CONNECTICUT HYDROGEN AND ELECTRIC VEHICLE INFRASTRUCTURE GRANT

Submitted to:

U.S. Department of Transportation's Charging and Fueling Infrastructure (CFI) Discretionary Grant Opportunity

Submitted by:

Connecticut Department of Energy and Environmental Protection

June 13, 2023

Contents

Introduction

The Connecticut Department of Energy and Environmental Protection (DEEP) is pleased to submit a grant application for consideration under the U.S. Department of Transportation (USDOT) Charging and Fueling Infrastructure (CFI) grant notice of funding opportunity (NOFO). This project will build alternative fuel infrastructure across Connecticut to increase access to both electric vehicle supply equipment/infrastructure (EVSE) and hydrogen fueling infrastructure for medium- and heavy-duty (MHD) vehicles.

DEEP is submitting one (1) proposal with both a Community Program grant application and Corridor Program grant application.

The Community grant application is focused on expanding EVSE throughout the State at select locations that were determined for their impact both for the number of electric vehicles (EVs) they would serve and for impacts on surrounding communities, which include environmental justice and overburdened communities. Many of these community locations provide important corridor benefits as well.

The Corridor application includes funding for four (4) hydrogen fueling stations to refuel up to two hundred and fifty (250) MHD vehicles each, along two (2) Alternative Fuel Corridors (AFCs) (Hydrogen Corridor Pending) in Connecticut. Connecticut has been a state on the forefront of hydrogen development for decades, playing host to numerous hydrogen and fuel cell development companies. Connecticut's in-state expertise, along with its unique placement in the Northeast as a significant travel corridor, makes it especially suited to the opportunity to be one of the first eastern states in the country to expand hydrogen transportation infrastructure.

Community EVSE Project:

This project will install EVSE across Connecticut, including at municipalities and a State park to meet State EVSE needs.

Corridor Hydrogen Project:

This project will install four (4) hydrogen fueling stations at select locations along two (2) Hydrogen Corridors in Connecticut that are built and designed for MHD vehicles, expanding infrastructure for future business development.

Community Project Narrative

This proposal will install one hundred and seventeen (117) battery electric and plug-in hybrid EV charging stations across Connecticut to help meet EV infrastructure requirements. Connecticut is a Clean Air Act section 177 State (177 State) and as such has adopted the California Low Emission Vehicle (LEV) and Zero Emission Vehicle (ZEV) programs. The ZEV program requires vehicle manufacturers to sell advanced technology vehicles (battery electric, hydrogen) as a percentage of all sales in the State. This increasing requirement will necessitate Connecticut to provide significant infrastructure.

In 2013, Connecticut signed a multistate Memorandum of Understanding, with ten (10) other states, with the goal of bringing 1.5 million EVs to the signatory states by 2025. Connecticut's portion of that goal was one hundred and fifty thousand (150,000) vehicles. In 2019, the Connecticut Public Utilities Regulatory Authority (PURA) initiated a docket to address EVSE needs for light-duty vehicles. Through that process, using the EV Prolite tool, PURA determined that, to meet the vehicle goals, Connecticut would need significant investment in public charging, including:[1]

EVI-Pro Lite Tool Results & Extrapolation

	NUMBER OF PORTS (STATEWIDE)		
	Public DCFC	Public Level 2	Workplace Level 2
2025 Estimate (to reach 150,000 EVs by 2025)	412	3,119	4,628
2030 Estimate (extrapolated to reach 500,000 EVs by 2030)	1,102	9,737	14,713

To reach these goals, Connecticut has pursued EVSE infrastructure funding through a variety of federal, State and private investment funding opportunities. This CFI grant NOFO presents one such opportunity.

Description of Projects

Hammonasset

As part of the Community EVSE project, DEEP plans to replace the existing publicly available EV charging infrastructure and install additional EV charging infrastructure at Hammonasset Beach State Park (Hammonasset). The purpose of this project is to build additional capacity to encourage more EV users. The existing charging stations were installed a number of years ago, and do not have the capacity for networking or obtaining payment from users. The charging stations currently in use have experienced periodic issues which have been addressed through repairs initiated by DEEP Parks staff or contractors. The project will include site planning,

[1] 17-12-03RE04 FD (ct.gov)

equipment purchase, and installation of charging stations. All new charging stations will be Level 2, battery EV and plug-in hybrid EV chargers.

The vendor or their subcontractors deploying the charging infrastructure (Contractor) will be responsible for charging station hardware purchase and installation (i.e., without any additional support from DEEP personnel). The Contractor will provide all equipment and materials necessary for the charger installation and operation, will provide all construction services, and, during the warranty period, will ensure the charging equipment is operational 98 percent of the time. The Contractor will comply with all federal, State, and municipal laws, regulations, and ordinances applicable to the installation of public EV charging stations.

DEEP plans to replace six (6) existing, dual port EV charging stations at three (3) parking lots within Hammonasset, and plans to install seven (7) new, dual port charging stations total at four (4) parking lots within the park, for a total of thirteen (13) replaced/newly installed dual port chargers. The chargers that will be replaced/newly installed are located at the following locations within Hammonasset, which is located at 1288 Boston Post Road, Madison, Connecticut 06443:

- **West Beach, Lot 1** (approximately 41°15'48.4"N 72°33'37.6"W) – Replace two (2) existing, dual port chargers and install one (1) additional, dual port charger.
- **West Beach, Lot 2** (approximately 41°15'52.5"N 72°33'43.5"W) – Replace two (2) existing, dual port chargers and install one (1) additional, dual port charger.
- **Meigs Point Parking Lot** (approximately 41°15'07.0"N 72°32'45.6"W) – Replace two (2) existing, dual port chargers and install one (1) additional, dual port charger.
- **Middle Beach Parking Lot** (approximately 41°15'40.8"N 72°33'20.7"W) – Install two (2) new, dual port chargers.
- **East Beach Parking Lot** (approximately 41°15'28.0"N 72°33'12.1"W) – Install two (2) new, dual port chargers.

Figure 1: Map of Hammonasset Beach State Park

Figure 2: Location of Proposed EV Charging Stations at West Beach Lots 1 and 2, Hammonasset Beach State Park

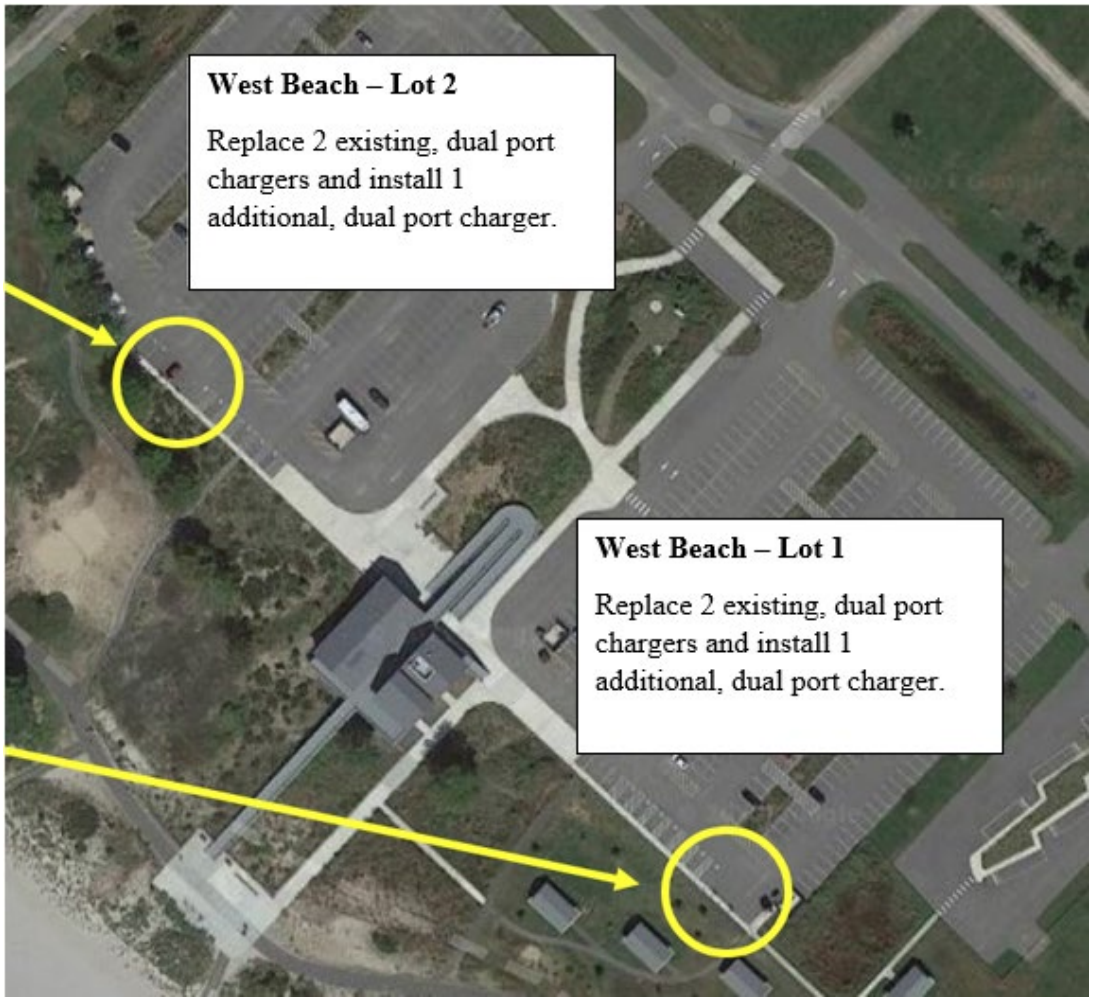
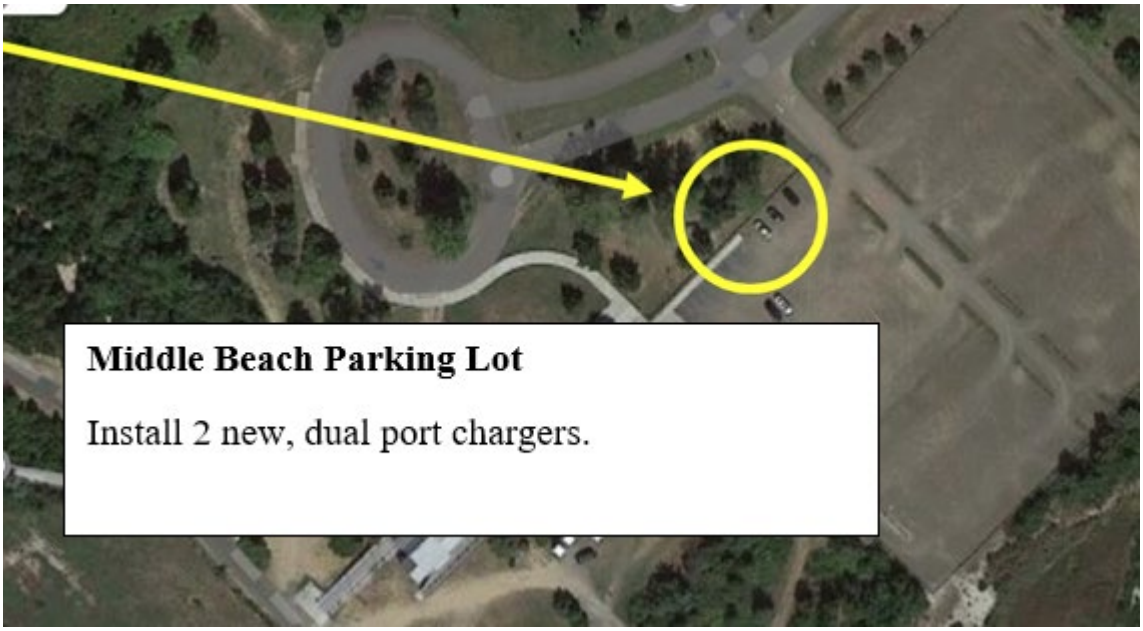


Figure 3: Location of Proposed EV Charging Stations at Meigs Point Parking Lot, Hammonasset Beach State Park

Figure 4: Location of Proposed EV Charging Stations at Middle Beach Parking Lot, Hammonasset Beach State Park



Available power at Middle Beach Parking Lot: former light pole with conduit to Middle Beach Bathhouse.

Figure 5: Location of Proposed EV Charging Stations at East Beach Parking Lot, Hammonasset Beach State Park

Available power at East Beach Parking Lot: existing service.

Connecticut Municipalities

Separately, DEEP is seeking CFI funding to support the installation of EV charging infrastructure at seven (7) cities across the State, including Barkhamsted (population 3,647), Bridgeport (population 148,654), East Hartford (population 51,045), Groton (population 9,387), Hartford (population 121,054), New Haven (population 134,023), and Stamford (population 135,470). The identified municipalities represent small, rural, mid-size, and large populations. Many of the proposed EV chargers will serve both community and corridor purposes. An equity analysis supported the selection of these sites, as they were identified as "disadvantaged" by the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool and/or Argonne National Laboratory's EV Charging Justice40 Map Tool. New charging stations will include both direct current fast charging (DCFC) and Level 2 equipment. The communities will partner with the private sector to provide turnkey services, including installation, operations, and maintenance of the charging infrastructure. Federal investment will support EV rollout, advance the local greenhouse gas reduction and sustainability goals, and improve quality of life in underserved neighborhoods.

Municipal charging sites (that will also provide key corridor benefits) will deliver an 80 percent charge in less time than it takes to fill up a tank of gas, including both wait and dwell times. For an EV to receive a 20-80 percent charge in 5 minutes, capable of a 200-mile range, a minimum

500kW-capacity charger will be required through the project. Multiple original equipment manufacturers (OEMs) are releasing vehicles this year that will charge at these or comparable speeds, with the trend uniformly towards faster charging. The evolution will rapidly render even 150kW corridor chargers obsolete, as they require more than three-times the charge time – a prohibitively long wait for destination charging.

Summary information for the municipal EV charging sites follows:

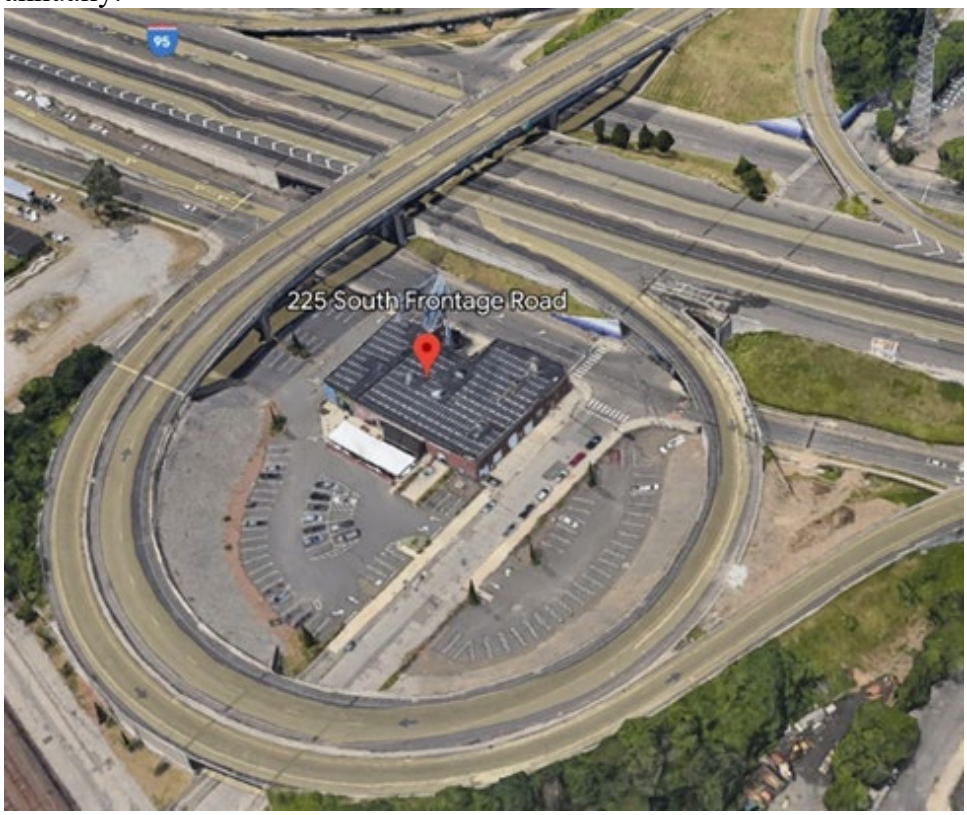
Barkhamsted

- **Barkhamsted Town Hall at 67 Ripley Hill Road** (approximately 41°54'45.3"N 72°59'21.0"W) – 41°54'45.3"N 72°59'21.0"W) – Install two (2) new dual port Level 2 chargers. This charging infrastructure will serve solely a community purpose. Chargers will be located near a school and general store on a state road. There are no public charging stations currently available in this rural part of Northcentral Connecticut. The site is owned by the Town of Barkhamsted. An estimated 100-200 EVs will be served annually.

Bridgeport

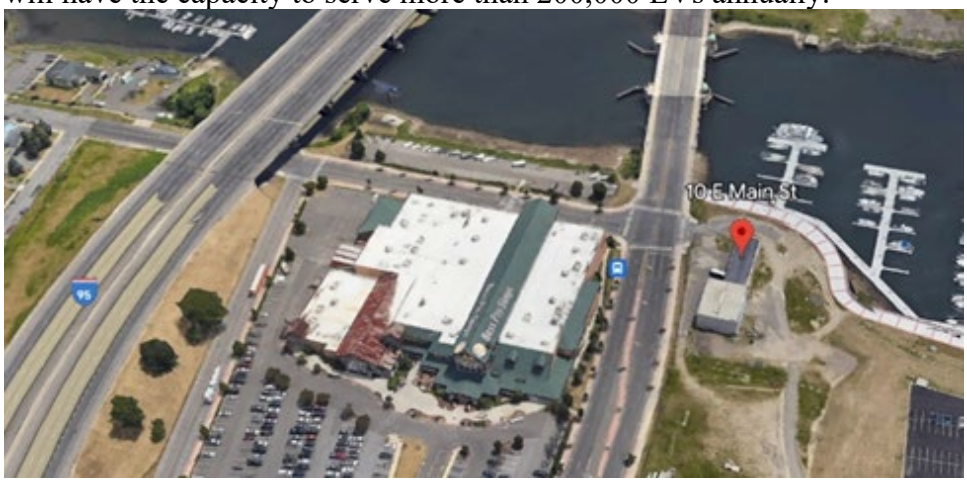
- **Brewport at 225 South Frontage Road** (approximately 41°10'15.2"N 73°11'30.2"W); near Interstate 95 (I-95) exit – Install twelve (12) new DCFC chargers. Located in a disadvantaged census tract, this charging infrastructure will serve both community residents as well as EVs traveling the I-95 corridor. The property is in private ownership but leasing options will be available for the spaces.

Food and bathrooms are available onsite. According to Connecticut Department of Transportation (CT DOT), approximately 150,000 vehicles travel along this section of I-95 daily. The station will have the capacity to serve more than 200,000 EVs annually.



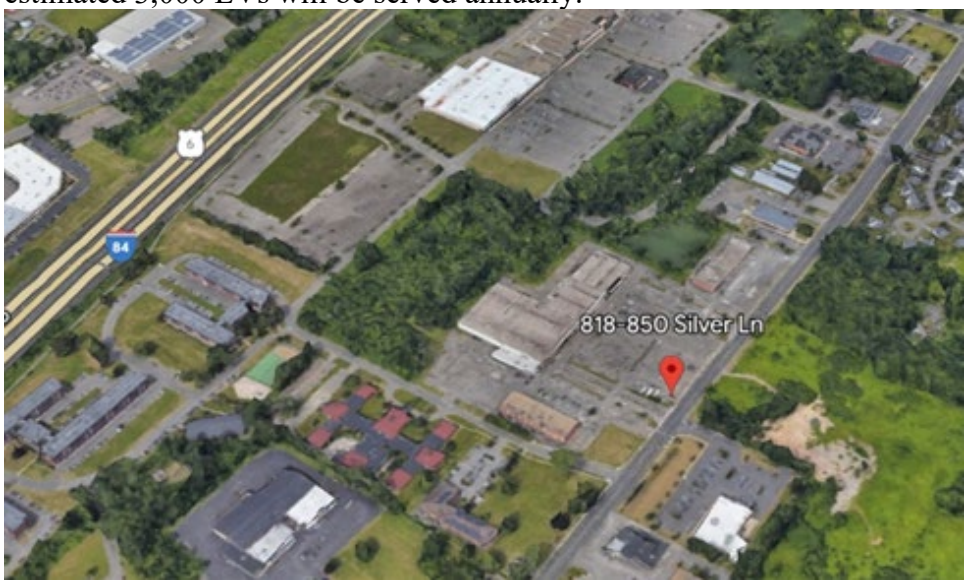
- **Boca Oyster Bar/Steelepointe at 10 East Main Street** (approximately 41°10'33.2"N 73°10'52.0"W); near I-95 exit – Install twelve (12) new DCFC chargers. Located in a disadvantaged census tract, this charging infrastructure will serve both community residents as well as EVs traveling the I-95 corridor. The property is in private ownership but leasing options will be available for the spaces. A Bass Pro Shops retail establishment is located across the street from the site. According to CT DOT, approximately 150,000 vehicles travel along this section of I-95 daily. The station

will have the capacity to serve more than 200,000 EVs annually.



East Hartford

- **Silver Lane Plaza at 818-850 Silver Lane** (approximately 41°45'55.6"N 72°36'28.9"W); near I-84 exit – Install two (2) new dual port Level 2 chargers. This charging infrastructure will serve both community residents as well as EVs traveling the I-84 corridor. The site is owned by the City of East Hartford. According to CT DOT, approximately 175,000 vehicles travel along this section of I-84 daily. An estimated 3,000 EVs will be served annually.



Groton

- **Groton Public Library at 52 Newtown Road** (approximately 41°20'54.1"N 72°01'47.8"W) – Install two (2) new dual port Level 2 chargers. The site is owned by the Town of Groton and is located in rural Southeastern Connecticut. Charging infrastructure will be installed within a disadvantaged census tract. An estimated

3,000 EVs will be served annually.

Hartford

- **Library Parking Lot at 166 Sheldon Street** (approximately 41°45'41.3"N 72°40'15.5"W); near I-91 exit – Install twelve (12) new DCFC chargers. This downtown charging infrastructure will serve both community residents and EVs traveling the I-91 corridor. According to CT DOT, approximately 100,000 vehicles travel along this section of I-91 daily. The station will have the capacity to serve more than 200,000 EVs annually.

- **MAT Garage at 55 Chapel Street S** (approximately 41°46'09.8"N 72°40'26.8"W); near I-84 and I-91 exits – Install twelve (12) new DCFC chargers. This downtown charging infrastructure will serve both community residents as well as EVs traveling the I-84 and I-91 corridors. According to CT DOT, approximately 175,000 vehicles travel along this section of I-84 and 100,000 vehicles daily. The station will have the

capacity to serve more than 200,000 EVs annually.

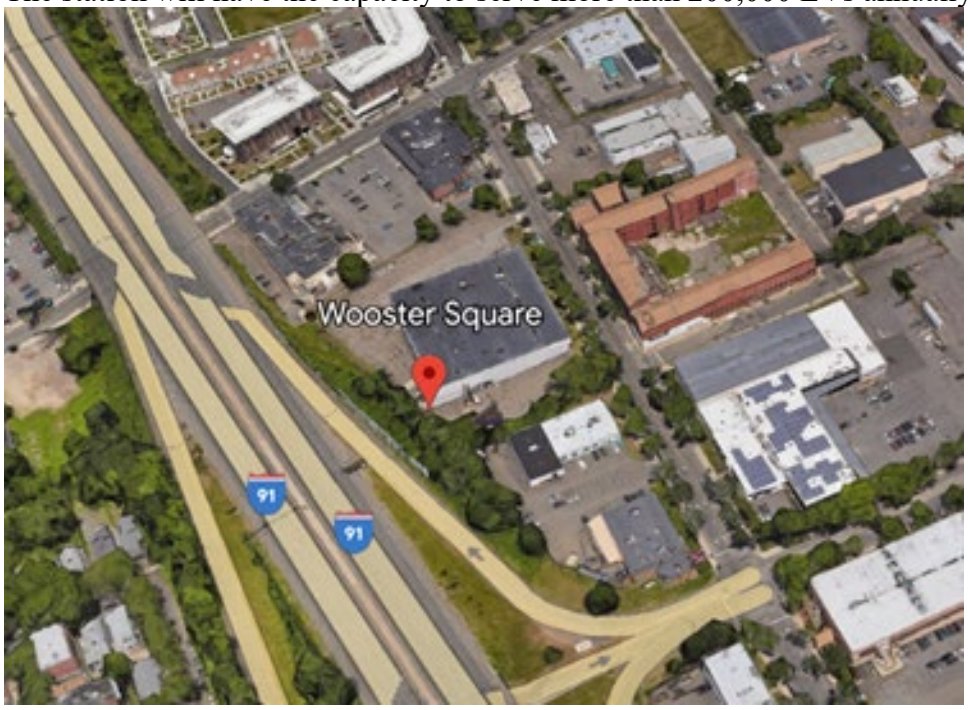
Sheldon Lot at 141 Sheldon Street (approximately 41°145'40.5"N 72°40'21.4"W); near I-91 exit – Install two (2) new dual port Level 2 chargers. This charging infrastructure will serve downtown Hartford EV users. Chargers will be located in a parking lot and benefit low-income and minority residents.

New Haven

- **Wilber Cross Athletic Fields Parking Lot at 31 Mitchell Drive** (approximately 41°19'16.0"N 72°54'21.5"W); near I-91 exit and U.S. 1 – Install twelve (12) new DCFC chargers. Located in a disadvantaged census tract, this charging infrastructure will serve both community residents and EVs traveling the I-84 and I-91 corridors. The site is owned by the City of New Haven and is near athletic fields, a brewery, and food hall. New Haven has competitively procured a vendor. According to CT DOT, approximately 140,000 vehicles travel along this section of I-95 daily. The station

will have the capacity to serve more than 200,000 EVs annually.

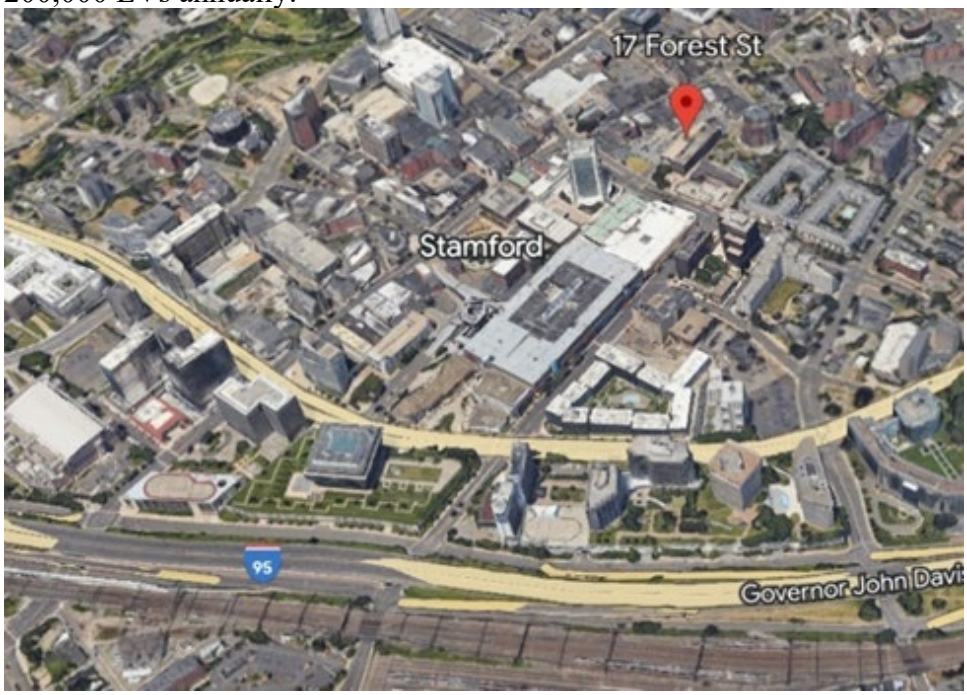
- **Wooster Square along Chapel Street (approximately 41°18'18.74"N 72°55'3.9"W); near I -91** – Install twelve (12) new 200kW pole-mounted on-street DCFC chargers. Located in a disadvantaged census tract, this charging infrastructure will serve community residents. The site is within the right-of-way and will provide access to recreational amenities. New Haven has competitively procured a vendor. The station will have the capacity to serve more than 200,000 EVs annually.



<u>Stamford</u>

- **Bedford Street Parking Garage at 17 Forest Street** (approximately 41°03'23.7"N 72°32'14.7"W); near I-95 exit – Install twelve (12) new DCFC chargers. Located in a

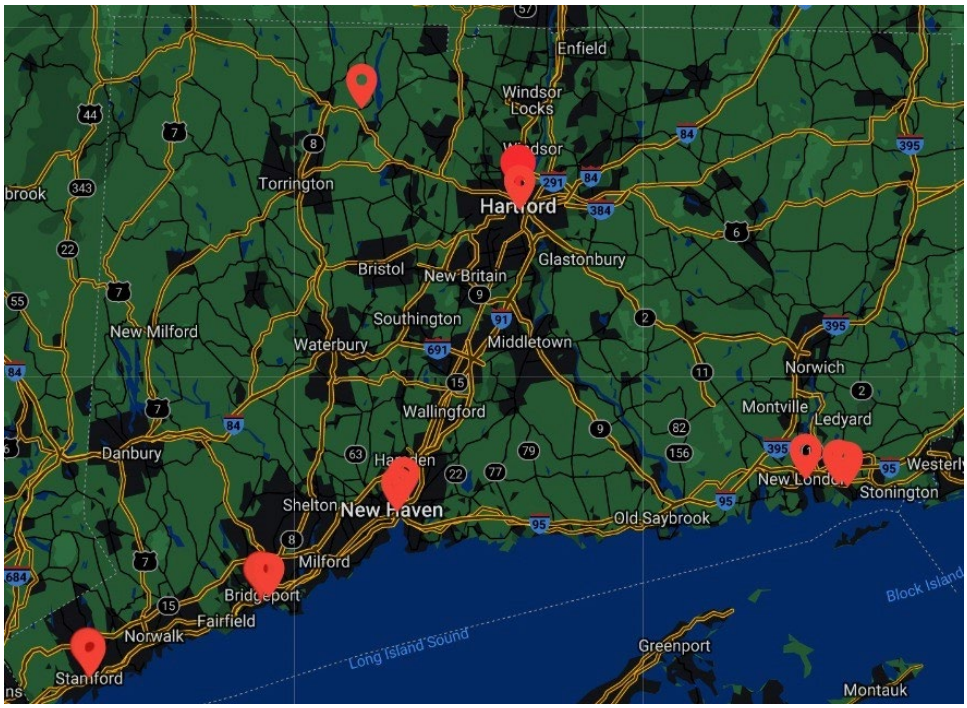
disadvantaged census tract, this downtown charging infrastructure will serve both community residents and EVs traveling the I-95 corridor. The site is owned by the City of Stamford. According to CT DOT, approximately 150,000 vehicles travel along this section of I-95 daily. The station will have the capacity to serve more than 200,000 EVs annually.



- **Summer Street Parking Garage at 25 Summer Place** (approximately 41°03'16.5"N 72°32'28.9"W); near I-95 exit and Stamford Intermodal Transportation Center – Install twelve (12) new DCFC chargers. Located in a disadvantaged census tract, this downtown charging infrastructure will serve both community residents and EVs traveling the I-95 corridor. The site is owned by the City of Stamford. According to CT DOT, approximately 150,000 vehicles travel along this section of I-95 daily. The

station will have the capacity to serve more than 200,000 EVs annually.

A map of municipal sites across Connecticut follows:



The project team has already coordinated with electric utilities Eversource and UI on EV station installation. These providers are ready to quickly support charging infrastructure development.

Selected vendors or their subcontractors deploying the charging infrastructure (Contractor) will be responsible for charging station hardware purchase and installation (i.e., without any

additional support from DEEP personnel), as well as operation, management, maintenance, and upgrades of the equipment. The Contractor will provide all equipment and materials necessary for the charger installation and operation, will provide all construction services, and during the warranty period, will ensure the charging equipment is operational 98 percent of the time. Preference will be given to vendors that can run the sites themselves and be responsible for all elements of the project, including construction, equipment, equipment maintenance, and upgrades. The Contractor will comply with all federal, State, and municipal laws, regulations, and ordinances applicable to the installation of public EV charging stations.

Safety and Planning

Hammonasset

Replacement of EV charging stations at Hammonasset does not introduce any new traffic safety considerations for vehicles entering and leaving the site, as these are already established parking areas with appropriate markings and signage to direct the flow of traffic and keep pedestrians safe.

The Contractor will comply with all federal, State, and municipal laws, regulations, and ordinances applicable to the installation of public EV charging stations, in order to appropriately mitigate any safety risks introduced by the project.

Because this is a State project, charging units will be installed as purchased off the existing State contract for EVSE. Thus, these units will be required to meet or exceed the features of the Watt Point Model 3704 EVSE. This model comes with the following safety features:

- Spark Proof - Electrical power is not applied to the power connector until the J1772 connector is fully inserted into the power inlet on the EV and communication has been established. When the mechanical release switch is pressed on the power connector, voltage on the power connector is removed.
- Shock Proof - The Model 3704 EVSE is equipped with a Ground Fault Circuit Interrupter (GFCI) which will disconnect the electrical voltage from the power cord and connector, should current leakage to ground exceed 20 milliamp (MA). The GFCI circuit is automatically tested at the start of each charge sequence. The GFCI will attempt three (3) re-closures to see the ground fault cleared before reporting a problem.
- Over Current - The Model 3704 EVSE, when in use, continuously monitors the current being delivered to the EV. Should the current exceed 30 amps (A) for 1 minute, the Model 3704 EVSE will disconnect the power to the EV before the breaker trips. After disconnecting, the Model 3704 will auto-reset.
- Plug Out Detection - The Model 3704 EVSE is equipped with a Plug Out Detection circuit that identifies when the connector is attached to the EV. This allows the EVSE to immediately remove electric power from the EV before the connector is totally removed from the vehicle inlet.

Additionally, when power is applied to the EV, the Model 3704 monitors the current being drawn by the EV. Should the current exceed the maximum levels set by the breaker switches, the Model 3704 will disconnect the power from the EV and the red "Problem" LED will turn on. If there was a ground fault, the EVSE will attempt three (3) closures after a short delay. There is no re-closure with an over-current trip.

The installation of new EV charging stations at Hammonasset will not negatively impact the safety of the traveling public. Disruption to park visitors will constitute the greatest construction impact. The Contractor will be experienced and adept at managing mobility impacts during construction and will work to ensure critical connections are maintained to provide access between parking lots and beach areas.

Connecticut Municipalities

No negative traffic safety impacts are anticipated at the identified municipal charging locations. Nonetheless, all project sites will undergo extensive planning to ensure that charger installation does not present hazards to any roadway user group. Because charging infrastructure will be new construction/installation and not retrofits, engineers will be free to integrate design features to mitigate any potential safety risks.

To the extent applicable and possible, the project's municipal charger locations will adhere to the following best practices for promoting safety:

- Siting and station design to ensure visibility for all rights-of-way (ROWs) connected to the sites;
- Adequate lighting at all times of day;
- Placing chargers along parking lot edges;
- Installing/making use of existing bollards and other physical barriers;
- Keeping cables off of sidewalks/walkways to reduce tripping hazards;
- Using retractable cables to reduce tripping hazards;
- Video surveillance;
- Emergency call boxes;
- Fire prevention;
- Charger locks; and
- Strategies to prevent tampering and illegal surveillance of payment devices.

Likewise, the proposed municipal charging locations are also not expected to negatively impact the public's safety. Safety Action Plans are currently in development with USDOT Safe Streets and Roads for All grant funding across many regions in the State. These planning activities will inform and work in conjunction with EV infrastructure development to promote roadway safety at the initial design and engineering levels, boosting safety outcomes and eliminating the need

for costly retrofits. EV charger locations identified for this installation project will be shared with the Safety Action Plan project teams to ensure project sites meet broader safety objectives.

National Roadway Safety Strategy

According to the USDOT National Roadway Safety Strategy (NRSS) Report 2022[2], Connecticut is among the states with a lower fatality rate per 100 million Vehicle Miles Traveled (bottom 25 percent). The State aims at the continued reduction of the rate to move towards a future with zero roadway fatalities and serious injuries.

The proposed community charging network and Hammonasset chargers will complement USDOT's NRSS, which seeks to significantly reduce serious injuries and deaths on America's highways, roads, and streets. Using a Safe System Approach, EV charging infrastructure will be developed, operated, and maintained with a focus on public road safety. Potential conflicts with non-motorized and public transportation travel in multimodal corridors will also be addressed through safe design and countermeasures.

Americans with Disabilities

Hammonasset

The proposed EV charging stations at Hammonasset will include EVSE that meets the U.S. Access Board Americans with Disabilities Act (ADA) Accessibility Standards.

According to the 2010 Americans with Disabilities Standards for Accessible Design, "Each facility or part of a facility constructed by, on behalf of, or for the use of a public entity shall be designed and constructed in such manner that the facility or part of the facility is readily accessible to and usable by individuals with disabilities, if the construction was commenced after January 26, 1992." The EV charging units (Watt Point Model 3704 EVSE or equivalent) proposed in this application will be properly located relative to the curb to comply with all aspects of the following ADA paragraphs:

- 303.2 Changes in Level – Vertical: Changes in level of ¼ inch (6.4 mm) high maximum shall be permitted to the vertical.
- 308.2.1 Forward Reach – Unobstructed: Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and low forward reach shall be 15 inches (380 mm) minimum above the finish floor or ground.
- 308.2.2 Forward Reach – Obstructed High Reach: Where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 48 inches (1220 mm) maximum where the reach depth is 20 inches (510 mm). Where the

[2] https://www.transportation.gov/sites/dot.gov/files/2022-02/USDOT-National-Roadway-Safety-Strategy.pdf

reach depth exceeds 20 inches (510 mm), the high forward reach shall be 44 inches (1120 mm) maximum and the reach depth shall be 25 inches (635 mm) maximum.

- 308.3.1 Side Reach – Unobstructed: Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 48 inches (1220 mm) maximum and the low side reach shall be 15 inches (380 mm) minimum above the finish floor or ground.
- 308.3.2 Side Reach – Obstructed High Reach: Where a clear floor or ground space allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 34 inches (865 mm) maximum and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1220 mm) maximum for a reach depth of 10 inches (255 mm) maximum. Where the reach depth exceeds 10 inches (255 mm), the high side reach shall be 46 inches (1170 mm) maximum for a reach depth of 24 inches (610 mm) maximum.
- 309 Operable Parts:
- 309.1 General – Operable parts shall comply with 309.
- 309.2 Clear Floor Space – A clear floor space or ground space complying with 305 shall be provided.
- 309.3 Height – Operable parts shall be placed within one or more of the reach ranges specified in 308.
- 309.4 Operation – Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds maximum.

Additionally, all EV charging stalls corresponding to the new and replacement EV charging stations, will be line-striped wide enough to comply with ADA requirements and accommodate all sizes of vehicles (including handicapped vans, etc.). Therefore, individuals with disabilities will be able to use any of the Hammonasset EV charging stations. However, the charging stalls will not be reserved exclusively for handicapped vehicles, in order to allow for maximum public usage and benefits.

Connecticut Municipalities

Municipal projects will likewise follow special design guidelines to accommodate people with disabilities, including compliance with equipment height requirements, slope of terrain, and minimum and the percentage of accessible spaces. When planning ADA-compliant EV charging stations, cities will consider accessibility, ease of use, and safety for disabled drivers and vehicle occupants, including those using wheelchairs or other assistive equipment. Key considerations will include ensuring adequate space for exiting and entering the vehicle, unobstructed access to the charger, free movement around the charger and connection point on the vehicle, and clear paths and proximity to building entrances. Connecticut communities will comply with all ADA requirements identified above.

Demonstrate Expansion of Community-Based Infrastructure or Gap-Filling

Hammonasset

The installation of new, publicly available EV charging stations at Hammonasset will expand community-based infrastructure at a public park that receives well over *3 million* visitors each year. It is Connecticut's third most-visited tourist attraction and is located conveniently just 1.26 miles off of I-95. In addition to expanding community-based infrastructure, these installations will decrease emissions from those traveling to the park. Since park visitors travel along the I-95 corridor, this will also decrease emissions in many environmental justice and overburdened communities along I-95.

Connecticut Municipalities

Municipal EV charging locations align with Connecticut's National Electric Vehicle Infrastructure (NEVI) corridor plan. Charging infrastructure is already being installed along I-84, I-91, and I-95. EV charging locations along these highways will support both local residents as well as corridor travelers.

In many of the eight identified municipalities, there are few to no EV stations. A more robust charging network is needed to accelerate the adoption of EVs in these communities and across the State. Federal investment in the State's community EV locations will help to fill gaps of missing charging infrastructure, particularly in small and rural cities such as Barkhamsted and Groton.

All proposed municipal EV infrastructure locations are publicly accessible. Stations will be installed at parking garages, parking lots, town halls, libraries, police stations, and area businesses.

Seven (7) of the twelve (12) proposed municipal EV infrastructure locations will provide equitable access to low-income and minority populations. These census tracts are identified as "disadvantaged" by the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool and Argonne National Laboratory's EV Charging Justice40 Map Tool (see chart below). Community charging locations in these neighborhoods will provide undeserved residents with options to power up their EVs.

City	Address	Census Tract	Disadvantaged	
			Climate and Economic Justice Screening Tool	EV Charging Justice40 Map Tool
Barkhamsted	67 Ripley Hill Road	Litchfield County – 2901.00		
Bridgeport	225 South Frontage Road	Fairfield County – 0706.00	X	X
	10 East Main Street	Fairfield County – 0740.00	X	X
East Hartford	818-850 Silver Lane	Hartford County – 5105.00		
Groton	52 Newtown Road	New London County – 7028.00	X	X
Hartford	166 Sheldon Street	Hartford County – 5021.00		
	55 Chapel Street S	Hartford County – 5021.00		
	141 Sheldon Street	Hartford County – 5005.000	X	
New Haven	31 Mitchell Drive	New Haven County – 1419.00		X
	Wooster Square	New Haven County –		
Stamford	17 Forest Street	Fairfield County – 0201.01	X	
	25 Summer Place	Fairfield County – 0201.01	X	

Project Costs

Hammonasset

a. **Project planning and development**
Installation of new EV charging stations at Hammonasset will require use of DEEP staff time; therefore, salaries, fringe benefits, and indirect costs have been included in the project budget. DEEP estimates that each lot location will require $1,409.80 for staff salaries, $1,370.20 for fringe benefits, and $488.40 for indirect costs. This adds up to a total of $3,268.40 in administrative costs for each Hammonasset location, and $16,342.00 total for Hammonasset. Project planning and development will therefore account for 9 percent of the Hammonasset project budget.

b. **Right-of-way (ROW)/acquisition costs**
Installation of new EV charging stations at Hammonasset will not require ROW or other acquisition costs because the installations will be located on State-owned land. ROW/acquisition costs will therefore account for 0 percent of the Hammonasset project budget.

c. **Installation costs**
As stated above, DEEP plans to replace six (6) dual port, existing EV chargers and install seven (7) additional, dual port EV chargers at Hammonasset. The cost to replace existing dual port chargers is $5,000.00 each. The cost to install new dual port chargers is $12,500.00 each. Therefore, the total cost of chargers plus installation will be approximately $117,500.00.

Hammonasset signage costs will include wayfinding signs throughout the park and parking signs at each space to note that they are EV only and the parking hour limit, along with other relevant information (contact information to report parking violations and other issues). The cost for a standard parking sign is $16.00 per sign, including labor costs. DEEP estimates that ten (10) new signs will be needed. Therefore, the total cost of signage at Hammonasset will be $160.00.

The total cost of chargers, installation, and signage is estimated to be $117,660.00, or about 65 percent of the Hammonasset project budget.

d. **Operation costs**
The billing structure for Hammonasset EV charging stations should be neutral (cost-recovery only/no profit). DEEP plans to employ a time-based fee rather than kWh-based fee, to encourage customers to move their vehicles once charging is complete.

DEEP anticipates that payment processing fees will be $390.00 per charger, per year (for five (5) years), plus an $85.00 set up fee per charger. Therefore, total operation costs are estimated to be $26,455.00, or about 15 percent of the Hammonasset project budget.

e. Maintenance costs

The extended warranty cost for each new Hammonasset EV charging station is $297.00 per charger, per year (for five (5) years). Therefore, the total extended warranty cost is $1,485.00 per charger for five (5) years. Thus, total maintenance costs are estimated to be $19,305.00, or about 11 percent of the Hammonasset project budget.

f. Educational activity costs

DEEP does not plan to use grant funding towards educational activity costs relating to installation of new Hammonasset EV charging stations. Therefore, educational activity costs will account for 0 percent of the Hammonasset project budget.

g. Etc.

No additional costs are included in the budget for the project at Hammonasset.

Connecticut Municipalities

a. Project planning and development

Cities will need to design and engineer the planned EV stations. Public engagement activities will also take place in all communities to gather input from stakeholders, particularly low-income and minority residents in underserved census tracts. Project administration costs, including salaries, fringe benefits, and indirect costs, are also captured. Exactly $1,268,000.00 (6.9 percent of budget costs) is needed for project planning and development for Connecticut municipalities. These costs will be split 80/20 between federal funds and the private sector partner.

b. ROW/acquisition costs

Installation of new EV charging stations is largely taking place on municipal land. Long-term leases (15 years) with options to renew will be offered to private sector partners. Exactly $2,016,000.00 (or 11.02 percent of budget costs) is needed for these land costs during the project period. These costs will be split 80/20 between federal funds and the private sector partner.

c. Installation costs

Twelve (12) locations across eight (8) cities in the State have been identified for EV infrastructure. This will include the installation of Level 2 and DCFC chargers. Specifications for DCFC equipment will include:

- All charging sites should have at least 4 chargers that can achieve a maximum capacity of 500kW per charger.
- Additional chargers should be added that can flexibly share the total site power.
- Power should be flexibly shared across the site, on a minute-by-minute basis, in no more than 40kW increments, so that no power is wasted on stalls where a car is plugged in and not using full power.
- Power sharing capabilities must happen across at least 8 stalls
- Equipment must have the ability to collocate under existing totalizer for building electric bill and co-manage the power with the building (where available), to minimize cost of power and strain on grid.

- Equipment should be upgradeable to bi-directional so that for power can go back the building/grid during extreme demand moments.
- Sites should be easily expandable to at least 12 chargers without the need for major infrastructure changes.

A total of $11,780,000.00 (or 64.3 percent of budget costs) is needed to support EV charging installation for Connecticut municipalities. These costs will be split 80/20 between federal funds and the private sector partner.

d. Operation costs

Connecticut cities will contract with third-party providers to provide turnkey EV services, including operations. Operating costs of $1,040,000.00 are budgeted for the first five (5) years, representing 5.7 percent of the budget for Connecticut municipalities. These costs will be split 80/20 between federal funds and the private sector partner.

e. Maintenance costs

Extended warranties for the installed EV chargers are budgeted at $2,080,000.00 (or 11.4 percent of total budget costs) for Connecticut municipalities. These costs will be split 80/20 between federal funds and the private sector partner.

f. Educational activity costs

Connecticut cities will launch public educational campaigns to share information with residents about the new EV charging infrastructure. A total of $132,000.00 (or 0.7 percent of budget costs) are allocated for educational activities. These costs will be split 80/20 between federal funds and the private sector partner.

g. Etc.

No additional costs are included in the budget for Connecticut municipalities.

Operating Subsidies

DEEP will not be seeking any operating subsidies for EV charging infrastructure being installed at Hammonasset. Additionally, no operating subsidies will be required following installation of the EV charging equipment at the Connecticut municipality sites.

Scaled Funding Options

Hammonasset

The EV charging station replacement project at Hammonasset is scalable. If insufficient funding is available to fund the entire project at the full requested amount, any portion of the total project could be constructed and opened for functional public use, with the remainder of the total project constructed at a later time. As previously stated, the entire Hammonasset project involves the following:

1. **West Beach, Lot 1** – Replace two (2) existing, dual port, Level 2 chargers and install one (1) additional, dual port, Level 2 charger.
   Funding Requested: $29,088.40

2. **West Beach, Lot 2** – Replace two (2) existing, dual port, Level 2 chargers and install one (1) additional, dual port, Level 2 charger.
   Funding Requested: $29,088.40

3. **Meigs Point Parking Lot** – Replace two (2) existing, dual port, Level 2 chargers and install one (1) additional, dual port, Level 2 charger.
   Funding Requested: $29,088.40

4. **Middle Beach Parking Lot** – Install two (2) new, dual port, Level 2 chargers.
   Funding Requested: $28,272.32

5. **East Beach Parking Lot** – Install two (2) new, dual port, Level 2 chargers.
   Funding Requested: $28,272.32

DEEP would prioritize these aspects of the project in this order listed, and if only partial funds were made available, DEEP would complete these tasks in this order, until funds were exhausted. Please see the Budget for a breakdown of the costs to complete installations at each of these locations within Hammonasset. Completing a scaled project would not have a significant effect on the project schedule/timeline.

Connecticut Municipalities

Installation of community EV infrastructure in Connecticut municipalities is likewise scalable. This application proposes to develop thirteen (13) new charging infrastructure locations within eight (8) cities. With less federal funding, DEEP could identify a smaller subset of places to conduct project activities. If less funding were available, DEEP would prioritize DCFC sites over Level 2 locations. Furthermore, when two (2) DCFC sites exist within the same municipality, limited funding would precipitate the elimination of the second location with less expected utilization.

Project Focus Areas

A. Multi-Modal Hubs and Shared-Use Fleets and Services

Hammonasset

The installation of new charging stations at Hammonasset supports the goal of connecting and promoting rental vehicle, taxi, carshare, ride-share, ride-hail, bicycle, micromobility, microtransit, and other electrified multi-passenger or active mobility options. As the third most-visited tourist attraction in the State, Hammonasset draws visitors utilizing a wide array of

mobility options. The prominence, availability, and ease of use of the new charging units will encourage visitors to employ electric multi-passenger or active mobility options when visiting the park. Companies that provide electrified multi-passenger or active mobility options will also be more likely to invest in adding such EVs to their fleets with increased demand and opportunities for charging.

This project will improve access to EV charging infrastructure at one of the most-visited locations in Connecticut, and therefore, promote the use of a variety of EVs. Further, this project will decrease air pollutant emissions not only in the community surrounding Hammonasset, but in communities all around the Northeast, as individuals travel on roads through various towns and cities (rural areas, low-and moderate- income neighborhoods, and underserved communities), from all directions, using electrified mobility options, to get to Hammonasset.

Connecticut Municipalities

Access to EV charging infrastructure will promote the use alternative forms of transportation that meet the needs of all user groups, advancing the region's goals to boost multimodal mobility, especially for its low- and moderate-income populations. For example, a charging location in Stamford will sit near the Stamford Transportation Center, the busiest train station between New York City and Boston. Chargers installed at this location will support transit and microtransit (bike, scooter) options. This downtown charging location will encourage EV drivers to park once and take advantage of train, bus, bike, and walking infrastructure for the next leg of their trips. There is also potential in Hartford to co-locate EV charging infrastructure with a car rental company.

B. Urban/Suburban Area Charging and Fueling Solutions

Connecticut Municipalities

EV charging locations will provide safe and affordable access for individuals who live in apartment complexes, multi-family residential units, and single-family homes in urban centers that may not otherwise be able to install charging equipment. Within many downtowns, it is common for residents to park on the street because lot sizes are small, and garages are not prevalent. Charging infrastructure is necessary in these neighborhoods to support EV adoption. All EV DCFC infrastructure in parking garages is expected to be wall-mounted, which will provide a low-cost, high-return charging option. Level 2 chargers are expected to be mounted on poles.

C. Rural Area Charging and Fueling Solutions

Connecticut Municipalities

The proposed project will serve several small rural communities, including Barkhamsted and Groton. EV charging infrastructure in rural Connecticut will serve single-occupancy vehicles and medium-duty vehicles.

D. Fleet Vehicles that Serve and Operate in Communities

Hammonasset

The proposed charging stations at Hammonasset will be available to any J1772 compatible MHD fleet vehicles that serve and operate in communities. Therefore, these installations will promote local MHD electrification, thereby improving air quality and health outcomes throughout Connecticut.

Connecticut Municipalities

Some proposed charging locations will be able to support local medium-duty EV vehicles, including Class 3 and 4 vans, as well as municipal electric trucks.

Innovative Payment Approaches

The newly installed EV charging stations at Hammonasset and Connecticut municipalities will employ innovative payment approaches to ensure that low- and zero-emission transportation options are accessible to diverse populations, including the unbanked and underbanked. It is important to note that Connecticut has adopted laws to require "consistency of charging experience." Adopting policies and laws for consistent charging experience is one of the central tenets of the Connecticut Electric Vehicle Roadmap. As described in this document:

> ". . . careful consideration must be afforded to the design of public charging stations and the manner in which they interface with their drivers. Consistency in positive consumer experience at public charging stations is fundamental to the successful adoption of EVs. As such, consumer interaction with public EVSE should be a convenient, consistent, and uncomplicated experience that smoothly accommodates EV drivers' needs."[3]

This consistency includes interoperability of the charging plug, making sure every EV can charge at the location. It also includes future proofing locations to respond to increasing standards, especially those brought about by federal programs such as NEVI, ensuring charger uptime, and ease of payment options. Regarding the latter of these policy goals, Connecticut adopted a law, Connecticut General Statutes (CGS) § 16-19ggg, that requires an owner or operator of a public EV charging station to provide multiple payment options (at minimum payment through a secure third-party mobile application and by credit/debit card) that allow access by the public. Furthermore, CGS § 16-19ggg states that owners or operators of public EV charging stations that require payment of a fee shall not require users to pay a subscription fee or otherwise obtain a membership in any club, association, or organization as a condition of using such public EV charging station.[4] The considerations include the deployment of contactless

[3] Connecticut Electric Vehicle Roadmap
[4] Connecticut Electric Vehicle Roadmap

payment options, as well as meeting the needs of low- and moderate-income families that may be limited in payment options.

Connecticut Municipalities

The identified eight (8) cities in Connecticut will receive subgrants and be required to partner with third-party providers that can provide innovative payment approaches such as contactless technology, mobile wallets, bundling with transit discounts and other benefits programs, etc. All partners and equipment should support Open Charge Point Protocol (OCPP) 2.0.1, including the plug and charge features that include remote authentication. Payment options will ensure that EVs are a transportation option for diverse populations, including the unbanked and underbanked.

Satisfy Project Requirements

Hammonasset

The project involving replacement of EV charging stations at Hammonasset will result in a reduction of greenhouse gas emissions and will expand access to charging infrastructure. The new charging stations are considered eligible infrastructure because they will be publicly accessible EV charging infrastructure. This project will involve installation of EV charging stations at a publicly accessible location (parking facilities at a public park).

All requested funding qualifies as eligible project costs, pursuant to Section C.4 of the NOFO. Requested funding includes costs for acquisition and installation of eligible infrastructure, related construction or reconstruction, and contracting with a private entity for the maintenance and operation costs of eligible infrastructure.

Connecticut Municipalities

Federal investment will support EV rollout, advance the local greenhouse gas reduction and sustainability goals, and improve quality of life in underserved neighborhoods. Specifically, CFI grant dollars will:

- Strengthen the State's EV charging infrastructure network and accelerate the adoption of zero emission vehicles;
- Provide convenient access for downtown users to safely charge their EVs;
- Address inequities by connecting minorities and low-income residents who live in disadvantaged census tracts with nearby, affordable charging options;
- Support charging for travelers at community EV infrastructure locations near transportation corridors; and
- Mitigate climate change impacts through lower vehicular carbon pollution.

All budgeted costs are allowable per Section C.4 of the NOFO. Federal funds will support the safe installation, operation, and maintenance of EV infrastructure, as well as community outreach, acquisition activities, and educational activities.

Corridor Project Narrative

Project Description

DEEP is proposing the installation of four (4) new hydrogen fueling stations for MHD vehicles no more than five (5) miles from Connecticut's major highways that are designated as Federal Highway Administration (FHWA) AFCs (Hydrogen Corridor Pending). The fueling stations will serve medium- and heavy-duty (MHD) vehicles both based in and travelling through Connecticut. Each station will have the total capacity to refuel around two hundred fifty (250) vehicles per day and is expected to refuel around twenty-five (25) vehicles per day initially.

Proposed Number of Stations	Location (approximately)	Refueling Capacity (in kg/day)	Number of Trucks Supported
1	Milford	15,000	250
1	Willington	15,000	250
1	Stonington	15,000	250
1	Waterbury	15,000	250
4	**TOTAL**	**60,000**	**1,000**

The choice for MHD vehicles was based on existent studies and discussions, including the U.S. Department of Energy (DOE)'s recently published Clean Hydrogen Strategy and Roadmap,[5] and DEEP's vision regarding hydrogen application that prioritizes the use of hydrogen in hard-to-decarbonize sectors.

DEEP will hold an open and competitive request for proposals for installation of the stations. Respondents to the Request For Proposals (RFP) will be expected to provide a competitive cost share for installation of the stations (at least 20 percent).

DEEP is establishing the following recommended schedule for completion of the projects. The timeline is based on general knowledge of the process for developing hydrogen refueling stations based on completing the following milestones (as well as accounting for the ramp up of local capabilities to execute specialized services related to hydrogen station technologies):

Establish site control (i.e., establishing a lease):	3-6 months
Complete a detailed site design:	1-2 months
Entitlements:	4-6 months
CBA (if needed):	2-4 months
Permitting:	4-6 months
Construction:	3-4 months
Commissioning:	1-2 months

[5] DOE Clean Hydrogen Strategy and Roadmap, page 32.

Project Locations

DEEP is proposing four (4) new hydrogen fueling locations in the State of Connecticut. The proposal will require the installation of two (2) stations along the I-95 corridor, with one (1) of those proposed locations being in close proximity to the I-95/I-91 intersection in New Haven, and two (2) stations along the I-84 corridor.

With respect to these locations, specific real estate agreements are not in place until a Contractor has been selected, as such locations below are estimates, providing a 15-mile range along the mentioned interstate highways, with location selections based on surrounding infrastructure, traffic throughputs, emission reduction goals, statewide coverage and ease of access from the AFC.

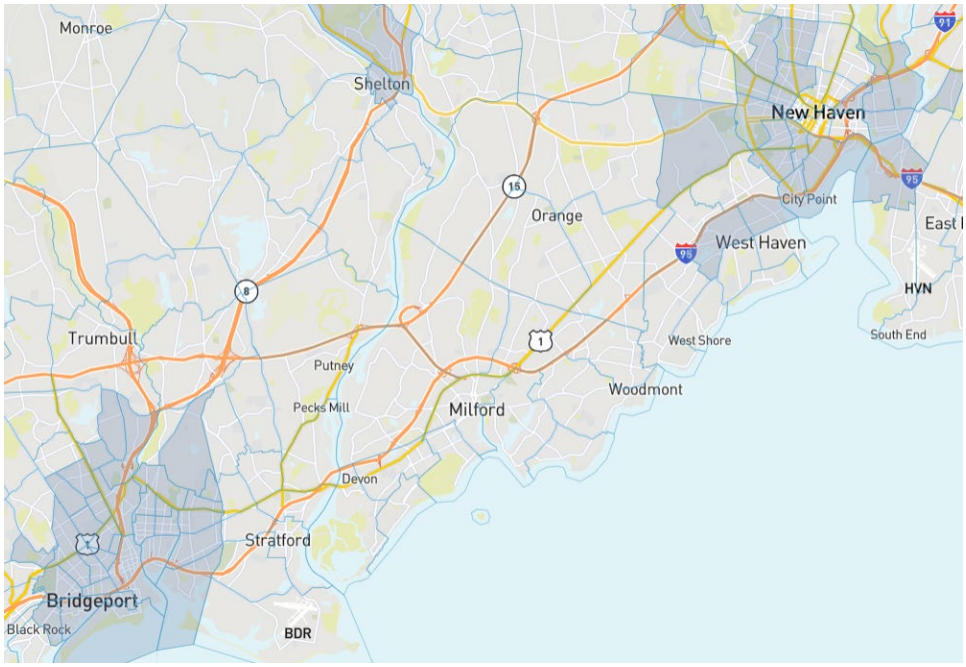
1. Milford

Milford, along the I-95 corridor, has been identified as a target location due to traffic volumes, proximity to multiple disadvantaged communities (DACs),[6] and proximity to the I-95 and I-91 intersection in New Haven. Given we are proposing a range of 15 miles from the proposed municipality for the siting of the fueling location, the fueling station could even be located in the DACs of West Haven and Bridgeport.

According to Connecticut DOT (CT DOT), over 80,000 vehicles travel along this section of I-95 daily.[7]

[6] DACs were identified using the Climate and Economic Justice Screening Tool (CEJST) developed by the U.S. the Council on Environmental Quality (CEQ).
[7] Traffic Monitoring Volume and Classification Information Traffic Count Data (ct.gov)

Figure 6: Location of proposed hydrogen fueling station #1 - Milford



2. Willington

The Willington location, along I-84, has been selected based on traffic flow between the major cities of Hartford and Boston, MA. This location would serve the northeast part of Connecticut. According to CT DOT, 45,000 vehicles travel this section of road each day.[8]

[8] Ibid.

Figure 7: Location of proposed hydrogen fueling station #2 – Willington

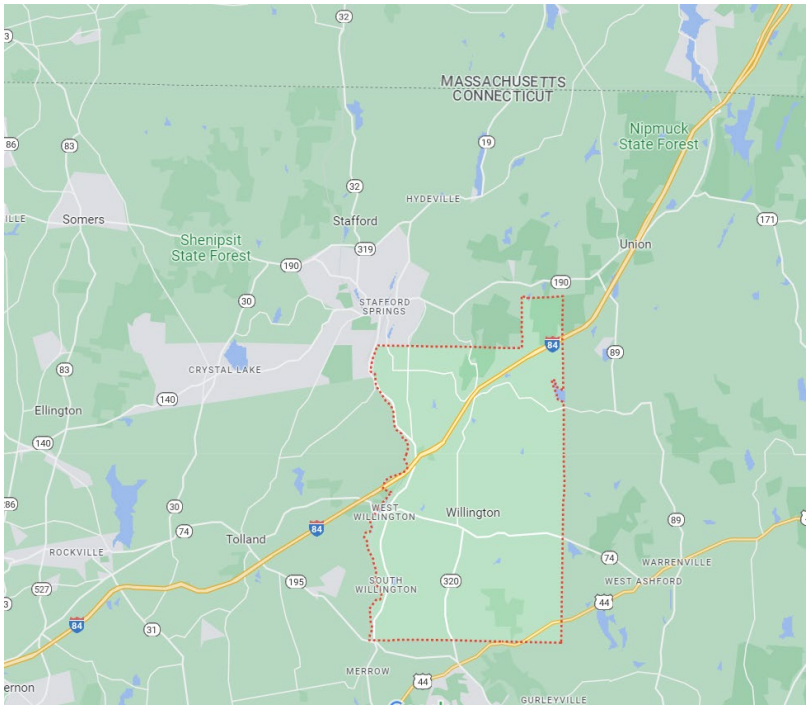
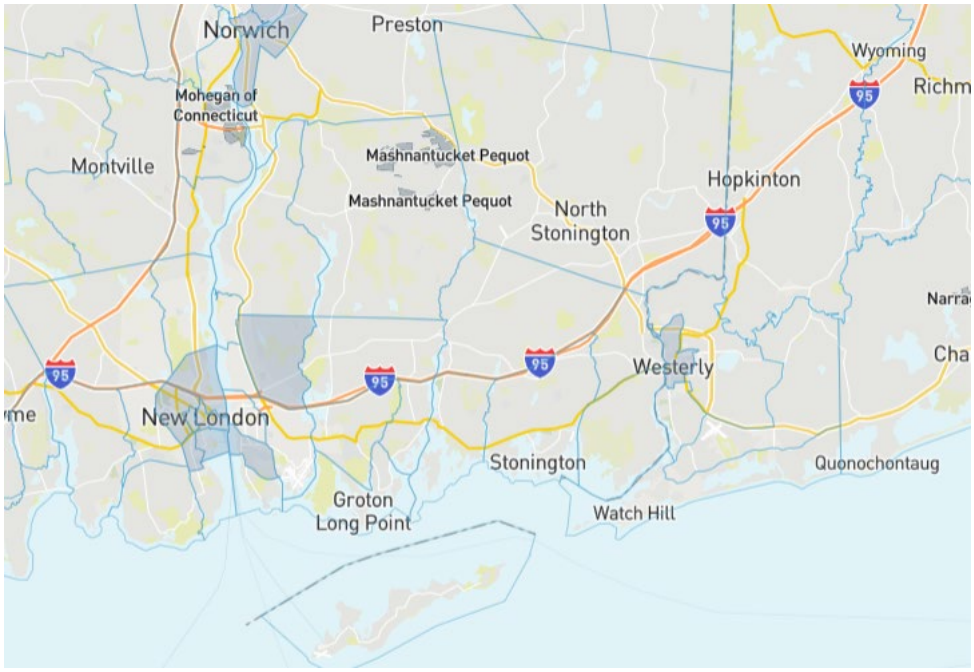


Figure 8: Willington – Traffic Monitor

3. Stonington

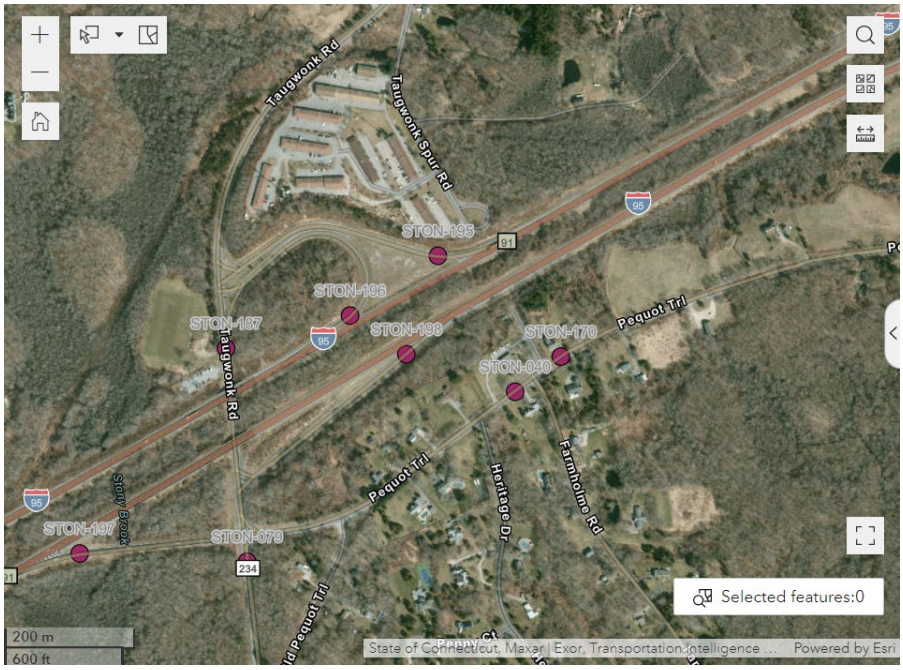
The Stonington area has been selected based on traffic flow along the I-95 corridor. This location would serve the southeast part of Connecticut along the AFC of I-95. According to CT DOT, over 60,000 vehicles travel this section of road each day.[9] Moreover, the location also has the potential of advancing the Justice40 Federal Initiative given its proximity to the DAC of New London, Connecticut, and Westerly, Rhode Island.

Figure 9: Location of proposed hydrogen fueling station #3 – Stonington



[9] Ibid.

Figure 10: Stonington – Traffic Monitor



4. Waterbury

The Waterbury location, along the I-84 AFC, was selected for two reasons. First, it is a DAC, hence the project benefits an environmentally overburdened population. Second, the project will reach an increasing number of EVs due to heavy traffic flow. According to CT DOT, 80-100,000 vehicles travel this section of road each day.[10] This location would serve the northwest part of Connecticut.

[10] Ibid.

Figure 11: Location of proposed hydrogen fueling station #4 – Waterbury

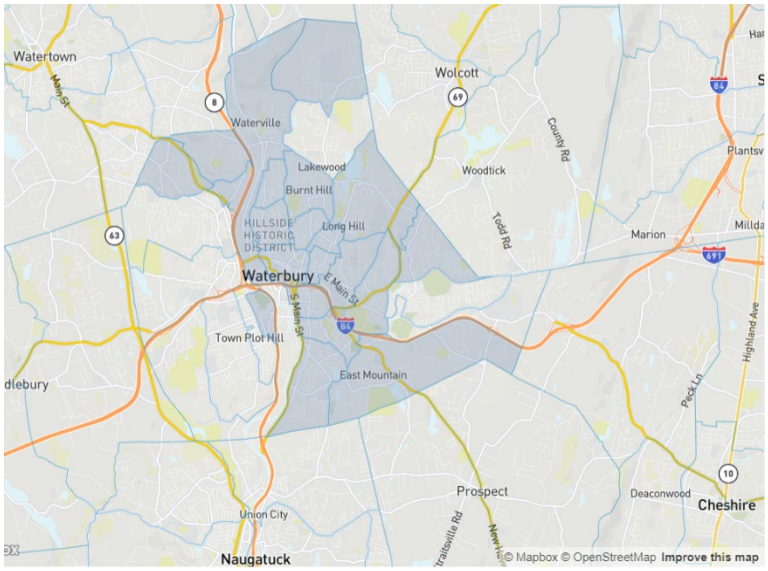
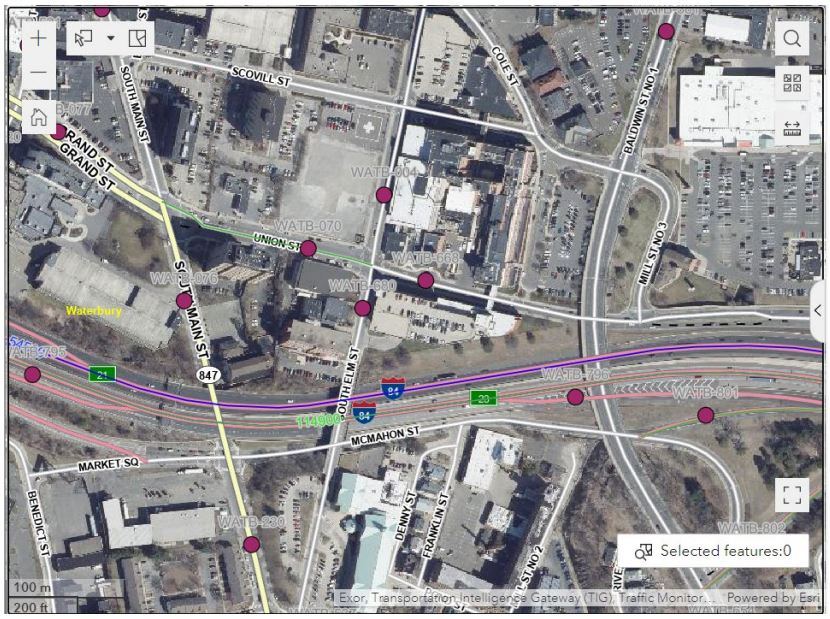


Figure 12: Waterbury. Justice 40 Mapping Tool

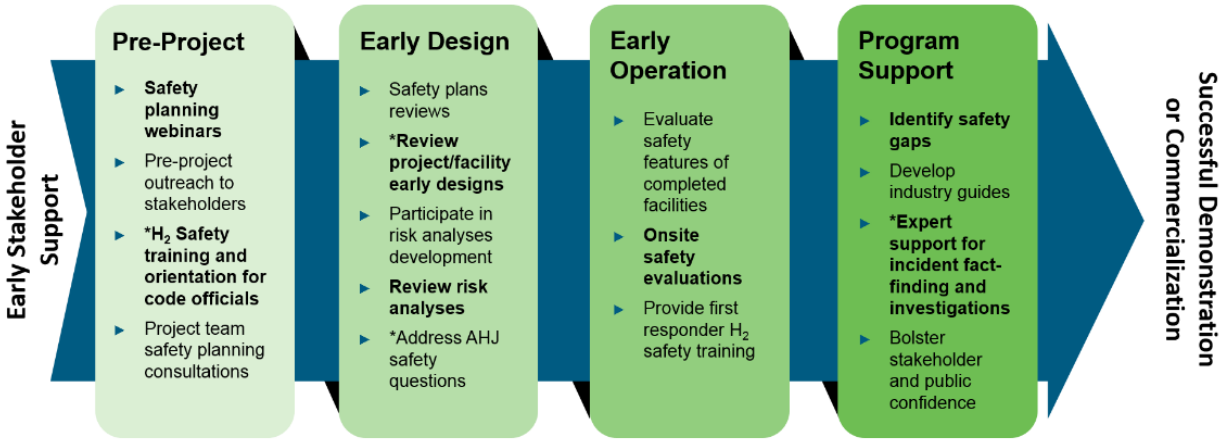


Safety Considerations

These stations would be installed to meet Federal and State laws with regards to safety. Additionally, the RFP issued by DEEP subsequent to an award would require that projects be reviewed and approved by the Hydrogen Safety Panel,[11] and follow U.S. DOE's Safety Planning for Hydrogen and Fuel Cell Projects.[12]

The Hydrogen Safety Panel review evaluates all projects to determine existing safety issues, a plan to resolve any issues and use of industry best practices for resolution. This evaluation begins prior to project implementation and continues through installation.

Figure 13: Activities that can benefit from the Hydrogen Safety Panel Review



Source: Hydrogen Safety Panel

Regarding roadway safety, as noted, Connecticut has a lower fatality rate per 100 million VMT, and the State plans to keep reducing the rate.

The proposed stations will complement USDOT's NRSS, which seeks to significantly reduce serious injuries and deaths on America's highways, roads, and streets. Using a Safe System Approach, fueling infrastructure will be developed, operated, and maintained with a focus on public road safety. Potential conflicts with non-motorized and public transportation travel in multimodal corridors will also be addressed through safe design and countermeasures.

Additionally, the below Connecticut laws will apply to project implementation to ensure all safety concerns will be adequately addressed.
Connecticut Consumer Protection for Fueling

[11] The Hydrogen Safety Panel is multidisciplinary team of engineers, scientists, code officials, safety professions, equipment providers, and testing and certification experts. https://h2tools.org/hsp
[12] https://h2tools.org/sites/default/files/Safety_Planning_for_Hydrogen_and_Fuel_Cell_Projects-November2017_0.pdf

CGS § 14-318, et seq. require that fueling infrastructure regardless of fuel type meet requirements to ensure transparent display of pricing, interoperability and other consumer protection related measures.

Connecticut State Building Codes[13]

The Connecticut State Building Codes follow the federal code guidelines as well as voluntary requirements to provide the safest building requirements possible. In 2022, the State Building Codes were updated to include:

- 2021 International Building Code (IBC) by ICC
- 2021 International Existing Building Code (IEBC) by ICC
- 2021 International Energy Conservation Code (IECC) by ICC
- 2021 International Mechanical Code (IMC) by ICC
- 2021 International Plumbing Code (IPC) by ICC
- 2021 International Residential Code (IRC) by ICC
- 2021 International Swimming Pool & Spa Code (ISPSC) by ICC
- 2020 NFPA 70 National Electrical Code (NEC) by NFPA
- 2017 ICC A117.1 Accessible and Usable Buildings and Facilities by ICC
- 2021 International Fire Code (IFC) by ICC
- 2021 NFPA 101 - Life Safety Code by the NFPA
- 2021 NFPA 1 - Fire Code by the NFPA

Connecticut Environmental Protection Act

The purpose of the Connecticut Environmental Policy Act, often referred to as "CEPA," is to identify and evaluate the impacts of proposed State actions that could have the potential to significantly affect the environment. This evaluation enables the State agency proposing or funding a project to judge the appropriateness of proceeding with the action in light of its environmental impacts. The process also provides opportunity for public review and comment through an early public scoping process as well as later review of any Environmental Impact Evaluation (EIE).[14]

Future Best Practices

In addition, fueling protocols for hydrogen are still being established as the sector develops. DEEP will require that any project meet industry standards for best practices.

The RFP will require any contractor to:

- Install equipment that complies with the new SAE heavy-duty high-flow fueling protocol currently being developed, J2601-5 (High-Flow Prescriptive Fueling

[13] Connecticut State Building Code--Regulations
[14] Connecticut Environmental Policy Act Fact Sheet

Protocols for Gaseous Hydrogen Powered Medium and Heavy-Duty Vehicles). This standard is expected to be completed by October 2023.

- Install nozzles to ensure they comply with high-flow standards.

Stakeholder Outreach

This project will look to foster enhanced, coordinated, public-private or private investment, expand deployment, protect personal privacy and ensure cybersecurity; and ensure that a properly trained workforce is available to construct and install infrastructure through a variety of means.

Regarding hydrogen this project will build on the past and ongoing collaborative engagement with stakeholders.

DEEP has participated in and led robust stakeholder engagement processes on hydrogen. On April 6, 2022, the agency held an online public technical session for its Comprehensive Energy Strategy focused exclusively on hydrogen. This meeting, as well as technical sessions focused on alternative fuels (Nov. 4, 2022) and methane/natural gas distribution planning and policies (Dec. 8, 2022), featured presentations by hydrogen experts. During each technical session, the agency provided opportunity for stakeholders to make oral comments and to pose written questions that were relayed to panelists for response. In conjunction with each session, DEEP also solicited written comments.

As part of the DEEP Environmental Justice Office public meetings, in December 2022, the EJ Office held a Hydrogen 101 public webinar, where DEEP staff presented to and answered questions from communities, and environmental and EJ advocates on the basics around hydrogen production, transportation, storage, use and the challenges to its use at scale.

DEEP was also an active participant of a recent Hydrogen Power Task Force established by the Connecticut legislature to study hydrogen-fueled energy in Connecticut's economy and energy infrastructure, and submit a report to the General Assembly with the findings.[15] DEEP served as a member of the task force, along with the Connecticut Public Utilities Regulatory Authority, the Connecticut Department of Economic and Community Development, the Connecticut Green Bank, The University of Connecticut, the Connecticut Center of Advanced Technology, and representatives from the electric and local distribution companies, nuclear power generating facility, the building trades, manufacturers of hydrogen-fueled technologies, environmental and workforce development organizations, and the Connecticut Hydrogen-Fuel Cell Coalition. Environmental and workforce development organizations engaged in the H2 Task Force public meetings and topic-specific working groups (Sources, Uses, Infrastructure, Funding, and Policy and Workforce Development). DEEP also chaired the last two of the working groups. The meetings of both the task force and its topic-specific working groups were public and included opportunities for verbal public comments.

[15]Special Act 22-8: An Act Establishing A Task Force To Study Hydrogen Power

Currently, Connecticut is in the process of developing significant hydrogen policies that involved and will continue to involve substantial stakeholder engagement (as reflected by attached Letters of Support in Appendix A). These efforts include the development of a Clean Hydrogen white paper, which, aside from providing the public with an overview of several dimensions related to hydrogen, also defines the type of clean hydrogen that will be supported by the State. DEEP plans to solicit written feedback on draft and final versions of the white paper and is developing a plan for additional statewide and regional outreach regarding the same document.

Moreover, DEEP is also developing a clean hydrogen roadmap, which will state the clean hydrogen applications supported by the State and recommend policy actions and incentives to foster the clean hydrogen economy. The roadmap is expected to be out for public comments in late 2023.

The State is also participating in the U.S. DOE Regional Clean Hydrogen Hub planning efforts, for which the State submitted a joint application with six (6) other northeast states (New York, New Jersey, Massachusetts, Rhode Island, Vermont, and Maine). Prior to submitting the application, the states convened several working groups (transportation fueled by hydrogen, hydrogen production, storage and delivery, hydrogen consumption, fuel cell and OEM providers, implementation, equity and engagement, workforce development, and codes, safety and standards). The purpose of these workgroups was to engage representatives from each state, on a variety of critical issues associated with potentially establishing a Regional Clean Hydrogen Hub. If selected for this multi-station project, Connecticut will be well positioned to build from our experience from the Northeast Hydrogen Hub process. Moreover, if awarded, the Northeast Hydrogen Hub will continue with the working groups to assist the hub throughout the full term of DOE funding, which will be complementary to the development of the Hydrogen fueling stations proposed in this application.

In addition, Connecticut has a long history of developing hydrogen technologies and is home to several hydrogen-system manufacturing companies, such as Raytheon (Pratt and Whitney and Collins Aerospace), Doosan, FuelCell Energy, NEL Hydrogen, and Infinity Fuel Cell. Additionally, the University of Connecticut has established the Center for Clean Energy Engineering, which is heavily focused on the development of hydrogen as an alternative energy source.[16]

As for additional public and private investment, Connecticut has a strong focus on funding for energy projects. This includes the Connecticut Green Bank, which through their associated programs has funded significant green energy projects and focuses on showing technological and business model proof of concept to attract private investors.[17]

Regarding public protection of information, the RFP will require applicants to meet the best practices as required by Connecticut's Network Security and Policy requirements.[18]

[16] Center for Clean Energy Engineering (C2E2) | Hydrogen (uconn.edu)
[17] Customer Stories - CT Green Bank | Accelerating Green Energy Adoption in CT
[18] Network Security Policy and Procedures (ct.gov)

Workforce Development

Regarding workforce development, Connecticut's State agencies, led by the Connecticut Department of Labor, partner with the State technical and community college school system to develop green jobs.

Specifically, the Connecticut Office of Workforce Competitiveness created a "Green Jobs Career Ladder" website, in consultation with other agencies.[19] The goal of this resource is to increase job opportunities in Connecticut's green technology sector, lower energy costs, improve energy efficiency and promote sustainability. The ladder is designed to link green jobs employers with technical education and career schools and institutions of higher education to foster coordination and grow the workforce in the sector. The green jobs ladder includes components such as the scope of the industry and various occupations included, the skills and knowledge needed to succeed in those occupations, and the professional opportunities available at the entry, mid-career and advanced levels, along with the current salary ranges for each. To maintain this ladder as a comprehensive and useful resource for the green technology industry and its educational partners, it will be updated periodically as needed.

Onsite Amenities

The locations listed above contain significant opportunities to collocate with other off-highway amenities, including but not limited to convenience stores, fast food restaurants, existing MHD vehicle travel and fueling stations and other amenities typical of highway rest stops. DEEP will include requirements regarding range from these amenities in the RFP.

ADA Compliance

These projects will follow special design guidelines to accommodate people with disabilities. When planning ADA-compliant fueling stations, the project administrator will be required to consider accessibility, ease of use, and safety for disabled drivers and vehicle occupants, including those using wheelchairs or other assistive equipment. Key considerations will include ensuring adequate space for exiting and entering the vehicle, unobstructed access to the fueling infrastructure, free movement around facility and connection point on the vehicle, and clear paths and proximity to building entrances. Connecticut communities will comply with all ADA requirements identified above.

Accommodations for Medium and Heavy-Duty

These sites are expressly designed to facilitate fueling MHD of vehicles.

Coverage and Distribution

[19] Connecticut Green Jobs Career Lattices (state.ct.us)

There is currently no operational MHD hydrogen fueling facility in Connecticut; therefore, all locations will be filling fueling gaps. The proposed locations are selected to provide coverage around the State and to ensure there is a proper distribution of fueling locations.

Future Proofing

For hydrogen projects the only applicable requirement here would be to provide consideration of autonomous vehicles. While DEEP believes that this technology, particularly in the hydrogen sector, is still years away, the State is still considering policy and planning requirements regarding autonomous MHD vehicles. The Connecticut State Freight Plan discusses policy and planning requirements for autonomous vehicles.[20] In that document, CT DOT identified that:

> "Autonomous trucks and platooning systems are being developed to operate within existing infrastructure constraints and without the need for communication with roadside equipment, offering somewhat limited scope for government involvement. Nonetheless, deployments require coordination between state DOTs, law enforcement, and local agencies. CT DOT can therefore act as a facilitator and enabler for developing and testing such technologies. Given the long-distance nature of most truck freight on such corridors, CT DOT could coordinate with neighboring state DOTs, law enforcement, the USDOT, the Eastern Transportation Coalition, local agencies, and industry partners to facilitate tests and deployments as appropriate."[21]

Operation and maintenance of the locations will be overseen by the private entity DEEP contracts with for project implementation. During the RFP process, DEEP will seek a contractor with significant experience planning, operating and developing the business around new hydrogen fueling infrastructure. DEEP will additionally place requirements in the contract to avoid stranded assets.

Regarding future use, as discussed above, DEEP has a number of national and regional partners to help foster private investment and to build fleets around the stations that ensure future use. DEEP has had discussions with a number of truck equipment manufacturers regarding potential deployments. Additionally, as a travel corridor between Boston and New York, Connecticut anticipates that future investments in hydrogen in those cities, both with significant ports and freight handling, will lead to co-benefits for the future health of Connecticut transportation hydrogen infrastructure.

Emission Reductions

DEEP estimated the emission benefits using the AFLEET CFI tool for installation of the four (4) hydrogen stations. The total estimated emission reductions below are based on the total capacity of the hydrogen fueling stations proposed here, instead of initial estimated demand, since the goal is that the total capacity will be full utilization in the long run (15,000 kg of hydrogen per

[20] Page 10-3 of the Freight Report Click here to type Report Title (ct.gov)
[21] Ibid.

fueling station that will refuel around sixty (60) heavy-duty vehicles per day per fueling station). The results of that analysis are below.

AFLEET CFI Emissions Tool

1. **Charging and Fueling Infrastructure**: Connecticut

2a. **Number of Chargers/Stations:** 4

2b. **Annual Fuel Consumption Per Fuel Unit**

Fuel Types	*High Utilization*	*Fuel Unit*
Hydrogen	5,475,000	hydrogen kg

2c. **Vehicle Type Utilizing Charger/Station%**

Fuel Types	*Light-Duty*	*Heavy-Duty*
Hydrogen	0%	100%

3. **Fuel Production Assumptions**

Fuel Types	*Sources*	*Selected Source*
Source of Electricity for EVSEs and Hydrogen (Electrolysis)	1 - Average U.S. Mix	6 (NPCC)
	2 to 11 - EIA Region Mix (see map)	
	12 - User Defined Electric Generation Mix	
Hydrogen Production Process	1 - NG SMR	2 (Electrolysis)
	2 - Electrolysis	

4. **Annual CFI Tool - Emission Reductions***

AFV Fueling Infrastructure	GHGs (short tons)	CO (lb)	NOx (lb)	PM10 (lb)	PM2.5 (lb)	VOC (lb)	SOx (lb)	Fuel Dispensed (fuel unit)	Fuel Unit
Level 2 EVSE									kWh
DCFC EVSE									kWh
Hydrogen	36,515.0	642,101.7	1,025,793.8	8,554.7	7,784.3	52,498.8	4,701.8	21,900,000	kg
Propane									gal
CNG									GGE
LNG									gal
Fueling Infrastructure Total	36,515.0	642,101.7	1,025,793.8	8,554.7	7,784.3	52,498.8	4,701.8		

*Positive values signify that utilization of charger/AFV station has lower emissions than utilization of gasoline/diesel baseline.

In the short run, it is expected that each fueling station will have a starting demand of around 10 percent of its total capacity (1,500 kg of hydrogen/station/day or 25 HDV vehicles/day/per station), which would represent an annual greenhouse gas emissions reduction of 3,651.5 short tons, according to the AFLEET tool.

These reductions are expected to help Connecticut realize its emission reduction goals, which include near-term, intermediate and long-term greenhouse gas emissions goals of the Global Warming Solutions Act.[22] Additionally, Connecticut is a non-attainment state with respect to the Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQs) for ozone. The projected emission reductions of NOx, a precursor to ground level ozone, will improve public health for at risk populations, including children, the elderly, and people with asthma.

Improvement to AFCs

This project will enhance the AFCs by expanding hydrogen fueling infrastructure in the four corners of the State along highly traveled AFC interstates. The proposed project will have the capacity to fuel up to two hundred fifty (250) vehicles per day at each station, supporting significant deployment of hydrogen fleets not only in Connecticut but also in surrounding states, as Connecticut is a Northeast travel corridor. DEEP expects this to be sufficient not only to cover the initial demand for hydrogen fuel in the still nascent hydrogen MHD sector, but also to enable the State to accelerate hydrogen adoption by MHD vehicles in the medium run.

Future health of AFCs will require multifuel approaches, and in the Northeast, Connecticut is well positioned to support hydrogen infrastructure going forward.

[22] Section 22a-200a. (1) Not later than January 1, 2020, to a level at least ten per cent below the level emitted in 1990; (2) Not later than January 1, 2030, to a level at least forty-five per cent below the level emitted in 2001; (3) Not later than January 1, 2040, to a level of zero per cent from electricity supplied to electric customers in the state; (4) Not later than January 1, 2050, to a level at least eighty per cent below the level emitted in 2001.

Corridor Transformation

There are currently zero (0) MHD hydrogen fueling stations in Connecticut. Analysis in the California rulemaking document for the Advanced Clean Trucks (ACT) rule indicates that hydrogen fueling infrastructure will be necessary for this sector of vehicles. While California has established an initial goal of 40–75 percent electrification for this sector by 2035, Connecticut expects California to move to 100 percent electrification for MHD vehicles by 2040. The creation of the proposed four (4) hydrogen fueling stations will allow Connecticut to request a change in the corridor designation from Corridor Pending to Corridor Ready.

Project Costs

Projects costs are discussed below in terms of total capital expenditure. DEEP anticipates further delineation of the costs through the RFP and contracting process.

Project Focus Areas

A. Demonstrate Build-Out of AFCs:

This project will build out non-existent hydrogen charging along the corridors of I-95, and I-84, two major AFCs in Connecticut. It will also connect I-91 to the AFCs in Massachusetts and New York State, should future hydrogen infrastructure be installed in those areas.

B. Zero Emission Corridors for Medium- and Heavy-Duty Vehicles

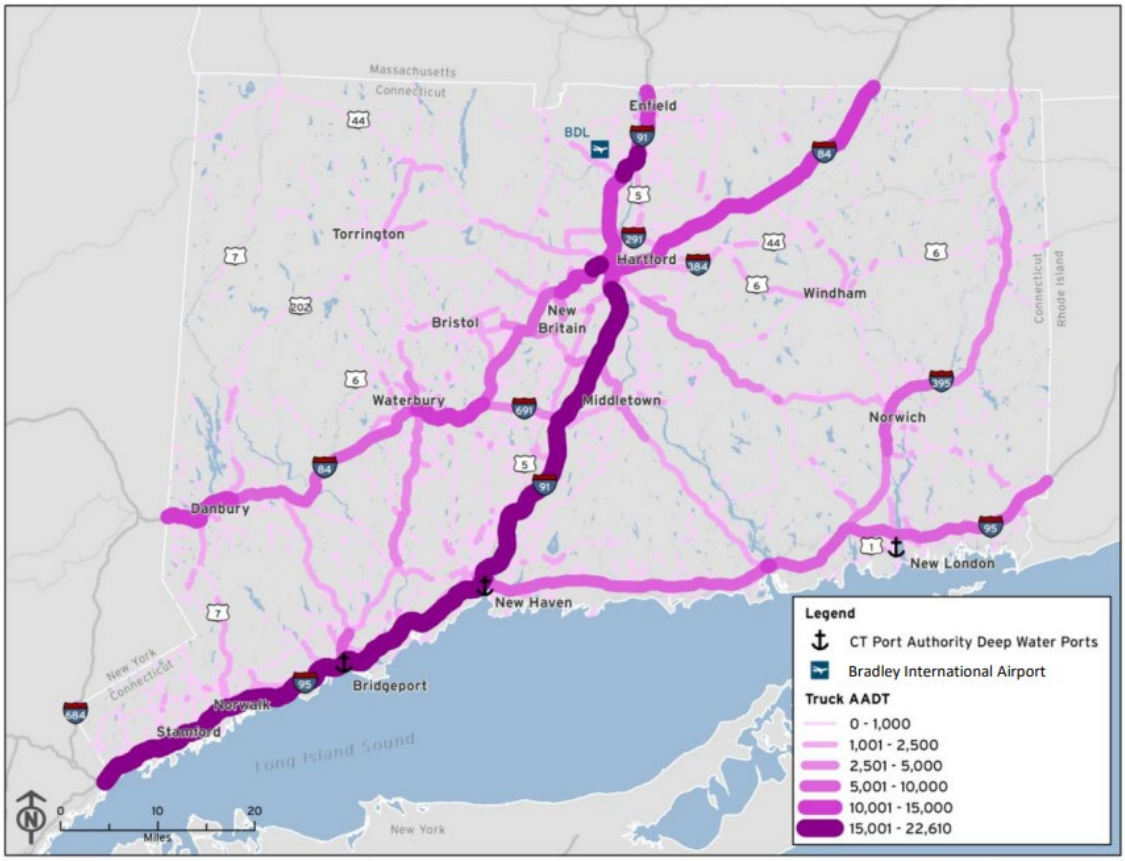
As hydrogen in the transportation sector, and specifically, in applications for MHD vehicles, is still an emerging technology, DEEP has been coordinating with existing equipment providers to ensure support for the proposed infrastructure and future consideration of vehicle deployments as evidenced in the attached letters of support.

Additionally, Connecticut is in the process of adopting the California Advanced Clean Trucks (ACT) law, which includes a one-time fleet reporting requirement for fleets of fifty (50) vehicles or more. This reporting is expected to be conducted in 2024 and will help Connecticut further identify potential fleets that could be converted. In preliminary discussion with DEEP, some leading delivery companies such as FedEx, UPS, DHL, and Amazon (South Windsor) have expressed interest in potentially converting at least part of their MHD fleets should hydrogen be available in Connecticut at a competitive cost and the necessary hydrogen infrastructure is in place. Additionally, annually Connecticut roads carried 158 million tons of freight in 2018.[23]

[23] Connecticut Statewide Freight Plan Update, page 2.

As shown in figure 14 extracted from the Connecticut Statewide Freight Plan Update (page 8-11), “I-95 from the New York/Connecticut border to New Haven and I-91 between New Haven and Hartford carry the heaviest truck volumes, generally over 15,000 trucks per day and up to 22,000 trucks per day (near Bridgeport). North of Hartford, the truck traffic splits into I-91 and I-84 corridors, and averages more than 10,000 trucks per day up to the Connecticut/Massachusetts border. Routes in Danbury, Waterbury, and the Raymond E. Baldwin Bridge also carry more than 10,000 trucks per day.” These numbers strongly indicate that the hydrogen fuel stations for MHD vehicles in the locations proposed will not be stranded assets.

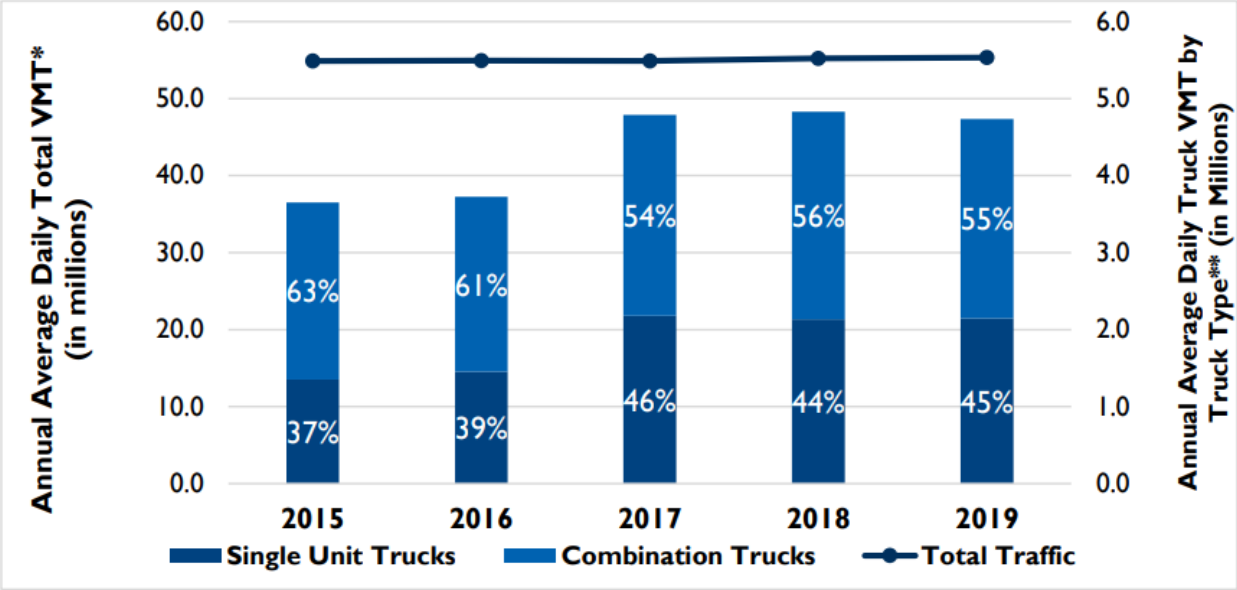
Figure 14: Statewide Annual Average Daily Truck Volumes (2019)



Source: Connecticut Statewide Freight Plan Update

“Average year-over-year vehicle miles traveled (VMT) growth for all vehicles was 0.2 percent from 2015 to 2019, but for trucks it was 7.4 percent ([figure 15]). While truck VMT growth slowed down from 2017 to 2019, it has clearly outpaced total traffic during this time, implying that freight trucks are becoming a larger share of the traffic mix in Connecticut.”

Figure 15: Statewide Annual Average Daily Truck VMT Trends (2015–2019)



Source: Connecticut Statewide Freight Plan Update

C. Resiliency

Deployment of these projects can fit hand in hand with Connecticut's existing resiliency measures. With climate change increasing the frequency and intensity of extreme weather events, energy resilience – the ability to prepare for, adapt to, and recover from any energy disruptions caused by these weather events – is increasingly important.

The Microgrid and Resilience Grant and Loan Program creates local distributed energy generation for critical facilities. A Microgrid generally operates while connected to the grid but can disconnect and operate in island mode on its own if there is a crisis such as a power outage or a major storm.[24]

This project, to the extent that it will diversify transportation fueling resources and provide a nexus between existing natural gas resources and electric resources will increase resiliency.

[24] Clean, Resilient, and Reliable Energy (ct.gov)

Budget Information

Hammonasset

The Hammonasset EV charging station installation project seeks funding for thirteen (13) dual port, Level 2 EV charging stations. Six (6) of the charging stations will replace currently existing stations; seven (7) of the stations will be completely new installations. Each station estimate is based on quotations provided by Contractors, staff research, and State contracts. The non-federal cost share/match will be 20 percent of the total project cost, while the remaining project costs (80 percent) will be covered by CFI program funding. Total CFI program funding requested for the Hammonasset project is $143,809.60. The non-federal cost share will be $35,952.40. Therefore, the total project cost is $179,762.00. These figures account for equipment, installation, construction, signage, payment processing fees (covering five (5) years), extended warranties (covering five (5) years), set up fees, staff salaries, fringe benefits, and indirect costs.

Hammonasset EV Charging Station Installation Project Budget

West Beach, Lot 1	Cost	Quantity	CFI Program Funding Requested (80% of Total Project Cost)	Non-Federal Cost Share (20% of Total Project Cost)	Total Cost
Replace Existing Dual Port Chargers	$5,000.00	2	$8,000.00	$2,000.00	$10,000.00
Install Additional New Dual Port Chargers	$12,500.00	1	$10,000.00	$2,500.00	$12,500.00
Install New Parking and Wayfinding Signs	$16	2	$25.60	$6.40	$32.00
Payment Processing Fee (Per Charger, For 5 Years)	$1,950	3	$4,680.00	$1,170.00	$5,850.00
Extended Warranty (Per Charger, For 5 Years)	$1,485	3	$3,564.00	$891.00	$4,455.00
Set Up Fee (Per Charger)	$85	3	$204.00	$51.00	$255.00
Salaries	-	-	$1,127.84	$281.96	$1,409.80
Fringe	-	-	$1,096.16	$274.04	$1,370.20
Indirect	-	-	$390.72	$97.68	$488.40
West Beach, Lot 1 Total			$29,088.32	$7,272.08	$36,360.40
West Beach, Lot 2					
Replace Existing Dual Port Chargers	$5,000.00	2	$8,000.00	$2,000.00	$10,000.00
Install Additional New Dual Port Chargers	$12,500.00	1	$10,000.00	$2,500.00	$12,500.00
Install New Parking and Wayfinding Signs	$16	2	$25.60	$6.40	$32.00
Payment Processing Fee (Per Charger, For 5 Years)	$1,950	3	$4,680.00	$1,170.00	$5,850.00
Extended Warranty (Per Charger, For 5 Years)	$1,485	3	$3,564.00	$891.00	$4,455.00
Set Up Fee (Per Charger)	$85	3	$204.00	$51.00	$255.00
Salaries	-	-	$1,127.84	$281.96	$1,409.80
Fringe	-	-	$1,096.16	$274.04	$1,370.20
Indirect	-	-	$390.72	$97.68	$488.40
West Beach, Lot 2 Total			$29,088.32	$7,272.08	$36,360.40

Meigs Point Parking Lot

Replace Existing Dual Port Chargers	$5,000.00	2	$8,000.00	$2,000.00	$10,000.00
Install Additional New Dual Port Chargers	$12,500.00	1	$10,000.00	$2,500.00	$12,500.00
Install New Parking and Wayfinding Signs	$16	2	$25.60	$6.40	$32.00
Payment Processing Fee (Per Charger, For 5 Years)	$1,950	3	$4,680.00	$1,170.00	$5,850.00
Extended Warranty (Per Charger, For 5 Years)	$1,485	3	$3,564.00	$891.00	$4,455.00
Set Up Fee (Per Charger)	$85	3	$204.00	$51.00	$255.00
Salaries	-	-	$1,127.84	$281.96	$1,409.80
Fringe	-	-	$1,096.16	$274.04	$1,370.20
Indirect	-	-	$390.72	$97.68	$488.40
Meigs Point Parking Lot Total			$29,088.32	$7,272.08	$36,360.40
Middle Beach Parking Lot					
Install Additional New Dual Port Chargers	$12,500.00	2	$20,000.00	$5,000.00	$25,000.00
Install New Parking and Wayfinding Signs	$16	2	$25.60	$6.40	$32.00
Payment Processing Fee (Per Charger, For 5 Years)	$1,950	2	$3,120.00	$780.00	$3,900.00
Extended Warranty (Per Charger, For 5 Years)	$1,485	2	$2,376.00	$594.00	$2,970.00
Set Up Fee (Per Charger)	$85	2	$136.00	$34.00	$170.00
Salaries	-	-	$1,127.84	$281.96	$1,409.80
Fringe	-	-	$1,096.16	$274.04	$1,370.20
Indirect	-	-	$390.72	$97.68	$488.40
Middle Beach Parking Lot Total			$28,272.32	$7,068.08	$35,340.40
East Beach Parking Lot					
Install Additional New Dual Port Chargers	$12,500.00	2	$20,000.00	$5,000.00	$25,000.00
Install New Parking and Wayfinding Signs	$16	2	$25.60	$6.40	$32.00
Payment Processing Fee (Per Charger, For 5 Years)	$1,950	2	$3,120.00	$780.00	$3,900.00
Extended Warranty (Per Charger, For 5 Years)	$1,485	2	$2,376.00	$594.00	$2,970.00

Set Up Fee (Per Charger)	$85	2	$136.00	$34.00	$170.00
Salaries	-	-	$1,127.84	$281.96	$1,409.80
Fringe	-	-	$1,096.16	$274.04	$1,370.20
Indirect	-	-	$390.72	$97.68	$488.40
East Beach Parking Lot Total			$28,272.32	$7,068.08	$35,340.40
HAMMONASSET ENTIRE PROJECT TOTAL			**$143,809.60**	**$35,952.40**	**$179,762.00**

Connecticut Municipalities EV Charging Station Installation Project Budget

Activity	Non-Federal Funds & Source	CFI Program Funds	Other Federal Funds	Total Cost	Percentage of Project
Planning and Development					
Project administration, including salary, fringe and indirect ($42,857.14 per city)	$60,000 private sector	$240,000	$0	$300,000	
Barkhamsted – $2,000 design for 2 dual port Level 2 chargers x 1 site	$400 private sector	$1,600	$0	$2,000	
Bridgeport – $10,000 design x 12 DCFCs @ 2 sites	$48,000 private sector	$192,000	$0	$240,000	
East Hartford – $2,000 design for 2 dual port Level 2 chargers x 1 site	$400 private sector	$1,600	$0	$2,000	
Groton – $2,000 design for 2 dual port Level 2 chargers x 1 site	$400 private sector	$1,600	$0	$2,000	6.9%
Hartford – $10,000 design x 12 DCFCs x 2 sites	$48,000 private sector	$192,000	$0	$240,000	
Hartford – $2,000 design for 2 dual port Level 2 chargers x 1 site	$400 private sector	$1,600	$0	$2,000	
New Haven – $10,000 design x 12 DCFCs @ 2 sites	$48,000 private sector	$192,000	$0	$240,000	
Stamford – $10,000 design x 12 DCFCs x 2 sites	$48,000 private sector	$192,000	$0	$240,000	
Subtotal	**$253,600**	**$1,014,400**	**$0**	**$1,268,000**	
Right-of-Way/ Acquisition Costs (leasing)			$0	$0	1.02%

Barkhamsted – no expected costs	$0 private sector	$0	$0	$504,000	
Bridgeport – $350/space/month for 12 spaces @ 2 sites over 5 years	$100,800 private sector	$403,200	$0	$0	
East Hartford – no expected costs	$0 private sector	$0	$0	$0	
Groton – no expected costs	$0 private sector	$0	$0	$504,000	
Hartford – $350/space/month for 24 spaces @ 2 sites over 5 years	$100,800 private sector	$403,200	$0	$504,000	
New Haven – $350/space/month for 12 spaces @ 2 sites over 5 years	$100,800 private sector	$403,200	$0	$504,000	
Stamford – $350/space/month for 24 spaces @ 2 sites over 5 years	$100,800 private sector	$403,200			
Subtotal	**$403,200**	**$1,612,800**	**$0**	**$2,016,000**	
Installation Costs (including electric)					
Barkhamsted – $10,000/dual port Level 2 unit x 2 chargers	$4,000 private sector	$16,000	$0	$20,000	
Bridgeport – $125,000/DCFC unit x 24 chargers	$600,000 private sector	$2,400,000	$0	$3,000,000	
East Hartford – $10,000/dual port Level 2 unit x 2 chargers	$4,000 private sector	$16,000	$0	$20,000	
Groton – $10,000/dual port Level 2 unit x 2 chargers	$4,000 private sector	$16,000	$0	$20,000	64.3%
Hartford – $125,000/DCFC unit x 24 chargers	$600,000 private sector	$2,400,000	$0	$3,000,000	
Hartford – $5,000/dual port	$4,000 private sector	$16,000	$0	$20,000	
		$1,200,000	$0	$1,500,000	

Level 2 unit x 2 chargers New Haven – $125,000/DCFC unit x 12 chargers New Haven – $100,000/pole-mounted DCFC unit x 12 chargers Stamford – $125,000/DCFC unit x 24 chargers	$300,000 private sector $240,000 private sector $600,000 private sector	$960,000 $2,400,000	$0 $0	$1,200,000 $3,000,000	
Subtotal	**$2,356,000**	**$9,424,000**	**$0**	**$11,780,000**	
Operation Costs Barkhamsted – $10,000/unit x 2 chargers Bridgeport – $10,000/unit x 24 chargers East Hartford – $10,000/unit x 2 chargers Groton – $10,000/unit x 2 chargers Hartford – $10,000/unit x 26 chargers New Haven – $10,000/unit x 24 chargers Stamford – $10,000/unit x 24 chargers	$4,000 private sector $48,000 private sector $4,000 private sector $4,000 private sector $52,000 private sector $48,000 private sector $48,000 private sector	$16,000 $192,000 $16,000 $16,000 $208,000 $192,000 $192,000	$0 $0 $0 $0 $0 $0 $0	$20,000 $240,000 $20,000 $20,000 $260,000 $240,000 $240,000	5.7%
Subtotal	**$208,000**	**$832,000**	**$0**	**$1,040,000**	
Maintenance Costs Barkhamsted – $4,000/unit x 2 chargers x 5 years Bridgeport – $4,000/unit x 24 chargers x 5 years	$8,000 private sector $96,000 private sector	$32,000 $384,000 $32,000	$0 $0 $0	$40,000 $480,000 $40,000	11.4%

East Hartford – $4,000/unit x 2 chargers x 5 years	$8,000 private sector	$32,000	$0	$40,000	
Groton – $4,000/unit x 2 chargers x 5 years	$8,000 private sector	$416,000	$0	$520,000	
Hartford – $4,000/unit x 26 chargers x 5 years	$104,000 private sector	$384,000	$0	$480,000	
New Haven – $4,000/unit x 24 chargers x 5 years	$96,000 private sector	$384,000	$0	$480,000	
Stamford – $4,000/unit x 24 chargers x 5 years	$96,000 private sector				
Subtotal	**$416,000**	**$1,664,000**	**$0**	**$2,080,000**	
Education/ Promotion Costs	$26,400 private sector	$105,600	$0	$88,000	0.7%
Subtotal	**$26,400**	**$105,600**	**$0**	**$132,000**	
TOTAL	**$3,663,200**	**$14,652,800**	**$0**	**$18,316,000**	**100%**

Corridor Program – Hydrogen Fuel Stations

The Corridor proposal seeks funding for four (4) hydrogen fueling stations. Each station estimate is based on capital expenditure (CAPEX) costs grounded in research by DEEP and consultation with private entities. In its request for proposals, DEEP will be asking applicants to contribute a 20 percent match share of total project CAPEX, with the rest being funded through the CFI grant. CAPEX costs will cover site or lease, equipment costs, installation and construction, and administrative costs.

	Federal Cost Share Ask	Non-Federal (Private) Cost Share	Total Cost	Federal Cost Share (%)
Milford				
1. CAPEX	**9,600,000.00**	**2,400,000.00**	**12,000,000.00**	80%
2. Administrative costs - Total	**80,000.00**	**20,000.00**	**100,000.00**	80%
2.a. Salaries	34,505.07	8,626.27	43,131.34	80%
2.b. Fringe	33,538.93	8,384.73	41,923.66	80%
3.c. Indirect	11,956.01	2,989.00	14,945.01	80%
3. Total Cost - Milford	**9,680,000.00**	**2,420,000.00**	**12,100,000.00**	80%
Willington				
1. CAPEX	**9,600,000.00**	**2,400,000.00**	**12,000,000.00**	80%
2. Administrative costs - Total	**80,000.00**	**20,000.00**	**100,000.00**	80%
2.a. Salaries	34,505.07	8,626.27	43,131.34	80%
2.b. Fringe	33,538.93	8,384.73	41,923.66	80%
3.c. Indirect	11,956.01	2,989.00	14,945.01	80%
3. Total Cost - Willington	**9,680,000.00**	**2,420,000.00**	**12,100,000.00**	80%
Stonington				
1. CAPEX	**9,600,000.00**	**2,400,000.00**	**12,000,000.00**	80%
2. Administrative costs - Total	**80,000.00**	**20,000.00**	**100,000.00**	80%
2.a. Salaries	34,505.07	8,626.27	43,131.34	80%
2.b. Fringe	33,538.93	8,384.73	41,923.66	80%
3.c. Indirect	11,956.01	2,989.00	14,945.01	80%
3. Total Cost - Stonington	**9,680,000.00**	**2,420,000.00**	**12,100,000.00**	80%
Waterbury				
1. CAPEX	**9,600,000.00**	**2,400,000.00**	**12,000,000.00**	80%
2. Administrative costs - Total	**80,000.00**	**20,000.00**	**100,000.00**	80%
2.a. Salaries	34,505.07	8,626.27	43,131.34	80%
2.b. Fringe	33,538.93	8,384.73	41,923.66	80%
3.c. Indirect	11,956.01	2,989.00	14,945.01	80%
3. Total Cost - Waterbury	**9,680,000.00**	**2,420,000.00**	**12,100,000.00**	80%
Total Cost - Corridor proposal	**38,719,999.99**	**9,680,000.01**	**48,400,000.00**	**80%**

Project Merit Criteria

Criterion #1 - Safety

Community Projects

Extensive planning will be conducted to ensure that charger installation does not present safety hazards for any roadway user group. Cities and Contractors will follow all federal NEVI safety standards and requirements (23 CFR Part 680), including physical and data security, connector types, power levels, and workforce certification. All installation, operation, and maintenance will be conducted by qualified technicians of EV charging infrastructure.

The twelve (12) proposed municipal locations and Hammonasset parking lots have clear visibility for EVs entering and leaving the charging sites. Cities and Contractors will employ a Safe System Approach to carefully identify and mitigate the risks inherent in developing these charging stations. The Safe System Approach builds and reinforces multiple layers of protection to prevent roadway deaths and injuries. It relies upon the strategies of the USDOT's NRSS to increase holistic safety. EV charging infrastructure will be installed, operated, and maintained with a focus on public road safety. Project planning will include provisions for adequate lighting, fire protection, and other traffic safety features. Potential conflicts with non-motorized and public transportation travel in multimodal corridors will also be addressed through safe design and countermeasures.

Chargers will be placed along the edges of parking lots. All chargers will be placed near the front of parking spaces to minimize the distance between the charger and the charge port on the vehicle.

EV charging stations will be clearly defined onsite. Above-ground signs will identify EV charging spaces in parking lots. Striping in a different color will help to define the spaces. Concrete-filled steel bollards or other acceptable means of protection will also be provided around the charging station, power block, and any other ancillary equipment necessary to ensure the EV infrastructure is adequately protected from vehicles.

EV chargers will be installed to avoid blocking pedestrian access of sidewalks/walkways, in compliance with ADA requirements. This will include considering cord placement during charging and when stored to eliminate obstructions and tripping hazards. Larger, wheelchair-accessible charging stations will also be available at various sites.

All chargers will include cable retraction systems that prevent cables from hitting the ground and creating trip hazards. Furthermore, a counterweight system will be employed to ensure ease of operation for all EV users.

Charging stations typically operate at a voltage higher than the typical 120V used in residential charging. That's why safety is one of the major concerns in EV technology. With DCFC stations capable of up to 1,000V of charging output, there is always the risk of electrical shock or overcurrent. The overall goal is to avoid any risks of fire, electrocution, or dysfunction in the charging infrastructure, and to ensure it is safe to use.

Electrical shock or ground fault is the accidental contact of the conductor and the grounding. This may be caused by insulation breakdown due to the presence of dust or moisture along the circuit. Ground-fault protection devices will be installed to prevent drivers from getting electrocuted if they pick up a faulty charging nozzle. This works by monitoring the output side and automatically shutting off power once it detects any earth leakage.

The following best practices will also be adopted to ensure project safety:

- ***Fire suppression equipment:*** Any fire at an EV charging station has the potential to spread to the vehicle being charged. Vehicles represent a significant fire load that, when fully involved with fire, can easily spread to adjacent vehicles or structures. Fire suppression equipment will be installed at municipal charging infrastructure locations to minimize risk.
- ***Lighting:*** Adequate lighting at all times of day will ensure the safety of EV drivers.
- ***Video surveillance:*** Security cameras will watch over the municipal charging stations and provide a clear view of the license plate of each EV that pulls into the space.
- ***Emergency call boxes:*** Call boxes will be available at the municipal stations to alert authorities in the event of an onsite emergency.

Cities will also adopt the following cybersecurity strategies to protect the safety of data collected at the EV infrastructure stations:

- Tools to prevent tampering and illegal surveillance of payment devices
- User identity and access management
- Monitoring and detection
- Incident prevention and handling
- Configuration, vulnerability, and software update management
- Third-party cybersecurity testing and certification

In 2023, many of the partner cities received USDOT Safe Streets and Roads for All grant funding to develop Safety Action Plans. That safety planning will consider charger installation, operation, and maintenance.

Corridor Project

Extensive planning will be conducted to ensure that station installation does not present safety hazards for any roadway user group. The project Contractor will be required to follow:

1. U.S. DOE's Safety Planning for Hydrogen and Fuel Cell Projects.[25]
2. USDOT's NRSS, which seeks to significantly reduce serious injuries and deaths on America's highways, roads, and streets. Using a Safe System Approach, fueling infrastructure will be developed, operated, and maintained with a focus on public road safety. Potential conflicts with non-motorized and public transportation travel in multimodal corridors will also be addressed through safe design and countermeasures. Preference will be given to the use of sites that are existing or previous truck refueling or maintenance sites which have already established safe entry and exit routes.
3. The Hydrogen Safety Panel - Hydrogen Safety Panel review evaluates all projects to determine existing safety issues, a plan to resolve any issues and use of industry best practices for resolution.
4. Connecticut Consumer Protection for Fueling - CGS § 14-318, et seq. require that fueling infrastructure regardless of fuel type meet requirements to ensure transparent display of pricing, interoperability and other consumer protection related measures.
5. Connecticut State Building Codes[26] - Connecticut State building codes follow the federal code guidelines as well and voluntary requirements to provide the safest building requirements possible.
6. Future Best Practices - In addition, fueling protocols for hydrogen are still being established as the sector develops. DEEP will require that any project meet industry standards for best practices.

Criterion #2 - Climate Change, Resilience, and Sustainability

Key environmental benefits of both the Community and Corridor projects include:

a) ***Reduced transportation-related air pollution and greenhouse gas emissions:*** Connecticut is severe non-attainment for ozone and a transformation to electric and hydrogen vehicles has been identified as necessary to meet the State's ozone goals. Because EVs do not rely on fossil fuels for power, they produce zero tailpipe emissions. Shifting vehicle purchases from internal combustion engine cars to EVs will significantly reduce fuel consumption and generate meaningful air benefits. As more residents choose alternative transportation modes, air quality will improve with less fine particulate matter, ozone, nitrogen dioxide (NO_2), and carbon dioxide (CO_2) emissions. Decreasing air pollution will improve health outcomes and positively impact climate change.

- ***Lower urban heat island effect:*** Cooler cities are a benefit of EVs and hydrogen vehicles. Switching from conventional gas-burning vehicles to EVs and hydrogen-fueled vehicles will have a positive impact on the urban heat island effect in Connecticut's cities, an observation that downtown tends to be hotter than the surrounding rural area.

[25] https://h2tools.org/sites/default/files/Safety_Planning_for_Hydrogen_and_Fuel_Cell_Projects-November2017_0.pdf
[26] Connecticut State Building Code--Regulations

- ***Mitigation of negative environmental impacts on disadvantaged residents:*** People are the product of their environment. Transportation-related air pollution is linked to health disparities. Reducing air pollution from the mobile source sector will help to address the health impacts in the communities where these vehicles travel. The public support of EVs at Hammonasset, which is Connecticut's premier State park, could induce others to move towards the purchase and use of EVs while also reducing vehicle-related emissions from guests traveling to and from the park, along I-95, and through many environmental justice or overburdened communities. The use of hydrogen in MHD vehicles that will transit I-95, I-84, and throughout the entire state, will substantially reduce the population's exposure to environmental burdens. The benefits are even more pronounced in environmental justice communities (or DACs) as many of communities of color and low-income families live near areas where pollution from fossil fuel-based vehicles and engines is abundant.
- ***Improved water quality:*** After a storm event, rain that falls onto impervious surfaces like paved roads and parking lots flows as runoff into storm drains. As runoff moves across land, the stormwater picks up the pollutants in its path, including motor oils and gasoline found on pavements. This stormwater runoff is finally released to the nearest downstream waterway. Polluted runoff can negatively impact a receiving waterbody, resulting in ecological and human health consequences. Downtown runoff in Connecticut is a serious threat to the Long Island Sound. Petroleum products spilled or dumped into the Long Island Sound may be carcinogenic and can remain for long periods of time, accumulating in the tissue of fish and shellfish. Stormwater runoff can also increase the temperature in receiving waters. Switching to EVs or hydrogen-fueled vehicles can significantly reduce water pollution from toxic chemicals and heavy metals prevalent in gasoline-powered vehicles.
- ***Less manufacturing waste:*** EV manufacturers are using and improving eco-friendly materials to build lighter, more efficient vehicles. All-natural or recycled materials minimize the environmental impact both during and after the EV production process.
- ***Decreased noise pollution:*** The amount of noise that EVs produce is much lower than traditional petroleum or diesel cars. Studies have shown that there are direct links between noise and health. Problems related to noise include stress-related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity.

Community Projects

An important goal of the proposed projects is environmental sustainability. CFI investment will help Connecticut and its cities make significant progress toward achieving their climate change mitigation goals. The project will demonstrate how investing in EV charging infrastructure can generate multiple environmental benefits, including less carbon pollution, improved air quality, and decreased runoff.

Many of the census tracts in larger targeted communities are identified as environmental justice areas of concern. According to EPA's EJSCREEN tool, these urban areas range between the 49nd and 98th percentiles for Connecticut environmental indicators, and between the 36th and 98th percentiles nationally, associated with vehicle-generated pollution. See results below:

Area Census Tracts	Particulate Matter (PM2.5)		Ozone (O3)		Diesel PM		Air Toxics Cancer Hazard		Air Toxics Respiratory Hazard		Traffic Proximity and Volume	
	CT	US	CT	US	CT	US	CT	US	CT	US	CT	US
Bridgeport	98	72	97	96	98	91	96	93	95	77	98	98
East Hartford	75	47	62	72	88	77	90	82	85	66	88	87
Hartford	66	36	49	59	81	69	84	66	73	50	85	80
New Haven	72	38	75	66	74	60	81	58	67	43	72	66
Stamford	88	54	90	82	84	73	85	70	76	54	82	81

The installation of charging equipment at municipal locations across Connecticut and at Hammonasset will accelerate the adoption of EVs. EVs have many environmental and societal benefits compared to internal combustion engine cars. These advantages include slowing climate change, less air pollution, fewer ecological risks, safer manufacturing processes, and reduced waste through recycling and repurposing of materials. The project will advance environmental justice by delivering benefits to distressed Dubuque residents who are subject to disproportionate environmental hazards.

The twelve (12) proposed municipal charging locations have the capacity to serve over one million EVs annually. Using the U.S. Department of Energy's Beyond Tailpipe Emissions Calculator, assuming that all vehicles are converted from an average new gasoline car to a 2023 Nissan Leaf, the project will lead to 320 grams per mile of upstream and tailpipe carbon dioxide emissions reductions annually per EV.

The project will also help to build Connecticut's resilience to natural disasters. EVs can help mitigate the risks of severe weather events. Equipped with appropriate bidirectional (two-way) charging equipment, EVs can provide a backup source of power to keep disaster shelters, community centers, medical offices, emergency services, and other services in operation. Being mobile, EVs can drive to areas where there is no outage or there is a source of resilient local generation, such as an EV charging station powered by solar, to be recharged and then return to the community and resume delivering power. They need no special shipments of generators or fuel. Their very mobility is one of their biggest advantages. They can even be deployed to neighborhoods to serve as mobile charging hubs for cell phones and medical devices. Widespread use of EVs could also help avoid blackouts and brownouts by shifting power supply from low-demand to high-demand periods. This is why many electric utilities are actively supporting early-stage vehicle-to-grid programs.

Corridor Project

Hydrogen EVs emit no tailpipe emissions of nitrogen oxides, hydrocarbons, air toxics, particulate matter, and greenhouse gases. Connecticut's Request for Proposal will require fuel stations to sell only clean hydrogen. Connecticut is in the final process of defining clean hydrogen to guide which projects will receive State support. A white paper with a draft definition will be released for public comment soon. Connecticut's clean hydrogen definition likely will be stricter than U.S. DOE's clean hydrogen production standard draft guidance of 4.0 kgCO2e/kgH2[27] for lifecycle (i.e., "well-to-gate") greenhouse gas emissions. If by the time the RFP is issued, Connecticut has not finalized its clean hydrogen definition for State support, the RFP will require applicants to use hydrogen produced only via water electrolysis using renewable, nuclear or grid electricity with Renewable Energy Certificate (RECs) as energy sources. Either way, that will allow an even larger emission reduction than indicated by the AFLEET tool due to the exclusive use of cleaner energy sources. As a consequence, effects in combating climate change and reducing environmental burden on DACswill be greater.

Hydrogen MHD vehicles can also provide more resilience in moments of emergency that involves power outages, especially when hydrogen is produced using renewable energy, such as solar and wind. This is especially needed as ecosystems are becoming more vulnerable due to climate change.

The existence of a hydrogen refueling infrastructure is indispensable to unlock the use of hydrogen by MHD fuel cell vehicles in Connecticut, and, hence, produce the benefits stated above.

Criterion #3 - Equity, Community Engagement, and Justice40

Community Projects

Seven (5) of the proposed twelve (12) municipal EV charging locations sit within census tracts that have been identified as "disadvantaged" by the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool and Argonne National Laboratory's EV Charging Justice40 Map Tool. See demographic and economic data for the distressed neighborhoods below:

	Bridgeport		**Groton**	**New Haven**	**Stamford**	**Connecticut**	**United States**
	0706.00	**0740.00**	**7028.00**	**1419.00**	**0201.01**		
Minorities	79.6%	96.5%	43.9%	34.2%	50.5%	35.1%	40.6%
Black	37.4%	40.0%	17.8%	8.2%	13.8%	13.1%	14.3%

[27] DOE's clean hydrogen production standard draft guidance

Hispanic	43.7%	63.3%	21.0%	11.5%	12.4%	16.9%	18.4%
Poverty	31.1%	23.1%	16.2%	14.1%	12.2%	10.0%	12.6%
Median Household Income	$30,435	$37,350	$57,098	$81,111	$78,903	$83,572	$69,021
Persons with Disabilities	32.4%	18.5%	9.3%	5.7%	8.7%	11.4%	12.6%

Source: 2017-2021 American Community Survey

These communities have neighborhoods with significant minority populations (up to 96.5 percent in Bridgeport census tract 0740.00). Median household incomes are lower than the national level ($69,021) in Bridgeport (census tracts 0706.00 and 0740.00), Hartford (census tract 5102.00), and Groton (census tract 7028.00). Poverty is also nearly three times as high as the U.S. poverty rate (12.6 percent) in Bridgeport census tract 0706.00 (31.1 percent).

The proposed project will invest resources into the revitalization of areas that will provide low-income minority residents with improved transportation choices, as well as promote upward economic mobility. Federal resources will help ameliorate historic inequities by reducing obstacles that systematically and structurally block individuals from equal access to economic opportunities. The proposed project's plan to install charging infrastructure in underserved neighborhoods will expand adoption of EVs among distressed populations. The targeted area will experience no negative impacts through charging station installation. Quality of life will improve in the community in several important ways:

- ***Affordable transportation options for disadvantaged residents:*** The EV infrastructure project was developed to provide safe, reliable, and economical transportation choices to the underserved areas in Bridgeport, East Hartford, Groton, New Haven, and Stamford. EVs are often not an option because there are few garages in dense urban areas with small lot sizes. Nearby charging stations will enable residents to consider EV adoption.
- ***Lower transportation and housing costs:*** Car ownership is expensive and often unaffordable for lower income populations. Eliminating fuel expenses with EVs has the potential to drastically reduce the cost of living in Connecticut.
- ***Removal of transportation barriers:*** ADA compliance measures will provide enhanced opportunities for seniors and persons with disabilities to purchase EVs. Following Universal Design principles, EV infrastructure will be developed to serve those with mobility challenges.
- ***Connectivity to good-paying jobs, health care, and other critical destinations:*** The economic prosperity of a community is dependent on its ability to move people and goods. However, that mobility is constrained in some Connecticut municipalities by limited transportation choices. CFI investment is critical to helping connect people with employment, education, health care, and other important destinations. The proposed

improvements will enable residents and the goods produced in the project area to move efficiently about the community and region with EVs.

- ***Enhanced multimodal transportation network:*** EV charging locations in places like Stamford are near intermodal transportation centers. These downtown charging stations will encourage EV drivers to park once and take advantage of bus, bike, and walking infrastructure for last-mile trips.
- ***Better land use and neighborhood revitalization:*** The project has the potential to revitalize economically-distressed neighborhoods. EV infrastructure will complement transit-oriented development efforts and promote a variety of housing options, commercial/retail opportunities, parks, and other amenities. Transportation upgrades will help to leverage planned mixed-use, infill development in many Connecticut cities. CFI funding will also support smart growth efforts that encourage location-efficient housing. Particular care will be taken to ensure that lower-income residents are able to remain in these areas as a result of federal investment.
- ***Improved health outcomes:*** Historically, traffic pollution disproportionately impacts underserved neighborhoods. The EJSCREEN tool indicates that traffic proximity and volume in the larger targeted urban areas ranges between the 66th and 92nd percentile in Connecticut. Poor air quality is a systemic issue that low-income individuals and people of color face. Health disparities are also concentrated in economically-distressed areas. There is a strong link in these neighborhoods between poverty and chronic disease. Air pollution reductions will help to improve health outcomes.

Community Participation Plans will be developed to inform project planning in the eight (8) municipalities. Because many of these neighborhoods have historically been marginalized and neglected, the engagement process will be tailored to the needs of the area and will amplify voices that may not have been traditionally included in planning processes. Project leaders will communicate planning intentions, impacts, and design concepts through social media, city web sites, newsletters, and other outreach tools. Design concepts and plans with be shared with residents and local businesses through community forums and public meetings. Municipalities will work closely with community groups and other institutions to gather feedback on the project.

Corridor Project

Three (3) out of the four (4) hydrogen fueling stations are proposed to be located in or near DACs. The projects in Waterbury (a DAC) and Milford (next to Bridgeport and West Haven, both DACs) have the potential to generate substantial benefits to DACs in Connecticut. The Stonington location is immediately adjacent to Westerly – a Rhode Island DAC – and next to, but not adjacent to, New London, Connecticut, also a DAC. Therefore, benefits can potentially be extrapolated to other neighboring states.

To ensure hydrogen project benefits flow to DACs, promote equity and meaningful community engagement, Connecticut's competitive procurement process will require applicants to develop a Community Benefit Plan (CBP). Such document will demonstrate how the hydrogen fueling stations will provide societal benefits specially to DACs, engage communities and labor, and mitigate/minimize negative impacts. The CBP should foresee to the possible extent the

establishment of Community and Workforce Agreements, such as good neighbor agreements, labor agreements, workforce agreements, and so on. The CBP also should address questions of how priority community groups, including labor unions, will be involved in the project, be informed of progress, provide feedback, and be actively involved throughout the execution of the project.

When a private entity is selected through competitive procurement to undertake the projects here proposed, their CBP will be part of the contractual obligation of the funding recipient. DEEP's RFP will request applicants to utilize, to the extent possible, the U.S. DOE's Standard Community Benefits Plan Template[28] for the elaboration of the CBP. Regarding the Justice40 portion of it, it is expected that the hydrogen fueling stations for MHD vehicles significantly contribute to the decrease in environmental exposure and burdens of DACsin which the MHD fuel cell vehicles will travel most frequently.

The RFP will also require Community Benefit Agreement (CBA), since the recently passed House Bill 6851[29] will require such agreements prior permitting from hydrogen projects that take place in the State. To our knowledge, the successful passage of the Bill would be the first state policy in the United States to require community benefit agreements for hydrogen projects.

Lastly, the RFP will require applicants to provide a plan for and effectuate:

a) the provisions of title VI of the Civil Rights Act of 1964 and implementing 49 CFR part 21 regulations to the end that no person in the U.S. shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance from the USDOT.
b) Section 504 of the Rehabilitation Act and the U.S. Access Board Americans with Disabilities Act (ADA) Accessibility Standards to accommodate and ensure individuals with disabilities have an equal opportunity to receive program benefits and services.

Criterion #4 - Workforce Development, Job Quality, and Wealth Creation

EV and hydrogen infrastructure improvements and creation will help to drive Connecticut's economic future. USDOT investment will support efforts to create good-paying jobs, promote upward economic mobility, and grow the State's middle class. Key economic benefits of the projects include:

- ***Increased workforce development opportunities:*** All installation, operation, and maintenance of EV charging stations and hydrogen fueling stations will be conducted by qualified technicians. Currently, there are limited chargers within many of the identified communities and no hydrogen stations for MHD vehicles. The growth of such infrastructure will precipitate the need for more trained workers. The City and the State

[28] US DOE's Standard Community Benefits Plan Template.
[29] HB 6851: An Act Implementing Recommendations of The Hydrogen Task Force. HB 6851 History.

will work cooperatively with trade schools, community colleges, center of technology and universities to expand educational opportunities in the EV and hydrogen sectors. EV and hydrogen infrastructure installation, operation, and maintenance training will help prepare workers for these emerging careers.

- ***Support for Disadvantaged Business Enterprises (DBE), minority-owned businesses, women-owned businesses, and 8(a) firms:***
  DEEP seeks to ensure that minority-owned and disadvantaged businesses have equal opportunities to participate as direct suppliers, contractors and subcontractors on all State and federally funded projects. Thus, DEEP adheres to guidelines and regulations of the State of Connecticut Minority and Small Contractor's Set Aside Program for State funded programs which requires State agencies to set aside a portion of their annual budget for procurements to small and minority businesses that are registered with the Set-Aside Program. Sub-granted cities will advertise the EV infrastructure installation projects and the following operation/maintenance activities with a preference for local DBEs, minority-owned businesses, women-owned businesses, and 8(a) firms. DEEP's hydrogen fueling station RFP will also incorporate such preference. The bidding process will provide opportunities for these companies to compete for the work.
- ***Stronger unions:*** Connecticut workers have strong labor protections above the federal floor in many instances. DEEP and the participating cities will work cooperatively with area unions to plan the proposed work and connect them with trade schools/community colleges and center of technology to help launch EV and hydrogen infrastructure training.
- ***More local hiring and apprenticeship opportunities:*** Cities will include local hiring provisions in planning and construction contracts that support the ability of area residents to benefit from federal infrastructure investment in their neighborhoods. Connecticut municipalities will also encourage competing firms to include apprenticeship opportunities for local low-income individuals, women, people of color, and others that are underrepresented in infrastructure jobs (e.g., people with disabilities, people with convictions).
- ***Wealth creation:*** Construction of the proposed EV and hydrogen infrastructure will create good-paying jobs for local residents. The projects will provide employment opportunities for designers, engineers, surveyors, laborers, electricians, and other tradesmen. Post-construction, the charging stations and hydrogen fueling stations will directly support trained maintenance workers and other personnel.

Corridor Project

In addition to direct job creation, hydrogen refueling infrastructure for MHD vehicles will permit the creation of new segments and boost those that already exist in Connecticut's hydrogen supply chain. Furthermore, this new infrastructure will support new business development and overall economic activity in this space over time, including but not limited to, hydrogen production, fuel cell vehicle manufacturing, and production of fuel cell and electrolyzer systems. As a result, the proposed infrastructure project will likely benefit Connecticut's entire hydrogen supply chain and related economic sector due to income and employment multiplier effects, and backward and forward production linkages. This economic systemic effect leads also to the creation of good-paying unionized jobs, workforce development, and American manufacturing development in other sectors, that are indirectly related to the hydrogen fueling economy.

Criterion #5 - CFI Program Vision

Community Projects

The proposed community EV infrastructure projects meet CFI program goals. As previously discussed, USDOT investment will support:

- ***Equitable deployment of EV charging stations:*** Seven (7) EV charging locations will be sited within disadvantaged census tracts in Bridgeport, Groton, Hartford, New Haven, and Stamford. This infrastructure will sit in publicly accessible parking garages, parking lots, town halls, libraries, police stations, and area businesses. Chargers will provide convenient access to homes, schools, restaurants, retail shops, local businesses, entertainment centers, and parks. EV charging infrastructure in communities will also be located near corridors, serving travelers.
- ***Connection with a multimodal transportation hub:*** An EV charging location in Stamford will be located near the Stamford Transportation Center. Access to this EV infrastructure will promote the use of alternative forms of transportation that meet the needs of all user groups, advancing the region's goals to boost multimodal mobility, especially for its low- and moderate-income populations. This downtown charging location will encourage EV drivers to park once and take advantage of bus, bike, and walking infrastructure for last-mile trips. There is also potential in Hartford to co-locate EV charging infrastructure with a car rental company.

  Additionally, the installation of new charging stations at Hammonasset supports the goal of connecting and promoting rental vehicle, taxi, carshare, ride-share, ride-hail, bicycle, micromobility, microtransit, and other electrified multi-passenger or active mobility options. As the third most-visited tourist attraction in the State, Hammonasset draws visitors utilizing a wide array of mobility options. The prominence, availability, and ease of use of the new charging units will encourage visitors to employ electric multi-passenger or active mobility options when visiting the park. Companies that provide electrified multi-passenger or active mobility options will also be more likely to invest in adding such EVs to their fleets with increased demand and opportunities for charging. Transportation-related air pollution is linked to health disparities. Reducing air pollution from the mobile source sector will help to address the health impacts in the communities where these vehicles travel. The public support of EVs at Hammonasset, which is Connecticut's premier State park, could induce others to move towards the purchase and use of EVs while also reducing vehicle-related emissions from guests traveling to and from the park along I-95, and through many environmental justice or overburdened communities. .
- ***Urban/suburban area charging:*** EV charging locations will provide safe and affordable access to apartment complexes, multi-family residential units, and single-family homes in urban centers. Within many downtowns, many residents park on the street as lot sizes are small and garages are not prevalent. Charging infrastructure is necessary in these

neighborhoods to support EV adoption. Wall-mounted EV infrastructure in parking garages will provide a low-cost, high-return charging option.

- ***Rural area charging and fueling solutions:*** The proposed municipal project will serve several small rural communities, including Barkhamsted and Groton. EV charging infrastructure in rural Connecticut will serve single-occupancy vehicles and medium-duty vehicles.
- ***Fleet vehicles that serve and operate in communities:*** Some proposed municipal charging locations and Hammonasset charging locations will be able to support local medium-duty EV vehicles, including Class 3 and 4 vans, as well as municipal electric trucks.

Corridor Project

Although Connecticut has four (4) Hydrogen AFCs, there are no hydrogen fueling stations in operation. Hence, they are Hydrogen Corridor Pending. This application aims at changing this situation by proposing the construction of four (4) hydrogen fueling stations for MHD. Two (2) will be within less than five (5) miles from I-84, and the other two (2), less than five (5) miles from I-95.

The proposed project aligns with all three (3) Corridor Program visions below, especially the first:

1. Demonstrate build-out of AFCs by expanding existing or adding new charging and fueling infrastructure: The installation of these hydrogen fueling stations will enable the use of clean hydrogen by the hardest-to-electrify vehicles (MHDV) in the state of Connecticut, and will contribute to the creation of a national AFC network that allows for inter-city, regional, and inter-state travel using cleaner fuels, addresses driver range anxiety (since hydrogen provides a larger driving range with much lower refueling/recharging time than batteries), integrates with existing transportation planning processes, and accelerates public interest and awareness of alternative fuel availability.

2. Enable zero emission corridors for medium- and heavy-duty vehicles: Some local MHD fleets and large delivery fleets (such as FedEx, DHL, and Amazon) had expressed interest in converting to clean hydrogen as part of their environmental goals. Those companies move goods and connect distribution hub centers intra- and inter-state. However, as mentioned, the lack of hydrogen refueling infrastructure prevents MHD fleets in committing to such change. The selected locations for the hydrogen fueling stations either carry the heaviest truck volumes or are crucial for the connection with other states. The proposed project will contribute for the CFI Grant program vision of to enable zero emission zero emission movement of goods, and connecting distribution hubs with the largest volumes.

3. Promote reliability and resiliency: With climate change increasing the frequency and intensity of extreme weather events, energy resilience – the ability to prepare for, adapt to, and recover from any energy disruptions caused by these weather events – is increasingly important. Hydrogen-fueled MHD vehicles can provide resilience in

moments of emergency that involves power outages, especially when hydrogen is produced using renewable energy, such as solar and wind. This project, to the extent that it will diversify transportation fueling resources and provide a nexus between existing natural gas resources and electric resources will increase resiliency.

The proposed project would be unlikely to be completed without the Federal assistance, or at least would not happen at the desired pace given the urgent need to reduce greenhouse gas emissions to and address climate change. As with most infrastructure projects, hydrogen fueling stations must be built before vehicle introduction. MHD fleets cannot commit to convert to hydrogen if they do not have access to a hydrogen refueling network. The tension between infrastructure needs and future vehicle/hydrogen demand generates a high degree of uncertainty and risk for private capital to carry out such infrastructure projects.

Project Readiness and Environmental Risk

Statement of work

The technical and engineering aspects of the project will be determined once vendor selections have been made. For a detailed project plan see the table below.

Energy source and storage needs

Site selection, ROW and energy storage needs will be evaluated once project Contractors have been selected and site evaluation has been completed. Regarding energy needs, DEEP (which includes the Connecticut Public Utilities Regulatory Authority) and the targeted municipalities will work with vendors and utilities to identify locations where projects can be placed to minimize electric grid impacts.

Real property and ROW acquisition

No real property or ROW acquisition is necessary for the installation of new EV charging stations at Hammonasset because the State already owns the land. Long-term leases (fifteen (15) years) with options to renew will be preferred from the municipal partners.

No real property or ROW acquisition is necessary for the hydrogen fueling stations.

Inclusion in relevant planning documents

Metropolitan and regional transportation plans across the State indicate the need to reduce greenhouse gas emissions, support alternative fuel vehicles, and promote equity and mobility for disadvantaged residents. The proposed EV infrastructure projects align with these plans. Federal investment will help Connecticut municipalities and DEEP to support EV rollout, advance sustainability goals, and improve quality of life in underserved neighborhoods. Cities will work

to include specific language about EV infrastructure installation language in relevant planning documents.

Connecticut is currently developing a Clean Hydrogen Roadmap. The document will prioritize the use of hydrogen by MHD vehicles as a State strategy for transportation sector decarbonization. The recently released Connecticut Greenhouse Gas Inventory also emphasizes the importance of hydrogen for medium- and heavy-duty vehicles[30] as these types of vehicles are hard to electrify and compose a significant share of Connecticut's emissions (about 28 percent).

Moreover, the recently passed House Bill 6851 mandates DEEP to develop a hydrogen strategic plan (Hydrogen Roadmap) and to prioritize heavy-duty vehicles as a hydrogen application in the State.[31] The four (4) hydrogen refueling stations proposed here align with the Hydrogen Roadmap, as it enables the adoption of hydrogen fuel cell EVs by the MHD segment.

Lastly, the hydrogen fueling stations would align with forthcoming Connecticut regulations to adopt the California ACT rule. While California has established an initial goal of 40-75 percent electrification for the MHD sector by 2035, Connecticut expects California to move to 100 percent electrification for MHD vehicles by 2040. If adopted this year, as expected, the rule will require manufacturers to begin delivering cleaner vehicles for sale in Connecticut beginning with the 2027 model year. The adoption of hydrogen fuel cell powertrains by the hard-to-electrify MHD segment will require establishing hydrogen fueling stations in advance of the regulatory requirement for these vehicles to be made available for sale in Connecticut.

Project approvals

The Hammonasset project has already been approved by DEEP State Park staff and DEEP leadership. If awarded, project implementation will begin immediately.

No State and local approvals have been secured at this time for EV infrastructure to be installed within Connecticut municipalities. These cities expect to receive a CEPA Categorical Exclusion when ready to construct. The State Historic Preservation Office (SHPO) will also need to confirm that historic resources will not be affected and the U.S. Fish and Wildlife Service will have to uphold that no rare/endangered species are likely to be harmed.

DEEP still have to conduct the competitive procurement process for all the hydrogen fueling stations proposed by this application.

Project risks

The installation of new EV charging stations will involve very few project risks. For the Hammonasset project, the only risks identified were listed in the Watt Point Model 3704 EVSE specifications. These risks will be addressed as follows:

[30] CT Greenhouse Gas Inventory, page 10.
[31] Ibid.

Risk #1: Exposure to Radio Frequency Energy. The radiated power output of the ZigBee radio (optional) in this device is below the Federal Communications Commission (FCC) radio frequency exposure limits for uncontrolled equipment. This device should be operated with a minimum distance of at least 7.8 inches (20 cm) between the ZigBee antenna and a person's body, and must not be co-located with any other antenna or transmitter by the manufacturer, subject to the conditions of the FCC Grant.

Risk #2: Failure to follow safety instructions may lead to serious injury, death, and/or damage to the equipment. This risk will be addressed by only employing qualified personnel to perform equipment installation. Furthermore, the installation will be performed in accordance with all local electrical/building codes and ordinances. Personnel will follow lockout/tagout procedures while making any electrical connections or servicing the unit. EVSE units will be removed from service immediately if the enclosure or EV connectors are found to be broken, cracked, open, or show any other indication of damage.

For the work within Connecticut municipalities, there are no anticipated issues. Long-term, the project poses few construction barriers. Most improvements are located on municipal land and within the existing ROW. Potential construction mitigation strategies might include:

- *CEPA delays:* Cities will consult with CT DOT, which administers NEPA reviews on behalf of USDOT for federal-aid projects. The project will likely receive a Categorical Exclusion, pending SHPO documentation that historic resources will not be affected and notice from the U.S. Fish and Wildlife Service confirming that no rare/endangered species will be harmed.
- *Private sector interest:* Connecticut municipalities will solicit private sector partners to install, operate, and maintain the EV equipment. Cities have already been approached by interested parties and will conduct a formal procurement process to select qualified providers.
- *Cost overruns:* Contingency costs have been built into the budget.

For hydrogen fueling stations, the most sensitive risks are regarding safety issues, especially possible leakages and the high flammability of hydrogen. To mitigate these risks, DEEP will require projects to be reviewed and approved by the Hydrogen Safety Panel and follow U.S. DOE's Safety Planning for Hydrogen and Fuel Cell Projects. One of the requirements from the Hydrogen Safety Panel is compliance with applicable codes and standards, including NFPA 2 (Hydrogen Technologies Code).

Moreover, Connecticut laws will apply to project implementation to ensure all safety concerns will be adequately addressed, especially the Connecticut State Building Codes and the Connecticut Environmental Protection Act.

In addition, fueling protocols for hydrogen are still being established as the sector develops. DEEP will require that any project meet industry standards for best practices. The RFP will require any contractor to:

a) Install equipment that complies with the new SAE heavy-duty high-flow fueling protocol currently being developed, J2601-5 (High-Flow Prescriptive Fueling Protocols for Gaseous Hydrogen Powered Medium and Heavy-Duty Vehicles). This standard is expected to be completed by October 2023.

b) Install nozzles to ensure they comply with high-flow standards.

Coordination and public engagement

Public coordination/engagement is not deemed necessary in the early stages of the Hammonasset project, because the current charging infrastructure at Hammonasset is recommended to be replaced based on its age. The charging stations currently in use have experienced periodic issues which have been addressed through repairs initiated by DEEP Parks staff or contractors.

However, once installation of new EV charging stations is underway at Hammonasset, vendors will provide basic EVSE marketing materials that DEEP can use in public information campaigns about the charging stations. DEEP Parks staff will implement an outreach campaign to announce the installation of the new stations. In addition to providing an important part of the EVSE network needed to expand EV adoption statewide, Parks can highlight the new charging stations as part of an outreach campaign to demonstrate a commitment towards reducing environmental impacts, which could include other projects. The charger locations will be noted on the DEEP State Parks website and in any other publication providing general information about Hammonasset.

Existing communication channels (DEEP website, social media, email lists) will be used for the basic outreach campaign to share the news about the new chargers at Hammonasset. DEEP may also plan a ribbon-cutting event coupled with an EV showcase and information session on EV ownership.

Within Connecticut municipalities, much public coordination has already taken place to support EV infrastructure installation. Communities have hosted numerous public meetings gathering input on ways to improve transportation options locally. City elected leaders, businesses, and residents have attended planning workshops and provided feedback on proposed transportation solutions, including EV infrastructure rollout. These localities have also used social media, written communications, and other tools to solicit feedback and engage residents. This input has helped to shape the project that CFI resources will support.

With regard to the hydrogen fueling stations, DEEP has discussed the opportunity at various times with different stakeholders. Engagement has occurred with clean hydrogen producers, fleets of MHD vehicles, passing through vehicle manufacturers, fuel cell and OEMs, community and environmental advocates, workforce development organizations, universities, and potential applicants for the fueling station installations, among others.
The coordination and public engagement arose in part from the Northeast Hydrogen Hub application for the DOE Regional Clean Hydrogen Hub Federal Funding, to which Connecticut applied jointly with other Northeast states.

Nevertheless, further discussion and engagement will be necessary regarding this particular application.

Disadvantaged Business Enterprise participation

DEEP seeks to ensure that small, minority-owned and disadvantaged businesses have equal opportunities to participate as direct suppliers, contractors and subcontractors on all State and federally funded projects. Thus, DEEP adheres to guidelines and regulations of the State of Connecticut Minority and Small Contractor's Set Aside Program for State funded programs which requires State agencies to set aside a portion of their annual budget for procurements to small and minority businesses that are registered with the Set-Aside Program.

Connecticut municipalities will follow DEEP guidelines to ensure that DBEs have an equal opportunity to participate in USDOT-assisted contracts.

DEEP will require the same in the Hydrogen Fueling Station RFP.

Equity and accessibility requirements

EV and hydrogen locations within Connecticut municipalities were identified following an equity analysis using the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool and Argonne National Laboratory's EV Charging Justice40 Map Tool. Charging infrastructure will provide opportunities for low-income and minority residents in disadvantaged census tracts within Bridgeport, Groton, New Haven, and Stamford to own an EV. Cities will conduct extensive community outreach to ensure that the voices of these community members are heard as the project advances.

Hydrogen infrastructure will provide environmental and economic benefits to communities affected by the projects. Three (3) fueling stations in particular will be installed at or near disadvantaged census tracts within Bridgeport, West Haven, Waterbury, and New London. Community Benefit Plans will be required from RFP applicants and a Community Benefits Agreement will be required, pursuant to recently passed House Bill 6851.[32]

The ADA requires that EV charging installation and Hydrogen fueling stations follow special design guidelines to accommodate people with disabilities. When planning ADA-compliant EV charging stations and hydrogen fueling stations, DEEP, Connecticut municipalities, and private entities will consider accessibility, ease of use, and safety for disabled drivers and vehicle occupants, including those using wheelchairs or other assistive equipment. Key considerations will include ensuring adequate space for exiting and entering the vehicle, unobstructed access to the charger, free movement around the charger and connection point on the vehicle, and clear paths and proximity to building entrances.

[32] Ibid.

Anticipated project timelines

Hammonasset

Anticipated Date of Completion	Milestone
The State has already gone through a competitive process and has EVSE equipment on State contract.	New EVSE procurement contract finalized
Vendors are included on the State contract.	Secure Contractor(s) that provide the required services
1 month from grant award	Schedule Contractor visit
2 months from grant award	Complete wildlife and other environmental permitting review process, including the Natural Diversity Data Base review
2 months from grant award	Finalize agreement for equipment purchase and installation
3 months from grant award	Obtain Department of Construction Services (DCS) approval
8 months from grant award	Charging station(s) installation
9 months from grant award	DCS inspection completed
9 months from grant award	Create outreach content, usage guidance, and other engagement materials
10 months from grant award	Begin operation and periodic maintenance, as required
11 months from grant award	Charger installation and contract payment complete

Connecticut Municipalities

Anticipated Date of Completion	Milestone
1 month from grant award	DEEP completes subgrant agreements with identified Connecticut municipalities
2 months from grant award	Vendor procurement processes conducted in each city
4 months from grant award	Vendors selected
5 months from grant award	Design and engineering of EV infrastructure initiated
10 months from grant award	Complete CEPA and SHPO review of installation projects
16 months from grant award	Charging stations installation and electric hookup
17 months from grant award	Inspection of infrastructure locations completed
18 months from grant award	Create outreach content, usage guidance, and other engagement materials
18 months from grant award	Begin operation and periodic maintenance, as required
19-60 months from grant award	Ongoing EV infrastructure operations
60 months from grant award	Project closeout

Hydrogen Fueling Corridor Project

Assuming funding is secured by the end of 2023, this project would aim to open the four (4) hydrogen fueling (4) stations in first quarter of each year, from 2026 through 2029.

Anticipated Date of Completion	Milestone
3 months from grant award	Secure vendor(s) that provide the required services
3-6 moths from vendor selection	Establish Site Control
1-2 months from vendor selection	Complete Site Design
4-6 months from Complete Site Design	Entitlements
2-4 months from Entitlements	Community Benefits Agreement (CBA) (if needed)
4-6 months from CBA	Permitting
3-4 months from Permitting Completion	Fueling station(s) installation
1-2 Months from Completion of Construction	Commissioning

23 CFR Part 680 requirements

Requirements listed in 23 CFR Part 680 (published on February 28, 2023) will be included in the project design because DEEP and the Connecticut municipalities' Requests for Proposals (RFP) will require compliance with the Connecticut NEVI Program standards and requirements.

Environmental Impacts

All projects will be required to meet Connecticut Environmental Policy Act (CEPA) requirements. As stated above, the purpose of CEPA is to identify and evaluate the impacts of proposed State actions that could have the potential to significantly affect the environment. This evaluation enables the State agency proposing or funding a project to judge the appropriateness of proceeding with the action in light of its environmental impacts. The process also provides opportunity for public review and comment through an early public scoping process as well as later review of any Environmental Impact Evaluation (EIE).

Appendix A – Letters of Support for Corridor Program Project

The support letters below reflect the strong and successful ongoing engagement that DEEP has been carrying out with relevant stakeholders to promote the development and deployment of clean hydrogen in the State, such as MHD vehicle manufacturers, fuel cell power train manufacturers, technology and workforce development centers, and private entities interested in applying for hydrogen fueling station RFP that will be issued if DEEP is awarded.