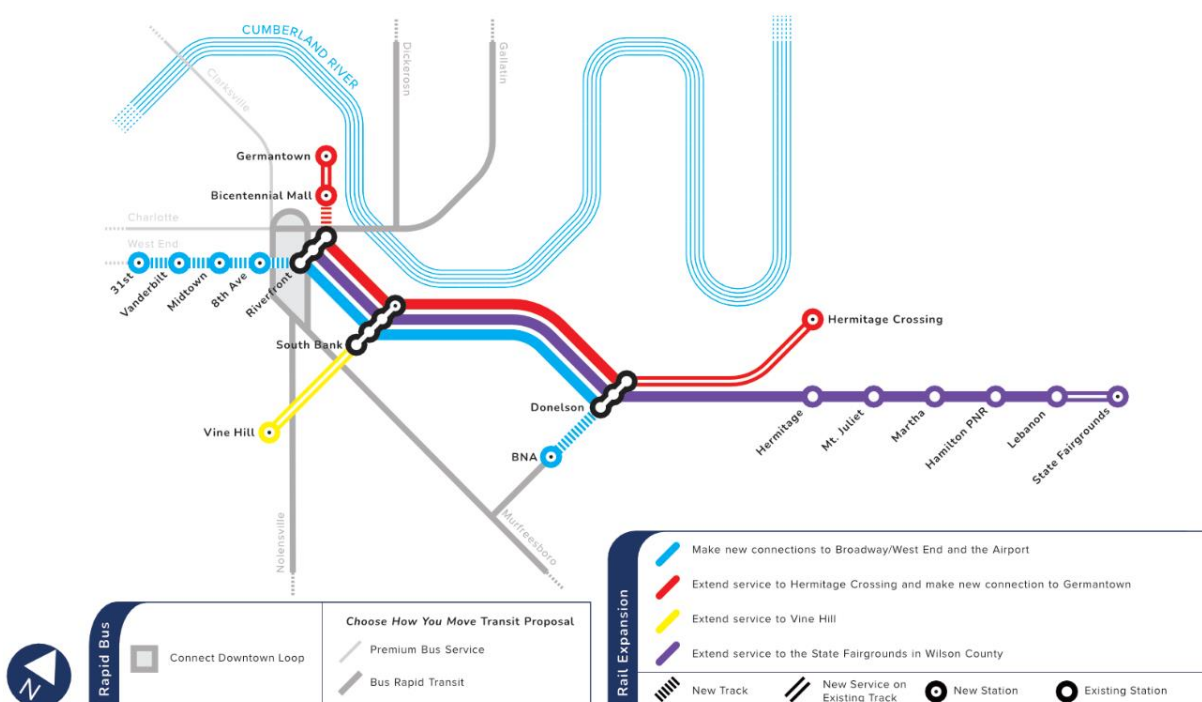
The NOFO comes at an advantageous time for the Nashville-Davidson-Murfreesboro-Franklin, TN Metropolitan Statistical Area (MSA) as the Metropolitan Government of Nashville-Davidson County has announced its intention to pursue the region's first ballot initiative seeking voter approval for long-term, dedicated funding to significantly expand public transit options. Issues related to transportation such as air quality, traffic congestion, access to jobs and attainable housing, and roadway safety, have been a top priority of the region for more than a decade. This was further underscored by public and stakeholder engagement conducted during the development of the MSA's Priority Climate Action Plan.

Should EPA choose to invest in reducing emissions in one of the United States through an implementation grant, GNRC and WeGo Public Transit are prepared to enter into a Memorandum of Understanding between July 1 and November 30, 2024 to align with outcome of the November 5 ballot initiative being held in Davidson County. While GNRC and RTA/WeGO Public Transit will be in a position to move forward with EPA either way, a positive outcome from the referendum would bolster the scope of work of the grant award.

As is further described in this application, Nashville and its surrounding suburban counties have the dubious distinction of having one of the most car dependent transportation systems in the nation. This project provides the opportunity to update our transportation system to incorporate new zero emission technology while also transforming the quality of public transit and its appeal to a population that has relied heavily on the automobile throughout its modern history.

Currently, the WeGo Star is diesel fueled and operates on a seven-stop, mostly single-track system. Switching to hydrogen technology would provide not only an immediate effect on the GHG emissions but will set up our system for growth by allowing for easier implementation of future green transit modes and facilities. In addition to the switch from diesel to fuel cell powered trains, the opportunity to expand Nashville's current rail system and increase its ridership will have a great impact on land use and commuting patterns, ultimately reducing GHG emissions through mode shift that accompany denser, more walkable, and transit-supporting land uses.

Figure 1: The Vision for Passenger Rail Expansion in the WeGo Star Corridor



a. Description of GHG Reduction Measures

This proposal seeks to implement the two GHG reduction measures identified in the Nashville-Davidson-Murfreesboro-Franklin, TN MSA Priority Climate Action Plan (PCAP). Both are considered top priorities given their necessity for implementing high capacity, rapid transit options within the urban core and along the corridor connecting Nashville with Wilson County - one of Tennessee's fastest growing communities.

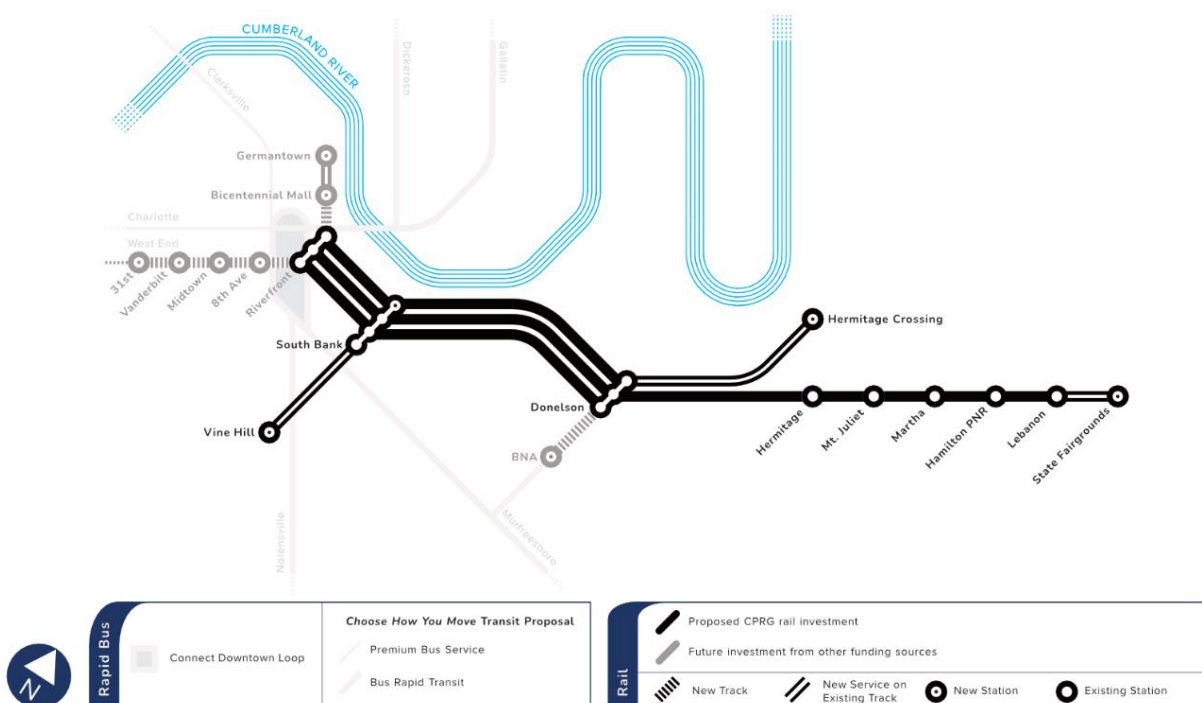
PCAP Measure 1.3 (Electrification or Hydrogen Conversion of Commuter Rail Fleet) will introduce the region's first zero emissions transit fleet by replacing the current Tier 0 diesel locomotives with a hydrogen powered or battery electric multiple unit vehicle. In addition, conversion to a tram-style rolling stock, similar to those offered by the Stadler Flirt H2 (hydrogen powered) or Stadler Flirt Akku (battery electric multiple unit), will allow WeGo Public Transit to not only grow its operations within the current freight corridor but also to expand service into new mixed-use corridors and urban centers through street running extensions to enact **PCAP Measure 3.1 (Implement TDM Programming and Expand Transit Options)**. Those extensions will help promote the emergence of transit-oriented development in high growth areas which can help further reduce per capita emissions and mitigate concerns related to gentrification and housing affordability.

Major Features

If awarded the requested CPRG funds, GNRC and RTA/WeGo Public Transit will be able to deliver the following features:

- Zero Emission Vehicles and Maintenance Facilities to Reduce Direct Emissions
- Positive Train Control to Increase Frequencies
- Track Upgrades to Expand Corridor Capacity
- Station Upgrades to Facilities More Trains and Passengers

Figure 2: Proposed CPRG Projects and Subsequent Expansions



In addition, these investments are a significant step towards expanding rail service to service new and more densely populated markets within the urban core. With subsequent funding from the U.S. DOT, RTA/WeGo Public Transit would be able to extend service to connect Vanderbilt University, Midtown, the Central Business District, and the Nashville International Airport. Along this path sit major sports and concert venues (e.g., NFL stadium, NHL arena, MLS stadium, Ryman Auditorium, Nashville Convention Center, State Fairgrounds, among others) that together serve more than 4 million patrons per year when taking into consideration regular events and major festivals. Nashville International Airport is one of the fastest growing in the nation, with enplanements expected to grow from 11.4 million in 2023 to more than 34 million by 2036.

Tasks and Milestones

The proposal includes the following milestones:

- Ongoing Community Engagement** – The Coalition is committed to ensuring CPRG funds are used to build projects that are consistent with prior community engagement and further honed by ongoing conversations with local neighborhoods and the business community. Low income and disadvantaged communities will be prioritized as the region grapples with increasing displacement from gentrifying neighborhoods as costs of living begin to rise sharply as a result of rapid growth and development.
- Environmental Reviews** – The Coalition recognizes the importance of complying with NEPA regulations and has selected projects that can be implemented within the 5-year period of performance identified in the NOFO.
- Finalize Design and Implementation Plans** – The Coalition will incorporate findings from community engagement and environmental review process to prepare final implementation and construction plans for proposed construction projects.

- **Acquisition and Construction** – The Coalition will be acquiring new vehicles, constructing a new maintenance facility, and upgrading tracks along the corridor within existing right-of-way.
- **Performance Monitoring** – The Coalition will track its performance during the five-year period to demonstrate the effectiveness of the EPA investment.

Underlying Assumptions and Risks

The Coalition is experienced enough to know that challenges will emerge during project implementation. The following underlying assumptions regarding risk have been identified early in the process to ensure that the project approach includes adequate mitigation strategies.

- **Local Funding for Operations and Maintenance** – Nashville and surrounding communities realize the need to put more “skin in the game” when it comes to funding public transit services. Metro Nashville and local governments in Wilson County are in a position to take advantage of new local dedicated funding options made available through the TN IMPROVE Act signed into law in 2017. EPA’s investment can help redefine the image of public transit for Middle Tennesseans weighing in on those tax initiatives.
- **Coordination with the Freight Operations** - The commuter rail service operates along the freight rail line owned by the Nashville & Eastern Railroad Authority (NERA) and operated by the Nashville and Eastern Rail Corporation (NERC), a subsidiary of RJ Corman, Inc., and must coordinate service with freight usage of the tracks. Commuter rail service is operated by a contractor to the RTA, Transit Solutions Group, Inc, also a subsidiary of RJ Corman, Inc.
- **Rebound from Pandemic Commute Patterns** - Like most office-commuter oriented transit services, the Coronavirus pandemic decimated ridership at its outset, and that ridership has been extremely slow to return. Prior to the pandemic, average daily ridership on the Star was in the 1,200 – 1,300 range (one-way trips). At the low point of ridership in the spring of 2020, ridership had bottomed out at less than 100 one-way trips per weekday, leading to a temporary suspension of service, and has been subsequently averaging only 250-300 one-way trips per weekday. This has largely been due to an overall decline in downtown office workers, as special event service post-pandemic has remained consistent with pre-pandemic numbers.

b. Demonstration of Funding Need

Tennessee is a vibrant and growing state, with a population that topped 7 million people for the first time in 2022. With this growth, the state faces the challenge of funding both an efficient transportation system for an increasing population and providing safe and accessible transportation options for all Tennesseans. Tennesseans are driving more than in the past, but our current transportation funding sources are not generating sufficient revenue to keep pace with this growth or to expand available transportation options.

Additional funding, and rethinking transportation investments to improve multimodal options – will help plug this gap and improve environmental quality, public health outcomes, roadway safety, and economic prosperity for Tennessee families.

Opportunities for Additional Funding

EPA’s investment in Middle Tennessee through the CPRG implementation grant will position the region to become more competitive in leveraging the following sources of funding to further increase frequencies and to build out the extensions depicted figures 2 and 3.

- TN IMPROVE Act – Local Dedicated Funding

- FHWA STBG Formula Funds
- FTA 5337 Formula Funds
- FTA New Starts/ Small Starts Discretionary Funds
- FRA CRISIS Discretionary Funds
- US DOT Infra and RAISE Discretionary Funds

c. Transformative Impact

The Regional Transportation Authority (RTA) of Middle Tennessee began commuter rail service along the region’s east corridor in 2006 as the first leg of a multi-corridor rail vision, originally referred to as the “Music City Star.” In 2008, management responsibility for the RTA was transferred to the Nashville MTA which does business today as WeGo Public Transit. RTA provides commuter service on the WeGo Star commuter rail and a network of 7 express bus routes. The system includes several Park & Ride locations and other supports for commuters such as the Emergency Ride Home Program. The Nashville MTA manages RTA services through a fee-for-service agreement. The two authorities share a headquarters, staff, and a chief executive officer.

Along the WeGo Star commuter rail line, service extends 31 miles to Lebanon with additional stops at Hamilton Springs, Martha, Mt. Juliet, Hermitage, and Donelson before terminating at downtown Nashville’s Riverfront station. Three trains provide weekday morning and evening service during peak commuting hours. “Game Day Express” service was initiated in 2009. In 2018 the Federal Railroad Administration granted a limited operations main line track exception for positive train control (PTC) installation. Were RTA to consider increasing service along the corridor, PTC would be required.

While Star is an attractive option for people who can use it, ridership growth opportunities are constrained by the Star’s minimal service, driven in large part by limitations imposed by the Positive Train Control requirements. The Star does not operate through the most densely populated corridor in the region, further limiting its potential market. Prior to the pandemic, highway travel time to downtown from the areas served by Star increased annually, and GNRC’s Regional Transportation Plan forecasts a 26 percent increase in traffic by 2045. As the Nashville region continues its growth trajectory, the communities along the Star line are seeing an increase in demand for housing and commercial development, and with them, traffic congestion.

Star’s future has three currently identified paths: 1) sustained current operations; 2) incremental improvements as increased demand for service helps fund those investments; or 3) large-scale improvements, including PTC deployment, in anticipation of future demand. RTA has been engaged in a study to develop a “Future Directions Strategy” to guide the WeGo Star into the future.

This proposal provides an opportunity to fund a significant portion of the improvements needed to ensure that the future of the WeGo Star is one that is aligned with the community’s vision for an environmentally responsible options that allow residents to escape the bonds of traffic congestion.

Nashville’s “VMT” Problem Creates Unnecessary Emissions

As mentioned earlier, the Nashville region has an overdependence on the personal automobile when compared with peer regions across the nation. This exacerbates the per capita VMT and resulting transportation sector emissions. In February 2024, Forbes labeled Nashville as having the “hardest commute” in the nation, ahead of Charlotte, NC, Jacksonville, FL, Houston, TX, and Washington, DC.

Peer comparisons allow a more complete understanding and a higher degree of appreciation for Middle Tennessee’s challenges with its level of roadway dependency. Given that transportation, and in particular traffic congestion, is such a prominent national issue, there are numerous third-party

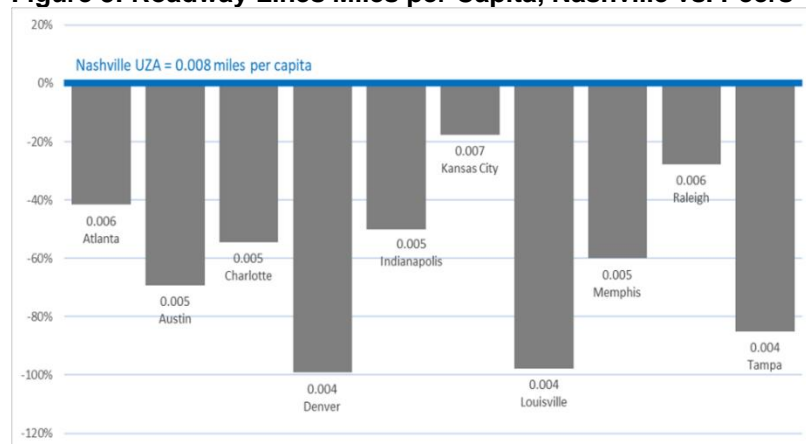
organizations that use publicly available data to rank and track progress of the nation's metropolitan areas. The most popular among these is the Texas Transportation Institute (TTI), a national transportation research center based out of Texas A&M University. Each year, TTI releases its *Urban Mobility Report* which includes rankings of America's urbanized areas on metrics related to traffic congestion. The 2019 report shows the following measures and rankings for the Nashville Urbanized Area.

- U.S. Population Ranking: 39th most populated
- Travel Time Index: 33rd worst
- Annual Delay per Auto Commuter: 24th worst
- Cost of Congestion per Auto Commuter: 20th worst

While the TTI focuses primarily on congestion-induced travel delays, there is a growing recognition that travel time, as a whole, is a truer measure of mobility. This measure is the full accounting of one's time, regardless of whether attributed to congestion or by longer distances between destinations. In fact, many groups like Transportation for America and CEO's for Cities argue that automobile congestion in and of itself is not necessarily a valuable measure of mobility. Take for instance urban environments where traffic congestion may be severe, but trip distances are very short or can be made by another mode of transportation not subjected to that congestion. In those cases, delays caused by congestion are not as detrimental to overall mobility or accessibility. Conversely, longer distances between destinations make travelers extremely vulnerable to congestion and fuel prices. Increases in either of those variables can cost commuters dearly in terms of lost time or out-of-pocket expense. According to Texas A&M's Urban Mobility Report in 2019, the metropolitan area saw a 25% increase in congestion delay from 46 hours of delay per commuter to 58 hours of delay per commuter in 2017. That is an increase of almost 4% a year, ranking the area 24th worst in the nation.

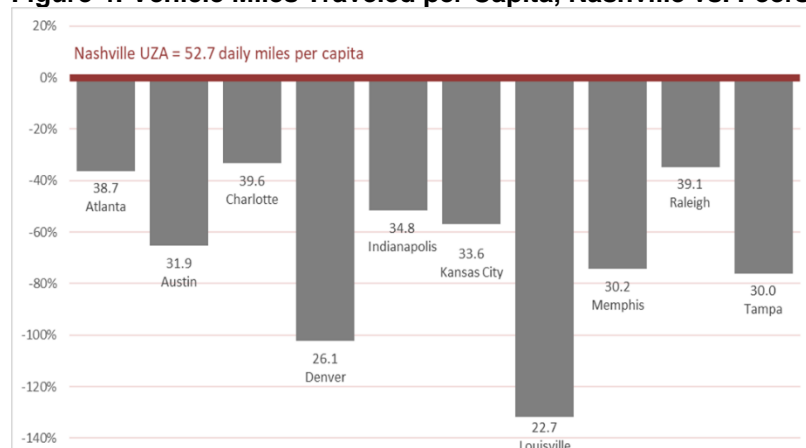
In addition to these national reports, the GNRC publishes *Nashville Region's Vital Signs* each year in partnership with the Nashville Area Chamber of Commerce. The report tracks Middle Tennessee against a select set of metro area peers that represent economic competitors or serve as models for different approaches to growth and development. Included in the report are key transportation indicators related to the availability (or supply) and usage (or demand) of roadways and transit. Roadway supply is expressed in terms of lane miles per capita, and as seen in the figure below, is very high in Middle Tennessee when compared with peer regions across the U.S., while transit service lags behind nearly all peers. This is not surprising considering Nashville has failed to keep up with peer regions in expanding transit.

Figure 3: Roadway Lines Miles per Capita, Nashville vs. Peers



Source: Highway Performance Monitoring System (2019)

Figure 4: Vehicle Miles Traveled per Capita, Nashville vs. Peers



Source: Highway Performance Monitoring System (2019)

The EPA CPRG program can be the catalyst to transform passenger rail service along the corridor and to help establish a new standard for high-capacity rapid transit in rapidly growing metros of the Southeastern U.S.

The Coalition believes the proposal is:

- Responsive to the needs of the metropolitan area at time when local communities are considering their transit futures.
- Innovative in integrating new zero emissions technology to set the stage for a full transit fleet conversion in the coming years.
- Fiscally prudent in that it will upgrade an existing asset that can be leveraged into subsequent extensions with a high degree of cost effectiveness.
- Comprehensive in its approach to reduce emissions, improve public health outcomes, provide alternatives to congested roadways, and improve access to affordable housing and jobs.
- Transformational in the way that it will redefine how the greater Nashville area and other southern metropolitan areas view public transit.

Section 2. Impact of GHG Reduction Measures

Under the proposed project, reductions in GHG emissions will come from two primary sources: 1) a complete elimination of emissions resulting from the current diesel-fueled trains employed by the WeGo Star, and 2) a reduction in personal vehicle miles traveled (VMT) as a result of significant expansion of transit options.

Measure 1.3 – Zero Emission Transit Vehicles

PCAP Tie-In: The PCAP prioritizes the replacement of the current locomotives with hydrogen powered or electrified models as part of Strategy 1: Transition to cleaner mobile sources such as electric, hybrid, and other alternative fuels to support these vehicles through the availability of fueling infrastructure.

General Methodology: WeGo Star currently owns and operates four diesel electric locomotive models built around 1980-1985. Estimated yearly emissions from commuter rail transportation in the region are 1,998 metric tons of CO₂e.

Emission estimates were taken from the 2020 National Emissions Inventory created by the EPA. Emissions are typically calculated from fuel consumption. The WeGo Star uses 208,312.20 gallons of diesel fuel per year, an estimated 125 gallons for each roundtrip, with a fuel economy of roughly 2 MPG.

The proposed rolling stock would be similar to the Stadler Flirt H2 model. This is Stadler's first hydrogen-powered train model available for American passenger rail transport. Hydrogen powered trains use fuel cells that convert hydrogen into electricity and emit only water vapor as a byproduct. Since the region's current trains are diesel, retrofitting overhead contact lines and substations for electric powered models would require high investment needs. The hydrogen powered Flirt H2 Model will offer the same zero emissions benefits without the need for costly infrastructure changes.

The hydrogen fuel locomotives that will replace the current locomotives have zero emissions. This would result in a total reduction of current emissions, about 1,998 metric tons per year.

Measure 3.1 – Expansion of Rail Transit Service

PCAP Tie-In: The PCAP prioritizes the upgrades to rail transit services as part of Strategy 3: Implement travel demand management strategies and expand public transit options to reduce VMT from personal automobile use.

General Methodology: The PCAP utilizes an assumed rate of VMT reduction to calculate the measure's impact. For the implementation grant application, VMT reductions were calculated using two methods. The first accounts for the VMT reduction that would stem from increased land development densities associated with transit-oriented development (TOD) and the changes to travel behaviors associated with the corresponding land use. Such a perspective reasons that the proposed improvements will drive TOD in both counties, which will lead to an increase in individuals who live in higher-density neighborhoods. This will, in turn, reduce personal VMT by individuals completing day-to-day tasks. Rather than needing to get in their car to go to work, get groceries, or even drive to the train station, the anticipated TOD and shift in densities in the impacted counties reduces the extent to which individuals are dependent upon a personal vehicle.

The second accounts for VMT reductions that would be a direct result of the increased ridership along the rail corridor as a result of the proposed improvements in service.

To calculate emissions reductions from transit-oriented development, staff utilized ICLEI's ClearPath forecasting methodology. Using the region's PCAP inventory as a baseline, staff created a series of growth rates to project GHG emissions out to 2050. This GHG emissions forecast calculated future emissions by considering projected population growth, projected employment growth, and TVA's planned grid decarbonization rate (with a goal of net zero carbon emissions by 2050). Staff then compared projected VMT from a series of different land-use scenarios, including a business-as-usual scenario (no improvements to the current rail; no hydrogen trains) and a TOD scenario that accounts for TOD resulting from the proposed commuter rail improvements.

GNRC used its regional travel demand model (Daysim Activity Based Model using Caliper Transcad Software) as the basis for calculating the emissions reductions resulting from the increased ridership associated with the proposed improvements to service.

a. Magnitude of GHG Reduction Measures from 2025 through 2030

Measure 1.3 – Zero Emission Transit Vehicles

Existing CO₂e emissions were estimated from the 2020 NEI, which were included in the region's greenhouse gas inventory in the submitted PCAP. Emissions per revenue mile were calculated by dividing annual emissions by revenue miles reported by the RTA for the same year, 2020. Revenue miles of the commuter train in 2020 are 184,417 miles.

Emissions from the current locomotive fleet under the extended service plan proposed can be projected by multiplying the emissions per revenue mile values by the increased service miles.

Revenue miles are expected to remain the same until 2025 when it is assumed to increase by a factor of four. The table below shows emissions from the proposed increase in service miles.

Figure 5: Emissions Reduction from Fleet Conversion, 2025-2030

Metric	Value
2020 CO ₂ e Emissions (metric tons/year)	1998
2020 Revenue Miles	184,417
Emissions per Revenue Mile	0.010831973
2025 Revenue Miles	184,417
2030 Revenue Miles	737,668
2025-2030 CO ₂ e Emissions Reduction (metric tons/year)	39,952

Measure 3.1 – Expansion of Rail Transit Service

Figure 6: Emissions Reduction from Expansion of Transit Service, 2025-2030

Metric	Value
Emissions Reduction from TOD	Not calculated at time of application
VTM Reduction from Mode Shift	1,638,985,381
Emissions Reduction from Mode Shift	73,885
2025-2030 CO ₂ e Emissions Reduction (metric tons/year)	73,885

b. Magnitude of GHG Reduction Measures from 2025 through 2050

Measure 1.3 – Zero Emission Transit Vehicles

2030 to 2050 revenue miles are expected to increase by a factor of two over the 2025-2030 service levels. The table below shows emissions from the proposed increase in service miles out to 2050.

Figure 7: Emissions Reduction from Fleet Conversion, 2025-2050

Metric	Value
2020 CO ₂ e Emissions (metric tons/year)	1998
2020 Revenue Miles	184,417
Emissions per Revenue Mile	0.010831973
2025 Revenue Miles	184,417
2050 Revenue Miles	1,475,336
2025-2050 CO ₂ e Emissions Reduction (metric tons/year)	359,568

Measure 3.1 – Expansion of Rail Transit Service

Figure 8: Emissions Reduction from Expansion of Transit Service, 2025-2050

Metric	Value
Emissions Reduction from TOD	Not calculated at time of application
VMT Reduction from Mode Shift	6,300,198,060
Emissions Reduction from Mode Shift	319,562
2025-2050 CO2e Emissions Reduction (metric tons/year)	319,562

c. Cost Effectiveness of GHG Reductions

The Cost effectiveness of GHG reductions is calculated below using the formula Cost Effectiveness = (Requested CPRG funding) / (Sum of Quantified GHG reductions from CPRG funding)

Figure 9: Cost Effectiveness of GHG Reductions, 2025-2030 and 2025-2050

Metric	Value
2025-2030 CO2e Emissions Reduction Measure 1.3 (metric tons/year)	39,952
2025-2030 CO2e Emissions Reduction Measure 3.1 (metric tons/year)	73,885
2025-2030 CO2e Emissions Reduction Total (metric tons/year)	113,837
Total CPRG Funding	\$485,791,913
Calculated Cost Effectiveness, 2025-2030	4267.43
2025-2050 CO2e Emissions Reduction Measure 1.3 (metric tons/year)	359,568
2025-2050 CO2e Emissions Reduction Measure 3.1 (metric tons/year)	319,562
2025-2050 CO2e Emissions Reduction Total (metric tons/year)	679,130
Total CPRG Funding	\$485,791,913
Calculated Cost Effectiveness, 2025-2050	715.32

d. Documentation of GHG Reduction Assumptions

Additional documentation of the emissions reduction calculations is provided in the Technical Appendix provided as an attachment to this application.

Section 3. Environmental Results

a. Expected Outputs and Outcomes

Expected Outputs:

- Number or percent of rail fleet vehicles transitioned to zero emissions.
- Number or percent of population, including LIDACs served by rail service.
- Increase in rail capacity via double tacking or passenger siding.
- Land use policies adopted / expanded to support ridership and proposed TODs.
- Increase in transit ridership and new stations built to serve proposed TODs.

Expected Outcomes:

- Reduced GHG emissions through 2030 and 2050.
- Reduced exposure to hazardous air pollution or unhealthy ambient air quality.
- Increase in corridor accessibility to jobs and housing via public transportation.

b. Performance Measures and Plan

The Coalition will develop a performance monitoring plan that focuses one:

- Overseeing partners, subrecipients, and/or contractors and vendors;
- Tracking and reporting project progress on expenditures and purchases: and
- Tracking, measuring, and reporting accomplishments and proposed timelines and milestones

GNRC will work with project partners and fleet vehicle provider to quantify GHG emission reductions with the replacement of Tier 0 vehicles with zero emission vehicles. Data and results will be presented to the region's Transportation Policy Board and made publicly available.

In addition, the Coalition will track the following performance measures to track its progress towards goals: VMT Reduction; Annual average daily traffic (AADT) before and after project implementation; Number or percent of public transit fleet vehicles electrified or transitioned to alternative fuels; number of communities, including LIDACs, served by rail; Gallons of fuel use avoided; Reductions in travel time or/and transit transfers; Transit ridership by service and number of new transit riders; Change in number of transit passengers trips per capita; Percent of residents within a 10 minute walk of transit station; Number of jobs within first- last mile of facility/station; Residential density within first-last mile of facilities/stations.; Walk score rating; Increase in policy/codes incorporating land use reforms which support alternative transportation

c. Authorities, Implementation Timeline, and Milestones

GNRC and RTA/WeGo Public Transit will each have a role in implementing the proposed projects. GNRC will serve as the primary grant recipient and be accountable to EPA as the grant manager. GNRC also will oversee performance monitoring, reporting, and the ongoing community and stakeholder outreach efforts. RTA/WeGo Public Transit will be the implementing agency for the equipment and infrastructure improvements and will be responsible for any increases in service, working closely with local governments on the funding for operations, and the freight operator to ensure that passenger service is coordinated with freight goods movement along the line.

Measure	Milestone	Authority	Timeline
Measure 1.3 – Zero Emission Transit Vehicles	Finalize Outreach and Coordination Plan	GNRC, RTA	Year 1
	Conduct outreach and track performance	GNRC, RTA	Years 1-5
	Determine configuration of rolling stock and vehicle maintenance needs	RTA	Years 1-2
	Finalize design and engineering for maintenance facility and fueling station(s)	RTA	Years 1-2
	Place order for rolling stock	RTA	Years 1-2
	Construct maintenance facility and fueling station(s)	RTA	Years 2-4
	Deploy rolling stock	RTA	Year 4
Measure 3.1 – Expansion of Rail Transit Service	Finalize Outreach and Coordination Plan	GNRC, RTA	Year 1
	Conduct outreach and track performance	GNRC, RTA	Years 1-5
	Finalize design and engineering for track upgrades	RTA	Years 1-2
	Finalize design and engineering for station upgrades	RTA	Years 1-2
	Construct track and station improvements	RTA	Years 3-4

	Implement Positive Train Control	RTA	Years 3-4
	Increase Frequencies of Transit Service	RTA	Years 4-5

Section 4. Low-Income and Disadvantaged Communities

a. Community Benefits

A Low-Income and Disadvantaged Community (LIDAC) benefits analysis is a required activity of the CPRG program. Foundational to the program is meaningful community engagement and advancing the goals of the Justice 40 Initiative included in Executive Order 14008, which aims to deliver 40% of the overall benefits of relevant federal investments to disadvantaged communities.

It is anticipated that the proposed WeGo Star improvements will benefit the Nashville region as well as provide significant benefits to LIDACs along the commuter rail corridor. The improvements are the Nashville MSA PCAP emissions reduction measure 1.3 Electrification or Hydrogen Conversion of Commuter Rail Fleet and measure 3.1 Implement TDM Programming and Expand Transit Options. Transitioning the commuter rail fleet to zero emission fuels and improving access to transit are expected to provide significant emissions reductions.

To identify LIDACs in the study area, GNRC reviewed the Environmental Justice Screening and Mapping Tool (EJScreen) and the Climate and Economic Justice Screening Tool (CEJST). These tools provide information at the census tract-level by defined categories and thresholds. The list of CEJST Census Tract IDs and jurisdictions that may be affected by the proposed measures have been uploaded as an attachment to Grants.gov.

To identify LIDACs in the study area, GNRC reviewed the Environmental Justice Screening and Mapping Tool (EJScreen) and the Climate and Economic Justice Screening Tool (CEJST). These tools provide information at the census tract-level by defined categories and thresholds. The list of CEJST Census Tract IDs and jurisdictions that may be affected by the proposed measures have been uploaded as an attachment to Grants.gov.

A benefits analysis was conducted for LIDACs within a 2-mile radius of a transit rail station and a ½ mile buffer around the commuter rail line. Those LIDACs within 2 miles of a rail station were considered to benefit significantly in the CEJST categories of climate change, energy, transportation, housing, legacy pollution, health, and workforce development. Those within a ½ mile buffer of the rail line but beyond the 2-mile radius of a stop also experience benefits but may experience disbenefits as well due to reduced access as they are not within close proximity to a stop.

Overall, there are significant benefits for LIDACs across all categories. The improvements from a climate perspective benefit over 17,000 people and do not result in significant disbenefits. For the energy category, about 11,000 people benefit from the improvements and do not result in any disbenefits, likely resulting from the decrease in energy costs from the shift to hydrogen powered vehicles.

Expected direct benefits:

- Increased access to transportation alternatives. It is anticipated that with the rail improvements will facilitate access to employment, social activities, and increase trips made by public transportation.

- Improved public health resulting from reductions in co-pollutants. It is anticipated that over 28,000 people will benefit from a reduction in diesel particulate matter exposure and reduction in traffic volumes.
- Factors related to pollution results in benefits for more than 24,221 people, and more than 30,000 people benefit from a health perspective, with benefits to life expectancy, asthma, diabetes, and heart disease likely resulting from increased transit service, reduced emissions, and a potential shift in lifestyle from increased active transportation activity.
- Improved access to employment opportunities. More than 23,000 households also stand to benefit from a workforce development perspective due to increased access to employment.
- Increased investment in housing. More than 33,000 people stand to benefit in areas that have experienced historic underinvestment.

Expected indirect benefits:

- A social vulnerability index (SVI) was also used to identify benefits and disbenefits for people with disabilities, carless individuals, and people with low discretionary income, in addition to the LIDACs. The analysis shows significant benefits for more than 17,000 people with a disability, more than 53,000 carless individuals, and more than 28,000 people with lower discretionary income.

The proposed WeGo Star improvements, if funded, would create additional opportunities to extend the community rail line to serve other communities including LIDACs. Additional extensions, shows an overwhelming benefit to LIDAC communities across all CEJST categories, including benefits to over 48,000 people in the climate category, 55,000 people in the transportation category, 66,000 people in the housing category, more than 41,000 people in the pollution category, more than 85,000 people in the health category, as well as more than 51,000 households in the workforce development category.

Continued analysis to quantify, analyze, and report on the benefits and disbenefits to LIDAC communities will be conducted according to a robust planning process. This process will include GHG emissions performance monitoring, an analysis of EJScreen and CEJST categories, and engagement with LIDACs throughout the grant period.

b. Community Engagement

Community engagement has been incorporated into this application through a variety of planning efforts including those used in the development of the Priority Climate Action Plan (PCAP), GNRC's 2045 Regional Transportation Plan (RTP), and various other efforts described below. In addition, the Coalition is deeply committed to continuing engagement efforts during the final design and implementation of the proposed measures in a way that integrates EPA's recommendations for:

- Creating a transparent planning process that also provides opportunity for early risk mitigation;
- Creating a community work group or advisory board made up of community members;
- Having a community-elected member(s) on the planning and project team; and/or,
- Getting community feedback on local benefits and prioritizing what they value most.

This continued engagement will be guided by an "Outreach and Engagement Strategy" that will include public meetings, online data reporting and performance monitoring, and coordination with local governments and public transit agencies. Upon award, community engagement opportunities will be widely communicated and will include listening sessions, outreach, door-to-door visits, and

dedicated community meetings. A working group made up of community members to oversee the implementation of rail improvements will also be created. Information will be translated and made available in multiple languages in communities with Limited English Proficiency (LEP).

As part of this outreach, the Civic Design Center, a local non-profit organization, will be specifically mobilized to assist with convening a community advisory board with local community members with the intent to bring together past plans and think about creative opportunities for the future. The Design Center has worked within the community for over 20 years and continues to raise community voices to be part of the planning process.

Summary of Prior and Ongoing Engagement

Choose How You Move Ballot Initiative (Current) - Nashville has long recognized the necessity of upgrading its transportation infrastructure to meet the demands of a modern, multimodal society, encompassing driving, walking, transit, and bicycling. After years of analysis and planning, Mayor O'Connell is now spearheading implementation. Under the name Choose How You Move – An All-Access Pass to Sidewalks, Signals, Service, and Safety in Nashville, Mayor O'Connell aims to secure dedicated funding for transportation and mobility projects in November 2024. To ensure that the plan reflects the needs and aspirations of Nashville's residents, the Mayor has been actively seeking public input, engaging with Metro Council Members, and collaborating with advisory committees throughout February and March. Following this period of extensive community engagement, the Mayor will unveil a comprehensive plan and continue the dialogue with Nashvillians on how to enhance the city's mobility infrastructure.

Future Directions Strategy (Current) – This ongoing effort by RTA is the basis for many of the proposed projects included in the CPRG application. The study helped produce cost estimates and an assessment of market potential for the expansion of rail service in the corridor.

Priority Climate Action Plan (2024) - GNRC conducted community engagement to provide an opportunity for members of the general public to help shape the priorities presented as part of the PCAP. Coordinating with the statewide CPRG effort, TVERS, GNRC hosted four public events in the Nashville planning area to engage with community members. Three of the events were in-person where attendees could ask questions and provide input on the planning elements. One of the public events was a virtual meeting with polling using Poll Everywhere software to engage participants and receive feedback. Two of the facilities are in a low-income disadvantaged community as identified using the CEJST.

Regional Transportation Plan (2021) - The improvements outlined in this application were included as priorities in the development of the Regional Transportation Plan between 2019 until adoption in February 2021. The process included engagement with LIDAC communities through public meetings, online surveys, and continued engagement with stakeholder committees such as the public transit working group, bicycle and pedestrian advisory committee, and engagement with non-profit organizations in LIDAC communities.

WalknBike (2022) - WalknBike serves as a comprehensive strategy for enhancing walkability and bikeability in Metro Nashville, addressing public demand for these improvements. The plan not only outlines necessary projects but also lays the groundwork for timely implementation. It presents a prioritized list of projects that will guide NDOT's activities over the next three years.

The focus of the effort revolves around two primary objectives: plan execution and project delivery. Beyond reassessing priority needs, the plan carefully considers factors like constructability when selecting projects for advancement. By accounting for potential obstacles such as right-of-way

acquisition and utility conflicts, NDOT can pursue a balanced portfolio of priority projects. This includes both those that can be swiftly executed and more complex, high-priority projects that require longer timeframes and greater resources.

To engage the community, the process employed diverse outreach strategies such as online surveys, in-person events, and collaboration with community organizations. The expanded steering committee included representatives from groups representing underserved populations, to ensure that broader perspectives were considered in the planning process.

A public survey, provided insights on public preferences and priorities regarding sidewalks and bikeways. Community feedback emphasized the urgent need for expanded sidewalk networks, improved connectivity for underserved areas, safer crossings, and enhanced transit access, especially for vulnerable populations. These insights serve as critical inputs shaping the implementation of WalknBike 2022's objectives.

nMotion Transit Master Plan (2016) - nMotion is a long-range plan developed to provide more specific guidance on how best to implement the transit vision identified in the Regional Transportation Plan and NashvilleNext. The plan was developed in partnership between the Metropolitan Transit Authority (MTA), the Regional Transportation Authority (RTA), the MPO, and other regional stakeholders.

Key elements of the nMotion plan include expanding public transit services, enhancing connectivity between different modes of transportation, improving roadway infrastructure, and promoting alternative transportation options to reduce congestion and support economic growth. Overall, nMotion serves as a guiding framework for transportation decision-making and investment in Metro Nashville, with the goal of creating a more integrated, efficient, and sustainable transportation system for residents and visitors.

Throughout the development process, extensive public engagement occurred, with over 20,000 interactions through surveys, community meetings, social media, and email correspondence. Additionally, the project's website attracted nearly 33,000 unique visitors, underscoring the community's interest and involvement.

NashvilleNext (2015) - NashvilleNext serves as the comprehensive plan for the Metropolitan Government of Nashville and Davidson County, guiding its future decisions and development for the next 25 years. Through its engagement process, NashvilleNext aimed to educate, engage, and empower constituents, involving them in various phases from community visioning to feedback on draft recommendations. This inclusive approach, which included over 400 meetings and events, sought input on housing, gentrification, culture, transportation, and economic development, ensuring traditionally uninvolved constituents had a voice in the planning process.

Participants in NashvilleNext identified investments in high-capacity transit corridors as critical to addressing the county's long-term transportation needs. The Growth and Preservation Concept Map, a product of the NashvilleNext initiative, pinpointed activity centers across the county where development is encouraged over the next decade, emphasizing transit accessibility and demand.

Priority routes connecting densely populated areas and job hubs, as well as linking to regional destinations, were outlined. This alignment of local and regional priorities not only enhances Nashville's competitiveness for state and federal funding but also supports coordinated transportation investments across Middle Tennessee. Transit-oriented developments along major corridors not only accommodate more residents, businesses, and amenities for Nashvillians but also provide additional commuting options for regional travelers entering and exiting the county.

Section 5. Job Quality

Jobs created through this investment will include both temporary construction jobs and permanent management, operations, and upkeep jobs. These jobs align with the EPA's commitment to using IRA investments, including the CPRG program, to support the creation of high-quality, family-sustaining jobs. The management, operations, and upkeep of the WeGo Star are entrusted to the Transit Solution Group (TSG) through a five-year contract, with an option to extend for another five years. Any additional work not covered by these agreements undergoes a competitive bidding process that includes various evaluation criteria. This includes construction jobs.

The construction industry in Davidson and Wilson counties boasts a location quotient of 0.94, and average annual wages of \$75,294. These datapoints show that the concentration of workers is close to the national average for comparable geographies, indicating that there would be no issue sourcing local talent, and this annual wage is 4% higher than the industry average for the same area. The rail transportation industry in the Davidson-Wilson County region boasts an annual average wage of \$87,648, 21% higher than the average annual wage for all industry in the region (JobsEQ 4Qtr Moving Average).

The implementation of positive train control and increased service necessitates various construction projects. These include new main line passing siding and trackage, more switches, new stations, a substantially upgraded maintenance facility, and in this case at least one bridge. Technical installations associated with PTC will contribute to the body of temporary jobs as well.

This labor will go through RTA and Metro Nashville's procurement process ensuring a fair hiring process that is vetted to the standards of Metro Nashville. Regarding procurement and creation of local, high-paying jobs, the Nashville Mayor's office states that they are committed to developing career pathways and roadmaps and working with local employers to develop strong talent pipelines. This alignment results in more locally-available skilled labor for procurement of this nature. There is an additional focus from the Mayor's office on placing a heavy equity lens that puts a focus on creating opportunities for Nashvillians through economic development.

The Transit Solution Group (TSG) employs operations staff and train crew members including brakemen, conductors, and engineers. This is an R.J. Corman company and is an equal opportunity employer. Benefits provided to TSG employees include, but are not limited to the following: Railroad Retirement benefits; competitive wages; Medical, Dental, and Vision insurance (with immediate eligibility starting on day one of employment); company paid life insurance; voluntary life insurance, short-term disability, long-term disability, accident, and hospital indemnity insurance; voluntary identity theft protection; flexible spending account benefits; paid maternal leave; 8 paid holidays; paid time off with accrual beginning on day one of employment; an Employee Assistance Program, 401K retirement savings plan, a work boot allowance, an employee referral program, and even annual tickets to My Old Kentucky Dinner Train (a dinner train running along the Kentucky bourbon trail). This list demonstrates alignment with the Department of Labor's Good Jobs Initiative items #2: Benefits, #7: Pay, and #6: Workplace Culture. Their equal opportunity employer status demonstrates alignment with #3: Diversity, Equity, Inclusion, & Accessibility.

In addition to the information available directly from R.J. Corman, more information about the permanent jobs created from this investment can be found from the procurement guidelines that the company was subject to when contracted by RTA.

Regarding hiring Practices, TSG shall not discriminate against any employee or applicant for employment because of race, religion, color, gender, national origin, disability, age, or sexual

orientation. The Contractor shall take action and shall make good faith efforts to require that each subcontractor retained by it shall take action to ensure that applicants for employment are hired, and that employees are treated during their employment (including promotion, demotion, or transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training) without regard to their race, religion, color, gender, national origin, disability, age, or sexual orientation. Any demonstrated pattern of discriminatory conduct in violation of this subsection is a material breach of any agreement entered into between the RTA and the Contractor. These measures align with the DOL's Good Jobs Initiative item #1, Recruitment & Hiring.

Regarding labor Practices, compliance with Section 13(c) is required. "Section 13(c) is quite well known in the transit industry as the labor protection provision of the Federal Transit Act. Section 13(c) generally requires, as a precondition to a grant of federal assistance by the Federal Transit Administration (FTA), that fair and equitable protective arrangements must be made by the grantee to protect employees affected by such assistance. The statute requires that provisions addressing five specific matters be included in such protective arrangements: (1) The preservation of rights, privileges, and benefits under existing collective bargaining agreements; (2) The continuation of collective bargaining rights; (3) The protection of employees against a worsening of their positions with respect to their employment; (4) Assurances of employment to employees of acquired mass transportation systems and priority of reemployment for employees terminated or laid off; and (5) Paid training or retraining programs.

Additionally, the contractor is required to comply with the terms and conditions of all collective bargaining agreements it may enter into with its employees or their representatives concerning wages, benefits and terms and conditions of employment. This demonstrates alignment with the DOL's initiative item #4: Empowerment & Representation.

Regarding safety, RTA requires that the safety of passengers, employees, and the general public is of primary concern to the Contractor (TSG). RTA's System Safety Program Plan, operating rules, the timetables, special instructions, FRA and STATE regulations govern the Contractor and its responsibilities. RTA's System Safety Program Plan is fully compliant with APTA, FRA, State, and Local standards. TSG was also required develop its own System Safety Plan utilizing the elements of RTA's System Safety Program Plan as designated by the RTA.

In the case of emergency, TSG is required to follow the General Code of Operating Rules and NERC Specific Procedures for handling emergencies. Crew members are guaranteed to be fully trained in the communication required during emergencies and will take emergency actions and procedures as instructed. These safety measures align with the Department of Labor's Good Jobs Initiative item #5: Job Security and Working Conditions.

Regarding training and professional development, TSG shall provide, administer, and maintain training programs that address all required aspects of safety and personnel qualifications. The training programs shall certify that employees are fully qualified to perform the functions necessary for their positions. The Contractor shall provide the RTA with an annual training report that will include a description of specific programs and person-hours spent in training by employee. This demonstrates alignment with Good Jobs Initiative item #8: Skills & Career Advancement.

Section 6. Programmatic Capability and Past Performance

The Coalition has the organizational and leadership capacity to guide the implementation of the proposed GHG reduction measures. **GNRC serves as the Council of Governments, Metropolitan Planning Organization, Economic Development District, Area Agency on Aging and Disability and is an**

experienced convener, grant administrator, and technical assistance provider across the Middle Tennessee. GNRC's structure emphasizes collaboration, governed by a regional council comprised of mayors, county executives, state legislators, business representatives, and appointees representing minority populations. GNRC provided grant administration for more than \$50M worth of grants per year over the last several years in addition to managing a \$1.5 billion regional Transportation Improvement Program for the Nashville Area MPO.

RTA is a direct recipient of FTA funding and TDOT funding. RTA implements projects in accordance with the grant application, award contract, Federal Transit Administration (FTA) Master Agreement, and all applicable Federal and State laws, regulations, policies, and guidance, using sound management practices. FTA conducted a Triennial Review of the RTA in FY 2023 as required by 49 U.S.C. Chapter 53 and other Federal mandates. Although not an audit, the Triennial Review is the FTA's assessment of RTA's compliance with Federal requirements, determined by examining a sample of award management and program implementation practices. As such, the Triennial Review is not intended as, nor does it constitute, a comprehensive and final review of compliance with award requirements. The Triennial Review focused on RTA's compliance in 23 areas. No deficiencies were found with the FTA requirements in 22 of these areas. Deficiencies were found in one area: Drug and Alcohol Program.

a. Past Performance

The following list provides federally funded grant agreements managed by GNRC within the last three years. GNRC has successfully met all requirements or is currently in compliance with the listed agreements.

Title	Climate Pollution Reduction Grant Program MSA Planning Grant
Agency	U.S. Environmental Protection Agency
Description	Grant provides \$1 million over four years to design climate action plans that incorporate a variety of measures to reduce GHG emissions from across their economies in six key sectors including electricity generation, industry, transportation, buildings, agriculture/natural and working lands, and waste management.
Contact	Patricia Gough – gough.patricia@epa.gov

Title	Partnership Planning Grant
Agency	U.S. Economic Development Administration
Description	Grant provides \$270,000 over three years to support the development of a regional Comprehensive Economic Development Strategy and to provide economic development assistance to agencies and organizations seeking federal investments to create or retain jobs.
Contact	Lucas Blankenship – lblakenship@eda.gov

Title	Consolidated (Transportation) Planning Grant
Agency	Federal Highway Administration and Federal Transit Administration via TN Department of Transportation
Description	Grant provides approximately \$2.7 million per year to fund the development of a Regional Transportation Plan, Transportation Improvement Program, and related studies and planning activities for the Metropolitan Planning Organization.
Contact	Stacy Morrison – stacy.morrison@tn.gov

In addition to GNRC's history with grants, the RTA has substantial experience managing grants received directly from state and federal agencies. The following is a list of representative grant agreements that have been successfully implemented over the last few years and/or are underway.

- 2016 – FHWA Congestion Mitigation and Air Quality (CMAQ). \$800,000 for Building of Star Hamilton Springs Park and Ride Station

- 2018 – State of TN IMPROVE Act Transit Improvement Grant. \$1,262,129 for RTA Coach Bus Replacement
- 2018 – State of TN IMPROVE Act Transit Improvement Grant. \$1,220,184 for Star Rail Locomotive Rebuild
- 2018 – FHWA Congestion Mitigation and Air Quality (CMAQ). \$1,236,000 for Mt. Juliet Station Park and Ride Extension
- 2019 – State of TN IMPROVE Act Transit Improvement Grant. \$3,000,000 for Star Passenger Rail Cars Replacement
- 2022 – FHWA Congestion Mitigation and Air Quality (CMAQ). \$3,440,000 for Development of Regional Park and Ride Facilities
- 2022 – State of TN IMPROVE Act Transit Improvement Grant. \$3,000,000 for Development of Regional Park and Ride Facilities
- 2024 – State of TN IMPROVE Act Transit Improvement Grant. \$800,000 for Installation of Real Time Train Arrival Information at WeGo Star Stations
- Ongoing – Formula funding awards from FTA (e.g., 5307, 5337, etc.) and FHWA (e.g., STBG) made available through the MPO for preventative maintenance, vehicle acquisition and replacement, equipment and facilities, and transit service expansion.

b. Reporting Requirements

GNRC and RTA have successfully met all reporting requirements in connection with the grant agreements listed in Section 6a. Routing audits and program monitoring is conducted by state and federal agencies to ensure compliance with regulations and contract requirements.

c. Staff Expertise

GNRC’s professional staff have decades of combined expertise in grant management and administration, economic and community development, land use planning and zoning, environmental planning, transportation planning, policy and government affairs, research and analytics, and the coordination and delivery of various social service programs. The organization’s extensive experience and permanence in Middle Tennessee have enabled GNRC to establish relationships with organizations and agencies in the public, private, and non-profit sectors to better serve the region’s residents and communities. GNRC staff are often working with federal, state, and local departments of transportation and economic development agencies; community housing agencies; water and sewer utilities, electric and natural gas utilities, and broadband service providers; religious and community-based organizations; community health and private health organizations; and universities in addition to local governments and the public.

WeGo Public Transit provides staffing and managerial support for the RTA. During the 2016 and 2019 Federal Transit Administration Triennial Reviews, RTA did not have any deficiencies in technical capacity, financial management, legal, or satisfactory continuing controls sections of the review. No deficiencies were identified during the FY 2021 FTA COVID-19 Relief ECHO Drawdown Review.

In the last 12 years, there has only been 1 year (FY 21) where there was a finding from in our annual independent financial audits, and we are identified as a low-risk auditee.

In 2015 RTA hired an engineer to supervise capital projects. In early 2017 another engineer was hired. The engineering department now has two engineers and a project construction manager. This increase in staff technical expertise has improved RTA’s capacity to implement capital infrastructure projects. RTA also utilizes contracted assistance for real property acquisition services and on call capital program support services specialized resources in design, engineering, construction inspection, and

planning to supplement the WeGo staff's expertise. As the need for additional resources fluctuates with priorities and funding, the Agency has used task order-based "on-call" design, engineering, construction materials testing, and planning services contracts to provide professional services for a limited scope, short-duration assignments.

Section 7. Budget

GNRC is requesting \$485,791,913 from the EPA's CPRG program to the implementation of the proposed GHG reduction measures. Additional funding in the amount of \$55,000,000 is pledged as a cost share to support the subgrant to RTA/WeGo Public Transit for implementing positive train control and track upgrades along the corridor.

a. Budget Detail

The \$485,791,913 grant budget is programmed as follows:

Personnel – GNRC has budgeted \$1,194,556 for five years of salaries with annual increases for two full time positions to manage the grant program, act as a liaison between the project and community stakeholders, ensure all reporting requirements are met, and to identify course corrections when adjustments are needed to mitigate challenges as they arise.

Fringe Benefits – GNRC has budgeted \$477,822 to cover five years of fringe benefits and payroll taxes associated with the two full time employees.

Travel: The budget does not include any proposed costs for travel.

Equipment: The budget does not include any proposed costs for equipment

Supplies: The budget does not include any proposed costs for supplies.

Contractual: The budget does not include any proposed costs for contractual expenses.

Other: The budget includes \$483,140,000 in subgrants to RTA as follows:

- \$192,360,000 subgrant to RTA/WeGo Public Transit for acquiring the zero emissions fleet and constructing the supporting facilities. The cost includes \$52,360,000 for the purchase of up to 6 multiple unit transit vehicles and \$140,000,000 for the construction of a rail maintenance facility and hydrogen production and fueling stations.
- \$187,180,000 subgrant to RTA/WeGo Public Transit for implementing positive train control infrastructure (\$42,000,000) and various track upgrades (\$145,180,000) at the following candidate locations:
 - Vine Hill Extension Upgrades (2.5 miles)
 - Riverfront to Donelson Double Tracking (5 miles)
 - Hermitage Crossing Extension Upgrades (1.7 miles)
 - Donelson to Marth Spurs and Sidings
- \$103,600,000 subgrant to RTA/WeGo Public Transit for improving existing and constructing planned stations at the following candidate locations:
 - Riverfront Station
 - South Bank Station (new)
 - Vine Hill Station (new)
 - Donelson Station
 - Hermitage Crossing (new)

- State Fairgrounds (new)

Indirect Charges: GNRC has budgeted \$979,536 to cover five years of indirect costs incurred on the direct personnel and fringe benefits included in the proposal. The estimates indirect costs at 42% of personnel and fringe but will apply the indirect cost rate according to the applicable indirect cost allocation plan (ICAP) approved by GNRC’s cognizant agency and used by state and federal granting agencies. A copy of the most recent ICAP is available online at www.gnrc.org/ICAP.

Quality Control and Oversight

As governmental entities with a proven track record of managing federal grants, GNRC and RTA have adequate internal controls, management systems, board oversight, and reporting procedures in place to effectively implement this project. There are no outstanding legal, technical, or financial issues that would make this a high-risk project. As the implementing agency of the proposed improvements, RTA has experience with implementing similar projects and is adept at following federal, state, and local requirements to deliver projects on time and within budget. In addition, GNRC has budgeted a portion of the CPRG grant to cover the cost of a dedicated program manager and assistant program manager to ensure that all reporting requirements are met, that the project stays on schedule and within budget, and to identify course corrections when adjustments are needed to mitigate challenges as they arise.

c. Reasonableness of Costs

Costs for the proposed improvements associated with the two measures have been estimated using recent observations from across the industry including those reported to the National Transit Database and or obtained from Hatch Consulting - RTA’s planning and engineering consulting firm currently under contract to develop the “Future Directions Strategy” referenced in Section 1C. Hatch has more than six decades of experience and employs a network of 10,000 professionals spanning over 150 countries around the world in the metals, energy, and infrastructure sectors.

TECHNICAL APPENDIX

VMT and Emissions Reduction Calculations

- Assumptions used in the travel demand model include the use of existing routes, proposed All Access and Frequent Network routes that are to be included in the 2024 referendum and the increased frequency of the proposed Star service as well as expected extensions that would ...
- Assumptions used in the calculations of the CO2e reductions include:

	Forecasted Annual Ridership Trend	Forecasted Annual Ridership Build	Forecasted VMT Trend	Forecasted VMT Build
2025	16,569,812	18,566,219	265,116,985	297,059,504
2026	16,770,993	19,016,951	268,335,883	304,271,217
2027	16,972,174	19,467,683	271,554,781	311,482,930
2028	17,173,355	19,918,415	274,773,679	318,694,643
2029	17,374,536	20,369,147	277,992,577	325,906,356
2030	17,575,717	20,819,879	281,211,475	333,118,068
2031	17,776,898	21,270,611	284,430,373	340,329,781
2032	17,978,079	21,721,343	287,649,271	347,541,494
2033	18,179,261	22,172,075	290,868,169	354,753,207
2034	18,380,442	22,622,807	294,087,067	361,964,919
2035	18,581,623	23,073,540	297,305,965	369,176,632
2036	18,782,804	23,524,272	300,524,862	376,388,345
2037	18,983,985	23,975,004	303,743,760	383,600,058
2038	19,185,166	24,425,736	306,962,658	390,811,771
2039	19,386,347	24,876,468	310,181,556	398,023,483

2040	19,587,528	25,327,200	313,400,454	405,235,196
2041	19,788,709	25,777,932	316,619,352	412,446,909
2042	19,989,891	26,228,664	319,838,250	419,658,622
2043	20,191,072	26,679,396	323,057,148	426,870,334
2044	20,392,253	27,130,128	326,276,046	434,082,047
2045	20,593,434	27,580,860	329,494,944	441,293,760
2046	20,794,615	28,031,592	332,713,842	448,505,473
2047	20,995,796	28,482,324	335,932,739	455,717,186
2048	21,196,977	28,933,056	339,151,637	462,928,898
2049	21,398,158	29,383,788	342,370,535	470,140,611
2050	21,599,340	29,834,520	345,589,433	477,352,324
2025 to 2030	102,436,586	118,158,295	1,638,985,381	1,890,532,718
2030 to 2050	393,762,379	511,051,316	6,300,198,060	8,176,821,050
Total	496,198,965	629,209,610	7,939,183,441	10,067,353,768

	CO2e Reduced from Transit VMT Trend	CO2e Reduced from Transit VMT Build	Additional CO2e Reduced from Build over Trend
2025	10,361	11,610	1,248
2026	10,487	11,891	1,404
2027	10,613	12,173	1,560
2028	10,739	12,455	1,716
2029	10,864	12,737	1,873
2030	10,990	13,019	2,029

2031	11,116	13,301	2,185
2032	11,242	13,582	2,341
2033	11,368	13,864	2,497
2034	11,493	14,146	2,653
2035	11,619	14,428	2,809
2036	11,745	14,710	2,965
2037	11,871	14,992	3,121
2038	11,997	15,273	3,277
2039	12,122	15,555	3,433
2040	12,248	15,837	3,589
2041	12,374	16,119	3,745
2042	12,500	16,401	3,901
2043	12,626	16,683	4,057
2044	12,751	16,965	4,213
2045	12,877	17,246	4,369
2046	13,003	17,528	4,525
2047	13,129	17,810	4,681
2048	13,255	18,092	4,837
2049	13,380	18,374	4,993
2050	13,506	18,656	5,149
2025 to 2030	64,054	73,885	9,831
2030 to 2050	246,221	319,562	73,341
Total	310,275	393,447	83,172

Forecasted Corridor Ridership	Forecasted Corridor Ridership Trend	Forecasted Corridor Ridership Build	Forecasted Corridor VMT Trend	Forecasted Corridor VMT Build
2025	3,509,845	4,558,129	56,157,513	72,930,071
2026	3,546,654	4,725,974	56,746,460	75,615,588
2027	3,583,463	4,893,819	57,335,407	78,301,104
2028	3,620,272	5,061,664	57,924,354	80,986,620

2029	3,657,081	5,229,509	58,513,300	83,672,137
2030	3,693,890	5,397,353	59,102,247	86,357,653
2031	3,730,700	5,565,198	59,691,194	89,043,170
2032	3,767,509	5,733,043	60,280,140	91,728,686
2033	3,804,318	5,900,888	60,869,087	94,414,203
2034	3,841,127	6,068,732	61,458,034	97,099,719
2035	3,877,936	6,236,577	62,046,981	99,785,236
2036	3,914,745	6,404,422	62,635,927	102,470,752
2037	3,951,555	6,572,267	63,224,874	105,156,268
2038	3,988,364	6,740,112	63,813,821	107,841,785
2039	4,025,173	6,907,956	64,402,767	110,527,301
2040	4,061,982	7,075,801	64,991,714	113,212,818
2041	4,098,791	7,243,646	65,580,661	115,898,334
2042	4,135,600	7,411,491	66,169,608	118,583,851
2043	4,172,410	7,579,335	66,758,554	121,269,367
2044	4,209,219	7,747,180	67,347,501	123,954,884
2045	4,246,028	7,915,025	67,936,448	126,640,400
2046	4,282,837	8,082,870	68,525,394	129,325,916
2047	4,319,646	8,250,715	69,114,341	132,011,433
2048	4,356,455	8,418,559	69,703,288	134,696,949

2049	4,393,265	8,586,404	70,292,235	137,382,466
2050	4,430,074	8,754,249	70,881,181	140,067,982
2025 to 2030	21,611,205	29,866,448	345,779,281	477,863,174
2030 to 2050	81,607,734	143,194,470	1,305,723,749	2,291,111,520
Total	103,218,939	173,060,918	1,651,503,030	2,768,974,694

	CO2e Reduced from Transit VMT in the Corridor Trend	CO2e Reduced from Transit VMT in the Corridor Build	Additional CO2e Reduced from Build over Trend in the Corridor
2025	2,195	2,850	655
2026	2,218	2,955	737
2027	2,241	3,060	819
2028	2,264	3,165	901
2029	2,287	3,270	983
2030	2,310	3,375	1,065
2031	2,333	3,480	1,147
2032	2,356	3,585	1,229
2033	2,379	3,690	1,311
2034	2,402	3,795	1,393
2035	2,425	3,900	1,475
2036	2,448	4,005	1,557
2037	2,471	4,110	1,639
2038	2,494	4,215	1,721
2039	2,517	4,320	1,803
2040	2,540	4,425	1,885
2041	2,563	4,529	1,966
2042	2,586	4,634	2,048
2043	2,609	4,739	2,130
2044	2,632	4,844	2,212

2045	2,655	4,949	2,294
2046	2,678	5,054	2,376
2047	2,701	5,159	2,458
2048	2,724	5,264	2,540
2049	2,747	5,369	2,622
2050	2,770	5,474	2,704
2025 to 2030	13,514	18,676	5,162
2030 to 2050	51,030	89,540	38,510
Total	64,543	108,215	43,672

