The ABCs of EVs: Electric Vehicles 101 The Role of Regional and Local Planning

STEVEN TUPPER, DEPUTY DIRECTOR CAPE COD COMMISSION





The Cape Cod Commission

...is the regional land use planning, economic development, and regulatory agency created in 1990 to serve the citizens and 15 towns of Barnstable County, Massachusetts



MISSION

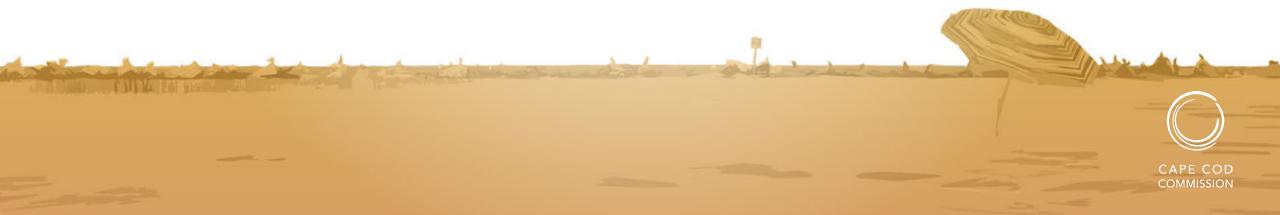
...To protect the unique values and quality of life on Cape Cod by coordinating a balanced relationship between environmental protection and economic progress.



15 INDIVIDUAL TOWNS

Climate Action Plan

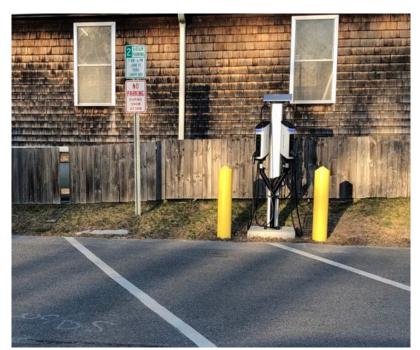
CAPE COD





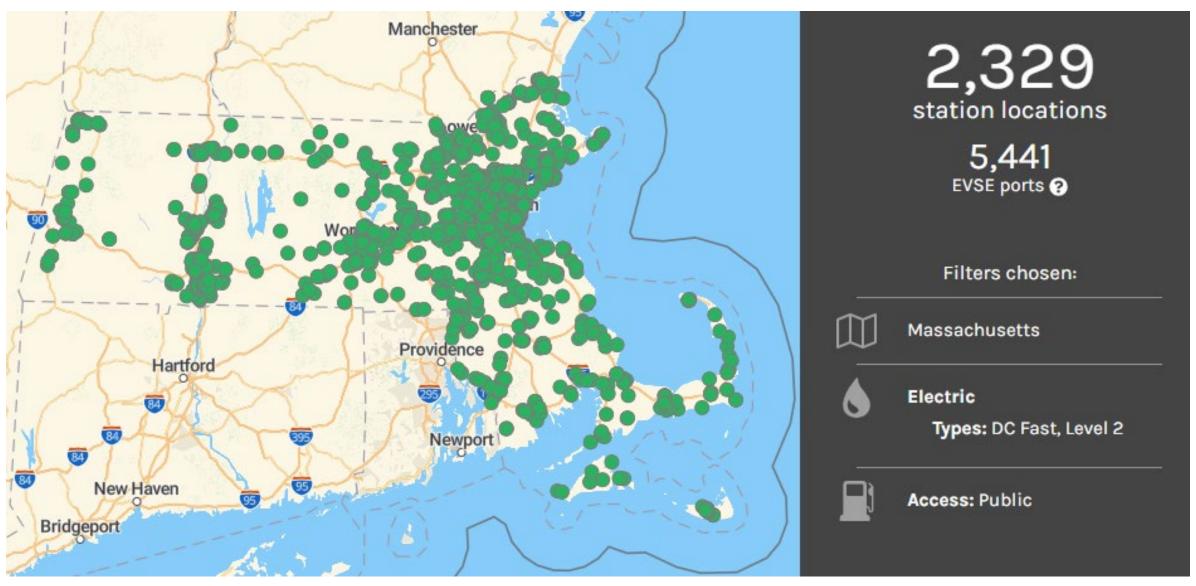








DOER ALTERNATIVE FUELS DATA CENTER CHARGING STATION LOCATIONS MAP



https://afdc.energy.gov/fuels/electricity_locations.html Accessed 1/13/23









https://capecodcommission.org/ev-siting-analysis

CHARGING AN EV

LEVEL 1 CHARGING

Level 1 charging draws electricity from standard 120V outlets and generally provide about 5 miles of range per hour charge. Charging could be through a Level 1 charging unit or a standard household outlet, where drivers can charge their car overnight.



LEVEL 2 CHARGING

These chargers take a higher voltage supply and can provide anywhere between 12 and 60 miles of range per hour of charge depending on the vehicle model.

LEVEL 3 CHARGING (DC FAST)

Most vehicles will only need to charge for 30 minutes to reach 80% battery level or higher when using a DC Fast charger, making them ideal for quick public charging. DC FAST

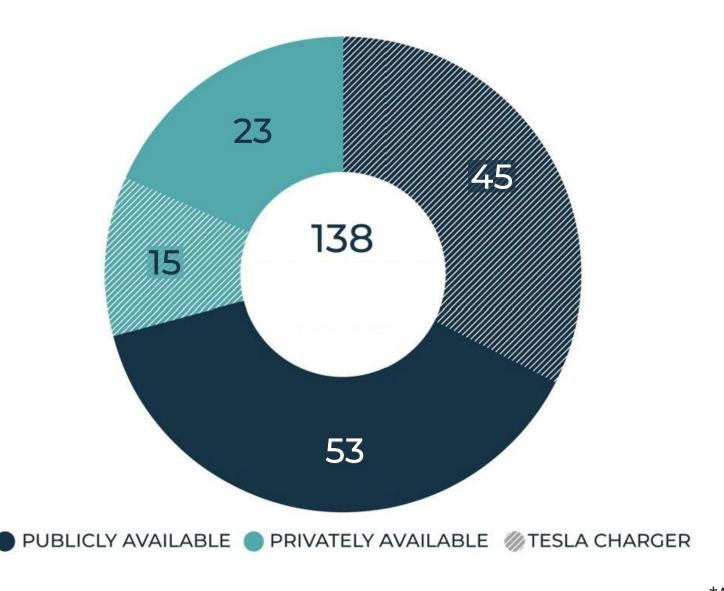
EV STATION SITING FUTURE CHARGING STATIONS



ANALYSIS APPROACH

- Began with inventory of existing stations
- Focused on public stations
 - Compliments home and workplace charging
 - Key for visitors to the region
- Identified areas well-suited for additional charging stations based on anticipated demand
- Do not want to discourage opportunistic installations

2019 EV STATION SITING CAPE COD'S CHARGING STATIONS



2019 EV STATION SITING CAPE COD'S CHARGING STATIONS BY LOCATION





Key Data Inputs

Locations of current EV charging stations

Activity Centers

(areas with a concentration of business activity, community activity, and a compact built environment)

Community Activity Sites

(e.g., municipal buildings, schools, and libraries)

Dense Business Areas

Parking Lots With at Least 100 Spaces



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EV STATION SITING FUTURE CHARGING STATIONS

OTHER CONSIDERATIONS



Ownership

Station Provider

Property Owner

Third Party



Costs

Equipment and Installation Electricity



Design

Siting and Layout
Parking Management
Zoning and Permitting

NEXT STEPS



Data Updates

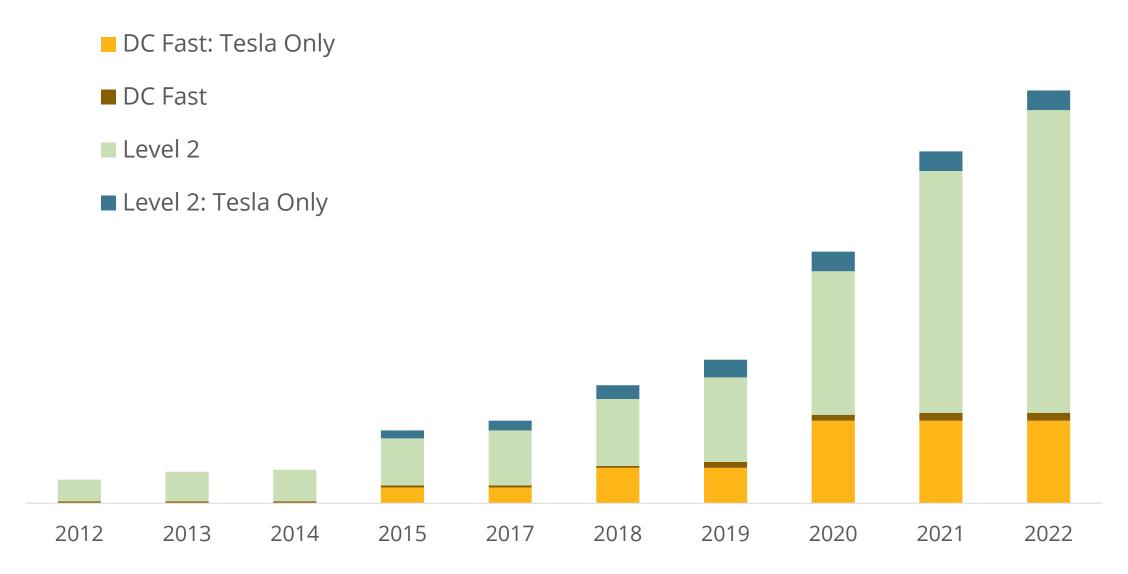


Integration of Equity
Considerations



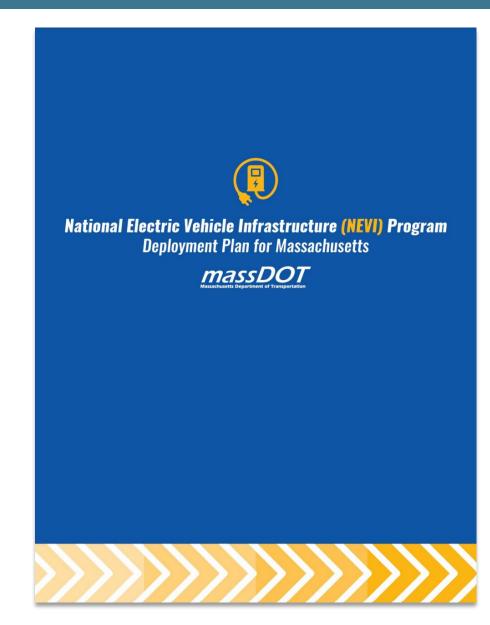
Assist with Implementation/ Funding Opportunities

DOER ALTERNATIVE FUELS DATA CENTER DATA TREND IN EVSE PORTS ON CAPE COD



NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE (NEVI) PROGRAM DEPLOYMENT PLAN

Effectively
prioritizing local
actions requires
understanding the
available funding
programs as well
as statewide
implementation
priorities.





MassDOT NEVI Plan

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6.0 EV Charging Infrastructure Deployment

6.1 Deployment Strategy Development

As documented in this plan, MassDOT will follow a two-stage approach to deployment of NEVI DCFC infrastructure on EV Alternative Fuel Corridors:

- NEVI formula funds will first be used to eliminate 50-mile gaps on the EV alternative fuel corridor network in Massachusetts to ensure a complete network.
- Additional NEVI funds will then be used to focus on zones within the AFC network where there is
 the most unserved demand, with higher priority given to zones with high percentages of
 environmental justice communities.

The stage of investing to meet demand is based on the concept of electrification zones, continuous subsets of the alternative fuel corridor network defined based on similar long-distance trip charging demand characteristics. The map of these zones is shown in Figure 8.

Figure 8: Electrification Zones

MassDOT NEVI Plan



Source: MassDOT

By using this zoned approach, rather than specifying the exact locations of NEVI-funded infrastructure in this plan, MassDOT can both ensure that investments are located where they will be effective at supporting range confidence and also provide flexibility for a private partner to identify and propose sites that meet the many conditions needed to successfully host NEVI DCFC.

NEVIPLAN massDOT



SUPPORTING LOCAL CLIMATE ACTION EV MODEL BYLAWS



A new Electric Vehicle (EV) Model By-Law will support municipalities to encourage the strategic siting and installation of EV charging infrastructure.



Achieving emissions reduction goals will require addressing barriers to transportation electrification, including access to charging infrastructure. With consultant support, the Commission developed the model municipal electric vehicle bylaw to encourage the installation of EV charging infrastructure during residential and commercial development and redevelopment, as well as ensuring readiness for future charger installation.









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