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Application Snapshot

Project Title: Breathing Easy, Riding Green: Powering BEBs for a More Equitable and Sustainable Future

Applicant: Research Triangle Regional Public Transportation Authority (GoTriangle)

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GoTriangle Employer Identification Number (EIN): 56-1718037

Unique Entity Identifier (UEI): RV6CKH6QRJ36

DUNS No. 801047812

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7 Budget

7.a Budget Detail

Across both GHG emissions reduction measures, the budget was developed by prioritizing two categories: “Equipment” including materials and systems, and “Contractual” including construction and installation efforts. In total, the estimated project costs for both measures amount to \$19,874,320.

Recognizing the critical role public transit plays in achieving a sustainable future for our region, GoTriangle has committed to a substantial 20% funding match towards this grant application, valued at \$3,974,864 and assured through our Letter of Financial Commitment (“GoTriangle_LOFC_GoTriangle.pdf”). A detailed breakdown by funding type and budget category can be referenced within the separate Budget Spreadsheet, as well as through the following pages:

GoTriangle - Consolidated Budget Table

This table will update automatically based on the budget detail entered in the tabs for measures 1-5. If your application includes more than 5 individual measures, you will need to add additional tabs, update the formulas below, and add additional lines to the "Budget by Project" table to

BUDGET BY YEAR							
COST-TYPE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Direct Costs	TOTAL PERSONNEL	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL FRINGE BENEFITS	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL TRAVEL	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL EQUIPMENT	\$13,127,200	\$5,077,440	\$0	\$0	\$0	\$18,204,640
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL CONTRACTUAL	\$88,000	\$1,581,680	\$0	\$0	\$0	\$1,669,680
	TOTAL OTHER	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL DIRECT	\$13,215,200	\$6,659,120	\$0	\$0	\$0	\$19,874,320
	TOTAL INDIRECT	\$0	\$0	\$0	\$0	\$0	0
TOTAL FUNDING		\$13,215,200	\$6,659,120	\$0	\$0	\$0	\$19,874,320

BUDGET BY PROJECT			
Project Number	Project Name	Total Cost	% of Total
1	BEBs and Charging Infrastructure	\$13,215,200	66%
2	Solar Photovoltaic Canopies	\$6,659,120	34%
3	N/A	\$0	0%
4	N/A	\$0	0%
5	N/A	\$0	0%
Total		\$19,874,320	100%

BUDGET BREAKDOWN			
Federal	80% Total	\$15,899,456	
Applicant	20% Match	\$3,974,864	
Total		\$19,874,320	

GoTriangle Detailed Budget Table - Measure #1: BEBs and Charging Infrastructure

This Excel Workbook is provided to aid applicants in developing the required budget table(s) within the budget narrative.

BUDGET BY YEAR							
COST-TYPE	CATEGORY	YEAR 1 2025	YEAR 2 2026	YEAR 3 2027	YEAR 4 2028	YEAR 5 2029	TOTAL
Direct Costs	Personnel						
							\$0
	TOTAL PERSONNEL	\$0	\$0	\$0	\$0	\$0	\$0
	Fringe Benefits						
							\$0
	TOTAL FRINGE BENEFITS	\$0	\$0	\$0	\$0	\$0	\$0
	Travel						
							\$0
	TOTAL TRAVEL	\$0	\$0	\$0	\$0	\$0	\$0
	Equipment						
	10x 40-foot BEBs @ \$1.15mil/bus	\$11,500,000					\$11,500,000
	5x 180kW Chargers @ \$216k/ea	\$1,080,000					\$1,080,000
	2x Pantograph Chargers @ \$273.6k/ea	\$547,200					\$547,200
							\$0
	TOTAL EQUIPMENT	\$13,127,200	\$0	\$0	\$0	\$0	\$13,127,200
	Supplies						
							\$0
							\$0
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
	Contractual						
	Assume Contractor installs chargers @ \$550/Crew-Hour for 4 weeks	\$88,000					\$88,000
							\$0
							\$0
	TOTAL CONTRACTUAL	\$88,000	\$0	\$0	\$0	\$0	\$88,000
	OTHER						
							\$0
							\$0
							\$0
	TOTAL OTHER	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL DIRECT	\$13,215,200	\$0	\$0	\$0	\$0	\$13,215,200
Indirect Costs	Indirect Costs						
							\$0
	TOTAL INDIRECT	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL FUNDING		\$13,215,200	\$0	\$0	\$0	\$0	\$13,215,200

GoTriangle Detailed Budget Table - Measure #2: Solar Photovoltaic Canopies

This Excel Workbook is provided to aid applicants in developing the required budget table(s) within the budget narrative.

BUDGET BY YEAR							
COST-TYPE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Direct Costs	Personnel						
							\$0
	TOTAL PERSONNEL	\$0	\$0	\$0	\$0	\$0	\$0
	Fringe Benefits						
							\$0
	TOTAL FRINGE BENEFITS	\$0	\$0	\$0	\$0	\$0	\$0
	Travel						
							\$0
	TOTAL TRAVEL	\$0	\$0	\$0	\$0	\$0	\$0
	Equipment						\$0
	62,000 SF Site Excavation and Haul-Off @ \$1.6/SF		\$99,200				\$99,200
	62,000 SF Site Underground Utilities @ \$1.4/SF		\$86,800				\$86,800
	6,000 LF Electrical for Solar Panels @ \$21/LF		\$126,000				\$126,000
	280 CY Footings @ \$223/CY		\$62,440				\$62,440
	62,000 SF Site Backfill and Repave @ \$14/SF		\$868,000				\$868,000
	59,000 SF Structural Steel Canopy w/roof @ \$44/SF		\$2,596,000				\$2,596,000
	59,000 SF Solar Panels & Inverters @ \$21/SF		\$1,239,000				\$1,239,000
							\$0
	TOTAL EQUIPMENT	\$0	\$5,077,440	\$0	\$0	\$0	\$5,077,440
	Supplies						
							\$0
							\$0
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
	Contractual						
	Contractor to Perform Civil/Earthwork @ assumed \$600/Crew-Hour for 10 weeks		\$240,000				\$240,000
	Contractor to Install Electrical for Solar Panels @ assumed \$418/Crew-Hour for 3 weeks		\$50,160				\$50,160
	Contractor to Install Footings @ assumed \$1,600/Crew-Hour for 6 weeks		\$384,000				\$384,000
	Contractor to Install Canopy @ assumed \$800/Crew-Hour for 20 weeks		\$640,000				\$640,000
	Contractor to Install Solar Panels @ assumed \$418/Crew-Hour for 16 weeks		\$267,520				\$267,520
							\$0
	TOTAL CONTRACTUAL	\$0	\$1,581,680	\$0	\$0	\$0	\$1,581,680
	OTHER						
							\$0
							\$0
							\$0
	TOTAL OTHER	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL DIRECT	\$0	\$6,659,120	\$0	\$0	\$0	\$6,659,120
Indirect Costs	Indirect Costs						
							\$0
	TOTAL INDIRECT	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL FUNDING		\$0	\$6,659,120	\$0	\$0	\$0	\$6,659,120

7.b Expenditure of Awarded Funds

GoTriangle has a history of successfully managing complex projects and funding streams, as detailed in Section 6: Programmatic Capability and Past Performance. We understand the critical role of timely and effective resource allocation for the successful implementation of these proposed emissions reduction measures, as we work towards our Zero Emission Transition Plan.

Collaboration and adaptability are key throughout a project's life cycle; this includes engaging with various stakeholders across the project stages, from planning and design to construction and daily operations. Frequent communication is crucial to refine our approach and incorporate valuable feedback from all parties involved; strong administrative practices are implemented to ensure clear communication and data tracking across our processes. GoTriangle holds regular meetings with stakeholders to define project-specific performance metrics that will guide effective management of the project's budget and timeline.

Leveraging existing systems is key to maximizing efficiency; we will utilize our established data collection and reporting systems to meet the EPA's requirements. This data can be specifically tailored to track emissions reductions achieved across the project's life span. GoTriangle is committed to actively engaging with the EPA to ensure we provide the appropriate reported data. Furthermore, GoTriangle is prepared to add new data layers if necessary to strengthen our internal reporting structure and ensure we are in alignment with the EPA's expectations.

Considering the current procurement timelines for battery-electric buses (BEBs) across the industry, GoTriangle recognizes the importance of maximizing the impact of this project and deploying BEBs as quickly as possible. Leading up to the notification of funding award, we will remind our design teams of the upcoming award notice timeline to prepare internal schedules. Should GoTriangle be successful and receive notification of funding award, we will immediately continue diligent coordination efforts with qualified BEB manufacturers and initiate the bidding process. Once a manufacturer is selected, we will work to finalize all contract documents and procurement releases.

7.c Reasonableness of Costs

Reduction Measure 1: Battery Electric Buses and Charging Infrastructure

This project centers on the deployment of 10 BEBs to achieve significant GHG emissions reductions. These buses will replace traditional diesel-powered buses, eliminating tailpipe ("site") emissions and significantly contributing to cleaner air. The following estimated costs have been assembled:

Equipment and Contractual Costs

- **40-ft BEBs:** Costing approximately \$1.15 million each, a total of \$11,500,000 is requested to fund vehicle procurement of ten BEBs. The cost per bus reflects current anticipated market rates for heavy-duty battery electric transit buses.
- **Plug-In Electric Vehicle Chargers:** Five 180kW Plug-In Electric Vehicle Chargers are anticipated to power the ten BEBs at the Nelson Road Bus Operations and Maintenance Facility (BOMF). These chargers will enable efficient overnight charging of the BEBs, ensuring fleet readiness for daily operations. The chosen capacity (180kW) provides a balance between charging efficiency and cost-effectiveness.
- **Pantograph Chargers:** Two Pantograph Chargers are anticipated at the BOMF. Functioning as the key facility for deploying GoTriangle's vehicles across regional service routes, these specialized overhead chargers will enable charging during the day for BEBs passing through for shorter durations, thus

extending range of the BEBs.

Reduction Measure 2: Solar Photovoltaic (PV) Canopies

Onsite renewable energy will be generated through solar photovoltaic panels installed on the roof of a structural canopy system located at the west-side exterior bus parking lot. Leveraging the overhead space, this canopy will generate energy to offset the BOMF's energy consumption, therefore reducing total operational emissions at the grid ("source"). The canopy serves a dual purpose of energy conservation and a resilient design measure to protect the fleet. The canopy will protect buses from weather conditions, decreasing exposure to both extreme heat and winter climate conditions, while also reducing the amount of energy required to cool the vehicles on very hot days. The following equipment and contractual costs, broken down by line item, have been assembled:

Equipment and Contractual Costs

- **Site Excavation and Haul-off:** Removal and disposal of existing pavement, as well as any necessary soil excavation, will prepare the site for the installation of the steel canopy's concrete foundation.
- **Underground Utilities:** Trenching, conduit installation, and electrical wiring will be performed to connect the solar panels to the BOMF's electrical system.
- **Electrical:** Conduit, electrical wiring, inverter, and equipment will connect the PV panels to the building's power system. Skilled electricians will be contracted to install the electrical equipment, ensuring efficient and safe electricity generation and transfer.
- **Footings:** Concrete foundations will provide reinforcement for the canopy to withstand exterior site conditions and support the structural steel canopy, which carries the weight of the solar panels. Contractors will be hired to install the concrete footings based on the design team's drawings.
- **Site Backfill and Repave:** After installing the underground utilities and footings, the excavated area will be backfilled and repaved to create a stable, level surface for the buses to park on.
- **Structural Steel Canopy:** The steel canopy structure will be constructed to provide an elevated roof area, covering approximately 59,000 square feet, to be covered with photovoltaic panels. The reinforced structure will accommodate the additional weight of the panels.
- **Solar Photovoltaic Panels:** PV panels will be installed on the reinforced canopy roof to generate electricity for the BOMF. Spanning the available area of the roof, approximately 3,278 panels are anticipated to be installed. By generating clean energy, the BOMF will lessen its reliance on traditional grid power during peak hours throughout the day, resulting in lower source emissions and cleaner air. This reduction measure complements the emission reductions anticipated in Measure 1 (BEBs), fostering a significant advancement towards clean energy across multiple aspects of the BOMF's operations. During power outages, the PV system can also provide backup power to critical BOMF operations, enhancing the overall resilience of the BOMF.