

CCRTA Zero Emission Vehicle Transition Plan and Regional Support Study

Detailed Scope of Services

1.1. PART I: ASSEMBLE DOCUMENTATION GUIDING CCRTA'S ZERO-EMISSION TRANSITION

PART I, TASK 1: ZEV TRANSITION BEST PRACTICES

Research and assemble infrastructure standards, best practices, funding opportunities and recommendations collected from nationally produced documents, to include: interoperability of fueling infrastructure; installation, operation, and maintenance of fueling infrastructure; power grid capacity, constraints and vulnerabilities; supporting traffic control device or on-premises signage acquired, installed, or operated in concert with fueling infrastructure; system data production, including network connectivity of EV charging infrastructure (for electric options) and format and schedule for the submission of such data to a centralized data repository; real-time mapping applications for information on publicly available EV charging infrastructure locations, pricing, and availability; risks and appropriate actions associated with first responder fires. In assembling these standards, best practices, funding opportunities and recommendations, a review and possible inclusion of proposed FHWA regulations currently under development setting minimum standards and requirements for projects funded under the National Electric Vehicle Infrastructure (NEVI) Formula Program and projects for the construction of publicly accessible electric vehicle (EV) chargers is recommended. The final production of this document will guide future consultant efforts under this procurement and will be shared with the Cape's regional stakeholders for potential ZEV infrastructure collaborative opportunities or individual stakeholder use.

Part I, Task 1 is expected to take 3 weeks.

Deliverables: Assemble report from existing verified reports on ZEV infrastructure standards, best practices, and recommendations that fully address the areas of focus identified in the above Task. Compile a list of potential funding opportunities supporting ZEV and/or ZEV infrastructure procurements, including eligibility criteria and application and spending deadlines.

PART I, TASK 2: TRANSPORTATION-RELATED ASSET INVENTORY TEMPLATE

The consultant, working with staff of the CCRTA and its contracted Operator, will develop a template for the collection of the CCRTA's transportation related assets, including characteristics of existing and projected vehicle fleets, related operations, and infrastructure. Template structure will provide for the addition of future updates under Part II, Task 3 to include performance metrics and methods to measure carbon footprint reductions achieved through the migration from internal combustion vehicles to ZE vehicles.

Part I, Task 2 is expected to take 5 weeks.

Deliverables: CCRTA approved data collection template. Template then used to compile CCRTA transportation related assets. Once template is approved by the CCRTA, consultant will review CCRTA's existing transportation asset inventory information, including the CCRTA 10-Year Strategic Plan and 5-Year Capital Spending Plan, for use as the initial basis for populating the template. Consultant will meet with CCRTA and contracted Operator to collect any missing information and to ensure the information represented in the template is accurate. CCRTA will distribute the blank template to municipal partners and other regional stakeholders for their optional use in collecting their transportation asset information. Consultant will provide one to two virtual meetings open to all stakeholder groups (as defined by the CCRTA) to present the template and to respond to questions.

PART I, TASK 3 – DISCUSSION OF ENERGY RESILIENCY IDENTIFICATION

The consultant shall research and assemble information on energy/charging resiliency from severe weather or power disruptions related to power outages. Issues and opportunities including emergency power generation/access via battery storage, microgrid development, and use of vehicles as mobile generators for emergency situations should be identified.

Part I, Task 3 is expected to take 3 weeks.

Deliverable: Report of issues and opportunities for energy resiliency in the use of ZEV.

1.2. PART II: ELECTRIC VEHICLE FLEET TRANSITION

PART II, TASK 1: ANALYSIS OF OPPORTUNITIES AND SUPPORTING NEEDS FOR ZE CONVERSION FOR THE CCRTA

The Consultant will research, identify, and evaluate opportunities for the conversion of existing CCRTA vehicles to ZEVs of comparable vehicle class and operational function, consolidating all findings into a memorandum delivered to the CCRTA. The Consultant will provide information on what the CCRTA needs to transition to ZEVs (e.g., infrastructure needs such as vehicle charging equipment and estimated electricity capacity needed to support such transition), considering short-term to mid-term transition needs and the need for possible bridge technologies (e.g., hybrid vehicles). Consultant will also evaluate the viability of EV type/size taking into consideration the CCRTA's fixed routes that vary in length (from 10 to 50 miles) and how traffic, weather (temperatures and necessary heating/cooling of vehicle interiors), and topography will impact the travel distance of a ZEV in between charging. As part of this evaluation, the consultant will confirm or suggest alternatives to the CCRTA's current working assumption that its smaller vehicles (under 20 passengers) are suitable for conversion to electric vehicles (EV) under present service use and battery charging technology. These 135 fossil fuel vehicles currently account for 76% of CCRTA's fleet.

The Consultant will compare viable ZEVs for the transition from standard internal combustion engine (ICE) vehicle models. This comparison should include a functional comparison of vehicles by class, as well as purchase cost comparisons, a comparison of operational costs, and a comparison of vehicle emissions (e.g., NO_x, PM_{2.5}, VOCs, CO, and CO₂). The Consultant will also provide information on the costs of supporting equipment for ZEVs (e.g., charging infrastructure), estimated electricity/fuel needed to power vehicles, and power grid capacity to support the transition to ZEVs. This analysis shall quantify the purchasing, functional, and operational (including ongoing maintenance needs) costs and benefits of transitioning from ICE vehicles to ZEVs.

The Consultant will evaluate the CCRTA's 10-Year Strategic Plan and 5-Year Capital Spending plan to confirm or edit the itemization of short-term vehicle purchases that could be filled by ZEVs.

Part II, Task 1 is expected to take 6 weeks.

Deliverables: Memorandum to include the following:

- A list of existing and projected CCRTA vehicles by class able to be converted to ZEVs by State Fiscal Year.
- A list of available ZEV models by vehicle class and their cost of purchase.
- Identification of estimated timelines for procuring ZEVs by ZEV vehicle class.
- Identification of estimated timelines for procuring ZEV infrastructure.
- Comparative analysis between ZEV models and newly purchased standard (ICE) vehicle models, including purchase cost, as well as on-going functional, operational, and emissions costs.
- Evaluate the viability of ZEV type/size charging capacity considering route length, traffic, weather, and topography.

- Capital Plan items identified for possible purchase of comparable ZEV model.
- Information on equipment needs and costs to support such vehicles, including charging/fueling infrastructure and estimated electricity/fueling needs.
- Analysis of power grid capacity to support the transition to ZEVs.

Note: MassDOT is conducting a study which may provide supporting documentation for this task.

PART II, TASK 2: RECOMMENDATIONS FOR ZEV FLEET TRANSITION

Consultant will provide recommendations for ZEV transitions and associated infrastructure upgrades (e.g., charging equipment and estimated fueling needs) required to support recommendations specific to the CCRTA via a consolidated report. Information on the benefits and limitations of recommendations should be provided. Working with staff of the CCRTA and contracted Operator, the consultant will provide suggestions on implementation and phasing (short, medium, and long-term) and suggested timelines for this phasing.

Part II, Task 2 is expected to take 6 weeks.

Deliverables: Report to include:

- Recommendations for ZEV transitions and infrastructure upgrades needed to support those vehicles (excluding the CCRTA maintenance facilities under this task).
- Information on the benefits and limitations of the recommendations.
- Suggestions on implementation and phasing (short, medium, and long-term) as well as suggested timelines for phasing.

PART II, TASK 3: DEVELOPMENT OF PERFORMANCE METRICS AND MEASUREMENT TRACKING PROGRESS

Consultant to update transportation asset template completed under Part 1, Task 2 with the addition of targets/goals for transition to zero emissions status, including performance metrics and method to measure carbon footprint reductions, and other benefits such as improved public health, achieved. This task includes Consultant providing instructions on how to track progress against targets.

Part II, Task 3 is expected to take 8 weeks.

Deliverable: Updated transportation asset template to include trackable metrics as well as instructions for how to use updated template.

1.3. PART III: REGIONAL VEHICLE FLEET INFRASTRUCTURE

PART III, TASK 1: IDENTIFY CCRTA MAINTENANCE FACILITY OPTIONS

The CCRTA's Transition to ZEVs will require the consultant to consider the following maintenance facility alternatives: a) construct a new ZEV maintenance facility, b) undertake a variety of upgrades to its existing operations facility or c) some combination of the two options. Consultant will review the CCRTA 10-Year Strategic Plan and 5-Year Capital Spending Plan for use as the initial basis for evaluating future CCRTA maintenance facility options. Based on a review of maintenance facility options, the consultant will provide a cost benefit analysis of the three maintenance facility options. At a minimum, the cost and operational efficiency of a new maintenance facility should be compared to the cost and operation efficiency of modifying the current facility to accommodate a future ZEV fleet, including a review of the existing maintenance facility footprint to ensure it can accommodate the entire fleet, charging/fueling infrastructure, and expansion possibilities to accommodate the future ZEV fleet. The estimate should include a breakdown of costs by component such as charging/fueling infrastructure, fire suppression, and other relevant components.

Part III, Task 1 is expected to take 8 weeks.

Deliverable: Provide a cost benefit analysis report and recommendation comparing the cost and operational efficiency of a new maintenance facility with the cost and operation efficiency of modifying the current facility to accommodate a future ZEV fleet, or some combination of the two options.

PART III, TASK 2 – IDENTIFICATION OF CAPE CHARGING/FUELING OPPORTUNITIES

Consultant will identify potential fleet and public use charging/ fueling opportunities for the Cape. A determination of site-specific utility capacity to support charging infrastructure should be addressed as well as costs to bring up to necessary standards, if needed. The consultant will also provide potential approaches for the ownership and operation of a region-wide charging/ fueling network. Included in this discussion should be ownership considerations, payment and maintenance for infrastructure, and cost estimates for infrastructure on a per station basis.

Part III, Task 2 is expected to take 10 weeks.

Deliverable: Comprehensive report that fully addresses the areas of focus identified in the above Task.

PART III, TASK 3: EJ COMMUNITY CONSIDERATIONS FOR ZEV FLEET TRANSITIONS

The consultant should review recommendations to ensure that fleet transitions are geographically and equitably considered including a review of environmental justice (EJ) community impacts.

Mass.gov defines an environmental justice community as a neighborhood where one or more of the following criteria are true:

1. The annual median household income is 65 percent or less of the statewide annual median household income.
2. Minorities make up 40 percent or more of the population.
3. 25 percent or more of households identify as speaking English less than "very well".
4. Minorities make up 25 percent or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150 percent of the statewide annual median household income.

Part III, Task 3 is expected to take 4 weeks.

Deliverable: Consultant will deliver findings via a memorandum, which will inform CCRTA's timing for transitioning specific services across the Cape Cod region. Memorandum will also detail equity impacts of project implementation as defined above.

PART III, TASK 4: OPPORTUNITIES FOR REGIONAL PARTNERSHIPS AND COLLABORATION

Identify opportunities for shared services or regional partnerships, particularly around:

- Vehicle procurement – potential for regional procurement/accessing state procurement processes.
- Vehicle maintenance/service.
- Shared charging/fueling network.
- ZEV maintenance training for municipal and agency staff/workforce.
- Training for emergency responders.
- Consider policy and legislation impacting relevant technologies.
- Recommend partnerships and strategies with regional stakeholders to support and leverage negotiations with energy providers on electric usage rates, including, but not limited to favorable cost reductions of charging/storage rates during off-peak hours.

The consultant should present opportunities for pursuing regional partnerships/collaboration where appropriate; provide case studies or models and suggestion for implementation including information on funding opportunities to support implementation.

Part III, Task 4 is expected to take 4 weeks.

Deliverable: Memorandum with recommendations for and approaches to implementation of regional collaboration around shared services and/or joint procurements.

1.4. PART IV: PROJECT MANAGEMENT

PART IV, TASK 1: PROJECT MANAGEMENT AND COORDINATION

Consultant shall assign a Project Manager who will be responsible for oversight and management of contract performance and shall act as the contact person for receipt of notice and other communications with the CCRTA. Project Manager will be required to provide weekly updates to CCRTA's Primary Contact via virtual meetings. Consultant will lead coordination meetings with the project steering committee to inform the group of progress on the study and seek input. These meetings can also be utilized to achieve task components that require CCRTA staff approval.

The CCRTA may require the Contractor to replace the Project Manager if:

- The Project Manager does not support the contract requirements.
- The Project Manager does not deliver work that conforms to the requirement as stated in the contract.
- Issues with the Project Manager hinder effective functioning of the Contract.

Part IV, Task 1 is expected to take 40 weeks (entire length of project).

Deliverable: Weekly updates to CCRTA Primary Contact via virtual meetings. Up to six meetings with the steering committee as appropriate for project updates or as requested by the CCRTA.

1.5. PART V: FINAL REPORT

PART V, TASK 1: FINAL REPORT

Consultant to create a summary report of the entire project and all tasks completed as part of this study.

Part V, Task 1 is expected to take 4 weeks.

Deliverable: Final report summarizing entire project.

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