Georgia EPD Workplan for CPRG Implementation Grant General Competition

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Air Protection Branch

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1. Overall Project Summary and Approach

The Georgia Environmental Protection Division (EPD) Climate Pollution Reduction Grant (CPRG) application will provide grants to school districts for the purchase of electric school buses and will be referred to as the Peach State Zero Emissions School Buses (Peach State ZEB) project. Under an existing Georgia EPD program, grants are available under the Diesel Emissions Reduction Act (DERA) State Clean Diesel Grant Program to replace old, dirty diesel school buses that are located or operated in the State of Georgia with new, clean school buses. This program will be referred to as the Georgia DERA Program.

Georgia EPD is requesting $40,757,128 in CPRG funds. These funds will be used to create a new school bus grant program separate from, but modeled after, the Georgia DERA Program. The new program will offer electric buses to eligible school districts, prioritizing rural districts and districts that serve low-income and disadvantaged communities (LIDAC). Georgia EPD will award eligible school districts funds towards the purchase of electric school buses and supporting electric vehicle (EV) infrastructure.

The project will implement the following measures identified in the Peach State Voluntary Emission Reduction Plan.

Strategy 1: Electrify transportation sector and adapt to consumer mode shift.

1.1 Zero emission buses
1.2 EV Infrastructure

This program will not only reduce greenhouse gases (GHGs), but it will also help continue our downtrend of criteria air pollutants such as nitrogen oxides (NO_x), carbon monoxide (CO), and fine particulate matter ($PM_{2.5}$).

The final total magnitude of cumulative GHG reductions from the Peach State ZEB program from measure 1.1 Zero emission buses are the following:

- The total magnitude of cumulative GHG reductions from 2025 through 2030 is found to be **4,857.41 metric tons CO_2e**.
- The total magnitude of cumulative GHG reductions from 2025 through 2050 is found to be **19,429.62 metric tons CO_2e**.
- No additional emission reduction is credited to measure 1.2 EV Infrastructure.

a. Major Features

Under this program, Georgia EPD will grant subawards to school districts for the purchase of approximately 100 electric school buses. Subawards will be evaluated on the extent to which they propose to replace buses that (1) reduce GHG emissions; (2) serve rural school districts that would not typically qualify for the Georgia DERA Program; and (3) LIDACs identified in the Peach State Voluntary Emission Reduction Plan LIDAC Benefits Analysis.

This program aims to:

1) Improve air quality by replacing old, dirty diesel buses with new clean buses by adding to the number of zero emission alternatives.
2) Reduce criteria air pollutants such as NO_x, CO, and $PM_{2.5}$.
3) Maximize the number of zero-emission buses that get funded.
4) Provide comprehensive support by including training and EV infrastructure as eligible expenses.
5) Increase electric vehicle education and adoption.
6) Ensure a broad geographic distribution of awards.

b. Funding Need

Georgia EPD found the following funding programs available for reducing emissions from school buses:

- **EPA Clean School Bus Program**: With funding from the Bipartisan Infrastructure Law, the U.S. Environmental Protection Agency's (EPA's) Clean School Bus program provides $5 billion over five years to replace existing school buses with zero-emission and low-emission models. Under the program's multiple grant and rebate funding opportunities to date, the EPA has awarded almost $2 billion to fund approximately 5,000 school bus replacements at over 600 schools. In 2022 through 2023, Georgia schools received over $170 million in funding.[1]
- **EPA DERA Rebate Program**: As part of the federal Diesel Emission Reduction Act of 2010, EPA offers rebates directly to school districts. This program is separate from the DERA State Grant Program. The rebate program allows EPA to offer rebates to reduce harmful emissions from older, dirtier diesel vehicles. The rebate program has funded vehicle replacements or retrofits for over 2,000 vehicles nationwide. Georgia schools have been awarded $1,670,000 in rebates.[2]
- **Georgia DERA Program:** As part of the federal Diesel Emission Reduction Act of 2010, EPA offers grant funding to States for additional retrofits and early replacements. Georgia EPD's DERA Program pays around 15% of diesel bus engine retrofits and early replacements with funding from the Diesel Emissions Reduction Act (DERA) State Clean Diesel Grant Program.[3] Since 2008, the Georgia DERA Program oversaw the funding to retrofit 296 school buses with diesel particulate filters (DPFs) or diesel oxidation catalyst (DOC) and 224 early replacement of school buses for a total of $5,519,535in retrofits and early replacements.

[1] EPA Clean School Bus Program, Clean School Bus Program | US EPA. Retrieved 3/18/24.
[2] EPA DERA Rebate Program, School Bus Rebates: Diesel Emissions Reduction Act (DERA) | US EPA. Retrieved 3/19/24.
[3] Georgia DERA Program, https://epd.georgia.gov/outreach/grants/school-bus-grants/apply-funding. Retrieved 3/18/24.

From Georgia, 51 school districts applied for the EPA Clean School Bus Rebate Program and were on the waitlist for the program. The total need to fulfill the Georgia waitlist would be 382 electric buses. Assuming an EPA rebate of $395,000 for each bus, the total funding need is $150,890,000.[4]

According to the Georgia Department of Public Safety, there are 18,000 school buses in Georgia.[5] Assuming a conservative 15-year life span for a school bus, about 1,200 new school buses are needed each year in Georgia. This funding need is significantly higher than the EPA school bus program waitlist.

Georgia EPD has determined that there is a funding need for cleaner, electric school buses.

c. Transformative Impact

Health and Emission Impacts

According to the U.S. Department of Transportation, 20% of low-income students live in a household that do not own a car and 60% of low-income students that live in a household that owns a car takes the bus to school.[6] Therefore, in areas that are identified as LIDAC, there is more of a need for school buses and, as a result, a reduction in emissions produced by those buses.

With zero emission buses, there are **zero** tail-pipe emissions and far fewer greenhouse gas emissions. Reducing tailpipe emissions decrease adverse health impacts such as respiratory disease, heart disease, and cancer.[7]

Noise Impacts

The average diesel bus can produce a noise level of around 80 decibels. Whereas an electric bus has been found to operate at a reduced noise level ranging from 5-14 decibels, depending on the bus speed.[8] Reduced noise levels are important in urban areas where noise levels exceed health recommendations and rural areas where there is a need for natural environment conservation.

Consumer Education

School buses can potentially have the ability to educate communities about electric vehicles. Due to cost, lack of available infrastructure, concerns about maintenance, and lack of available

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[4] 2022 Clean School Bus Waitlist, https://www.epa.gov/system/files/documents/2022-10/2022-csb-applicant-waitlist_1.pdf. Retrieved 3/18/24.
[5] Georgia Public Safety, https://dps.georgia.gov/school-buses-ready-new-school-year. Retrieved Georgia Public Safety, https://dps.georgia.gov/school-buses-ready-new-school-year. Retrieved 3/20/24Retrieved Georgia Public Safety, https://dps.georgia.gov/school-buses-ready-new-school-year. Retrieved 3/20/24 Georgia Public Safety, https://dps.georgia.gov/school-buses-ready-new-school-year. Retrieved 3/20/24.
[6] Bureau of Transportation Statistics, The Longer Route To School | Bureau of Transportation Statistics (bts.gov). Retrieved 3/18/24.
[7] Electric School Bus Initiative Article, https://electricschoolbusinitiative.org/evidence-clear-electric-school-buses-are-best-choice-reduce-emissions, September 2022. Retrieved 3/18/2024
[8] Laib, F., Braun, A., Rid, W. (2019). Modelling noise reductions using electric buses in urban traffic. A case study from Stuttgart, Germany. Transportation Research Procedia 37 (2019) 377–384. https://doi.org/10.1016/j.scitotenv.2014.10.052

information, consumers are slow to adopt electric vehicles. School buses are highly visible and can potentially increase EV awareness and spur discussions in community meetings such as school district meetings.

Fuel Cost Savings

Electric school bus fuel costs have been found to be less than diesel school bus fuel costs. The annual costs savings of the total project for fueling an electric school bus over a diesel school bus is calculated. It is estimated that fuel cost savings are $184,714. The annual cost savings are not accounted for in the cost effectiveness analysis. This qualitative analysis was performed to demonstrate future program impact.

Based on a typical route plan and fuel costs discussions with Georgia schools the following is determined:

- 50 miles a day,
- 180 days a year,
- $3.00/gallon diesel,
- 7 mpg diesel (only tailpipe emissions),
- $0.15/kWh, and
- 1.49kWh/mile.

Diesel school bus costs/day = 50 (miles/day)/7mpg x $3.00/gallon
Electric school bus costs/day = 50 miles/day x 1.49kWh/mile x $0.15/KWh
Annual cost savings = (diesel school bus costs/day – electric school bus costs/day) x 180 days/year x 100 school buses = $184,714

The total fuel cost savings is:

- $923,571.43 for years 2025-2030
- $3,694,285.70 for years 2025-2050

This is used as a qualitative analysis and is not included in our cost-effectiveness analysis.

2. Impact of GHG Reduction Measures

According to the Peach State Voluntary Emission Reduction Plan inventory, the transportation sector accounts for 38% of overall emissions in Georgia. Using the MOtor Vehicle Emission Simulator Version 4.0.1 (MOVES4), Georgia EPD calculated the carbon dioxide (CO_2) contribution to **carbon dioxide equivalent (CO_2e)** emissions (which accounts for global warming potential). Based on inputs used from the most recent transportation conformity regional emissions analysis for Atlanta (analysis conducted in October 2023), 96.5% of bus CO_2e are CO_2 emissions. Through the Georgia DERA program, EPD has achieved reduction in emissions and the Peach State ZEB program would continue this trend by expanding this program across the state.

The Diesel Emissions Quantifier (DEQ), a tool used to evaluate "clean diesel projects and upgrade options for medium-heavy and heavy-heavy duty diesel engines," was used to model this program.[9] The following assumptions were made when calculating the magnitude of emission reductions and the cost effectiveness of these reductions.

The first assumption is that diesel school buses ready to be replaced on average have one year of remaining usefulness. The second assumption, based on the MOVES4 analysis, is that 96.5% of CO_2e are CO_2, 0.0343% are methane (CH_4), and 3.50% are nitrous oxide (N_2O). With this assumption, the DEQ CO_2 output can be used to calculate CO_2 and CO_2e impacts. The DEQ default is used for fuel consumption. Additionally, new electric school buses can last 20 years.

A lifecycle analysis was also performed and is explained in detail in section 2.d. and Attachment A. To most accurately reflect the GHG emission reduction achieved and account for lifecycle, the relative ratio of miles per gallon (mpg) between diesel and electric school bus was multiplied by the cumulative benefits.

a. Magnitude of GHG Cumulative Reductions from 2025 through 2030

The magnitude of GHG cumulative reductions from 2025 through 2030 are the following:

Table 1: Magnitude of GHG Cumulative Reductions from 2025 through 2030

Greenhouse Gas	Emission Reduction (metric tons)	Global Warming Potential Factor (ton CO_2e/ton)	Emission Reduction as CO_2e (metric tons)
CO_2	4,685.69	1	4,685.69
CH_4	0.0595	28	1.67
N_2O	0.642	265	170.05
TOTAL			**4,857.41**

b. Magnitude of GHG Cumulative Reductions from 2025 through 2050

The magnitude of GHG cumulative reductions from 2025 through 2050 are the following:

Table 2: Magnitude of GHG Cumulative Reductions from 2025 through 2050

Greenhouse Gas	Emission Reduction (metric tons)	Global Warming Potential Factor (ton CO_2e/ton)	Emission Reduction as CO_2e (metric tons)
CO_2	18,742.76	1	18,742.76
CH_4	0.238	28	6.66
N_2O	2.567	265	680.20
TOTAL			**19,429.62**

[9] U.S. EPA Diesel Emission Quantifier, Use The Quantifier: Diesel Emissions Quantifier | Diesel Emissions Reduction Act (DERA) | US EPA. Retrieved on 3/15/24.

c. Cost Effectiveness of GHG Reductions

Two calculations were used to determine the cost effectiveness of CO_2e reductions from this program.

With $40,757,128 as the total cost of the program (see Attachment C Budget Spreadsheet and section 7 below for details) which covers 100 EV buses, accompanying chargers, and training, cost effectiveness is estimated as $40,757,128/EV pollutant reduction (in metric tons of **CO_2e**).

For CO_2e, the cost effectiveness covering 2025-2030 would be:

($40,757,128/4,857.41) **= $8,390.72/metric ton CO_2e reduced**.

For CO_2e, the cost effectiveness covering 2025-2050 would be:

($40,757,128/19,429.62) = **$2,097.68/metric ton CO_2e reduced**.

d. Documentation of GHG Reduction Assumptions

Using the Diesel Emissions Quantifier (DEQ) outputs as a starting point, a lifecycle analysis was performed to calculate emission reductions from this program.

Without Lifecycle Adjustment

First, the emission reductions were calculated without a lifecycle analysis. The following steps were performed to compare the emissions from replacing an old diesel school bus with an electric school bus compared to a new diesel bus:

- Use the DEQ to estimate emissions from 20-year-old school buses relative to 2025 which results in model year 2005. Use default fuel use for diesel school buses and annual vehicle miles traveled as is typically used for the current DERA program.
- Run the DEQ where the old diesel school bus is model year 2005 diesel buses, and the new school bus is 2025 electric.
- Run the DEQ where the old diesel school bus is model year 2005 diesel buses, and the new school bus is 2025 clean diesel.
- Subtract the benefits of the EV bus replacement by the benefits of just replacing an old diesel school bus with a new diesel school bus.
- The emission reduction calculation would then be:
    - Emission reduction (metric tons) = [(1 year x emissions from 2005 diesel school bus) + 19 years x (emissions from a 2025 clean diesel school bus)] x 0.907185 since in the DEQ emissions from an electric bus is zero.
    - DEQ only covers CO_2 contribution to CO_2e so add the remaining 3.5% from CH_4 and N_2O.
    - The 0.907185 serves to convert short tons to metric tons.
- This calculation is emissions without lifecycle adjustment (only directly from the vehicle).

The total magnitude of GHG reductions from 2025 through 2030 is found to be 7,194.29 metric tons CO_2e.

The total magnitude of GHG reductions from 2025 through 2050 is found to be 28,777.17 metric tons CO_2e.

With Lifecycle Adjustment

The life cycle analysis then considers the source of the fuel or the impact of additional electricity on the power grid and makes two assumptions. It is assumed that diesel fuel is about 12% (10-15%) more efficient than gasoline and miles per gallon would not apply while the vehicle is idling. The detailed analysis is found in Attachment A. The following steps were performed:

- The relative ratio of (1 - (4.8/14.7772)) or the "mpg" between a diesel and EV school bus where mpg for an EV school bus reflects "fuel" used from the grid as well as processing, extraction, and transport required for the diesel and electric fuel that power the school bus. See Attachment A for details on how the relative ratio was calculated.
- This is multiplied by the final cumulative benefits calculated for electric school buses without the lifecycle analysis.

The final total magnitude of cumulative GHG reductions is the following:

- The total magnitude of cumulative GHG reductions from 2025 through 2030 is found to be **4,857.41 metric tons CO_2e**.
- The total magnitude of cumulative GHG reductions from 2025 through 2050 is found to be **19,429.62 metric tons CO_2e**.

3. Environmental Results

The project will implement the following measures identified in the Peach State Voluntary Emission Reduction Plan.

1.1 Zero emission buses
1.2 EV Infrastructure

This section describes how the project will contribute to Goal 1: Tackle the Climate Crisis listed in EPA's Fiscal Year (FY) 2022-2026 Strategic Plan.[10]

[10] EPA's Fiscal Year (FY) 2022-2026 Strategic Plan, EPA Strategic Plan | US EPA. Retrieved 3/17/24

a. Expected Outputs and Outcomes

Expected outputs from the implementation of these measures include the following:

- Purchase of 100 zero emission school buses;
- Purchase of 100 electric bus chargers;
- Provide support for trainings provided to staff, bus drivers, mechanics, or other electric vehicle service providers; and
- Progress reports and a final report.

Expected outcomes from the implementation of these measures include the following:

- Reduction in cumulative metric tons of GHG emissions;
- Reduction in annual and cumulative metric tons criteria air pollutants (CAPs) and hazardous air pollutants (HAPs);
- Health benefits such as reduced exposure to hazardous air pollution or unhealthy ambient air quality;
- Adjusted staff expertise to implement GHG reduction measures;
- Number of high-quality jobs created throughout the applicant's jurisdiction and in low-income and disadvantaged communities;
- Community engagement, increased public awareness of project and results, improved health in surrounding communities;
- Changes in driver behavior, such as reducing idling operations of clean school buses or optimizing efficiency of EV powertrain operations;
- An increased understanding of the environmental or economic effectiveness of the implemented technology;
- Potential future adoption of the implemented technology;
- An increased availability of domestic manufacturing and workforce for zero – and near zero-emission vehicles, engines, and other key components (e.g., batteries); and
- Housing affordability since school district budgets have a direct impact on property taxes.

Criteria Air Pollutants and Hazardous Air Pollutants

Georgia EPD expects the following criteria air pollutants and hazardous air pollutants emission reductions as a result of this program which are listed below.

EPA SPECIATE 5.3 Tool PM Speciation Profile 4747 for diesel bus exhaust was used to calculate HAP emissions. Attachment A includes the detailed HAP emission reductions.

Table 3. Cumulative Emission Reductions for CAPs/HAPs

	Cumulative emission reductions (metric tons)	
Pollutant	**2025-2030**	**2025-2050**
NO_x	15.477	35.126
$PM_{2.5}$	0.763	0.913
Hydrocarbons (HC)	1.423	1.927
Carbon Monoxide (CO)	8.450	21.187
HAPs	0.347	0.415

b. Performance Measures and Plan

School systems in Georgia have continued to express interest in replacing older model year school buses early. The school systems must currently own and operate the existing bus and have owned and operated the bus during the two years prior to upgrade. The bus must have at least one year of remaining life at the time of upgrade. Remaining life is the school system's estimate of the number of years until the unit would have been retired from service if the bus were not being upgraded or scrapped because of the grant funding. An eligible existing bus must have accumulated at least 7,000 miles/year during the two years prior to upgrade. The mileage of multiple buses may be combined to reach the threshold where those buses will be scrapped and replaced with a single bus. Any proposed replacement bus must be of the same type and similar gross vehicle weight rating or horsepower as the bus being replaced (e.g., replace Type D bus with another Type D bus). Alternatively, the proposed replacement bus may be one type smaller and of less gross vehicle weight rating or horsepower as the bus being replaced (e.g., replace Type D bus with a Type C bus).

- The school system(s) will be required to attest to vehicle make, model, year, vehicle identification number, odometer/usage meter reading, engine make, model, year, horsepower, engine ID or serial number, and vehicle/equipment registration/licensing number and state. The number of buses replaced will depend on the final amount of funding EPD receives.
- The current expectation is that 100 buses will be replaced using CPRG funds.
- In order to support implementation of the grant, one Level 2 charger for every electric bus purchased will be included. A Level 2 charger has been found to sufficiently charge a school bus.

c. Authorities, Implementation Timeline, Milestones

Similar to the Georgia DERA Program, Georgia EPD plans to subaward this grant to eligible school districts.

Georgia EPD will use CPRG to subgrant funding to school systems to replace school buses in their fleets. The first priority will go to schools in LIDAC counties and second priority will be the remaining school system submittals in the state. Within each priority, school systems will be ranked based on their $/metric ton emission reductions from lowest to highest. The program will also limit the number of buses to a district to ensure broad geographic distribution.

Georgia EPD will enter into memorandums of agreement (MOA) with school systems. The schools will be responsible for scrapping old school buses and the purchase of the new school buses. Georgia EPD will inspect and acquire photographs of the scrapped buses to verify the old buses were destroyed and the new buses delivered.

Table 4 contains the proposed schedule for implementation.

Table 4. Proposed Implementation Timeline

Date	Milestone
June-July 2024	EPA plans to announce awards
July-October 2024	Georgia EPD stakeholder engagement
October-November 2024	EPA plans to award grants
November 2024-March 2025	Georgia EPD opens application
June-August 2025	Georgia EPD awards subgrants
December 2025	First subgrant quarterly progress report due (submitted 30 days after every quarter thereafter)
December 2028	Final subgrant report due

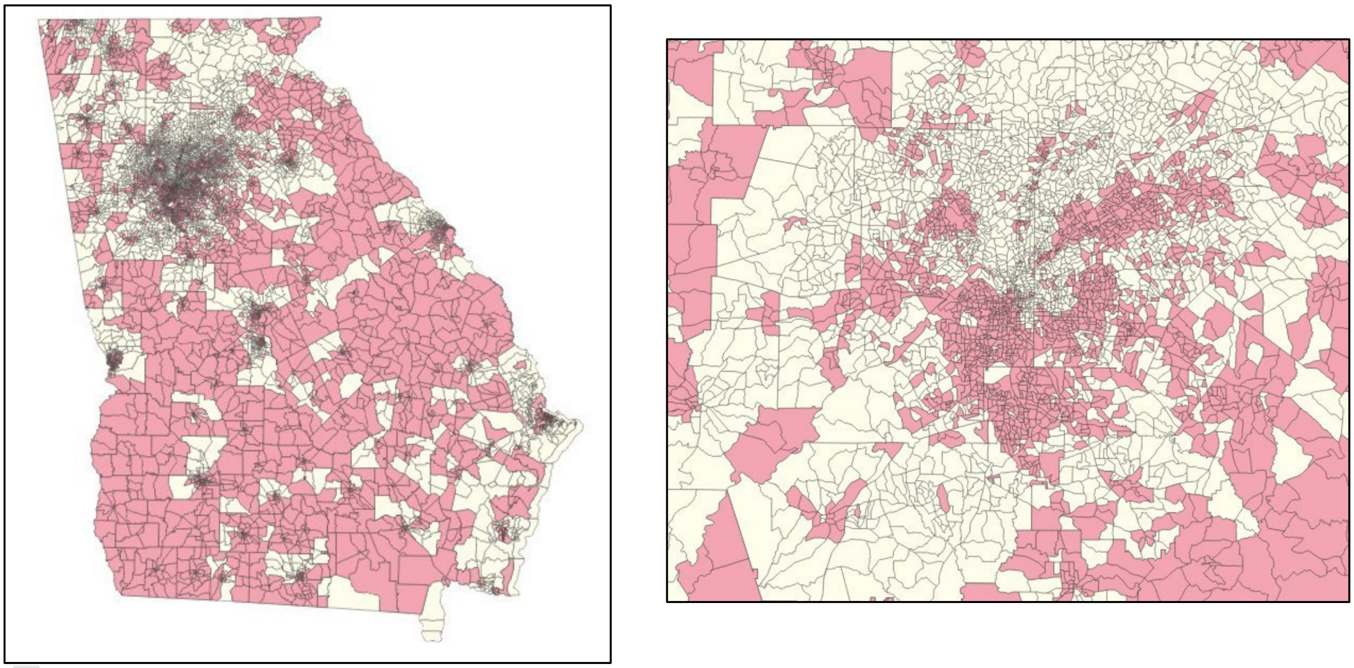
4. Low-Income and Disadvantaged Communities

This section identifies (i) LIDACs in the State of Georgia, (ii) potential benefits of reduction measures for LIDACs, and (iii) LIDAC engagement methods.

a. LIDACs in Georgia

As shown in Figure 1 below, LIDACs exist throughout the state and are concentrated in the rural south, inner cities, and Appalachian region of north Georgia. Using EPA EJScreen Supplemental Index[11] and Climate and Economic Justice Screening Tool (CEJST),[12] the block groups are identified as shown in the following map.

[11] EJScreen: Environmental Justice Screening and Mapping Tool | US EPA
[12] Explore the map - Climate & Economic Justice Screening Tool (geoplatform.gov)



LIDAC block groups
Non-LIDAC block groups

Figure 1. LIDACs in GA by Block Group
Statewide (left) and Focused View on the Atlanta Metropolitan Area (right)

To qualify as a LIDAC, the block group must qualify for either tool. The EPA Inflation Reduction Act (IRA) Disadvantaged Communities database used for the map provides a list of all block group ID, identifies which are designated as disadvantaged under either the CEJST or EJScreen tools.[13] Note that block groups are a subset of census tracks.

According to CEJST data, common categories of burden for rural LIDACs in Georgia include agricultural loss and high rates of poverty. Many LIDACs across Georgia experience transportation barriers, such as greater than average transit times, and poor health, such as high rates of coronary heart disease.

In Georgia's densely populated inner cities, LIDACs tend to commonly experience health and housing burdens. Many of the LIDAC block groups in these counties face high rates of asthma diagnoses and are above the 70th percentile for diesel particulate matter exposure and housing burden.

The voluntary emission reduction measures in the Peach State Voluntary Emission Reduction Plan and specifically the Peach State ZEB Project have the potential to benefit LIDACs across the state. LIDACs are defined by the EPA as census tracts that are considered disadvantaged according to CJEST or EJScreen block groups that are either >90th percentile statewide or nationwide for at least one or more of 13 EJScreen supplemental indexes. CEJST disadvantaged is describedas low-income or have limited formal education and are experiencing specific "categories of burden,"

[13] EPA IRA Disadvantaged Communities - Overview (arcgis.com)

such as high instances of respiratory illness, high energy or housing costs, or exposure to legacy pollution. Each EJScreen supplemental index is looking at the highest intersection of 5 socioeconomic indicators (combined into one socioeconomic index) with one of the 13 environmental indicators in EJScreen[14]

b. Potential Benefits of Reduction Measure for LIDACs

This section outlines the potential benefits of implementing emission reduction measures from the Peach State ZEB project for LIDACs.

Table 5 provides a summary of the potential benefits associated with each priority reduction measure. Measures capable of offering direct benefits are denoted by a solid circle (●), those with potential indirect benefits are denoted by an unfilled circle (◯), and measures not relevant to a particular benefit are denoted by a gray dash (–). These benefits are discussed below:

Table 5. Qualitative Assessment of Potential LIDAC Benefits Resulting from Reduction Measure Implementation

	Potential benefit							
Priority measure	**Improved air quality**	**Transportation improvements**	**Housing affordability**	**Community beautification**	**Community resilience**	**Reduced noise pollution**	**Workforce development**	**Lower utility bills**
Strategy 1: Electrify transportation sector and adapt to consumer mode shift								
1.1Zero-emission buses	●	●	–	–	●	●	–	–
1.2 Electric vehicle charging infrastructure	◯	●	–	–	●	◯	●	–

[14] These CEJST categories of burden are defined by the by the Climate and Economic Justice Screening Tool. See: Council on Environmental Quality, Climate and Economic Justice Screening Tool. November 22, 2022. The 5 socioeconomic indicators (which are grouped into one five-factor indicator) and 13 environmental indicators that combine into 13 supplemental indexes are listed by EPA on their website at https://www.epa.gov/ejscreen/ej-and-supplemental-indexes-ejscreen#EJ

Potential Benefits of Strategy 1: Electrify Transportation Sector and Adapt to Consumer Mode Shift

Measures within this category support transportation improvements, improved air quality, community resilience, workforce development, and reduced noise pollution.

- **Transportation improvements:** Investing in electric school buses has the potential to enhance transportation affordability and reliability in Georgia school districts over time through decreasing reliance on fuel, which is vulnerable to price fluctuations and impact school district budgets.
- **Improved air quality:** Replacing diesel buses with electric buses reduce tailpipe emissions and improve air quality.
- **Community resilience:** Reducing dependence on gas can support resilience during extreme weather events and support more stable school district budgets. For example, electric vehicles are not subject to gas shortages during hurricane evacuations. Although electric buses may cost more upfront, school districts can better predict budgets and excluding fuel price fluctuations. School district budgets also have a direct impact on housing affordability through property tax rates.
- **Workforce development:** The implementation of electric buses and EV infrastructure demands labor, thereby stimulating the state economy through job creation to support Georgia's transition to EVs.
- **Reduced noise pollution:** Electric bus motors produce considerably less noise compared to conventional diesel school buses, thereby reducing traffic noise levels in urban and suburban areas. This reduction in noise can enhance the ambiance of public spaces, densely populated residential neighborhoods, and quiet rural areas.

c. Community Engagement

As part of the comprehensive CPRG planning, Georgia EPD will form a Low Income and Disadvantaged Communities Committee. Georgia EPD intends to request a representative from each of the 12 regions of Georgia. As part of the implementation of this Peach State ZEB project, these community-based organizations will help Georgia EPD collect input from communities who can benefit from cleaner school buses and economic improvement from new school buses.

As part of the Georgia DERA Program, a Georgia EPD staff member works closely with school districts and communities. The staff member attends monthly meetings with the Middle Georgia Clean Air Coalition and Clean Cities Coalition Georgia. This engagement will continue with implementation of this grant.

5. Job Quality

The Peach State ZEB project would continue to support existing industries while also creating opportunities for new jobs at a variety of pay and skill levels. There is one electric bus manufacturer located in Fort Valley, Georgia. Because these buses will be distributed throughout the state, jobs associated with maintenance will be geographically dispersed, and reflective of the diversity of the state of Georgia. Additional jobs that will be created by this grant include jobs for:

- Trainers, to educate technicians on the mechanical upkeep that is specific to electric buses;
- Technicians, to perform regular maintenance of the electric buses, including their batteries, charging ports, and power systems;
- Technicians, for charger installation and their ongoing maintenance;
- Trainers, for annual training and re-training of drivers, especially in districts that have both electric and diesel buses.

6. Programmatic Capability and Past Performance

a. Past Performance

The Georgia DERA Program funding is part of the National Clean Diesel Campaign. Congress passed DERA and tasked EPA to oversee the implementation. A portion of the funding goes directly to the states. Georgia has used this funding to reduce emissions in our school bus fleets. The state offers grant funding to school systems to install emissions control devices or replace buses early.

Georgia EPD has a wealth of knowledge and experience in administering the Georgia DERA Program. Georgia EPD's Emissions and Control Strategies Unit (ECSU) has been overseeing the Georgia DERA Program to subgrant funding to school systems to either retrofit or early replace school buses in their fleets since 2008. Over the past 16 years, ECSU oversaw the funding to retrofit 296 school buses with diesel particulate filters (DPFs) or diesel oxidation catalyst (DOC) and 224 early replacement of school buses for a total of $6,607,046 in retrofits and early replacements. See Attachment E for the school districts in Georgia that benefitted from the State DERA Funds.

b. Reporting Requirements

Georgia Diesel Emissions Reduction (Georgia DERA) Program reports to EPA and has shown full compliance with the Georgia DERA Program. All reports have been submitted and approved.

For the Georgia DERA Program, Georgia EPD submitted quarterly programmatic progress reports and detailed final programmatic report as required. The quarterly progress reports consisted of summarizing technical progress, planned activities, and a summary of expenditures. The final report included summary of the project, emissions benefits and other outputs and outcomes achieved, and costs of the project or activity addition. The final report also discussed the problems, successes, and lessons learned from the project or activity that could help overcome structural, organizational, or technical obstacles to implementing a similar project elsewhere.

c. Staff Expertise

Georgia EPD has a wealth of knowledge and experience in air quality and planning. Georgia EPD has an established air quality program as a State Implementation Plan (SIP) approved state.

Dr. James Boylan has a B.S. in Chemical Engineering from the University of Notre Dame, M.S. in Chemical Engineering from Auburn University, and M.S. and Ph.D. in Environmental Engineering from the Georgia Institute of Technology. He worked in the Planning & Support Program for 19 years, served as the Assistant Branch Chief for one and a half years, and now serves as the Branch Chief of the Air Protection Branch in Georgia EPD.

Ms. DeAnna Oser has a B.S. in Chemical Engineering from Clemson University and currently serves as the Assistant Branch Chief of the Georgia Environmental Protection Division's Air Protection Branch. Prior to becoming Assistant Branch Chief, she spent 17 years working with industrial sources auditing stack tests and prescribing periodic monitoring for permits. DeAnna was the Ambient Monitoring Program manager for nine years and oversaw budgeting and contracts, management and quality of the network, certified the ambient air monitoring data, communicated about the network with interested stakeholders. She was responsible for reviewing and approving Standard Operating Procedures and Quality Assurance Project Plans for the network as well as managing the Performance Partnership Grant, $PM_{2.5}$ Monitoring Grant, National Air Toxics Trends Station Grant, American Reduction Act Grant, Community Scales Air Toxics Monitoring Grant, and the Inflation Reduction Act Grant for the Clean Air Act.

Ms. Elisabeth Munsey has a B.S. in Mechanical Engineering from the Georgia Institute of Technology and serves as manager of the Planning and Support Program which includes the Planning and Regulatory Development Unit (PRDU), Data Modeling Unit (DMU), and the Emissions and Control Strategies Unit (ECSU). The Planning and Support Program is responsible for rule making, planning, modeling, emissions inventory development, and other programs that improve Georgia's air quality. Elisabeth has previous experience in the Inspection and Maintenance Program and the Stationary Source Permitting Program. She was Manager of Georgia EPD's Lead-Based Paint and Asbestos Programs for over 2 years and responsible for both the Lead-Based Paint and Asbestos Hazard Emergency Response Act (AHERA) Grant Programs.

Ms. Anna Aponte has a B.S. in Chemical Engineering from the Georgia Institute of Technology and serves as manager of the Planning and Regulatory Development Unit. She has worked in the Planning and Support Program for three years and has over 13 years of experience in stationary source permitting. She will be overseeing the activities associated with the planning grant and all personnel associated with that program. She will also assist in any implementation grant activities.

Mr. Ruben Gijon-Felix has a B.S. in Environmental Engineering from Georgia Institute of Technology and serves as manager of ECSU in the Planning and Support Program. ECSU oversees the implementation of the Georgia DERA program. Prior to becoming manager, Ruben worked in PRDU and was responsible for rulemaking, SIP development and other similar activities. Ruben also worked in the Stationary Source Permitting Program for 3 years prior to moving over to PRDU.

Mr. Jameson Hamilton has a B.S. in Civil Engineering from Jackson State University and serves as an Environmental Engineer within the Planning and Support Program. As a member of the Emissions and Control Strategies Unit, he manages the Diesel Emissions Reduction Act (DERA) Grant and works with non-point and rail emissions, for Georgia's state-level emissions inventory.

7. Budget

a. Budget Categories

The Budget Spreadsheet (Attachment C) itemizes costs related to personnel, fringe benefits, travel, equipment, supplies, contractual costs, other direct costs, indirect costs, and total costs. The budget details are also included in the attachment. All numbers are best estimates and subject to change. The following is a summary of the entire budget, a complete discussion is included in the Budget Narrative (Attachment B).

Total Budget for Peach State ZEB Project = $40,757,128

i. Personnel

Personnel costs are based on two engineers and their managers completing all prescribed tasks. An engineer's salary for this project is $70,000. One quarter (1/4 x $70,000) of one engineer and one quarter (1/4 x $70,000) of another engineer will be included in the budget. For managers, 1/10 of each manager's salary is used for this project.

ii. Fringe Benefits

Georgia EPD's fringe benefits costs are at 67.790% of employee compensation costs and consists of FICA, unemployment insurance, workers compensation, medical and dental, retirement, and annual/sick leave/holidays.

iii. Travel

Travel to meetings, workshops, conferences and stakeholder meetings are examples of necessary activities for this project. A complete discussion is listed in Attachment B.

iv. Equipment

N/A

v. Supplies

Supplies listed here will include office supplies and supplies related to the support of informational meetings, and trainings, including food and refreshments, flyers, workbooks, etc.

vi. Contractual

N/A

vii. Other

The project budget includes the estimated cost of electric school buses, chargers, fleet operator training. The estimated cost of an electric school bus is $395,000 each. The estimated cost of a Level 2 Charger is $3,500 each and the Level 2 Charger Installation is $2,500 each.[15] Fleet Operator Training is estimated to cost $184,000 or $1,840 per bus.

viii. Indirect Charges

N/A

b. Expenditure of Awarded Funds

Georgia EPD has appropriate mechanisms in place to ensure that the expenditures associated with this grant proposal are tracked and documented, including personnel costs, through Ms. Susie Kocsis and Ms. Erin Ruoff (Director of Finance).

Georgia EPD will oversee budgeting and contracts, management of the project, communication with interested stakeholders, and communications with EPA.

A complete listing of activities and processes that Georgia EPD will complete is contained in the Budget Narrative in Attachment B.

c. Reasonableness of Costs

Georgia EPD estimated $395,000 per electric school bus, which is within the cost range of the data from the U.S. Department of Energy. The Level 2 Charging Equipment cost is estimated at $3,500 each, which is within the cost range of the data from the Rocky Mountain Institute Report. The Level 2 Charging Installation cost is estimated at $2,500, which is within the cost range of the data listed in the Electric School Bus Initiative document. The Fleet Operator Training is estimated at $1,000 per licensing and certification, which is within the cost range of the data from a local college and licensing program. Schools will receive up to $1,840 per bus that can be used for bus operators, maintenance crews, and other training needs.

[15] U.S. DOE, https://afdc.energy.gov/fuels/electricity_infrastructure_development.html. Retrieved 3/20/24.

Table 6. Cost Ranges for Electric Buses and Associated Costs

Item	Cost Range	Reference
Electric Bus	$350,000-$450,000	DOE Alternative Fuels Data Center Module 1
Level 2 Charging Equipment	$2500 (7.7 kW)-$4,900 (16.8 kW); outlier: $7,210 (14.4 kW)	RMI-EV-Charging-Infrastructure-Costs.pdf
Level 2 Charging Installation	$1,000-$10,000	Electric School Bus Initiative
Fleet Operator Training	$275 (license)-$1856 (certificate)	License- EVITP Online Training and In-person Exams | EVITP Certificate- Business Office – Columbus Technical College

Attachment A Technical Appendix, Filename: Techappx_GeorgiaEPD
Attachment B Budget Narrative, Filename: Budget_GeorgiaEPD
Attachment C Budget Spreadsheet, Filename: Budgetcalcs_GeorgiaEPD
Attachment D LIDAC Block Groups, Filename: Areas_GeorgiaEPD
Attachment E Georgia DERA School Districts
Attachment F Peach State Voluntary Emissions Reduction Plan, Filename: PCAP_GeorgiaEPD