

**STATE OF TENNESSEE
VOLKSWAGEN DIESEL SETTLEMENT
ENVIRONMENTAL MITIGATION TRUST
FAST CHARGE TN NETWORK GRANT PROGRAM
APPLICATION MANUAL**



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VW SETTLEMENT OVERVIEW:

In 2015, Volkswagen (VW) publicly admitted that it had secretly and deliberately installed a defeat device—software designed to cheat emissions tests and deceive federal and state regulators—in approximately 590,000 model year 2009 to 2016 motor vehicles containing 2.0 and 3.0 liter diesel engines. The United States Department of Justice (DOJ) filed a complaint against VW, alleging that the company had violated the Clean Air Act. In October 2016 and May 2017, the U.S. District Court, Northern District of California (“Court”), approved two partial settlements related to the affected 2.0 and 3.0 liter vehicles, respectively, totaling \$14.9 billion (“the VW Settlement”). The VW Settlement will be implemented through the First Partial Consent Decree and Second Partial Consent Decree.

Under these consent decrees, VW has agreed to establish a \$2.9 Billion Environmental Mitigation Trust (EMT) to mitigate the environmental effects of the excess nitrogen oxide (NOx) emissions from the affected vehicles. In March 2017, the Court appointed Wilmington Trust, N.A. as Trustee of the EMT, and in October 2017, the Court approved two Trust Agreements for Beneficiaries: one for the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico (“State Trust Agreement”), and one for the separate allocation for federally recognized Indian tribes in the U.S. The State of Tennessee (“the State”) officially became a Beneficiary of the EMT on January 29, 2018, allowing the State to fund Eligible Mitigation Actions (EMAs), as defined in the First Partial Consent Decree and State Trust Agreement, that comply with the State’s Beneficiary Mitigation Plan (BMP). The State’s initial allocation under the EMT is \$45,759,914.40.

For more information on the VW Settlement, the EMT, and the State of Tennessee’s final BMP, which was last modified on August 18, 2021, please visit <https://www.tn.gov/environment/VWSettlement>.

Note: All terms that are both bolded and italicized in this Application Manual are defined in Appendix D-2 of the State Trust Agreement.¹

STATE OF TENNESSEE VW SETTLEMENT EMT FAST CHARGE TN NETWORK GRANT PROGRAM:

The Tennessee Department of Environment and Conservation (TDEC) and the Tennessee Valley Authority (TVA) are partnering to develop a statewide electric vehicle (EV) fast-charging network to power the growth of EVs across Tennessee and reduce barriers to transportation electrification. Specifically, [the two have signed an agreement](#) to collaborate and fund a network of fast-charging station locations every 50 miles along Tennessee’s interstates and major highways. This “Fast Charge TN Network” will add approximately 50 new charging locations along prioritized [corridor infrastructure gaps](#), tripling Tennessee’s existing fast-charging network for EVs. For reference, as of August 2021, there are only 23 fast-charging locations currently operating in Tennessee that are open to all consumers and support both charging standards common to EVs. With regard to the use of terminology (charging station, charger, site, location, plug, and port), please reference figure 1 below.

¹ State Trust Agreement, https://www.tn.gov/content/dam/tn/environment/energy/documents/vw-resources/Modified_Environmental_Mitigation_Trust_Agreement_for_State_Beneficiaries_Effective_June_18_2020.pdf.



Figure 1. Example Fast Charging Site and Terminology

TDEC and TVA will leverage various funding sources to support the development of the Fast Charge TN Network with an anticipated project cost of \$20 million. This partnership advances the State’s goal of establishing a statewide fast-charging network that improves transportation efficiency, reduces vehicle emissions, promotes EV adoption, and strengthens the resiliency of our transportation network. TDEC has committed 15%, the maximum allowable, of the [State’s Volkswagen Diesel Settlement Environmental Mitigation Trust allocation](#) to fund **Light Duty Zero Emission Vehicle Supply Equipment**. Approximately \$5 million from this fund is expected to be allocated to fast-charging infrastructure along Tennessee’s interstates and major highways. This \$5 million will be made available under the Fast Charge TN Network Grant Program (“Program”). The Tennessee Department of Transportation (TDOT) intends to dedicate an additional \$7 million in federal Highway Infrastructure Program (HIP) funds to expand fast-charging EV infrastructure along [federally designated Alternative Fuel Corridors](#) in Tennessee. The remainder of the project will be funded by TVA, other program partners, and program participant cost share.

On August 26, 2021, TDEC and TVA released the first solicitation for Fast Charge TN Network projects. Eligible applicants were requested to submit a notice of intent (NOI) to apply by October 15, 2021. TDEC and TVA have reviewed responses received to determine the projects that will be funded by each funding source. Entities selected to be funded by the VW Settlement EMT are now invited to complete a full application within the TDEC online grants management system (GMS).

Eligible applicants are limited to one application each. Applications may include multiple locations to address more than one corridor gap, if applicable. The terms and conditions of the Program are outlined in this Application Manual.

DEADLINE TO SUBMIT:

Applications and supporting documentation must be submitted electronically via the GMS, which may be accessed here: <https://tdec.smartsimple.com/>. Applications must be received by **4:00 PM Central on Friday, January 14, 2022**. TDEC will announce awards after conducting a comprehensive review and evaluation of all complete and eligible grant applications. Grant contracting efforts will occur shortly thereafter.

ELIGIBILITY AND KEY CONSIDERATIONS:

Eligible Applicants:

- Eligible applicants include TVA-served local power companies (LPCs) and other local utilities that distribute electricity in Tennessee whose service territory is located along prioritized corridor gaps. For assistance in determining whether an applicant qualifies, please reference the [Fast Charge Corridor Completeness Map](#), designed to help visualize prioritized corridor gaps for the installation of qualifying EV fast-charging infrastructure. Additional information on the Corridor Completeness Map can be found in the FAQs on the TDEC website at www.tn.gov/EVfastcharge. Later rounds of funding may expand applicant eligibility to include local governmental entities, private companies, and/or non-profits.

Eligible Project Costs:

- For selected, eligible projects, the Program will provide up to 80% of the cost to purchase, install, operate, and maintain eligible EV fast-charging infrastructure that will be located within a prioritized corridor gap and made available to the public. Such costs for the purchase, installation, operation, and maintenance of EV fast-charging infrastructure will be referred to as "Eligible Project Costs."
- Eligible Project Costs include the cost associated with the purchase and installation of eligible EV charging infrastructure (e.g., utility make-ready activities such as the securing of three-phase power, trenching or laying of conduit, etc.); support services (e.g., engineering and design, site identification and qualification); and operational and maintenance costs purchased upfront, including maintenance services and network fees in addition to bollards and wheel stops.
- Grantees will be required to provide at least 20% of the Eligible Project Costs through direct or in-kind cost share. For purposes of this Program, in-kind cost share shall be comprised of non-cash contributions with a verifiable market value made by the Grantee in support of the purchase, installation, operation, and maintenance of the charging infrastructure (e.g., electrical equipment and materials, staff time spent on charging station location make-ready efforts or infrastructure installation, etc.). Grantees will also be required to provide all remaining project costs not eligible for reimbursement under this Program (e.g., real estate costs, other capital costs, general maintenance, etc.). See section below on Non-Eligible Project Costs for more details. See Appendix C – Sample Grantee Invoice for a breakdown of reimbursable and non-reimbursable costs in the form of a sample invoice to TDEC.

Non-Eligible Project Costs:

- Non-Eligible Project Costs include the purchase or rental of real estate; other capital costs (e.g.,

construction of buildings, canopies, parking facilities, etc.); general maintenance (i.e., maintenance other than of the charging infrastructure); and legal fees associated with land acquisition.

- The Program will also not reimburse for administrative costs (i.e., costs not directly connected to purchase, installation, operation, and maintenance of the charging infrastructure), such as time spent on the completion of required reporting, contract management, Title VI compliance, etc.
- See Appendix C – Sample Grantee Invoice for a breakdown of reimbursable and non-reimbursable costs in the form of a sample invoice to TDEC.

Program Requirements:

- The Program will require selected Grantees to install at least two DC fast chargers at each location, with the option to request funding to install a maximum of four DC fast chargers per location. Additionally, requests for funding may not exceed \$150,000 per fast charger to be installed. Grantees will be responsible for finding a suitable host site and purchasing, installing, owning, operating, and maintaining program-funded fast-charging equipment for a period of no less than five years.
- Fast-charging equipment and charging locations must comply with site selection guidelines, minimum technical specifications, and program accessibility requirements, which are outlined within Appendix A – Program Guidelines. Additionally, Grantees will be required to complete and submit an environmental review checklist, which must be reviewed and approved before construction can begin.
- Selected Grantees will be responsible for owning, operating, and maintaining program-funded fast-charging equipment for a period of no less than five years. After termination of the contract term, property disposition requirements may apply depending on the funding source.
- A site-host agreement will be required to show that the Grantee has been granted access to the property for at least a five year period where charging stations are to be installed. If a Grantee owns the property, this will be confirmed via a Verification of Property Ownership form provided by TDEC. The purchase or rental of real estate is a non-reimbursable cost under the Program.
- All program income (gross income earned by the program participant that is directly generated by the project or earned as a result of the project funding during the contract term) must conform with the following program income requirements:
 - Program income must be reinvested in or used to defray ongoing costs of the project (e.g., other maintenance fees, site host property rental costs, etc.);
 - Program income must be used for the purposes and under the conditions of the Grant Contract;
 - Costs incidental to the generation of program income may be deducted from gross income to determine program income, provided these costs have not been charged to the State;
 - Taxes, special assessments, levies, fines, and other such revenues raised by the Grantee are not program income unless the revenues are specifically identified in the State Grant Contract or by State agency regulations as program income; and
 - There are no requirements governing the disposition of program income earned after the end of the program's required period of performance (i.e., five years of charging station operation).

The following projects are not eligible for the State of Tennessee VW EMT Fast Charge TN Network Grant Program funding:

- Installation of charging infrastructure that is not publicly accessible;
- Installation of charging infrastructure that is not located within a prioritized corridor gap;
- Installation of charging infrastructure that does not meet the hardware or network requirements outlined within the minimum technical specifications;
- Development of a charging station that does not comply with the site selection guidelines or Program accessibility requirements; or
- Installation of a charging infrastructure technology that is not commercially available.

Grant Project/Reimbursement Timeline:

- Program participants will have 15 months from the effective date of the grant contract to complete the project. No-cost extensions will be evaluated on case-by-case basis.
- Payment of project expenses will take place on a reimbursement basis. Reimbursement will be made following charging station completion, commissioning, submission of supporting documentation of costs incurred, and other required invoice documentation. TDEC will not reimburse expenses that are incurred prior to the start date of the grant contract.
- The Grantee may proceed with its project after it is notified by State that its grant contract has been fully approved.

Additional Considerations:

- Any information submitted in response to the solicitation for the State of Tennessee's Fast Charge TN Network Grant Program may be considered public record and will be subject to disclosure to the public as required by Tennessee law. The VW EMT BMP and all documentation and records submitted by TDEC in support of each funding request to the Trustee will be available to the public on the TDEC webpage, which is accessible at <https://www.tn.gov/environment/VWSettlement>. Funding requests submitted by TDEC to the Trustee will also be made available to the public via the Trustee public website, which is accessible at <https://www.vwenvironmentalmitigationtrust.com/>. Summarized details regarding the expenditure of EMT funds by TDEC (e.g., cumulative totals for categories of eligible mitigation actions identified in the BMP, identification of recipients of EMT funds and their project scopes) will be maintained on the TDEC webpage. Documentation and records supporting all expenditures of the EMT funds by TDEC will be made publicly available. The general public may request such information by submitting a records request to TDEC. Specific request instructions are provided on the TDEC webpage, including the name, title, and contact information for the TDEC staff tasked with responding to such records requests. By submitting an application for a grant, applicants agree to allow the use of applicant and project information as provided in application and grant documents to be published or distributed in various print or electronic media publications.
- TDEC is required by Tenn. Code Ann. § 4-3-514(b)(1) to "maintain the confidentiality of all proprietary information it may acquire." Proprietary information is defined in Tenn. Code Ann. § 4-3-514(b)(2) as "trade secrets and commercial or financial information that is used either directly or indirectly in the business of any person submitting information to the office under this chapter, and that gives such person an advantage or an opportunity to obtain an advantage over competitors who do not know or use such information." Applicants for and/or recipients of funding from the VW EMT shall identify any proprietary information in submitted documents. TDEC will review all submitted information to determine whether it

contains any proprietary information. Further, TDEC will maintain a log of the documents that contain proprietary information in order to ensure that such is redacted prior to being produced in response to a records request or disseminated for other purposes.

- The application is also subject to the State of Tennessee's applicable laws governing the public disclosure of personally identifiable information, which are set forth in Tenn. Code Ann. §10-7-504(a)(29). Pursuant to Tenn. Code Ann. § 10-7-503(a)(5), "information made confidential by State law shall be redacted whenever possible, and the redacted record shall be made available for inspection and copying."
- TDEC reserves the right to not award funds to applicants that have:
 - Failed to submit a complete application;
 - Exhibited poor performance in complying with the expectations and requirements of previous grant contracts with the State of Tennessee; or
 - Regulatory and/or programmatic compliance issues with the State of Tennessee (e.g., is not in compliance with current regulations enforced by TDEC).
- The applicant shall certify that:
 - The applicant understands that the elements of Title VI compliance correspond to requirements for Title VI as provided for in 42 U.S.C. § 2000(d) and in Tenn. Code Ann. § 4-21-904; that the applicant has either adopted and implemented these elements of compliance or has agreed to adopt and implement TDEC's compliance resources as its own; and that the applicant understands that the applicant's eligibility for funding is contingent upon its satisfaction of and adherence to the requirements of Title VI, as well as any contractor or subcontractor associated with the project as required by law;
 - The applicant has successfully submitted and received notification of completion for its annual Title VI Compliance application;
 - The applicant understands that if the applicant is awarded a grant by TDEC, the applicant will need to show evidence of completion of Title VI training when requested by TDEC;
 - The applicant has read and understands the reporting requirements and that the applicant will comply with these requirements;
 - All vendors will be selected in accordance with State public contracting laws under Tenn. Code Ann. Title 4, Chapter 56; Title 12, Chapter 3; and Title 12, Chapter 4; and
 - The applicant, along with the officers, directors, owners, partners, employees, or agents of the applicant organization, is (are) not presently debarred, suspended, proposed for debarment, or declared ineligible for an award by any State or Federal agency.
- TDEC may terminate and cancel this Program at any time.

APPLICATION EVALUATION:

TDEC will conduct a comprehensive review of all complete and eligible grant applications, including all required supporting documentation (see the list of required supporting documentation in the Application Requirements section below). Applications will be evaluated based solely on the data provided; therefore, completeness and accuracy are important. Each applicant is responsible for submitting all relevant, factual, and correct information with its application. Funding will be awarded based on the merits of the applications. Please note that TDEC may select parts of a proposal for funding and may offer to fund less than the eligible grant amounts or a smaller amount than requested in the application.

In addition to the above-mentioned criteria, projects will be evaluated, in part, on the following additional criteria:

- Proposed locations and availability of amenities;
- Level of anticipated electrical upgrades needed;
- Distance from the prioritized corridor; and
- Community benefits to be achieved as a result of the project, including whether the project will strengthen emergency preparedness and resiliency of the transportation sector through diversity of fuel and project types (e.g., solar-assisted charging infrastructure with onsite energy storage).

APPLICATION REQUIREMENTS:

Applicants must complete and provide the items listed below within the grant application. Please note that projects may be determined to be incomplete and ineligible for an award if the information provided in the application does not include all of the following supporting documentation. Details for completing these items are provided in this Application Manual.

- Applicants must complete and submit the State of Tennessee Volkswagen Diesel Settlement Environmental Mitigation Trust Fast Charge TN Network Grant Application, accessible at <https://tdec.smartsimple.com/>.
- The application must state the intent of the applicant and all project partners to:
 - Maintain operations in Tennessee for a minimum of five years;²
 - Comply with related Title VI requirements;
 - Comply with reporting requirements;
 - Comply with program income requirements; and
 - Comply with the requirement that all vendors will be selected in accordance with State public contracting laws.

Supporting Documentation:

In addition to completing the application, applicants must:

- Upload the completed Notice of Intent (NOI) to Apply response sheets that were submitted to TDEC and TVA. If any information submitted within the NOI has changed or needs to be amended, the application must detail any and all updates to the proposed fast-charging site information.
- For each site, detail the proposed number of charging stations to be purchased and installed (refer to the definition of a “charging station” outlined within the minimum technical specifications outlined within Appendix A – Program Guidelines.)
- If applicable, detail any services expected to be provided by third-party vendors (e.g., site selection, design, engineering, installation, commissioning, etc.).
- A description of the community benefits to be achieved as a result of the project.

² Applicants selected to receive grant funding will be required to submit annual reports for a period of five years following fast charging equipment procurement, delivery, installation, and commissioning.

- Whether the project will utilize onsite energy generation, including solar photovoltaics and/or battery storage.
- Detail the total grant amount requested (\$150,000 per charger to be purchased and installed) and corresponding cost share amount (at least 20% of the total project cost).
- Provide a letter of financial commitment from each expected cost share contributor. Each letter shall state the amount and source of funds to be contributed to the project.
- Verify that its organization has successfully submitted its annual Title VI Compliance application and has received notification of completion. The annual Title VI Compliance application requires the following:
 - Demographic data from the U.S. Census;
 - The applicant's non-discrimination policy;
 - The applicant's limited English proficiency plan;
 - A copy of the applicant's Title VI training program; and
 - A copy of the applicant's procedures for reviewing Title VI complaints.

For questions regarding the annual Title VI Compliance application or to check on the status of an application, please contact TDEC.Grants@tn.gov. For questions specific to Title VI requirements, please contact TDEC.TitleVI@tn.gov.

GENERAL GRANT AND CONTRACT CONDITIONS:

- Applicants are required to attend a virtual application workshop prior to application submission, either by participating during an initial application workshop webinar session or by watching a recorded version of the application workshop webinar (to be posted on TDEC's Fast Charge TN Network webpage at www.tn.gov/EVfastcharge). The application workshop will provide guidance on the application process and program terms and conditions, including project eligibility, timelines for implementation, and reporting requirements.
- Projects selected for funding will receive a letter addressed to the contact person specified in the application.
- After the announcement of a grant award, TDEC will forward a grant contract to the recipient. Grantees will be required to execute (sign) the grant contract, which will include a detailed scope of work, project schedule, budget, and other information.
- Grantees will be required to obtain a vendor identification number and will need to submit a Form W-9, Request for Taxpayer Identification Number and Certification. Grantees will also be required to submit bank information via an original automated clearing house (ACH) form in order to receive grant reimbursements electronically. The ACH form must be signed by an authorized account representative and a representative of the associated financial institution.
- Procurement of eligible EV fast-charging infrastructure, operational and maintenance costs purchased upfront, including maintenance services and network fees, and related support services (e.g., engineering and design, site identification and qualification, hardware installation, commissioning, etc.), shall be made on a competitive basis, including the use of competitive bidding procedures, where practical. In each instance where it is determined that use of a competitive procurement method is not practical, supporting documentation shall include a written justification for the decision and for use of a non-competitive procurement. The Grantee shall obtain prior approval from the State before making any purchases under the grant contract. All vendors will be selected in accordance with State public contracting laws under Tenn. Code Ann. Title 4, Chapter 56; Title 12, Chapter 3; and,

Title 12, Chapter 4.

- TDEC will make payment to the Grantee based on review of reimbursement requests detailing eligible costs with accompanying invoices, actual costs at time of purchase, and documentation of charging infrastructure installation and operability. TDEC will not fund costs in excess of the requested grant amount.
- Grantees will be reimbursed for costs incurred by the Grantee only during the grant contract term.
- Reporting:
 - The Grantee must submit quarterly reports with updates on site selection, site host agreement negotiation and execution, environmental review, site design and engineering, and procurement of equipment and services until the project has been completed (i.e., grant-funded charging infrastructure is installed and commissioned). Such reports shall include a complete description of the status of the project (including actual or projected termination date), development, implementation, and any modification.³ Quarterly reports shall be due no later than January 10, April 10, July 10, and October 10 of each year of the grant contract term.
 - Grantees will be required to submit annual reports for a period of five years following infrastructure installation and commissioning. The deadline for submitting these reports shall be established by the Program following commissioning. Annual reports shall include, at a minimum, the following information:
 - a. Station usage (number of charging events, duration of each charging event, start and stop time of each charging event, amount of electricity dispensed at each charging event in kWh, fees collected for each charging event, aggregate amount of electricity dispensed over the reporting period in kWh, aggregate fees collected over the reporting period, and station downtime in hours per year as well as calculated as a percent (e.g., 175 hours or 2% downtime)). Where possible, Grantees should also allow the State “view access” to the charging network to allow for automated monitoring of station usage;
 - b. Program income (gross income or revenue from charging fees less program expenses, such as the cost of electricity) generated over the reporting period;
 - c. Internal accounting controls and mechanisms to be used by the Grantee to ensure that all such program income is reinvested in or used to defray ongoing costs of the project; and
 - d. An explanation of program income expenditures during the reporting period (e.g., the amount of program income generated and how such program income has been reinvested in or used to defray ongoing costs of the project).
 - Grantees must submit a final project report within three months of the completion of the grant contract term. (Please note that this report may be combined with the annual report for the final year of the grant contract term.) In addition to the information requested for the annual report, the final project report must also include cumulative financial information to match the final reimbursement request

³ Beneficiaries of the EMT are required to submit this information to the Trustee for each EMA. Beneficiary reporting obligations are outlined in Section 5.3 of the State Trust Agreement. https://www.tn.gov/content/dam/tn/environment/energy/documents/vw-resources/Modified_Environmental_Mitigation_Trust_Agreement_for_State_Beneficiaries_Effective_June_18_2020.pdf.

as well as inventory documentation for all equipment purchased with funding through the grant contract. The inventory documentation must include, at a minimum, the following:

- a. Description of the equipment;
 - b. Manufacturer's serial number or other identification number, when applicable;
 - c. Consecutive inventory equipment or identification;
 - d. Acquisition date, cost, and check number;
 - e. Fund source, State grant number, or other applicable fund source identification;
 - f. Percentage of state funds applied to the purchase;
 - g. Location within the Grantee's operations where the equipment is housed;
 - h. Condition of the property or disposition date if Grantee no longer has possession;
 - i. Depreciation method, if applicable; and
 - j. Monthly depreciation amount, if applicable.
- Failure to submit quarterly, annual, or final reports may result in the required refund of any or all payments made to the Grantee by the State.
 - The Grantee will use quarterly, annual, and final report templates provided by TDEC. These templates will be referenced in the grant contract and will be attached to the corresponding grant program manual.
 - The Grantee will be responsible for providing all the information required to complete the reports.
- TDEC will oversee the project activities performed under the grant contract. Oversight activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing technical assistance; temporary intervention in unusual circumstances to address deficiencies that develop during the project; assuring compliance with grant contract terms and conditions; and reviewing technical performance after project completion to ensure that the project objectives have been accomplished.
 - Accounting and Financial Controls:
 - Grantees must properly manage and account for funding received. A complete spending record for all expenditures will be required, including invoice receipts, logs of record, and other properly certified documents.
 - Only purchases made within the period of performance of a fully executed and approved grant contract shall be eligible for reimbursement. No credit will be given for costs incurred prior to the grant period of performance. Documentation will be required for all funds requested. Any applicant who starts a project and incurs costs before receiving a fully executed grant contract does so at its own risk.
 - All funding must be spent in accordance with the grant contract.
 - TDEC reserves the right to terminate the grant contract and/or recover funding from Grantees that TDEC determines are not in compliance with the conditions of this solicitation or the grant contract.
 - TDEC will not automatically grant project extensions. Requests for extensions will be evaluated on a case-by-case basis.
 - TDEC reserves the right to monitor projects and to audit any Grantee's financial transactions or compliance with the grant contract.
 - Public Notice: TDEC encourages Grantees to publish or otherwise make publicly available the

results of work performed and vehicle purchases made under grant contracts. All notices, informational pamphlets, press releases, research reports, signs, and similar public notices prepared and released by Grantees in relation to a grant contract should include the statement, "This project was funded in part under a grant contract with the State of Tennessee's Department of Environment and Conservation, under the State of Tennessee Volkswagen Diesel Settlement Environmental Mitigation Trust Fast Charge TN Network Grant Program."

DEFINITIONS:

The following definitions are set forth in Appendix D-2 of the State Trust Agreement:⁴

"All-Electric" shall mean powered exclusively by electricity provided by a battery, fuel cell, or the grid.

"Infrastructure" shall mean the equipment used to enable the use of electric powered vehicles (e.g., electric vehicle charging station).

"Zero Emission Vehicle (ZEV)" shall mean a vehicle that produces no emissions from the onboard source of power (e.g., All-Electric or hydrogen fuel cell vehicles).

TDEC has developed additional definitions for purposes of administering this Program, including definitions provided in Appendix 4 – Additional Defined Terms of the State's VW Settlement Beneficiary Mitigation Plan⁵:

"Grantee" shall mean an applicant that has an executed grant contract with TDEC.

"Operation and Maintenance Costs" shall mean the costs necessary for, and directly connected to, the operation and maintenance of new light duty electric vehicle supply equipment, which may include, but are not limited to, electricity consumption and/or demand charges, grid access charges, network fees, repairs, and the purchase and installation of Power Supply Equipment for the specific purpose of generating electricity for, storing electricity for, and/or delivering electricity to the light duty electric vehicle supply equipment.

"Power Supply Equipment" shall mean equipment or infrastructure used for generation, storage, and/or delivery of electricity for the operation of light duty electric vehicle supply equipment, which may include, but is not limited to, devices for traditional connection to the electric grid, stationary storage batteries, non-grid tied solar photovoltaic panels, and other equipment or infrastructure associated with the powering of light duty electric vehicle supply equipment (or analogous successor technologies).

⁴ State Trust Agreement, App'x D-2, https://www.tn.gov/content/dam/tn/environment/energy/documents/vw-resources/Modified_Environmental_Mitigation_Trust_Agreement_for_State_Beneficiaries_Effective_June_18_2020.pdf.

⁵ State of Tennessee VW Settlement Beneficiary Mitigation Plan, https://www.tn.gov/content/dam/tn/environment/energy/documents/vw-resources/oep_vw_TDEC-VW-EMT-BMP_8.18.21.pdf.

PROGRAM CONTACT:

All communications (regular mail, express mail, electronic mail, or fax), concerning this application and award process must be addressed to:

The Office of Energy Programs – Volkswagen Diesel Settlement Environmental Mitigation Trust
Tennessee Department of Environment and Conservation
C/o Alexa Voytek, Energy Programs Administrator
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 2nd Floor
Nashville, TN 37243
TDEC.OEP@tn.gov
Phone: 615-613-1096

APPENDIX A – PROGRAM GUIDELINES

Fast Charge TN Network Program Guidelines

Tennessee Valley Authority (TVA)

and

Tennessee Department of Environment and Conservation (TDEC)

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Site Selection Guidelines

Proximity to Corridor

- Fast charging sites should be located within one driving mile of the corridor they support (e.g., at an interstate exit or directly off the highway). At a maximum, sites must be no further than five driving miles from the corridor.

Signage and Site Visibility

- As the electric vehicle driver may be unfamiliar with the area, charging sites should be visible and easy to find. Signage on the host property can help draw attention to the charging stations and, if possible, local “wayfinding” signage can direct drivers from the corridor to the charging site.
- The host site should offer ample space for vehicle traffic so that drivers can comfortably enter the lot and locate the charging station.

Access to Power

- Locating the charging site near an existing power supply is a key step in limiting the overall cost of the installation. Most fast charging stations utilize 480 volt three phase power (although single phase options do exist integrating energy storage systems).
- Assessing the location and capacity of electrical distribution equipment, including transformers, located near desirable corridor exits is also a key step in the site selection process.
- To keep trenching costs low, minimize the distance from electrical distribution equipment to the charging station.
- If utilizing the TVA wholesale electric vehicle rate, charging stations must be separately metered from the host business in order to isolate energy utilized for charging. Consider accessibility of the electrical equipment as well as the charging site electrical meter.

Site Amenities and Safety Features

- Charging stations must be located at a host site that supports 24 hours / 7 days a week public access at no cost for entry. Basic safety features such as ample lighting, on-site personnel, and other features that make the electric vehicle driver feel secure are also critical considerations.
- A fast charging experience is distinguished from a typical retail gas station stop by the length of time required. Some fast charging sessions will require 20 to 30+ minutes to complete. Given the charging time involved, on-site access or “walking distance” access to bathrooms, retail shopping, food and dining options, local attractions, and other amenities is highly desired.
- Reliable cellular network access is important. Most charging stations use cellular modems to connect to network management systems for various functions such as payment processing and monitoring. Identifying cellular signal strength at a potential site and which carrier serves that particular location can help charging station companies ensure the appropriate equipment is included.

Environmental Impact

- In general, ideal charging sites with access to amenities and other features will be located in previously developed areas (e.g., existing parking lots). Therefore, the potential impact to the surrounding environment should be minimal. However, during site selection, pay attention to the potential impacts of removing trees, impacting stormwater run-off / drains, or altering nearby wetlands and animal habitats. A completed **Environmental Review Checklist** must be reviewed and approved before construction can begin.

Host Site

- The site host (property owner) will serve as a business partner in operating the fast charging station. Local power company owner/operators of charging stations may rely on the site host for various operating needs, such as a limited degree of customer service. Look for site owners and businesses that are professionally operated, well-established, and interested in partnering to serve electric vehicle drivers.

Charging Station Site Layout and Accessibility

- A site with two charging stations could require a “footprint” up to approximately 36’ x 20’ (approximately four normal size parking spots) depending on layout design and incorporation of Fast Charge Network Program **Accessibility Requirements**. It is important that sites have enough space now and can accommodate future expansion. The site should also be appropriately zoned for commercial activities.
- Charging stations should be located away from potential hazards including excessive traffic and industrial activity. Local authorities may have minimum distance requirements for electrical equipment like electric vehicle charging stations, requiring such to be located a safe distance away from ignition sources such as gas pumps or underground storage tanks.
- If possible and practical, consider site layouts that allow “pull through” access much like gas pump setups. This allows larger vehicles and vehicles with trailers to charge without backing-in or having to disconnect trailers.
- Charging sites must be accessible to people with limited mobility, such as individuals who utilize wheelchairs. Avoid locations with steep grades, stairs, and tall curbs. Refer to the Fast Charge Network Program **Accessibility Requirements** for exact specifications.
- Avoid placement of charging stations where cords could create tripping hazards and consider whether nearby landscaping will interfere with the charging stations or parking spaces.

Potential Future Expansion

- Always develop charging sites with future expansion in mind. Electric vehicle adoption is forecasted to grow substantially in the coming years as is the need for fast charging stations.
- In addition to the available site area, future expansion applies to sizing of electrical distribution equipment including transformers, concrete pads, electric panels, disconnects, size and number of conduit installed, etc.

Environmental Review

Grantees will be required to complete an **Environmental Review Checklist** of their chosen site, to be provided by their respective funding partner. As an example, TVA's environmental review checklist is included in this document. TDEC will share its environmental review checklist once grantees are selected (following submission of the Notice of Intent form). The completed checklist must be reviewed and approved by the grantee's funding partner before construction can begin.

DRAFT

TVA Environmental Review Checklist

The goal of this program is to develop electric vehicle charging stations with minimal impact to the surrounding environment. TVA will review this environmental checklist and follow up with the Program Participant as appropriate, in accordance with TVA’s legal and policy requirements associated with this program. Please provide the following information to TVA program management staff via email (agfrye@tva.gov and copy dcarter6@tva.gov) before any construction activities begin, for final environmental review and charging site approval.

Local Power Company (Program Participant): _____

Proposed Charging Site Address (or lat/long): _____

In general, if the proposed electric vehicle charging site is located within previously developed areas, such as: parking lots, gas stations, recently graded land, sites situated on fill material, or other similar low impact situations; and associated activities such as installation of signage, construction of new utility distribution poles or underground utilities, etc. are completely within previously disturbed areas, additional review is not likely required.

If the answer to any question below is *YES*, further review of environmental impacts by TVA or by the Program Participant, as directed by TVA, may be required. If the answer to any question is *YES*, consider locating another site that avoids these potential impacts and reach out to TVA to understand additional review responsibilities and costs.

<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the proposed charging site located within the 100-year floodplain as shown on FEMA Flood Insurance Rate Maps ?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the proposed charging site located within the 500-year floodplain of a TVA reservoir, or where TVA owns property or a flowage easement?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Will development of the charging site require the removal of trees greater than three inches in diameter measured at breast height or any forest clearing?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Will development of the charging site require filling in of wetlands or streams, or filling in streamside management zones?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Will development of the charging site require ground disturbances (ex. new utility poles) outside of existing developments such as parking lots, roadways, buildings, or other impervious surfaces and/or outside of previously disturbed land (ex. greenfield)?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Will development of the charging site result in impacts to caves, sinkholes, streams, or wetlands?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Will development of the charging site require demolition of an existing structure?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the proposed charging site located on the same property as, or adjacent to, a structure 50 years old or greater?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the charging site located within a zoned historic district with the National Register of Historic Places ?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the charging site located on property owned by a federally recognized Indian tribe?

Fast Charge Network
Program Guidelines

*Please attach pictures showing the proposed charging site and surrounding environment; including the top of nearby utility poles, lights, or other tall structures adjacent to the proposed charging site.

This form must be completed and signed by an authorized representative or agent for the Program Participant, an individual who can certify, under penalty of law, and based on information and belief formed after reasonable inquiry and appropriate training or licensing, that the statements and information contained in this Environmental Review Checklist are true, accurate and complete.

Program Participant Representative (Signature): _____ Date: _____

Minimum Technical Specifications

With regard to the use of terminology (charging station, charger, site, location, plug, and port), please reference Figure 1 below.



Figure 1

Charging Station and Charging Site Minimum Technical Specifications

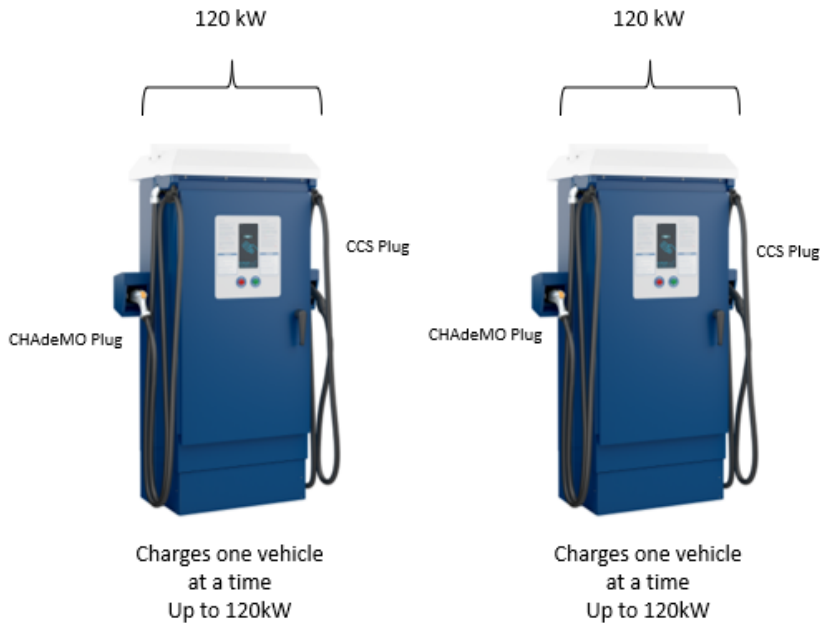
Unless otherwise agreed upon, the following specifications must be met in order to qualify for reimbursement under the Fast Charge Network Program:

- Each charging site must have at minimum two charging stations; up to four charging stations is allowable under this program if authorized by the authorizing agency.
 - If only two charging stations are installed initially, the site should be easily expandable to accommodate four charging stations in the future.
 - For program reimbursement purposes, a “charging station” is defined as an electrical device capable of charging a single electric vehicle. If a device is capable of charging two electric vehicles simultaneously, it will be considered two charging stations; however, the ability to charge two vehicles alone may not meet all charging site specifications (see plug type specifications and illustrative examples below).
- At the very minimum, each charging site must be capable of delivering at least 120kW to a single vehicle (assuming the vehicle is capable of accepting such power input). Power sharing equipment is acceptable.
- Each charging site must have the ability to charge at least two combined charging standard “CCS” plug vehicles (e.g., two Chevy Bolts) simultaneously while supplying at least 50kW to each.
- Each charging site must have the ability to charge at least one CHAdeMO plug vehicle (e.g., one Nissan LEAF) with at least 50kW supply.

- Charging stations capable of delivering higher power charging ~150-180+kW or upgradability / expansion capabilities to these power levels in the future is highly desirable.
- Charging stations should support electric vehicles with nominal 400Vdc up to 900+Vdc battery architectures.
- Charging stations must meet relevant technical and/or safety standards, including but not limited to UL 2202, and Code of Federal Regulations, Title 47, Part 15 (47 CFR 15), and must have valid certification(s) from a Nationally Recognized Testing Laboratory (NRTL).
- It is desirable that charging stations include or be able to be upgraded in the future to support ISO 15118 “Plug & Charge” capabilities.
- Charging stations must be capable of utilizing Open Charge Point Protocol (OCPP) V1.6 or newer for communications to various network back-ends (i.e., the system must be able to “default” to OCPP for basic functionality).
- Charging stations must be connected to an operating network and must have the ability to switch between OCPP networks.
- Charging stations must support continuous operations even when network connectivity is not available or consumer cell phone service is not available (i.e., “default on” with loss of network).
- Charging stations must be accessible to “walk up” consumers. This means that consumers must be able to initiate a charge session without a prior membership or network interaction in a simple, straightforward process.
- Charging stations and network system must include multiple payment options for drivers (including the ability to pay with a credit card, at a minimum).
- Charging stations and network system must follow cyber security and data privacy best practices, including but not limited to:
 - Payment methods must follow the Payment Card Industry Data Security Standard (PCI DSS);
 - Ability to furnish SOC II Type II report or ISO 27001 certificate;
 - End-to-end encryption with all data encrypted in transit and at rest; and
 - GDPR/CCPA for data protection and privacy.
- Charging stations and network system must provide 24/7 customer service and support.
- Any operating network system for a charging station must follow network “roaming” best practices established by the Open Charge Point Interface (OCPI) protocol.
- Any operating network system must be capable of network uptime of 98% or greater.
- Any operating network system must proactively monitor charging stations for maintenance needs and notify/dispatch for corrective action as issues are identified.

Illustrative Examples vs. Minimum Specifications

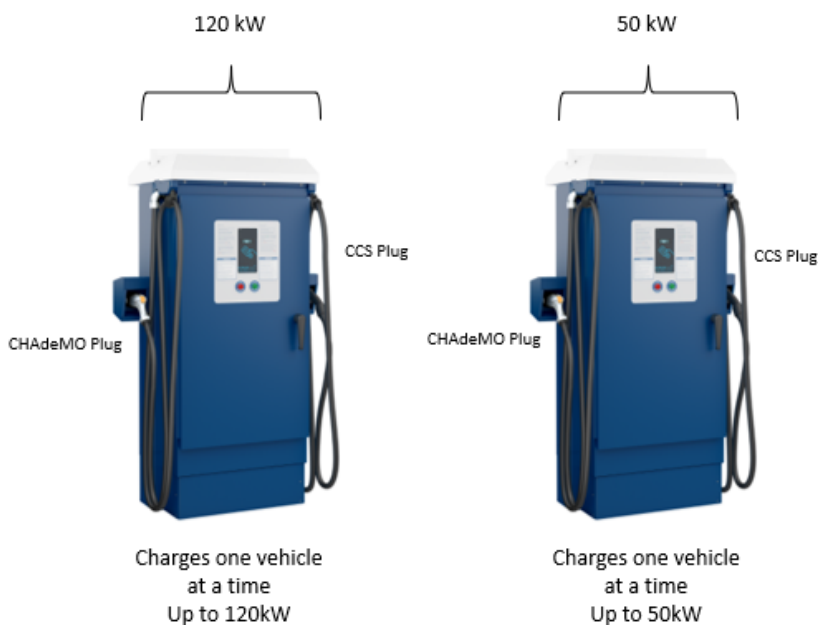
Example: Single vehicle charging stations



- ✓ Min. two vehicles charging at same time
- ✓ Min. 120kW possible
- ✓ Min. 50kW to each vehicle
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as “two charging stations” for reimbursement purposes because two vehicles can charge at the same time

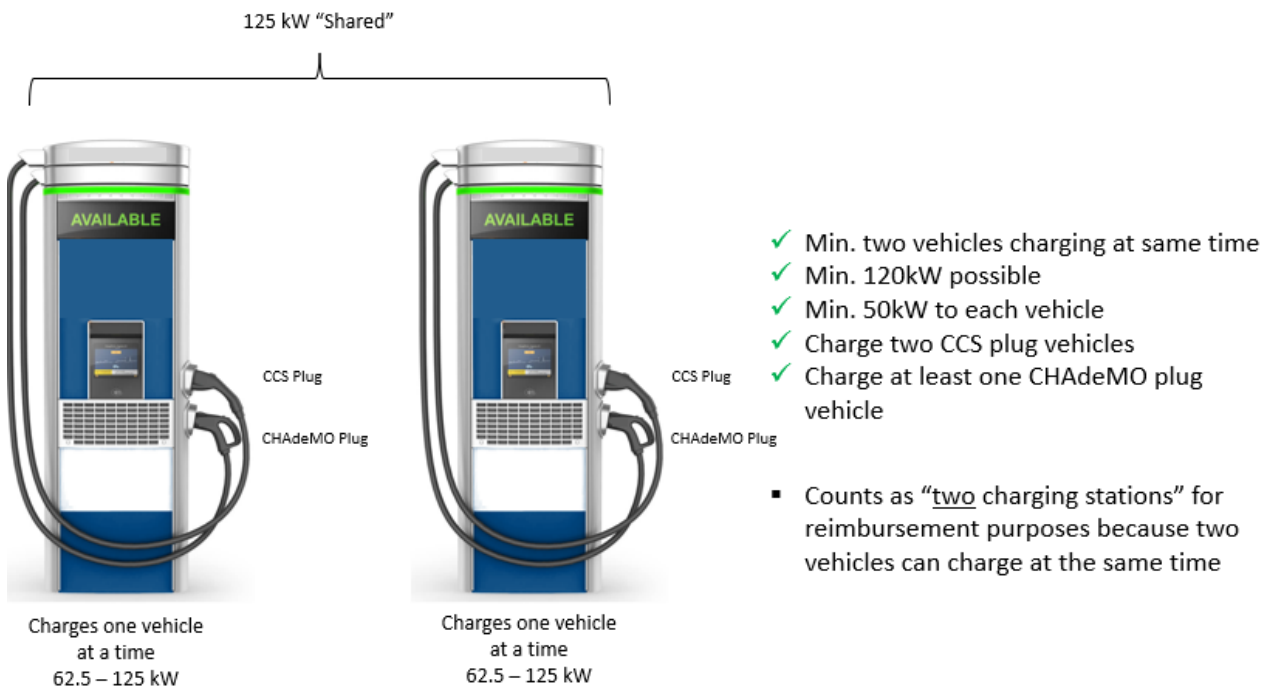
Example: Single vehicle charging stations (different power levels)



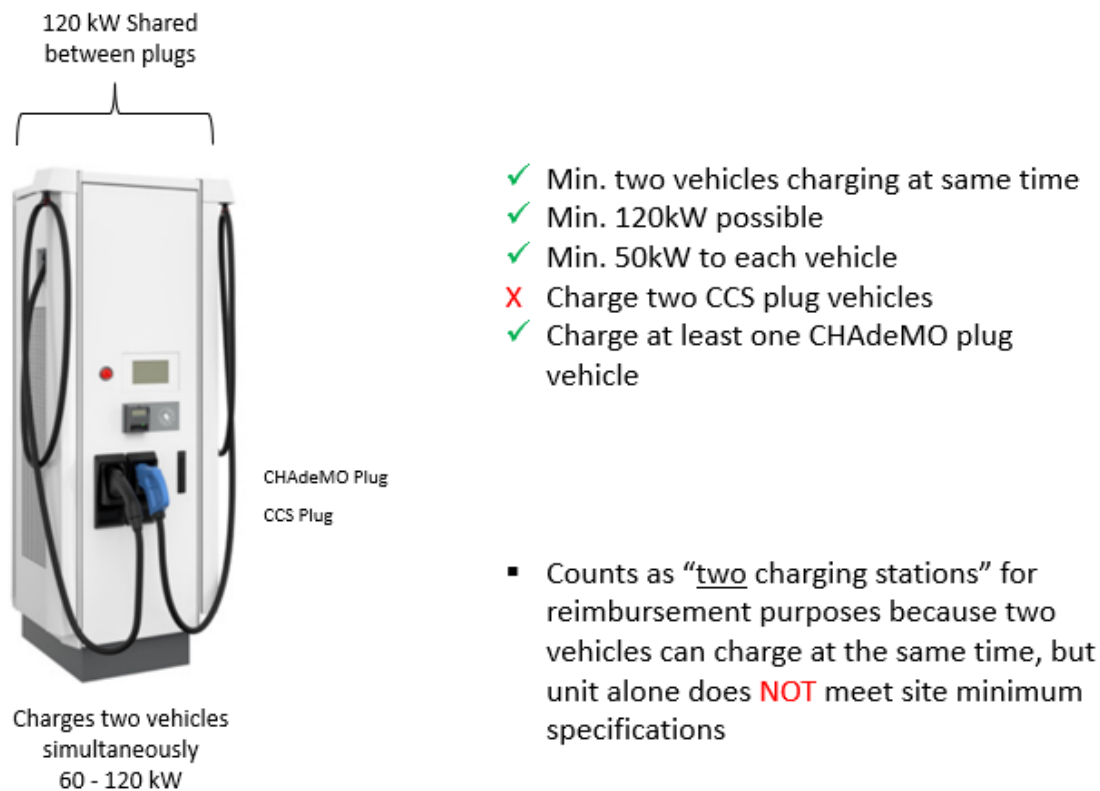
- ✓ Min. two vehicles charging at same time
- ✓ Min. 120kW possible
- ✓ Min. 50kW to each vehicle
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as “two charging stations” for reimbursement purposes because two vehicles can charge at the same time

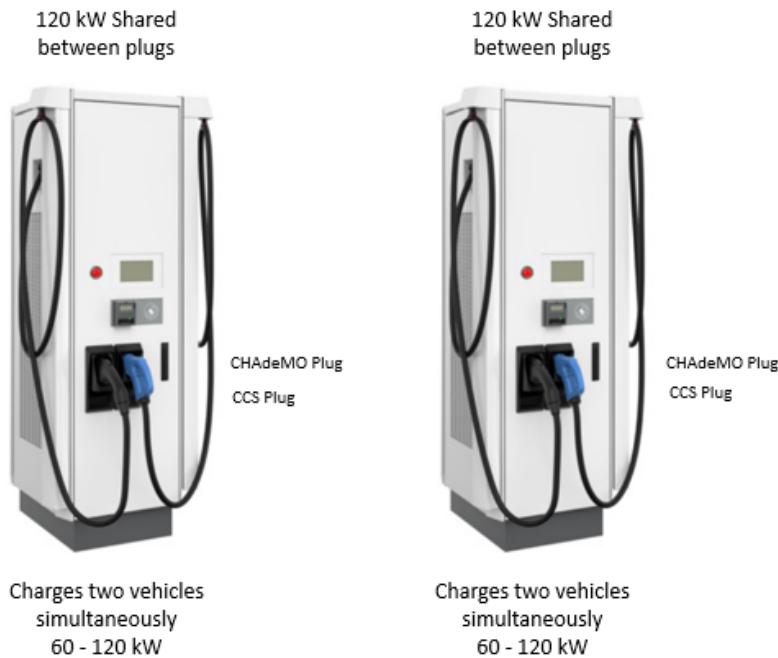
Example: Power sharing between two charging stations



Example: Single Dual Charging Station



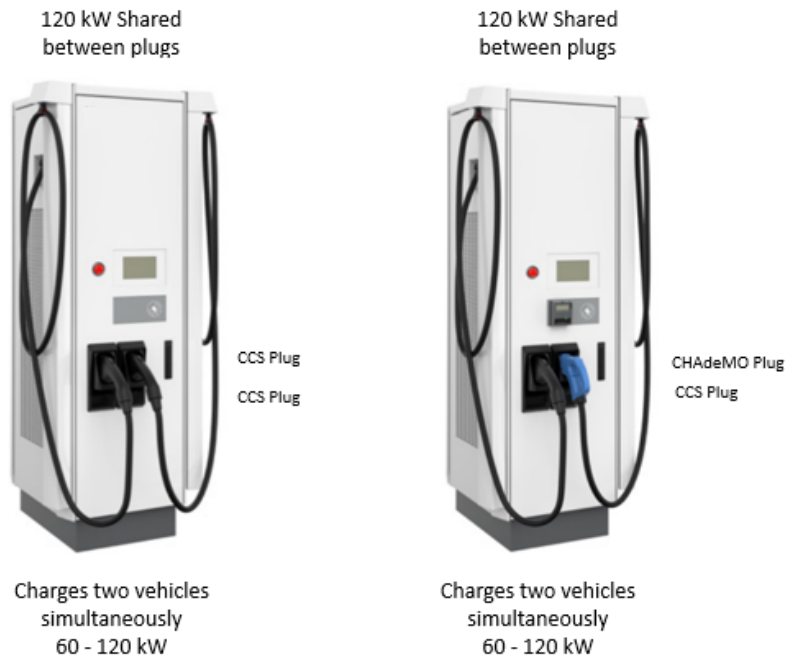
Example: Multiple Dual Charging Stations



- ✓ Min. two vehicles charging at same time
- ✓ Min. 120kW possible
- ✓ Min. 50kW to each vehicle
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as “four charging stations” for reimbursement purposes because four vehicles can charge at the same time

Example: Multiple Dual Charging Stations (CCS/CCS & CCS/CHAdeMO plugs)



- ✓ Min. two vehicles charging at same time
- ✓ Min. 120kW possible
- ✓ Min. 50kW to each vehicle
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as “four charging stations” for reimbursement purposes because four vehicles can charge at the same time

Enhanced Technical Specifications

With regard to the use of terminology (charging station, charger, site, location, plug, and port), please reference Figure 1 below.



Figure 1

Charging Station and Charging Site Enhanced Technical Specifications

The following specifications must be met in order to qualify for **Enhanced Technical Specifications** under the Fast Charge Network program:

- Each charging site must be **within one mile of the interstate or highway** unless a discretionary exception has been granted.
- Each charging site must have at **minimum two 150kW charging stations** (four 150kW charging stations encouraged).
- Each charging site must have minimum power capability at or above 300kW and supports at least 150kW per port simultaneously across at least two ports for charging.
- Power sharing across ports and/or charging stations is permitted so long as it does not reduce the output per port below 150kW.
- Each charging site must have the ability to charge at least two combined charging standard “CCS” plug vehicles (e.g., two Chevy Bolts) while supplying at least 150kW to each.
- Each charging site must have the ability to charge at least one CHAdeMO plug vehicle (e.g., one Nissan LEAF).
- Sites capable of delivering higher power charging ~180-350+kW or upgradability / expansion capabilities to these power levels in the future is highly desirable.
- Charging sites capable of being easily upgraded / expanded to support at least four 150kW charging stations is highly desirable.

- Charging stations should support electric vehicles with nominal 400Vdc up to 900+Vdc battery architectures.
- Charging stations must meet relevant technical and/or safety standards, including but not limited to UL 2202, and Code of Federal Regulations, Title 47, Part 15 (47 CFR 15), and must have valid certification(s) from a Nationally Recognized Testing Laboratory (NRTL).
- It is desirable that charging stations include or be able to be upgraded in the future to support ISO 15118 “Plug & Charge” capabilities.
- Charging stations must be capable of utilizing Open Charge Point Protocol (OCPP) V1.6 or newer for communications to various network back-ends (i.e., the system must be able to “default” to OCPP for basic functionality).
- Charging stations must be connected to an operating network and must have the ability to switch between OCPP networks.
- Charging stations must support continuous operations even when network connectivity is not available or consumer cell phone service is not available (i.e., “default on” with loss of network).
- Charging stations must be accessible to “walk up” consumers. This means that consumers must be able to initiate a charge session without a prior membership or network interaction in a simple, straightforward process.
- Charging stations and network system must include multiple payment options for drivers (including the ability to pay with a credit card, at a minimum).
- Charging stations and network system must follow cyber security and data privacy best practices, including but not limited to:
 - Payment methods must follow the Payment Card Industry Data Security Standard (PCI DSS);
 - Ability to furnish SOC II Type II report or ISO 27001 certificate;
 - End-to-end encryption with all data encrypted in transit and at rest; and
 - GDPR/CCPA for data protection and privacy.
- Charging stations and network system must provide 24/7 customer service and support.
- Any operating network system for a charging station must follow network “roaming” best practices established by the Open Charge Point Interface (OCPI) protocol.
- Any operating network system must be capable of network uptime of 98% or greater.
- Any operating network system must proactively monitor charging stations for maintenance needs and notify/dispatch for corrective action as issues are identified.

Illustrative Examples vs. Enhanced Specifications

Example: Single vehicle charging stations



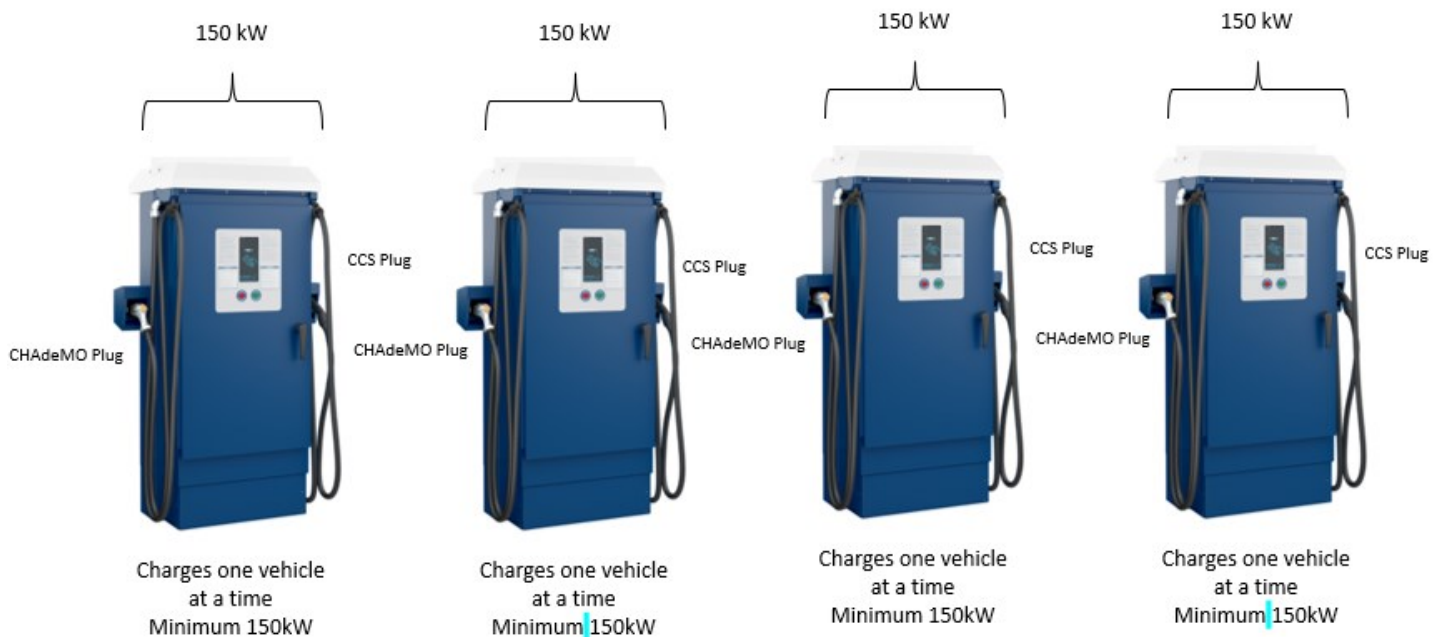
- ✓ Min. two vehicles charging at same time
- ✓ Min. 150kW to each vehicle at the same time
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as “two charging stations” for reimbursement purposes because two vehicles can charge at the same time

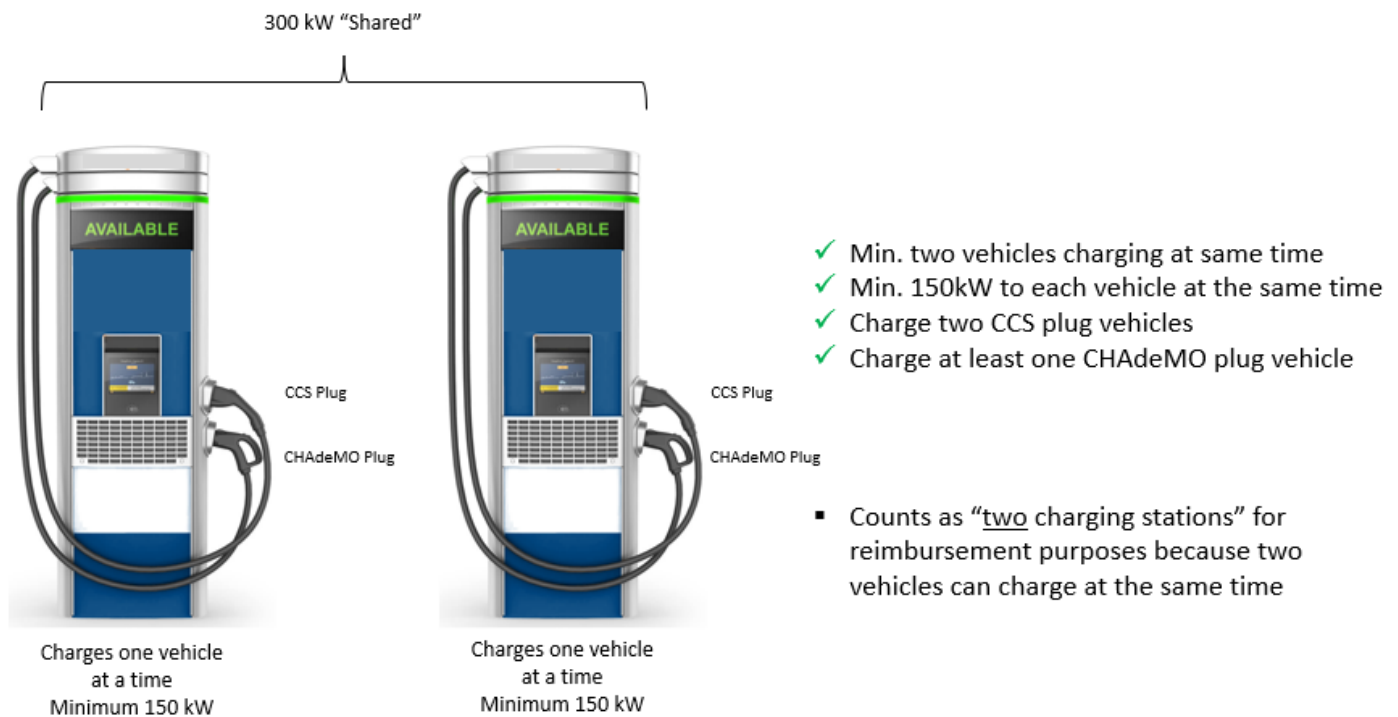
Example: Single vehicle charging stations

- Counts as “four charging stations” for reimbursement purposes because four vehicles can charge at the same time

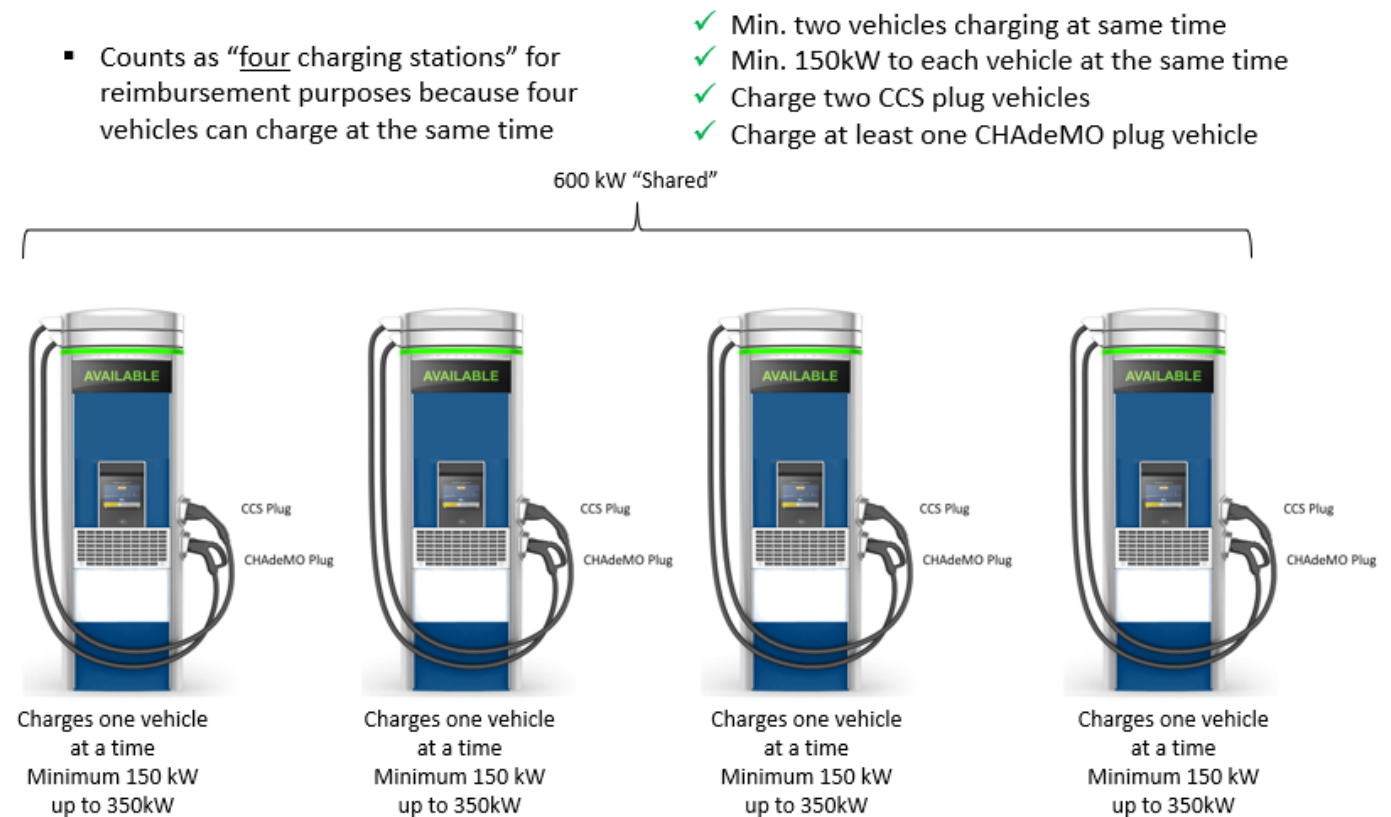
- ✓ Min. two vehicles charging at same time
- ✓ Min. 150kW to each vehicle at the same time
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle



Example: Power sharing between two charging stations



Example: Power sharing between four charging stations



Example: Single Dual Charging Station



- ✓ Min. two vehicles charging at same time
- ✗ Min. 150kW to each vehicle at the same time
- ✗ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as “two charging stations” for reimbursement purposes because two vehicles can charge at the same time, but unit alone does **NOT** meet site enhanced specifications

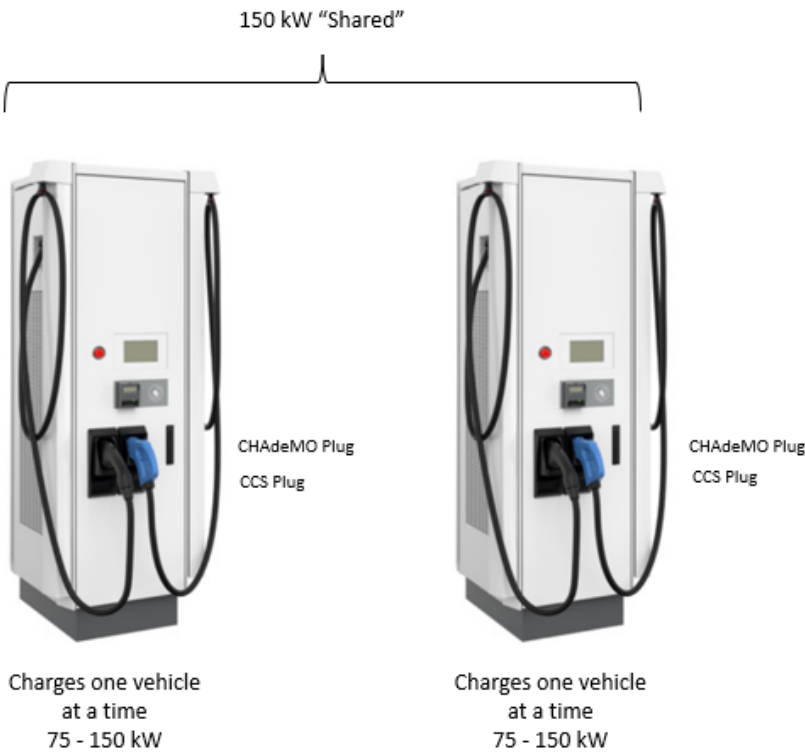
Example: Multiple Dual Charging Station



- ✓ Min. two vehicles charging at same time
- ✗ Min. 150kW to each vehicle at the same time
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as “four charging stations” for reimbursement purposes because four vehicles can charge at the same time, but this setup alone does **NOT** meet site enhanced specifications

Example: Power sharing between two charging stations



- ✓ Min. two vehicles charging at same time
- ✗ Min. 150kW to each vehicle at the same time
- ✓ Charge two CCS plug vehicles
- ✓ Charge at least one CHAdeMO plug vehicle

- Counts as "two charging stations" for reimbursement purposes because four vehicles can charge at the same time, but this setup alone does **NOT** meet site enhanced specifications

Americans with Disabilities Act (ADA)

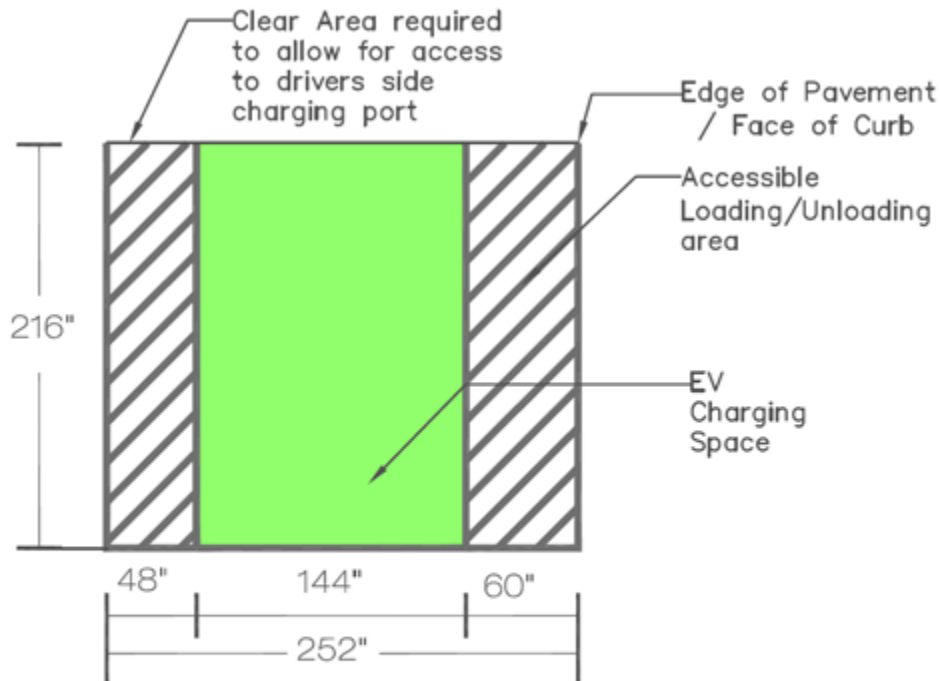
The information contained in this section is for general information purposes only and does not, and is not intended to, constitute legal advice. A signatory to an Electric Vehicle Fast Charger Program Agreement or Grant Contract with responsibility for purchasing and installing the electric vehicle (EV) charging stations (for purposes of this section, “Program Participant”) should consult with the Program Participant’s legal advisor regarding the applicability of the ADA or any state accessibility requirements to EV charging stations. Each signatory to an Electric Vehicle Fast Charger Program Agreement or Grant Contract with responsibility for reimbursing certain Program Participant project costs (for purposes of this section, “Funding Agency”) disclaims any liability for any actions or omissions of Program Participants based on the contents of this section.

It is the responsibility of each Program Participant to consult the Program Participant’s legal advisor to determine whether the Program Participant’s publicly-accessible EV charging stations may be subject to current requirements of the ADA and any state accessibility requirements and, if so, what steps the Program Participant must take to ensure compliance. While participation in the Fast Charge Network Program requires that the Program Participant meet accessibility requirements, described below, the Funding Agency does not warrant that meeting the Accessibility Requirements required by the Fast Charge Network Program, including any approved Accessibility Deviation Request, satisfies the requirements of the ADA or any state accessibility requirements. The Funding Agency will not be liable for failure of the Program Participant to comply with any ADA or state accessibility requirements. As a reference only, the ADA statutory language can be viewed [here](#) and [here and a guidance on standards can be viewed here](#).

Fast Charge Network Program Accessibility Requirements

To provide accessibility, each Program Participant must, as a requirement of the Fast Charge Network Program, include at least one van-accessible EV charging stall (EVCS) at each Fast Charge site that meets the following requirements (“Accessibility Requirements”). These requirements were developed in consultation with the Tennessee Department of Transportation’s (TDOT) Roadway Design Division.

- Total stall width, including both access aisles, shall be a minimum of 252”
- Parking stall min. width: 96”
- Stall min. length: 216”
- Access aisles:
 - Access aisle with 60” min. width must be located along one side of EV charging stall, be the same length as the stall(s) it serves, and connect to an accessible route to the charging station. It is preferable, but not required, to locate this 60” aisle adjacent other EV charging stalls
 - Access aisle with 48” min. width must be located along opposite side of EV charging stall, be the same length as the stall(s) it serves, and connect to an accessible route to the charging station
 - Boundary of the access aisle must be marked
 - Access aisles may have 1:50 maximum slope in all directions
- Accessible path to EV charging station must be provided (wheel stops and curbs cannot be located in a manner that obstructs an accessible path to the charging station)



Van Accessible EV Charging Space

Refer to the example drawing of a van accessible EV charging stall. Should site or other constraints prohibit the inclusion of at least one van accessible EV charging stall meeting the Accessibility Requirements, the Program Participant must submit an **Accessibility Deviation Request** to the Funding Agency before proceeding with site installation. The Accessibility Deviation Request must include:

1. A written description of the site and reason for deviation from the requirement (pictures and drawings of the existing site are encouraged);
2. A proposed alternative which provides accessibility to persons with disabilities. A drawing or rendering of the proposed alternative, which includes stall dimensions, striping, and charging station location, is required; and
3. Any other information required by the Funding Agency to ensure that the proposed deviation will provide sufficient accessibility to persons with disabilities.

Upon receipt of an Accessibility Deviation Request, the Funding Agency will review the proposed alternative and may, at the Funding Agency's discretion, approve the request, deny the request, or request additional information. The Program Participant must provide all additional information requested by the Funding Agency regarding an Accessibility Deviation Request and failure to provide such information may result in denial of the request. Upon completing its review of an Accessibility Deviation Request, the Funding Agency will issue a determination in writing approving the request if the request, in the Funding Agency's sole discretion, provides an alternative for sufficient accessibility to persons with disabilities or, otherwise, denying the request. Upon approval of an Accessibility Deviation Request, the Program Participant is required to comply with the terms of the approved request instead of providing at least one van-accessible parking stall meeting the Accessibility Requirements.

APPENDIX B – PROGRAM RESOURCES

Fast Charge TN Network Program Resources

Tennessee Valley Authority (TVA)

and

Tennessee Department of Environment and Conservation (TDEC)

Contents

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Example Site Layouts	6
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Charging Site Development and Operation Best Practices.....	18
Signage Recommendations.....	21



Improving charging infrastructure availability: The Fast Charge TN Network

The Tennessee Department of Environment and Conservation (TDEC) and the Tennessee Valley Authority (TVA) have partnered to develop a statewide electric vehicle (EV) fast charging network to power the growth of EVs across Tennessee and reduce barriers of transportation electrification. Specifically, [the two have signed an agreement](#) to collaborate and fund a network of fast charging stations every 50 miles along Tennessee’s interstates and major highways. This initiative will add approximately 50 new charging locations, tripling the existing fast charging network.

Tennessee Electric Vehicle Charging Corridor Completion Map

Existing DC Fast Charging Infrastructure and Completed & Incomplete Corridor Segments (June 2021)



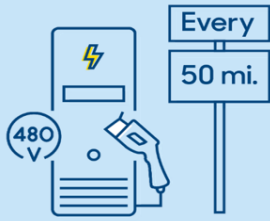
Fast Charge TN Network Overview

TDEC and TVA will leverage various funding sources to support the development of the Fast Charge TN Network, with an anticipated total project cost of \$20 million. TDEC has committed 15%, the maximum allowable, of the [State’s Volkswagen Diesel Settlement Environmental Mitigation Trust allocation](#) to fund light-duty EV charging infrastructure. Approximately \$5 million from this fund is expected to be allocated to fast charging infrastructure along corridors.

The Tennessee Department of Transportation (TDOT) intends to provide TDEC with an additional \$7 million in federal Highway Infrastructure Program (HIP) funds to expand fast charging EV infrastructure along federally designated Alternative Fuel Corridors in Tennessee. The remainder of the project will be funded by TVA, other program partners, and program participant cost share.

To optimize available funding sources, TVA and program partners will structure development in phases.

- Initial eligible applicants shall include TVA-served Local Power Companies (LPCs) and other local utilities that distribute electricity in Tennessee whose service territory is located along prioritized corridor gaps. An interactive version of the corridor gap map may be accessed [here](#).
- Later rounds of funding may expand applicant eligibility to include local government entities, private companies, and/or non-profits.



Improving charging infrastructure availability: The Fast Charge TN Network

Funding & Reimbursement

For selected, eligible projects, the program will provide up to **80%** of the cost to purchase, install, operate, and maintain eligible EV charging infrastructure that will be located within a prioritized corridor gap and made available to the public. This program will not support the purchase or rental of real estate, other capital costs (e.g., construction of buildings, parking facilities, etc.), or general maintenance (i.e., maintenance other than of the EV charging infrastructure). Program participants will be required to provide at least 20% of the total project cost through direct or in-kind cost share.

This program will require selected projects to include at least two DC fast chargers at each location, with the option to request to install a maximum of four DC fast chargers per location. Additionally, requests for funding may not exceed \$150,000 per fast charger to be installed. Program participants will be responsible for finding a suitable host site and purchasing, installing, owning, operating, and maintaining program-funded fast charging equipment for a period of no less than five years.

Payment of project expenses will take place on a reimbursement basis. Reimbursement will be made following charging station completion, commissioning, and submission of supporting documentation of costs incurred. TVA will provide reimbursement to LPCs through a credit on their monthly wholesale power bill following approval. For TDEC-funded projects, program participants will be issued a reimbursement payment following project completion and approval of invoice(s).

Reimbursable costs include:

- Cost to purchase and install (e.g., utility make-ready) eligible EV charging infrastructure
- Support services (e.g., engineering and design, site identification and qualification)
- Operational and maintenance costs purchased upfront, including maintenance services and network fees

Non-eligible expenses include:

- The purchase or rental of real estate
- Other capital costs (e.g., construction of buildings, parking facilities, etc.)
- General maintenance (i.e., maintenance other than of the charging infrastructure)
- Legal fees associated with land acquisition

Site Selection

Site Considerations

Charging sites must follow **Site Selection Guidelines** provided by the program to ensure a positive consumer experience.

Station Proximity to Roadway

Proximity to identified corridors is one important determinant of both consumer appeal and anticipated charging station utilization.



Access

- 24/7 availability
- Publicly accessible
- No charge for entry



Nearby Amenities

- Restaurants
- Shops
- Restrooms



Corridors

- Interstates
- Major U.S. and State highways



Distance from highway

- <1 mile preferred
- 5 miles max
- 50 miles or less between Fast Charge TN Network stations



Power Supply

- Close proximity to 480V, 3 phase power
- Future upgradability



Safety

- Secure
- Well-lit
- On-site personnel



Weather Protection

- Shelter from elements is desirable, but construction of such is not reimbursable under this program



Improving charging infrastructure availability: The Fast Charge TN Network

Installation Term

Program participants will have 15 months from the effective date of the **Contract** to complete the project. No-cost extensions will be evaluated on case-by-case basis.

Site Engineering and Design

- Complete environmental review and return the provided **Environmental Review Checklist**, which will be provided to selected grantees, for final site approval before beginning construction activities; additional information will be provided to outline necessary documentation and required information to complete this review.
- Design and construct site in accordance with **Minimum Technical Specifications**, which can be found in Program Guidelines, provided by the program.

Co-branding

To increase consumer awareness and recognizability of charging stations, a consistent visual design featuring program partner co-branding will be leveraged. Guidance on design and process will be provided by the program.

EV Rate & Pricing

- TVA's EV rate (wholesale EV Rate plus Valley-wide retail adders) is recommended, but LPCs retain rate setting flexibility for electric services.
- Consumer pricing for charging services will be set by station owners and is not regulated by TVA.

Program Income

All program income (gross income earned by the program participant that is directly generated by the project or earned as a result of the project funding during the contract term) must conform with program income requirements (e.g., see 2 CFR § 200.307) in that such income must be reinvested in or used to defray ongoing costs of the project (e.g., other maintenance fees).

Operation & Maintenance Term

Program participants will be responsible for owning, operating, and maintaining program-funded fast charging equipment for a period of no less than five years. After termination of the contract term, property disposition requirements may apply depending on the funding source.

Site Acquisition

- A site host agreement will be required to show that the program participant has been granted access to the property where charging stations are to be installed. If a program participant owns the property, this will be confirmed via a **Verification of Property Ownership Form** provided by the program. The purchase or rental of real estate is a non-reimbursable cost under the program.
- HIP (TDOT) funded projects will need to comply with the Uniform Act for any property that is acquired for charging stations. For more information, visit [here](#).

Equipment Acquisition

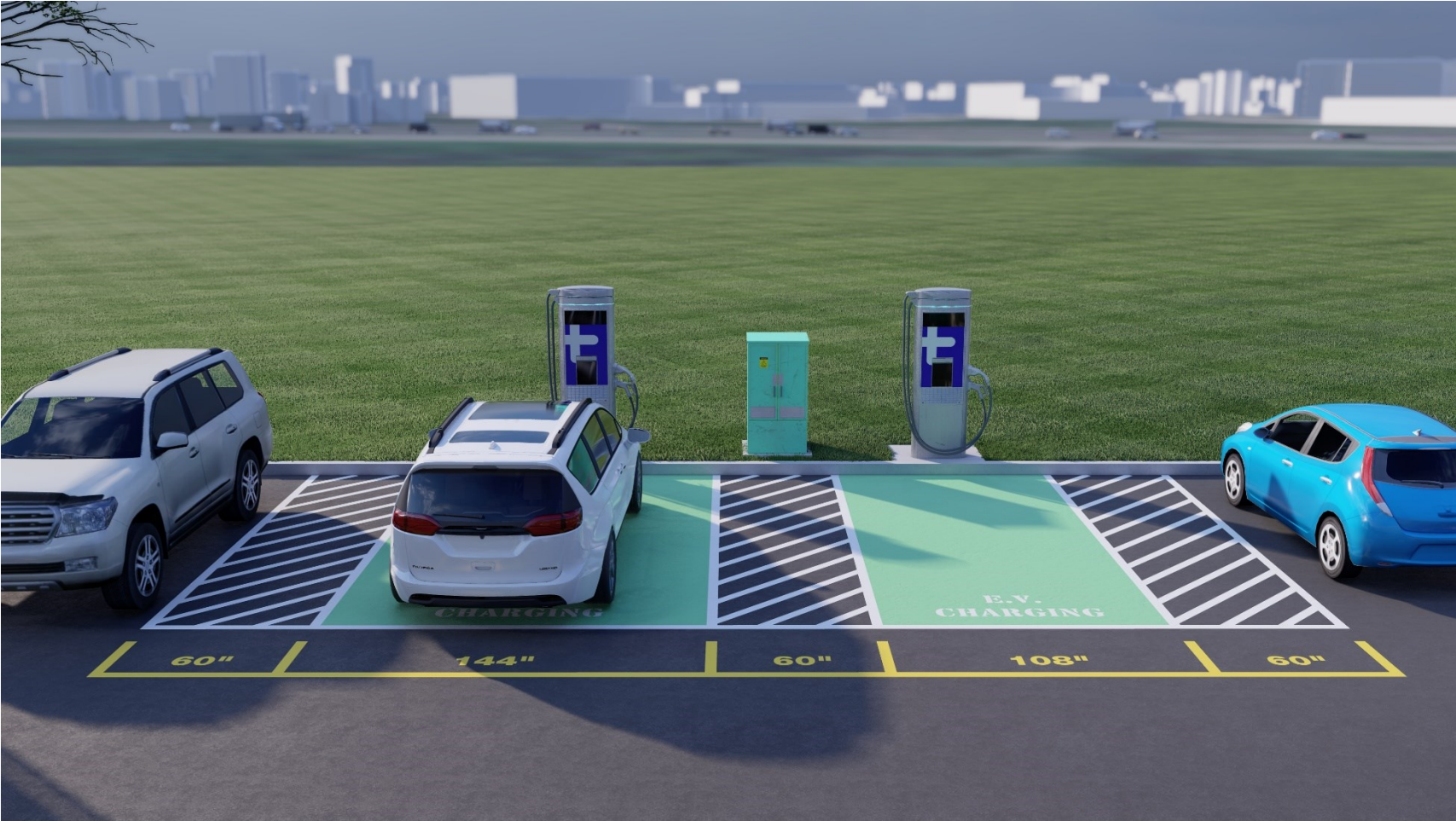
Purchase and install charging stations that meet the **Minimum Technical Specifications**, which can be found in the Program Guidelines, provided by the program.

Reporting & Station Access

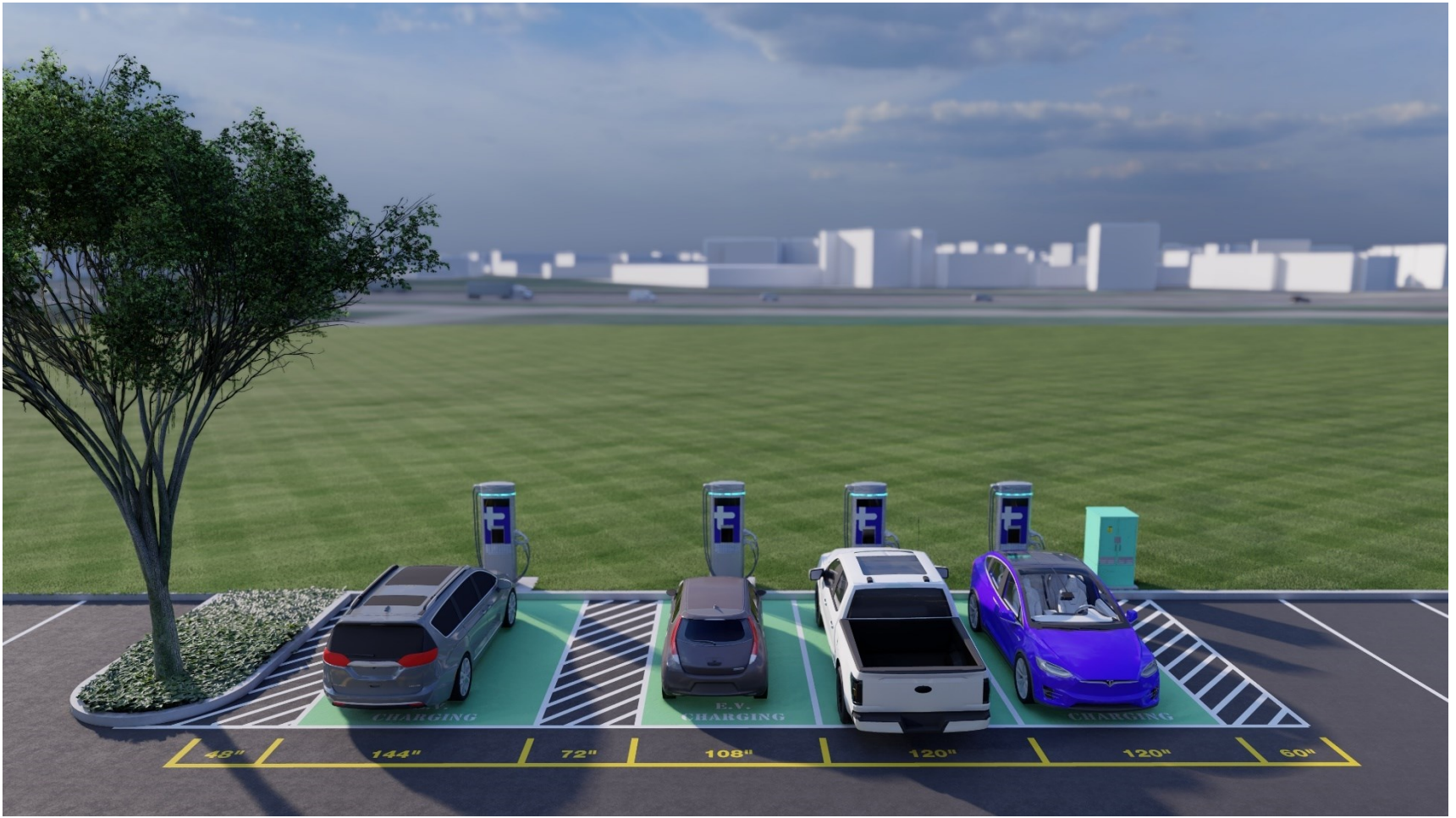
- Program participants will be required to report station usage (or allow "view access" to the charging network for automated monitoring and reporting) and gross income generated for a period of no less than five years.
- Reports will be due on an annual basis unless otherwise agreed upon in individual program contract.

Example Site Layouts

Below are some example site layouts that include at least one van accessible EV charging space. These layouts are provided as a resource. While there are additional layouts that include at least one van accessible EV charging space, these examples fit within traditional parking space layouts and allow maximum flexibility for larger electric vehicles such as pickup trucks and SUVs. More information on the program requirement to include at least one van accessible EV charging space can be found in the program **Accessibility Requirements**.







Fast Charge TN Network RFI Summaries

This document provides a high-level summary of the 32 responses to TVA’s Request for Information (RFI) on electric vehicle (EV) fast charging station equipment providers, EV charging network providers, and various support service vendors (all responses were due by May 7, 2021 at 5 pm Eastern). This document does NOT contain an exhaustive list of potential vendors and their capabilities. This document does NOT constitute an endorsement of any companies listed below and it does not establish preferred or qualified vendors. Additional details or information regarding specific RFI responses may be requested; all such requests should be submitted via email to McKale Carter at dcarter6@tva.gov and copy Drew Frye at agfrye@tva.gov.

Responses at a Glance:

	Charging Stations	Network	Support Services
ABB	✓		✓
AMP Communications			✓
AmpUp		✓	
Arcadis			✓
Beam Global	✓		
Black & Veatch			✓
Blink Network	R	✓	✓
BTC Power	✓	R	
ChargePoint	✓	✓	✓
CLEAResult			✓
Electrify America	R	✓	✓
EnelX	✓	✓	✓
EVBox	✓		
EVConnect		✓	✓
EvGateway		✓	✓
EVgo	R	✓	✓
Flo	✓	✓	
FreeWire Technologies	✓		✓
Greenlots	R	✓	✓
HDR			✓
Kimley-Horn			✓
LilyPad EV	R	R	✓
Mobilyze.ai			✓
OPCONNECT	R	✓	✓
Prova Group			✓
Seven States Power Corporation	R	R	✓
Siemens	✓	R	✓
SWTCH Energy	R	✓	R
Tritium	✓	✓	✓
Umlaut			✓
Wesco Anixter	R	R	✓
ZEF Energy	R	✓	✓

✓ = Vendor provides this product or service

R = Indicates that the response was submitted by a hardware or network “reseller” or that a strategic partnership with other vendors was listed within the RFI response.

Short Summaries:

ABB is a global corporation with U.S. headquarters in North Carolina. ABB sells multiple models of charging stations including the Terra 124, Terra 184, and others. ABB chargers can connect to various networks, including Greenlots, EVgo, ChargePoint, EV Connect, Electrify America, and others. ABB supplies products around the world (20,000+ stations) and has supplied Electrify America and EVgo for various network builds in the U.S. ABB also offers engineering support services for sites with ABB products, site commissioning services, and preventive and corrective maintenance services in addition to an equipment warranty.

Contact: Sumit Chatterja, sumit.k.chatterjea@us.abb.com

AMP Communications is a New Jersey based services company that provides site identification, site acquisition, engineering, construction, construction management, and maintenance services. AMP has completed electric vehicle charging station projects in the Northeast, Mid-Atlantic, and Southeast U.S. AMP employs 100+ employees consisting of experienced real estate representatives, engineers, program/project managers, certified technicians and electricians.

Contact: Kenton Wallace, kwallace@ampcommunications.com

AmpUp is a California-based software company and network provider. AmpUp's software supports network backend functions for 6 different DC fast charger manufacturers, including Tritium, Efacec, BTC Power, EVBox, SigNet, and Delta. AmpUp's consumer facing mobile app allows for customer authentication, payments, and charging analytics. AmpUp's software solution has been deployed for over 500 customers across North America and offers features including load management and time-of-use pricing.

Contact: Matthew Bloom, matt@ampup.io

Arcadis is a Colorado based services company that provides project management, cost management, engineering design, planning, permitting, construction oversight, electrical grid connection planning, and other services. Arcadis offers full delivery of design and planning for high power electric vehicle charging stations. Arcadis has supported the implementation of 500 DC fast chargers and over 4,000 AC chargers at locations across eight European countries. Arcadis has also designed and installed chargers at 60+ service centers in North America.

Contact: Jeffrey Parris, Jeffrey.Parris@arcadis.com

Beam is a San Diego based sustainable technology innovation company. The patented EV ARC™ generates and stores all its own energy with a tracking solar array and onboard energy storage, which replaces the need for a utility grid electrical connection. The transportable system can be deployed by trailer or forklift without any construction work. It fits in a parking space without reducing parking because vehicles can still use the space. The EV ARC™ DC fast charge system is made up of four interconnected EV ARC™ units, without the need for on-site construction or electrical work, and is deployed with an empty parking space separating each of them. Beam has deployed their EV ARC™ DC fast charging for the California Department of Transportation (Caltrans) at Camp Roberts Rest Areas along US Hwy 101 in Monterey County, California and at other locations.

Contact: Andy Ike, Andy.Ike@BeamForAll.com

Black & Veatch is an Overland Park, Kansas based services company. Black and Veatch has completed design, engineering, permitting, and construction for over 1,500 DC fast charge electric vehicle charging sites, totaling thousands of chargers for clients such as Tesla, Electrify America, Daimler, Southern California Edison and the NY Power Authority. Black & Veatch's scope of services include site selection, site acquisition, design, permitting, engineering, and construction management.

Contact: Keith Dickerson, DickersonK@BV.com

Blink Network is a Florida based charging equipment, charging network and support services provider. Blink has deployed over 5,600 commercial electric vehicle charging stations across 40 states. Blink listed three DC fast charging stations (the Tritium RT-175S, the Tritium RTM-75, and the Tritium RTM-50 rebranded as a Blink station). Blink's charging network software supports backend functions for ABB, BTC Power, and Tritium chargers. The Blink Network has interoperability agreements with EV Connect, SemaConnect and is working towards agreements with several other networks to allow for "roaming" between networks. Blink also supports site selection, site design, engineering, and commissioning, and provides full-service O&M support.

Contact: Conseulo Capshaw, ccapshaw@blinkcharging.com

BTC Power is a California based charging equipment manufacturer that offers multiple models and configurations of charging stations. BTC currently offers DC fast charging stations capable of 50kW to 350kW output. BTC's upcoming fourth generation lineup of new DC fast charger products includes self-contained All-In-One (AIO) DC fast chargers capable of outputting 120kW and 180kW simultaneously to two vehicles/ports/cords. The first of these new AIO models, the 180kW, will be available in the fourth calendar quarter of 2021. BTC Power is an open charge point protocol (OCPP) vendor and its products are therefore compatible with all third party OCPP network software including Greenlots (listed as a strategic partner on BTC Power's RFI response), EV Connect, EV Gateway, OpConnect, AmpUP, and more. BTC has supplied charging systems to over 18 utility clients across the U.S. and Canada as well as to the Electrify America and EVgo networks. BTC Power's turnkey services also include complete maintenance and repair services with in-house field service technicians.

Contact: Donald Jarecki, djarecki@btcpower.com

ChargePoint is a California based provider of integrated electric vehicle charging equipment, network, and services for all electric vehicle charging use cases. For high-speed DC fast charging along corridors, ChargePoint offers the Express 250 solution (up to 125kW) as well as the Express Plus distributed DC platform (up to 350kW). The ChargePoint Network includes over 125,000 active places to charge and access to an additional 160,000 publicly accessible charging locations through roaming integrations with other networks. More than 3,500 of those ChargePoint ports are DC fast chargers including with customers such as Evergy, FP&L, Georgia Power, and Alabama Power. ChargePoint also provides 24/7 electric vehicle driver support, proactive monitoring and repair services to guarantee station uptime, as well as professional services to assist site hosts including site selection, preliminary site design, project management, and station commissioning.

Contact: Libby Bittman, Libby.bittman@chargepoint.com

CLEAResult is a Texas based services company providing site acquisition, contracting, and site assessment, as well as engineering design, installation, and commissioning of chargers in coordination with local subcontractors. CLEAResult coordinates and manages electric vehicle charging installations from end-to-end, engaging sponsors, site hosts, and hardware and software providers to deliver projects. CLEAResult has managed electric vehicle charging programs for local government agencies and utilities such as Peninsula Clean Energy and Tucson Electric Power.

Contact: Stanford Wiley II, Stanford.Wiley@clearesult.com

Electrify America (a subsidiary of Volkswagen Group of America) is a Virginia based equipment, network, and services provider that sells multiple models of charging stations, including the Signet HPC 175K, Signet HDP350K-NCM2, and Signet HDP350K-NCC. Electrify America offers an end-to-end charging solution that can include analysis of recommended locations, site design and engineering, site development and installation, charging software and hardware, DC fast charging coupled battery storage systems, network operations monitoring with 24/7 consumer support, and ongoing operations and maintenance. The Electrify America network has 600+ locations and 2,500+ individual DC fast chargers (at power levels between 150kW and 350kW), with 11 of these locations and 52 chargers operating in the Tennessee Valley and coupled with battery energy storage. Electrify America plans for 800 additional locations to be open or in development by the end of 2021 and 1,800 locations with 10,000 individual 150kW and 350kW chargers by 2025.

Contact: Aaron Young, Aaron.young@electrifyamerica.com

Enel X (a subsidiary of the international utility Enel) is a Massachusetts based charging equipment, network and support services provider. Enel X has deployed over 140,000 charging ports globally. Enel X sells multiple models of charging stations, including the JuicePump 100kW, JuicePump 150kW, and JuicePump 200kW. Enel X uses their JuiceNet Enterprise network software to integrate with their charging stations. Enel X has over 170,000 charging ports globally that are currently integrated with their JuiceNet Enterprise network; equipment providers include Tritium, BTC, ABB, and Enel X in the US, and many more globally. Enel X has also integrated its charging equipment hardware and has roaming agreements with both the ChargePoint and Red-E network.

Contact: Luis Castro, luis.castro2@enel.com

EVBox is an Illinois based charging equipment company. EVBox sells the TronIQ 100 (100kW) DC fast charging station. EVBox chargers utilize OCPP and are currently integrated with nine different OCPP networks in North America (Greenlots, EV Connect, AmpUp, and EV Gateway are among the list of qualified network providers). The TronIQ 100 includes both CCS and CHAdeMO plug types, as well as full station branding capabilities. EVBox also offers the TronIQ Care Plan, a comprehensive (parts, onsite labor, and shipping) warranty.

Contact: Nick Lalli, Nicholas.lalli@evbox.com

EV Connect is California based network software company that manages networked charging stations on the EV Connect network. There are approximately 8,000 lower power charging ports currently connected to the EV Connect network. EV Connect also offers site identification, site control, site design, construction, and post deployment management services. In past fast charger projects, EV Connect has procured ABB, Tritium and BTC charging stations for deployment.

Contact: David Hughes, david@evconnect.com

EvGateway is a Disadvantaged Business Enterprise certified, California based network and services provider. EvGateway manages a hardware agnostic OCPP network and provides turnkey project services including site identification/validation, planning, approvals, support with procurement of hardware/chargers, project management, and station monitoring. There are approximately 2,000 lower power charging stations currently connected to the EvGateway network. Within its RFI response, EvGateway provided spec sheets for Tritium charging stations, and noted network integrations with BTC, ABB, Tritium, Power-Electronics, Flo, Delta, EvBox, Efacec, SIEMENS, Tellus Power, and others.

Contact: Reddy Marri, reddy@evgateway.com

EVgo is a California based network and support services provider. EVgo has one of the largest public DC fast charging networks in the U.S., with more than 200,000 customers, 1500 DC fast, and 1100 Level 2 chargers nationwide at 850 sites. EVgo offers partnership-based network design, site acquisition, site design, permitting, engineering, procurement, installation management from qualified third-party contractors, and other services. EVgo purchases fast chargers from ABB, BTC Power, Signet, and Delta Electronics, including the Delta Electronics High Power 350kW and Signet HP 350kW. The EVgo Nationwide Public Network is currently integrated with equipment from BTC, Delta, Signet, ABB, and LiteOn. EVgo offers network interoperability “roaming” with other providers such as ChargePoint and EV Connect. EVgo was awarded the Virginia Department of Environmental Quality’s statewide charging network contract, operates a territory wide network of chargers owned by Green Mountain Power, and was also recently selected by General Motors for a nationwide deployment of fast chargers.

Contact: Colin Murchie, colin.murchie@evgo.com

FLO (a subsidiary of AddEnergie) is a Canadian based charging equipment and network provider. FLO sells the SmartDC 100kW fast charger. FLO’s charging stations are supported by an open network architecture, 24/7 phone support, remote charging station management, equipment warranties, and maintenance provisions to ensure optimal uptime. There are over 20,000 charging ports currently on the FLO network across the U.S. and Canada with both AddEnergie (FLO) and ABB chargers. The Flo Network has roaming/interoperability agreements with the ChargePoint, Greenlots networks, and GM’s Ultium Charge 360.

Contact: Vivek Trivedi, vtrivedi@flo.com

Freewire is a California based, small business certified manufacturer of electric vehicle fast charging stations. Introduced in 2020, Freewire’s Boost Charger TM is the first charger integrated with 160kWh of energy storage, compatible with existing electric infrastructure. The Boost Charger TM utilizes low power 208V/240V single phase input (instead of 480V three phase) to continuously charge the integrated battery system and provide high-power charging directly to vehicles (up to 150kW to a single plug or 75kW simultaneously to two plugs) while mitigating ongoing demand costs. FreeWire’s charging solution can be deployed in grid-constrained, “hard-to-reach” electrical areas and can be relocated to optimize placement without the risk of stranded investments. Freewire chargers are compatible with EV Connect and Greenlots networks (other networks can be added as needed). Freewire maintains a network of authorized and licensed installers and resellers that can provide site assessment, site preparation and materials, and installation services.

Contact: Ethan Sprague, esprague@freewiretech.com

Greenlots is a California based subsidiary of Shell Renewables and Energy Solutions. Greenlots operates the SKY electric vehicle charging network (~8,000 charging ports) as well as provides various support services to utilities and private developers of electric vehicle charging (hardware, software, O&M). Greenlots can integrate various chargers to their network, including fast chargers from ABB, BTC Power, Efacec, and Tritium. Greenlots can support charging developers in identifying site hosts, evaluating sites for feasibility, and drafting/executing site host agreements. Greenlots' Infrastructure Solutions team can oversee the complete engineering, design, construction, and installation process and can provide charger management, monitoring and maintenance services through the SKY network.

Contact: Virginia Hewitt, vhewitt@greenlots.com

HDR is a Nebraska based engineering services firm with offices located throughout the United States, including offices located throughout the Tennessee Valley. HDR has experience in consulting on state-wide electric vehicle charging systems in Florida, Michigan, Minnesota, Oregon, Washington, and California. HDR can provide various electric vehicle charging infrastructure support services, such as planning, siting, optimizing charger sizes and on-site battery energy storage systems, assisting in charger equipment specifications and selection, charger infrastructure and civil design, utility coordination, and design and engineering services. HDR can fulfill the role of Owner's Engineer (OE), if desired, and can manage the various project components such as construction oversight and coordination between vendors and contractors. In addition, HDR's Strategic Communications group can assist with program acceptance and communication strategies, and HDR's Environmental group can assist with desktop siting analysis, field site assessments, and permitting assistance.

Contact: Shane R. Womack, Shane.Womack@hdrinc.com

Kimley-Horn is a national engineering consulting firm with offices throughout the Southeast including in Nashville, Memphis, and Jackson, TN, and the surrounding states. Kimley-Horn has assisted in the development of over 1,500 electric vehicle charging station sites nationwide, managing hundreds of sites from inception through construction (including for the City of Raleigh NC, Tesla, Evgo, and others). Staff competencies include civil, electrical, mechanical, and structural engineering, construction phase services, landscape architecture, and environmental services. With strategic partner EV Advisors LLC, Kimley-Horn can provide support for site selection/due diligence, site design and engineering, installation and commissioning coordination, monitoring, management, operations and maintenance, and the evaluation of charging equipment and cloud service provider capabilities and interoperability.

Contact: Ryan Gram, Ryan.Gram@kimley-horn.com

LilyPad EV is a national charging station service provider based in Overland Park, Kansas. LilyPad EV is a ChargePoint equipment reseller that provides turnkey charging station services across the U.S. and has experience working with electric utility programs such as Evergy and Ameren, providing charging stations, project management, site acquisition/contracting, design, and installation as needed. LilyPad has deployed over 4,000 charging ports in 37 states. LilyPad EV has experience deploying grant-funded DC Fast charging stations along highway corridors for both electric utility companies and third party owners. LilyPad EV provides advice on the design/layout of their charging project site(s) and recommends the most appropriate products with designs that can accommodate future stations if needed.

Contact: Keith Anderson, keith.anderson@lilypadev.com

Mobilyze.ai is a Massachusetts based company founded in 2019 by a team of MIT researchers. The Mobilyze.ai platform provides high resolution spatial data and predictive intelligence to optimize the deployment of electric vehicle charging stations, including the identification and prioritization of electric vehicle charging sites that maximize utilization, network coverage, and equity of access.

Contact: David Keith, dave@mobilyze.ai

OpConnect is a minority and veteran owned provider of electric vehicle charging station technology. OpConnect specializes in fleet, multi-family, workplaces, and private label electric vehicle charging solutions. The OpConnect software tracks usage, provides load management, and collects revenue. OpConnect is a turnkey option for electric vehicle charging, providing charging station hardware from various vendors (including ABB, BTC Power, Rhombus and Efacec), installation services, maintenance and repair services, ongoing network operations, 24/7 phone support for electric vehicle drivers, a consumer/driver app, revenue collection including secure credit card processing, data collection and reporting. OpConnect has private label options for standing up your own branded charging network.

Contact: Amy Hillman, ahillman@opconnect.com

Prova Group is a Chattanooga, TN based service provider focused on enhanced mobility solutions that benefit communities (complete streets, bike share, car share, transit, vehicle electrification, etc.). Prova Group designed and deployed electric vehicle charging infrastructure throughout the greater Chattanooga area including: design, siting, construction, operation, reporting, and management of an electric vehicle charging network at twenty locations in the Chattanooga area as well as the deployment of an electric vehicle car-sharing system. This project required the evaluation and installation of charging infrastructure at a wide range of host locations including in the public right-of-way with on-street parking, transit center facilities, parking structures, university complexes, hospitals and medical centers, primary tourist attractions, major retail centers, residential neighborhoods, and underserved communities.

Contact: Philip Pugliese, ppugliese@provagroup.net

Seven States Power Corporation is a generation and transmission cooperative owned by the 153 Local Power Companies in the Tennessee Valley who purchase wholesale power from TVA. Seven States provides electric vehicle charging equipment and network solutions from providers (e.g., ChargePoint and ABB) as well as associated maintenance services. Seven States offers design, development, and deployment services ranging from grant and program preparation to infrastructure planning, site selection, equipment selection (including vendor evaluation and procurement services, budget development, project management, technical consultation, and program administration. Services are offered as a turn-key option or via a la carte services as needed. Seven States has deployed more than 100 charging PLUGS with local power companies across the Tennessee Valley, including DC fast chargers along Interstate 81 with Greenville Energy Authority, in Sevierville off US 411 with Sevier County Electric System, and Interstate 40 with Tennessee Tech University and other stakeholders.

Contact: James Ellis, jellis@7spc.com

Siemens sells fast charging equipment, including the Siemens VersiCharge Ultra 175 manufactured by Tritium. Siemens chargers connect to various network options including EvGateway, Greenlots, Juicebox, EV Connect, and any OCPP compliant network. Siemens also offers site design, engineering support, overall project management services, and maintenance and operational support for project implementation. Siemens also provides longer term periodic maintenance services programs and corrective maintenance support (warranty and non-warranty) to ensure operation.

Contact: Ron Graham, ron.graham@siemens.com

SWTCH Energy is a Toronto based company that provides electric vehicle charger network management solutions and hardware options. SWTCH follows open standards and the network can integrate with various Open Charge Point Protocol (OCPP) compliant hardware, including ABB (listed in RFI response), Delta, Efaced, Siemens, and Tritium. SWTCH provides consumer-facing applications for both mobile and web browsers, allowing for access control and payments. SWTCH provides installation services through a network of channel partners and has installed and managed DC fast chargers for a number of utilities and private sector customers.

Contact: Nicole Politis, Nicole.politis@swtchenergy.com

Tritium is an Australian based DC fast charging company, with U.S. operations based in Torrance, CA. Tritium sells multiple models of charging stations that meet program minimum technical specifications, including the RTM175, PKM150, and others. Tritium's Pulse network monitors charging stations, but stations can also integrate with any network option that utilizes the OCPP. Tritium products and services are deployed in 38+ countries with clients such as Shell, Volvo, BP, Siemens and the IONITY European charging network. Tritium also provides program support services such as site selection, site design and engineering support as well as installation, commission, and maintenance services through providers certified to work with Tritium products.

Contact: Stephen Tok, stok@tritiumcharging.com

Umlaut is a global consulting and engineering services firm with roots in Germany and 600 employees located at 9 offices across the US. With a team of 250 consultants and engineers from automotive, communication, and energy disciplines, Umlaut provides end-to-end services in the electric mobility ecosystem. Umlaut provides strategic consulting, market analysis, product benchmarking, and business case development. Umlaut also provides hardware, software development, and testing as well as engineering and design services, site selection, site assessment, project management, and coordination throughout the project lifecycle.

Contact: Soeren Schrader, soeren.Schrader@umlaut.com

WESCO|Anixter is a Pittsburgh, PA based solutions provider, with an international distribution footprint including branch locations across Tennessee. WESCO|Anixter provides partnership solutions for electric vehicle charging projects. This includes providing charging hardware from various vendors, design and storage solutions, procurement, construction management, site commissioning, and network monitoring and load balancing software. WESCO|Anixter can also support the backend electrical infrastructure necessary to deploy electric vehicle fast charging such as transformers, connectors, switchgear, and metering. WESCO|Anixter lists ABB as a potential supplier of charging equipment and Greenlots as a potential network partner.

Contact: Jeff Napier, jnapier@wesco.com

ZEF Energy is an electric vehicle charging solution company headquartered in Minneapolis, MN. ZEF Energy designs and manufactures charging equipment as well as operates a load management software platform. ZEF Energy specializes in working with medium and small utilities offering comprehensive solutions that deliver grid benefit and beneficial electrification programs. ZEF Energy is also a reseller of DC fast charging equipment and provides procurement, development, and ongoing operational services to deliver incremental or full turn-key project deployment. ZEF Energy offers a wide array of DC fast charging equipment options (ABB, Tritium, and Efacec). ZEF Energy has partnered on thousands of installations across the country including multiple large DC fast charging corridor projects (e.g., States of MN/MT/ND/SD and utility based projects) and community based projects like the “Twin Cities EV Spot Network” launching in late 2021.

Contact: Megan Hoyer, megan.hoyer@zefenergy.com

Charging Site Development and Operation Best Practices

Developing and operating an electric vehicle (EV) fast charger site is a multi-step, multi-stakeholder process that requires thoughtful planning and execution. Planning in advance can help avoid surprises, streamline timelines, and better manage costs. There are several detailed “Best Practices” resources from various organizations such as [EPRI](#), [SEPA](#), and [NYSERDA](#) that can be leveraged. Below are topics that should be considered prior to installing the EV charging stations.

Initial Planning:

- Successful infrastructure programs should invest a considerable amount of time in the planning phase.
- Familiarize yourself with EV fast charger technical specifications (typically 480V, three phase power, and 120+ kW for each location, but standards allow power levels up to 350kW per car). For the Fast Charge Network program, please reference the **Minimum Technical Specifications** document found within the **Program Guidelines**.
- Identify local travel corridors, such as interstates and major U.S. and state highways, and determine which of these routes currently have charging options.
- Consider areas of the distribution grid with known constraints or optimal areas (capacity) for hosting fast charger loads.
- Identify and engage relevant project partners early in the process, such as local government officials, third-party service providers, etc.
- Interface with local permitting authorities to understand local permitting requirements and specific codes associated with developing a charging site in your area.
- Consider specific legal requirements and terms you will want to include in a site host agreement with the site owner to secure a host property where chargers will be located.

Site Identification, Review, and Selection:

- Identify a list of potential target sites for hosting charging stations.
- Identify multiple potential sites, as some sites may pose challenges (e.g., conflicts with site host contracting, costs of electric infrastructure, environmental considerations, etc.). Refer to **Site Selection Guidelines**, which can be found in the **Program Guidelines**, for additional details.
- Perform high-level feasibility reviews of potential sites prior to committing significant time and resources into the project.
- Once you have a short list of potential sites, perform site surveys for prioritized site locations.
 - Identify where power will come from and where equipment such as transformers and switch gear will be placed.
 - Note the layout of parking spaces and whether any will need to be expanded or removed. If possible, select the widest and longest parking spaces to support easy access for drivers.
 - Consider potential issues relating to accessibility, including wheelchair accessibility (more on this topic is included below within the design section).
 - Take note of potential safety risks, such as steep drops or trip hazards.
 - Consider environmental impacts of site development. The **Environmental Review Checklist**, which can be found in the **Program Guidelines**, details items to consider. In general, locating charging sites within previously developed areas such as existing parking lots greatly reduce potential impacts.
 - Identify cellular signal strength and the cellular carriers that best service a particular location. Reliable cellular network access is important to connect charging stations to network management systems, including payment processing and monitoring.

Site Design, Permitting, and Accessibility

- Determine the number and type of charging stations and electrical equipment needed.
 - The **Minimum Technical Specifications**, which can be found in the **Program Guidelines**, for corridor Fast Charge Network locations document detail minimum number of chargers, minimum power levels/charging speeds, etc.
 - A list of qualified providers of EV fast charging equipment, operating network back-end options, and related program support services was developed in response to TVA's Request for Information (RFI); program participants may utilize this list as a reference tool to inform their vendor evaluation and procurement process. Please refer to **RFI Summaries** in this program resources document.
- Evaluate design and construction requirements.
 - Determine what is required to bring electrical service to the site, place transformers, and connect charging stations.
 - Trenching through pavement may be necessary but should be minimized to save costs.
 - Consider how to integrate landscaping into the project. The location and type of landscaping in a parking facility helps to define vehicle and pedestrian movement and enhance visual design by hiding electrical support equipment.
 - Third-party service providers may be helpful during the design process.
- Determine additional site needs.
 - Signage and surface marking (e.g., striping, painting the parking spot, etc.) should be clearly visible to tell drivers where the chargers are and to delineate designated parking spaces, restrictions, etc.
 - Safety and security must be considered such as lighting and proximity to publicly available amenities.
- Public charging stations must enable access for persons with disabilities and follow all federal ADA requirements.
 - For the Fast Charge Network program, at least one van-accessible electric vehicle charging space will be required. This will provide adequate space to move a wheelchair or other equipment in and out of a wheelchair accessible van and allow wheelchair access to plug in common electric vehicles. Please refer to the Fast Charge Network Program **Accessibility Requirements**, which can be found in the **Program Guidelines**. Fast Charge Network Program **Accessibility Requirements** are not a substitute for following all federal ADA requirements as they are established and updated.
- Public charging stations should comply with all applicable environmental protection, building codes, and safety ordinances.
- Coordinate regular working sessions with permitting authorities to reduce the time and cost associated with permitting, especially if including an awning or canopy structure for weather protection; such structures may be treated and permitted differently in different areas.
- Include provisions in the site design to allow future deployment of additional charging stations and/or upgrade of current stations to higher power chargers. Example items to consider:
 - Extra conduit runs to additional parking spaces for future chargers.
 - Larger than required conduit to allow higher power upgrades (to support larger conductors in the future).
 - Larger than required concrete pads to accommodate higher-capacity transformers in the future.
 - Appropriately rated switch gear, disconnects, metering bases, etc. to accommodate higher powered chargers and additional chargers in the future.
 - Extra circuit breaker spaces for future chargers.
 - Provisions in site host agreements to enable future expansion.

Construction, Installation, and Commissioning

- Complete **Environmental Checklist Review**, which can be found in the **Program Guidelines**, for final site approval before beginning construction activities. Additional information will be provided to outline necessary documentation and required information to complete this review.
- After securing the necessary permits, complete civil engineering site preparations such as trenching and pouring foundations for equipment.
 - Third-party service providers may be helpful during the construction process.
- A final inspection by local permitting authorities is usually required; coordinate regular working sessions with permitting authorities throughout construction to speed up reviews and avoid surprises.
- Perform final site commissioning of any charging infrastructure, including the connection of the chargers to the utility's electric service and to the cellular network that provides remote monitoring and service.

Commercial Operation

- After final site commissioning, the EV charger commences commercial operation and will then undergo regular preventative maintenance as well as unplanned corrective maintenance throughout its lifetime.
- Assess charging infrastructure maintenance and operation needs and costs.
 - Charger companies and network providers typically offer subscription-based services for regular O&M services for a set period (e.g., five years).
- Chargers are typically remotely monitored and controlled through a software back-end and user interface "network." In many cases, over-the-air firmware updates can continuously improve charger functionality.
- Certain local customer service functions such as general housekeeping, and/or maintenance support functions may be best supported by the site host (e.g., the site host can alert the O&M provider if the station appears to be damaged); ensure these expectations are communicated to local site host staff members and are reflected in the site host agreement.

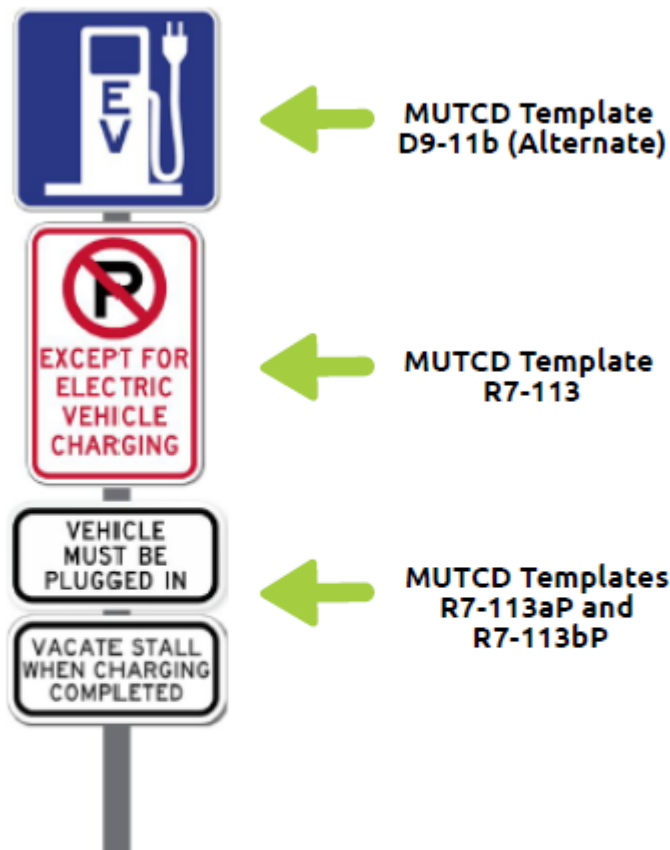
Signage Recommendations

Sign Design and Location

On the next page is an example of signage that the Fast Charge Network program would encourage at fast charging sites. Although there are many EV charging station sign designs used by different stakeholders across the U.S., the recommendations below were designed to create simple and consistent signage for fast charging locations given the following considerations:

- Given the short duration of a fast charging session, it is preferred that site hosts utilize signage that encourages parking spot turnover by allowing EVs to park in said spots only while actively charging.
- The Federal Highway Administration (FHWA) provides a number of signage templates in its Manual on Uniform Traffic Control Devices (MUTCD). These FHWA-approved templates were utilized when designing these signage recommendations. Visit mutcd.fhwa.dot.gov for more information.
- EV signage should be erected for each parking spot with access to the fast charging equipment. For example, site hosts with one fast charger that can charge two vehicles at the same time should install two sets of signposts, one centered in front of each parking spot accessing the charging station.
- For those fast charging sites located in large campuses or parking lots, it is important for wayfinding signage to be provided within the property to assist EV drivers in finding the actual charging stations. Such wayfinding should be placed at major campus/parking lot entrances and continually placed throughout the property so as to lead drivers to the charging station location. Wayfinding markers should combine EV charging station logo signs (MUTCD Template D0-11b (Alternate)) with directional arrows and be placed at regular intervals, where needed.

Recommended DC Fast Charging Signage



Wayfinding Signage



From left to right, MUTCD Templates M5-1, M5-2, M6-1, M6-2, and M6-3

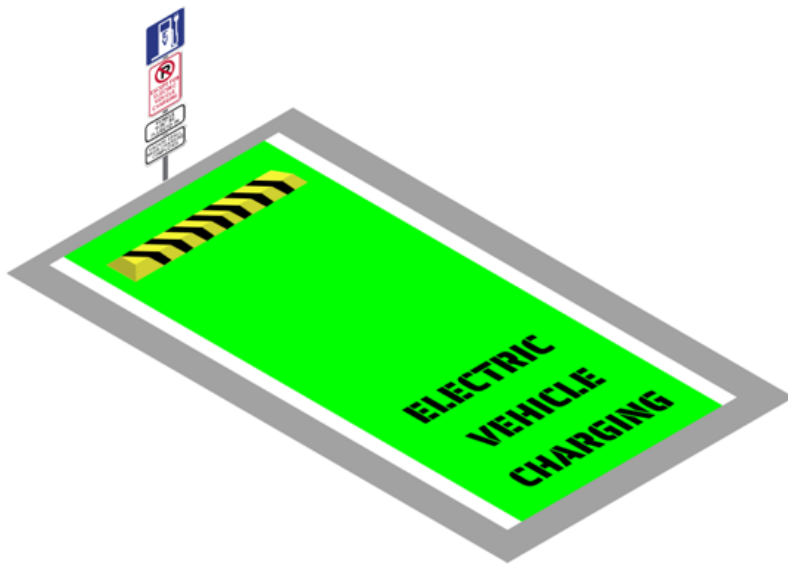
Parking Spot Striping and Stenciling

All parking spots with access to fast charging station(s) should be painted to provide added visibility for EV motorists. Specifically, it is recommended that site hosts solidly paint parking spots with access to the fast charging equipment in the “electric green” color, #00FF00. For those spots, it is also recommended to stencil the words “Electric Vehicle Charging” at the entrance to the charging stall. These features will help EV drivers find the charging station(s) while also discouraging non-EV drivers from parking in said stalls and blocking off charging station use.

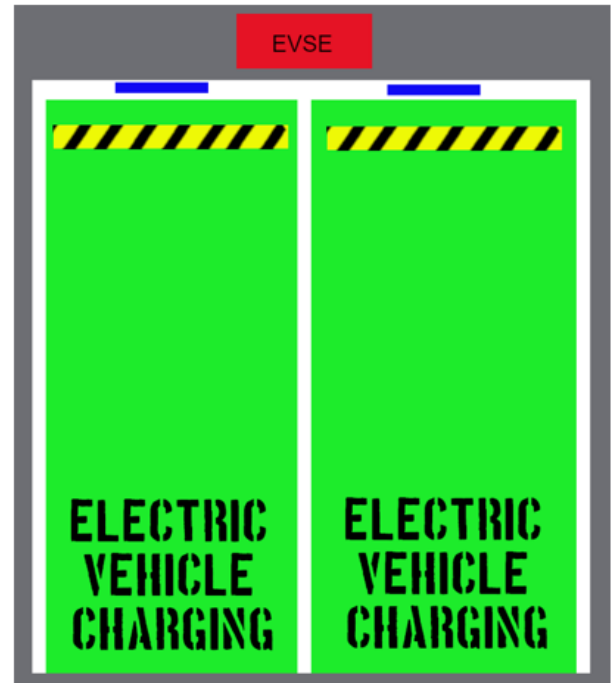
Additionally, it is suggested that a yellow parking bumper/wheelstop with black striping be placed in each spot with access to the fast charging station(s), to improve pedestrian safety, help further designate the parking spot(s) as reserved for special use, and minimize the possibility of drivers damaging loose charging station cables when parking.

The left figure below is a side-angle of a single parking spot, demonstrating the posting of signage at the head of the fast charging parking space, the placement of a bumper/wheelstop, and the electric green stenciling design in the aforementioned recommendations. The right figure below is a top-down view of a typical fast charging site, which shows the fast charging station positioned in the center of two adjacent parking spots. EV signage is centered in front of each parking spot, reflected in this example as blue rectangles. These two figures show recommended fast charging station stenciling needed to maximize parking spot visibility and minimize the risk of non-EVs parking in the reserved spots.

Recommended DC Fast Charging Stenciling



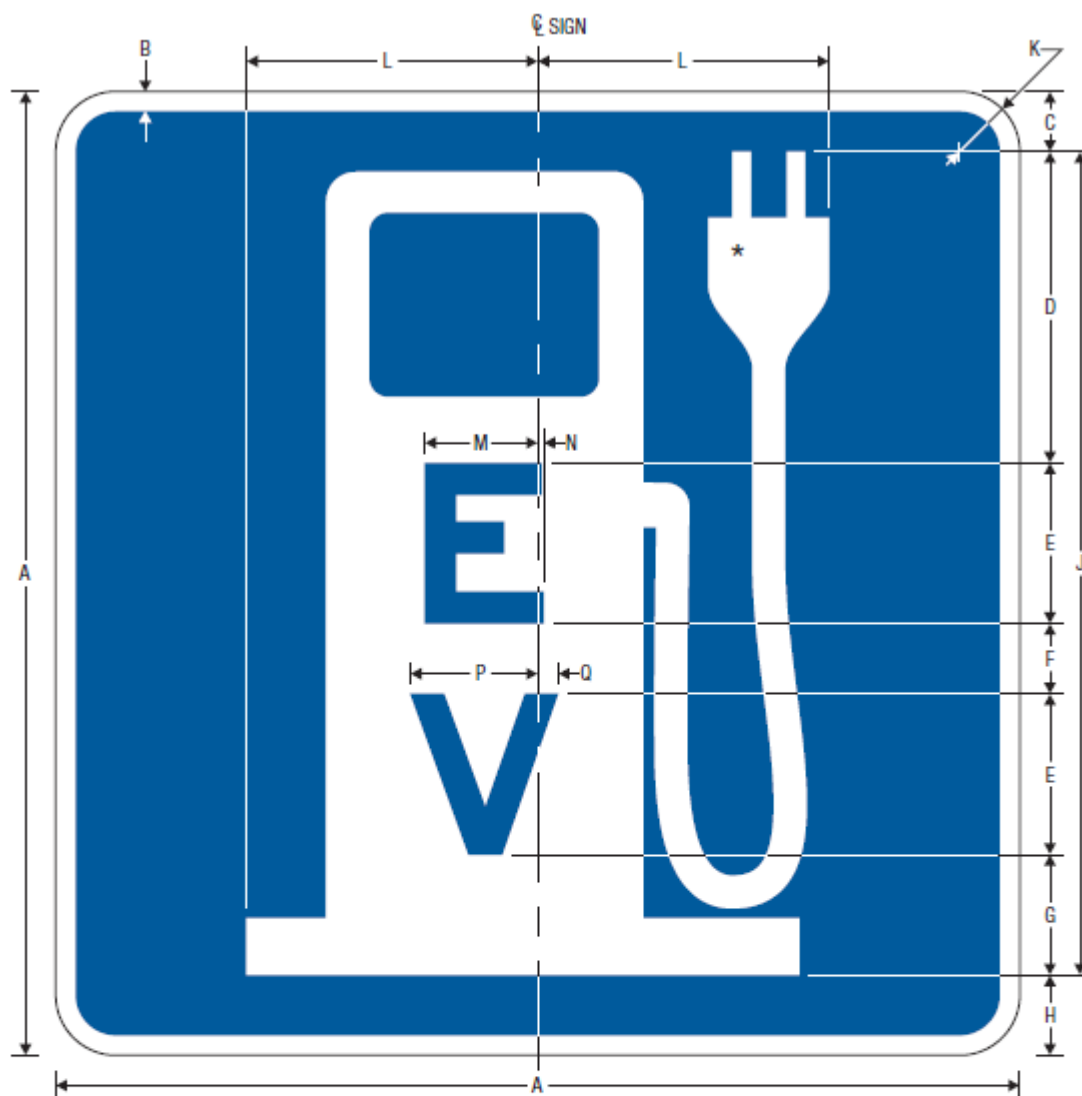
Minimum stenciling and signage recommendations



Minimum stenciling recommendations

FHWA MUTCD Appendices

- Sign Template D9-11b (Alternate), issued April 1, 2011
- Sign Template R7-113, issued June 17, 2013
- Sign Template R7-113aP, R7-113bP, issued June 17, 2013



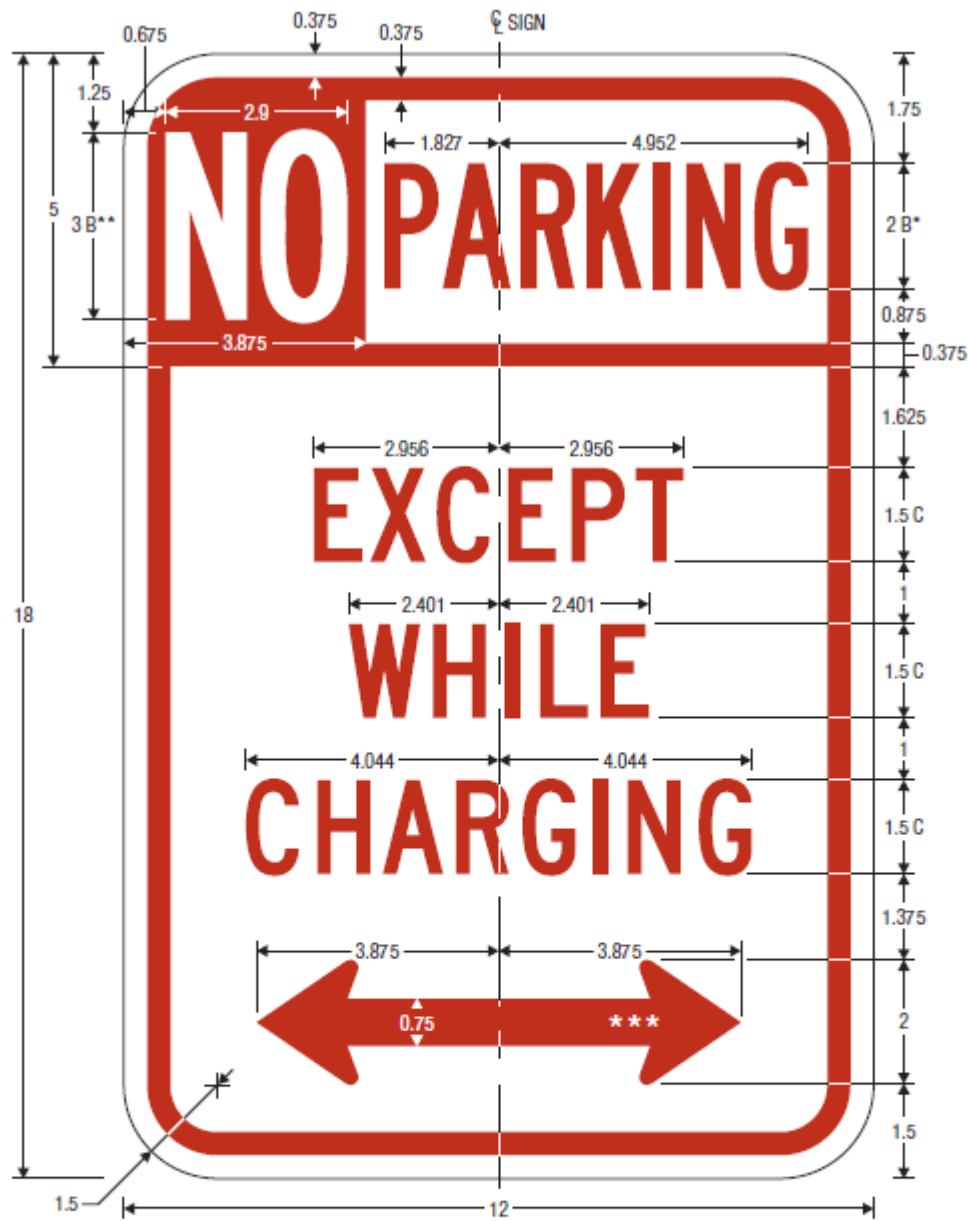
D9-11b (Alternate)
Electric Vehicle Charging (Alternate Symbol)

	A	B	C	D	E	F	G	H	J	K	L	M
C	24	0.5	1.5	7.75	4 E(m)	1.75	3	2	20.5	1.5	7.25	2.814
	30	0.75	1.875	9.625	5 E(m)	2	4	2.5	25.625	1.875	9.063	3.518

N	P	Q
0.148	3.174	0.507
0.185	3.968	0.635

* See page IA-13-2 for symbol design

COLORS: LEGEND, BACKGROUND — BLUE (RETROREFLECTIVE)
SYMBOL, BORDER — WHITE (RETROREFLECTIVE)



R7-113
NO PARKING EXCEPT WHILE CHARGING

UPPER LEFT SECTION

COLORS: LEGEND, BORDER — WHITE (RETROREFLECTIVE)
BACKGROUND — RED (RETROREFLECTIVE)

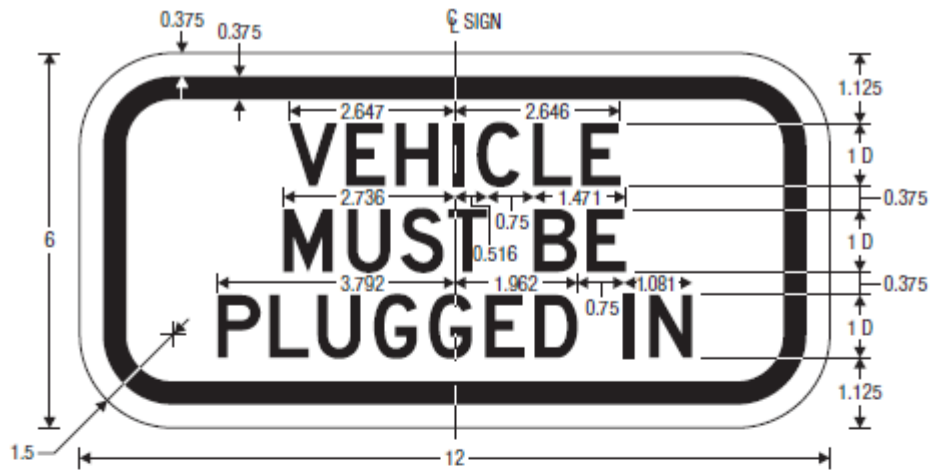
UPPER RIGHT SECTION

COLORS: LEGEND, BORDER — RED (RETROREFLECTIVE)
BACKGROUND — WHITE (RETROREFLECTIVE)

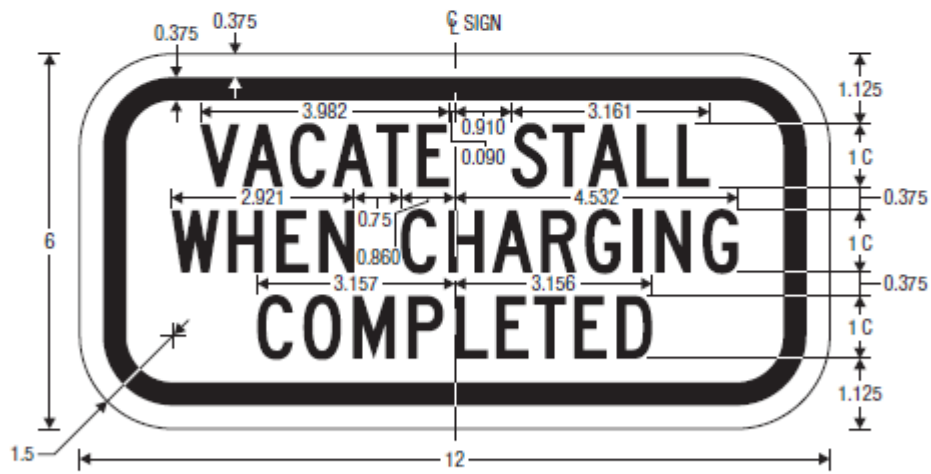
- * Reduce character spacing 40%.
- ** Reduce character spacing 60%.
- *** Type D Arrow.

LOWER SECTION

COLORS: LEGEND, BORDER — RED (RETROREFLECTIVE)
BACKGROUND — WHITE (RETROREFLECTIVE)



R7-113aP
VEHICLE MUST BE PLUGGED IN (Plaque)



R7-113bP
VACATE STALL WHEN CHARGING COMPLETED (Plaque)

COLORS: LEGEND, BORDER — BLACK (RETROREFLECTIVE)
BACKGROUND — WHITE (RETROREFLECTIVE)

APPENDIX C – SAMPLE GRANTEE INVOICE

BILL TO:	FROM:	DATE:
Tennessee Department of Environment and Conservation, c/o Alexa Voytek 312 Rosa L. Parks Ave., 2 nd Floor Nashville, TN 37243 615-613-1096 Alexa.Voytek@tn.gov	Grantee Name Point of Contact Mailing Address Telephone Number Email Address	Month Date, Year

HARDWARE	
DC Fast Charging Station #1 (insert serial number) R*	\$50,000.00
DC Fast Charging Station #2 (insert serial number) R	\$50,000.00
Recommended spare parts NR**	\$5,000.00
Hardware Delivery Fees R	\$3,000.00
Taxes R	\$12,000.00
Subtotal (Non-Reimbursable)	\$5,000.00
Subtotal (Reimbursable)	\$115,000.00
Total	\$120,000.00
SITE PREP AND FAST CHARGE MAKE-READY	
Site Acquisition Costs (i.e., property rental) NR	\$10,000.00
Engineering, Permitting, and Design R	\$15,000.00
Electrical Equipment for Fast Charge Make-Ready R	\$13,000.00
Subtotal (Non-Reimbursable)	\$10,000.00
Subtotal (Reimbursable)	\$28,000.00
Total	\$38,000.00
CONSTRUCTION, INSTALLATION, AND COMMISSIONING	
Eligible Construction and Installation R	\$125,000.00
Commissioning R	\$10,000.00
Subtotal (Non-Reimbursable)	\$0.00
Subtotal (Reimbursable)	\$135,000.00
Total	\$135,000.00
OPERATIONS AND MAINTENANCE, NETWORK FEES	
Five Year Networking Fees (x2 chargers) R	\$4,420.00
Five Year Maintenance Services Package (x2 chargers) R	\$31,000.00
Taxes R	\$2,000.00
Subtotal (Non-Reimbursable)	\$0.00
Subtotal (Reimbursable)	\$37,420.00
Total	\$37,420.00
PROJECT MANAGEMENT	
Site Host Vetting and Selection R	\$2,000.00
Legal Fees Associated With Site Host Acquisition NR	\$3,000.00
Completion of Required Reporting, Contract Management, Title VI Compliance NR	\$12,000.00
Subtotal (Non-Reimbursable)	\$15,000.00
Subtotal (Reimbursable)	\$2,000.00
Total	\$17,000.00
All Non-Reimbursable Costs ⁶	\$30,000.00
All Reimbursable Costs ⁷	\$317,420.00
All Total Costs ⁸	\$347,420.00
AMOUNT DUE⁹	\$253,936.00

⁶ Add all "Subtotal (Non-Reimbursable)" rows to calculate "All Non-Reimbursable Costs" sum.

⁷ Add all "Subtotal (Reimbursable)" rows to calculate "All Reimbursable Costs" sum.

⁸ Add all "Total" rows to calculate "All Total Costs" sum.

⁹ Multiply "All Reimbursable Costs" by the eligible funding cap of 80% requested to calculate "Amount Due" total. Please note that the "Amount Due" total must be at or below the Total Grant Contract amount detailed in the Grant Budget.

***R** = reimbursable

****NR** = non-reimbursable

- Costs not directly tied to the purchase, installation, operation, and maintenance cannot be considered eligible costs under this Program. As such, they are non-reimbursable expenses. Receipts provided as supporting documentation for a Grantee's Invoice must detail all costs in an itemized fashion and identify reimbursable and non-reimbursable expenses for the project.
- The costs above are hypothetical estimates and do not reflect true costs of the purchase, installation, operation, and maintenance of fast charging equipment.

SAMPLE