CCRPC PAC

EV Planning Updates

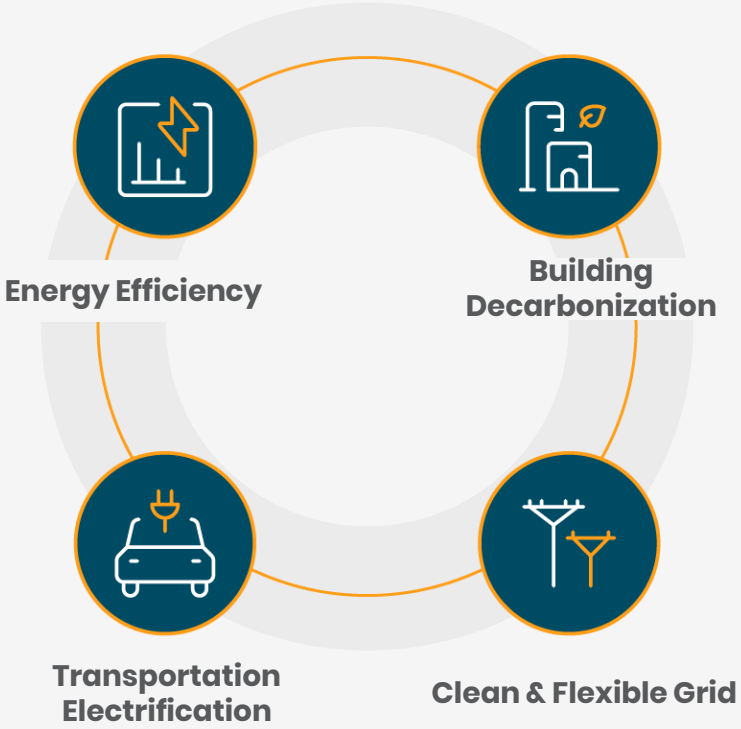
April 12, 2023

VEIC offers high-impact energy solutions that decarbonize buildings, transportation, and utility grids, today.

We help our clients meet their clean energy goals through innovative and equitable solutions that benefit them, their partners, and their communities.

- **Nonprofit founded in 1986** with a mission to generate the energy solutions the world needs
- **National consulting practice working across over 75% of the country** advising states, utilities, Federal agencies, nonprofit organizations, and private industry
- **Program design & implementation for award winning energy efficiency and clean energy programs** including program administrator for Efficiency Vermont & the DC Sustainable Energy Utility; on administration team for California TECH, CalNEXT (statewide electric emerging tech), Hawaii Energy, and Focus on Energy (WI)

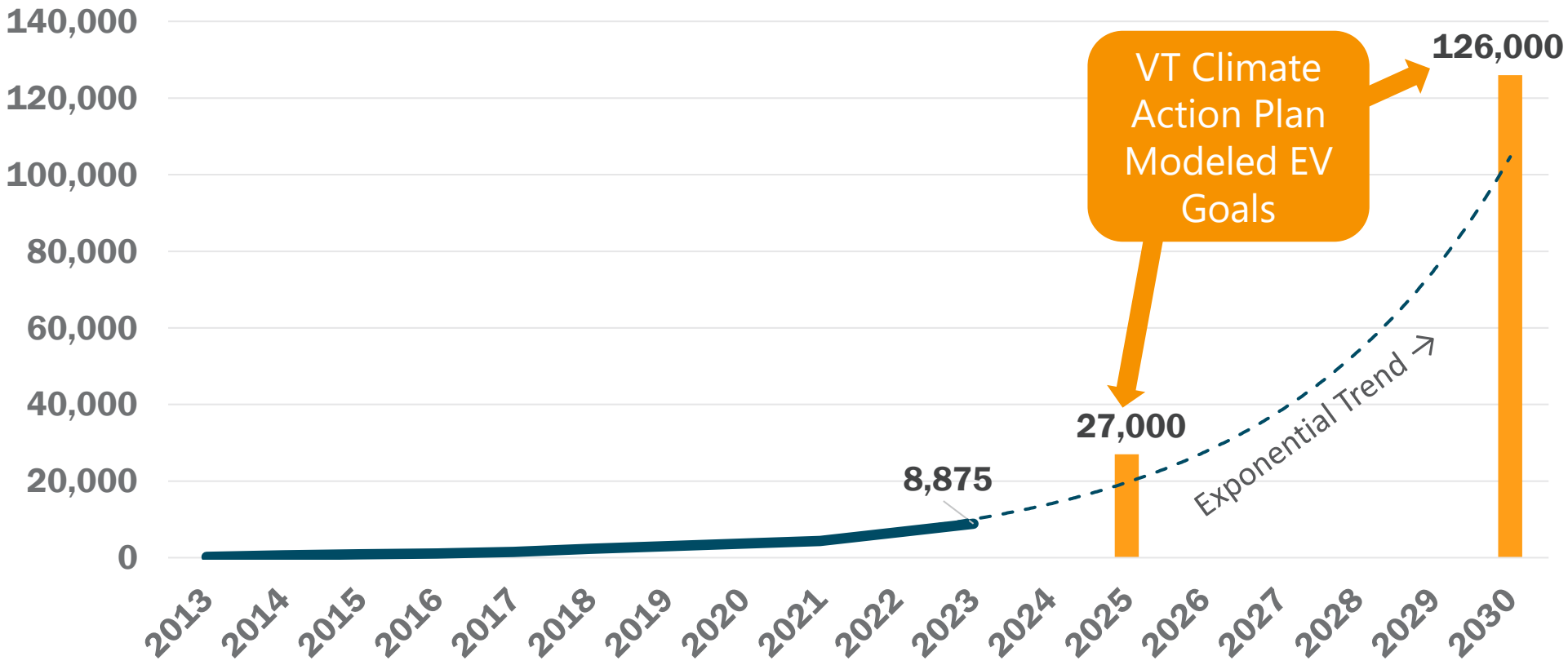
Making an impact within each dimension of energy



Why Support EV Adoption?

- Decrease energy consumption and pollution
- Save money
- Position the community to be a leader in sustainability
- Potential positive impact on local businesses
- EVs are here – 100% of new vehicle sales by 2035

How many vehicles does Vermont need to electrify?



How To Support EV Adoption

- Planning and permitting
- Education and outreach
- Lead by example – electrify fleets

Types of EV Charging

Level 1 Charging
120V
5 miles range / hr

Level 2 Charging
240V
10-20 miles / hr

DC Fast Charging
480V
Up to 1,000 miles / hr

Plug Types


J1772


Tesla


J1772


Tesla

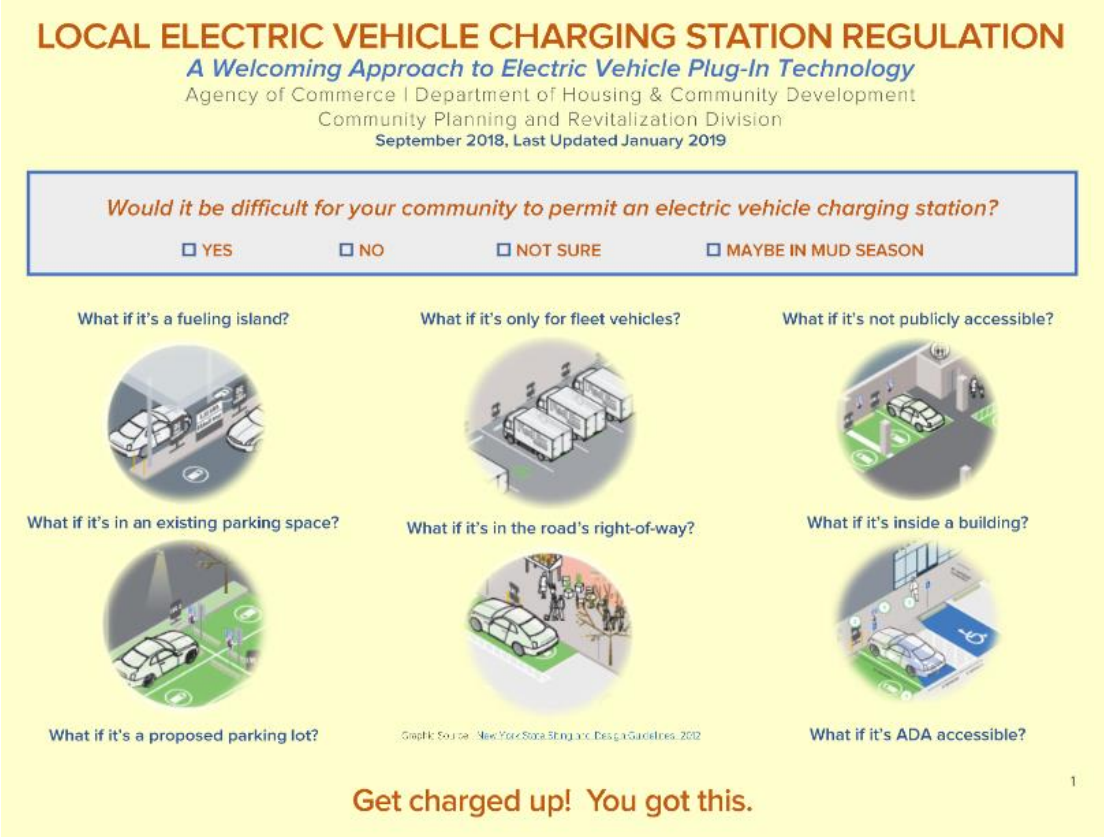

CCS


CHAdeMO


Tesla

EV Bylaw Considerations

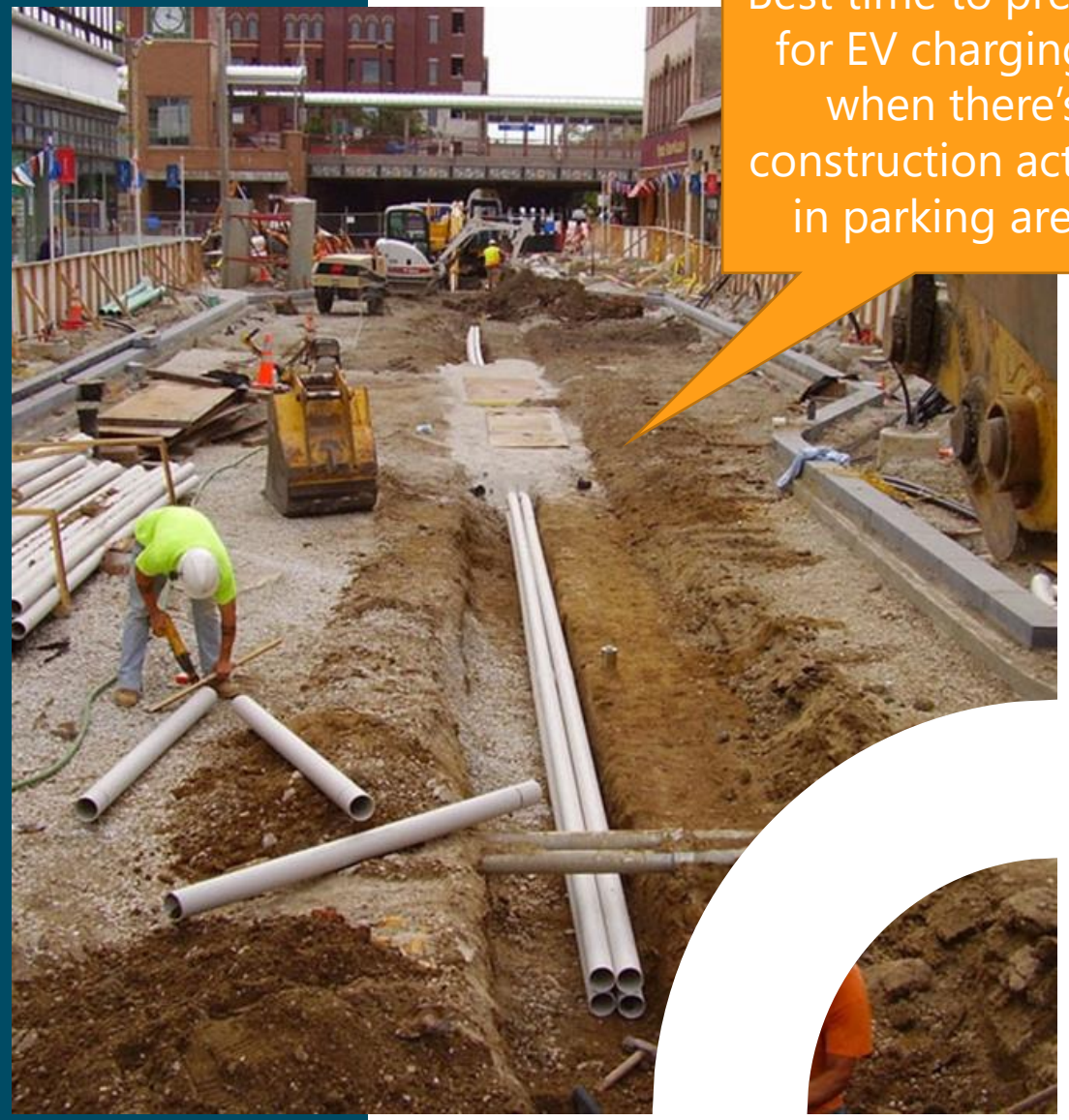
- Define EV-related terms
- Allow charging as an accessory use (wherever there is parking)
- Allow charging stations as a principal fueling station (in specific cases)
- Streamline permitting through exemptions and/or administrative review
- Review signage requirements
- Consider State building energy code requirements



Vermont ACCD EV Charging Regulatory Guidance

Planning for EV Charging

- Most charging activity is at home
- Increased availability of multifamily charging is critical
- Workplace and public charging are important, but may not be necessary in every community
- Consider municipal role in developing charging – planning, grant applications, site host identification, etc



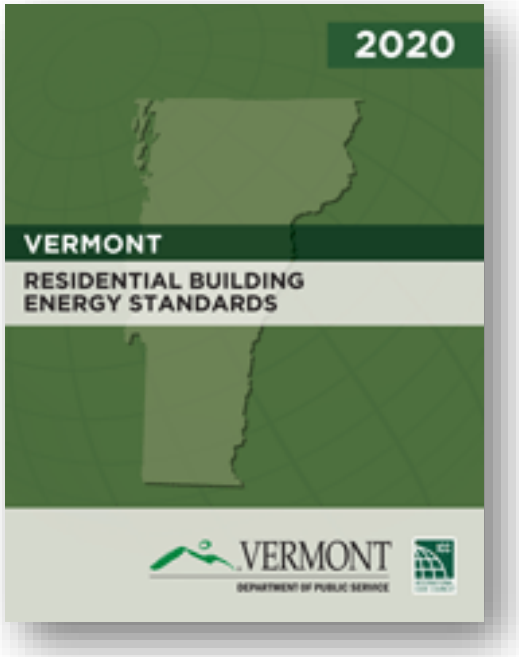
State of Vermont Building Energy Codes

Commercial

- About 2-4% of parking EV ready
- Half ready to go on occupancy
- Level 1 and/or 2

Residential

- Multifamily with 10+ units
- 4% of parking
- Level 1 or 2 receptacles
- Single family requires level 1 receptacle for stretch code



https://publicservice.vermont.gov/efficiency/building-energy-standards

State of Vermont Draft 2023 Residential Building Energy Code

ELECTRIC VEHICLE CHARGING – LEVEL 2 CAPABLE. Level 2 "capable" includes space in the utility room for panel(s) of at least one minimum 40-ampere branch circuit to be provided to garages and/or the exterior of the building to accommodate a future dedicated Society of Automotive Engineers (SAE) standard J1772-approved Level 2 EVSE with a J1772 connector or NEMA 14-50, or equivalent, within 5 feet of the centerline for each EV charging parking space. A conduit or other unobstructed path to easily run a future wire to the parking spot shall also be provided.

TABLE R4043 REQUIRED LEVEL 2 CAPABLE ELECTRIC VEHICLE CHARGING PARKING SPACES FOR ALL NEW BUILDINGS (BASE CODE and STRETCH CODE)

BUILDING/PARKING TYPE	MINIMUM REQUIRED NUMBER OF LEVEL 2 CAPABLE EV CHARGING PARKING SPACES
Single Family Home or Multifamily Building	1 per dwelling unit or the number of parking spaces provided, whichever is less
Additional Parking Spaces	25% of provided parking spaces not utilized by dwelling units, or 40 spaces, whichever is less

For *multifamily building* garage or covered parking, provide on electrical drawings the appropriate sized pathway to the building electrical room to accommodate a future electrical upgrade for Level 2 EVSE electric vehicle charging; provide adequate wall and floor space in the building electrical room for future EV charging related electrical equipment; provide the appropriate sized pathways to exterior on-grade surface parking spaces for future Level 2 EVSE electric vehicle charging; provide a line diagram on the electrical drawings demonstrating a pathway for future Level 2 EVSE electric vehicle charging. Quantity of future Level 2 EVSE electric vehicle charging stations shall be as required by Table R404.3.

Draft update under consideration. Potentially effective in late 2023

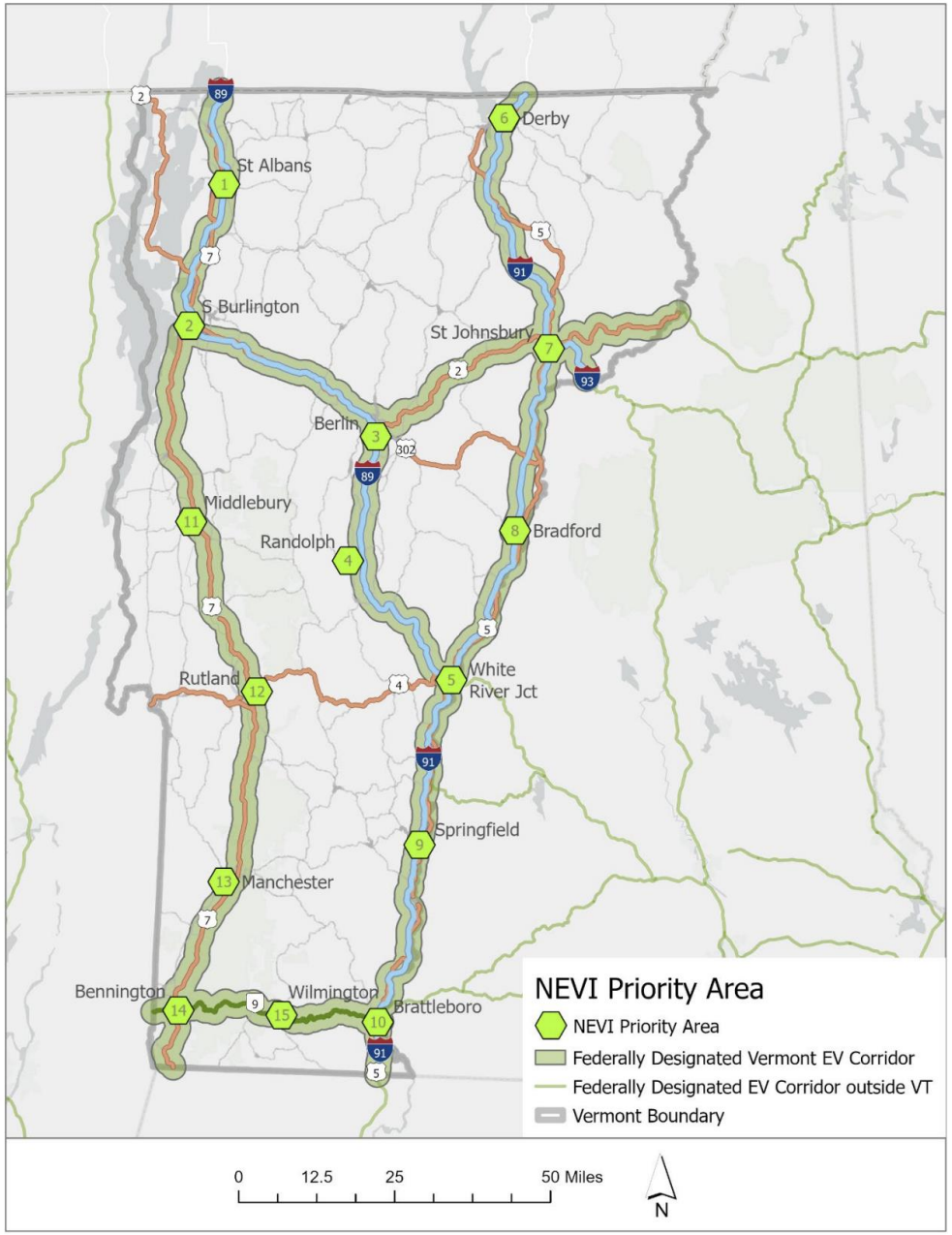
State of Vermont Draft 2023 Commercial Building Energy Code

COMMERCIAL BUILDING OCCUPANCY[a]	EVSE SPACES	EV READY SPACES	EV CAPABLE SPACES
Groups A, M	2%	0%	20%
Group B	6%	0%	30%
Group E	4%	0%	20%
Groups F, H, S	2%	0%	10%
Groups I, R–3, R–4	3%	0%	10%
Group R–1	8%	7%	50%
Group R–2	0%	0%	See equation in code

https://publicservice.vermont.gov/efficiency/building-energy-standards/building-energy-standards-update

State of Vermont's EV Charging Plan

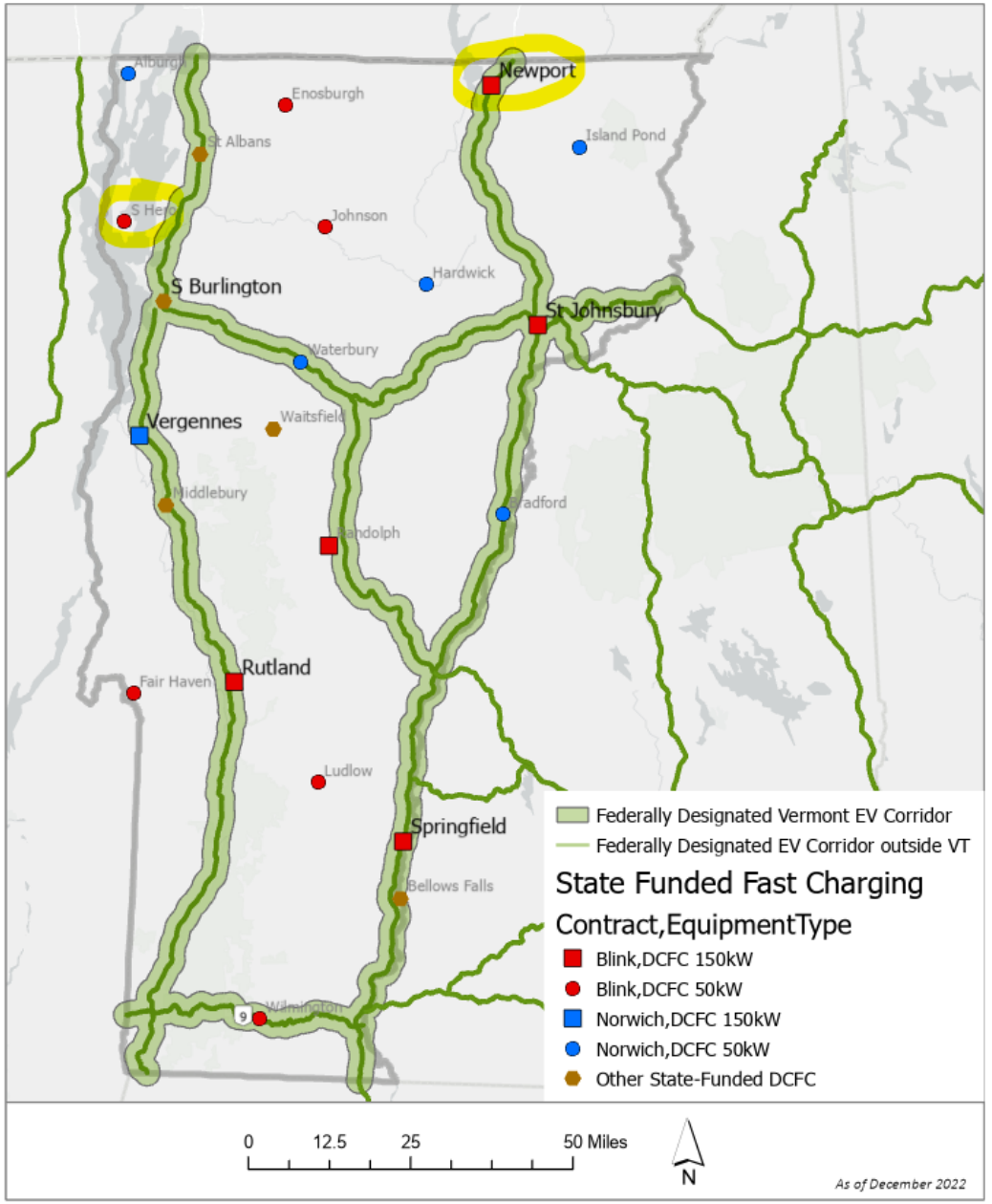
- VTrans has a National Electric Vehicle Infrastructure (NEVI) website with information on federal requirements and priority areas for investment
- Vermont plan approved by federal Joint Office of Energy & Transportation in September 2022
- 15 areas identified to complete initial build-out of corridors
- Several areas may meet NEVI requirements by adding to VW Settlement funded EV charging
- VTrans NEVI plan will be updated annually



https://vtrans.vermont.gov/planning/nevi

Funding Opportunities

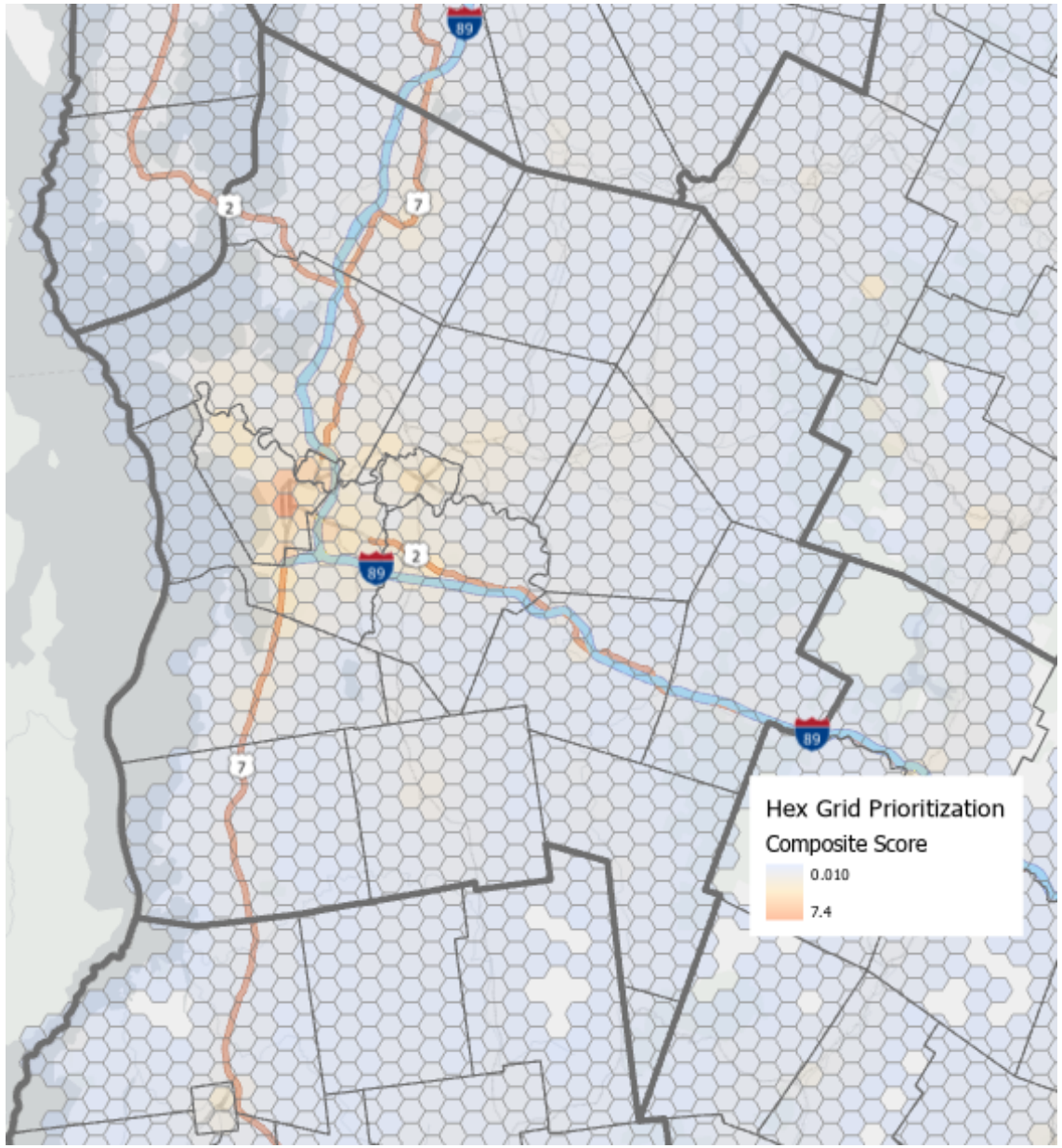
- State of Vermont has invested over $3.5 million since 2014
- Recent funding focused on fast charging and multifamily support
- VT ACCD contracted with Blink Charging and Norwich EV to build out 17 locations
- Each location on the map shown will have at least 2 fast chargers
- Once completed, almost nowhere in the state where someone is more than 30 miles to a DCFC
- ACCD currently developing additional funding opportunities for $7 million in State funds for multifamily, workplace and public attraction EV charging
- Utilities also offer limited funding support for public & workplaces
- Federal Charging and Fueling Infrastructure (CFI) discretionary program - [CFI - Environment - FHWA (dot.gov)]



https://accd.vermont.gov/community-development/funding-incentives/electric-vehicle-supply-equipment-evse-grant-program

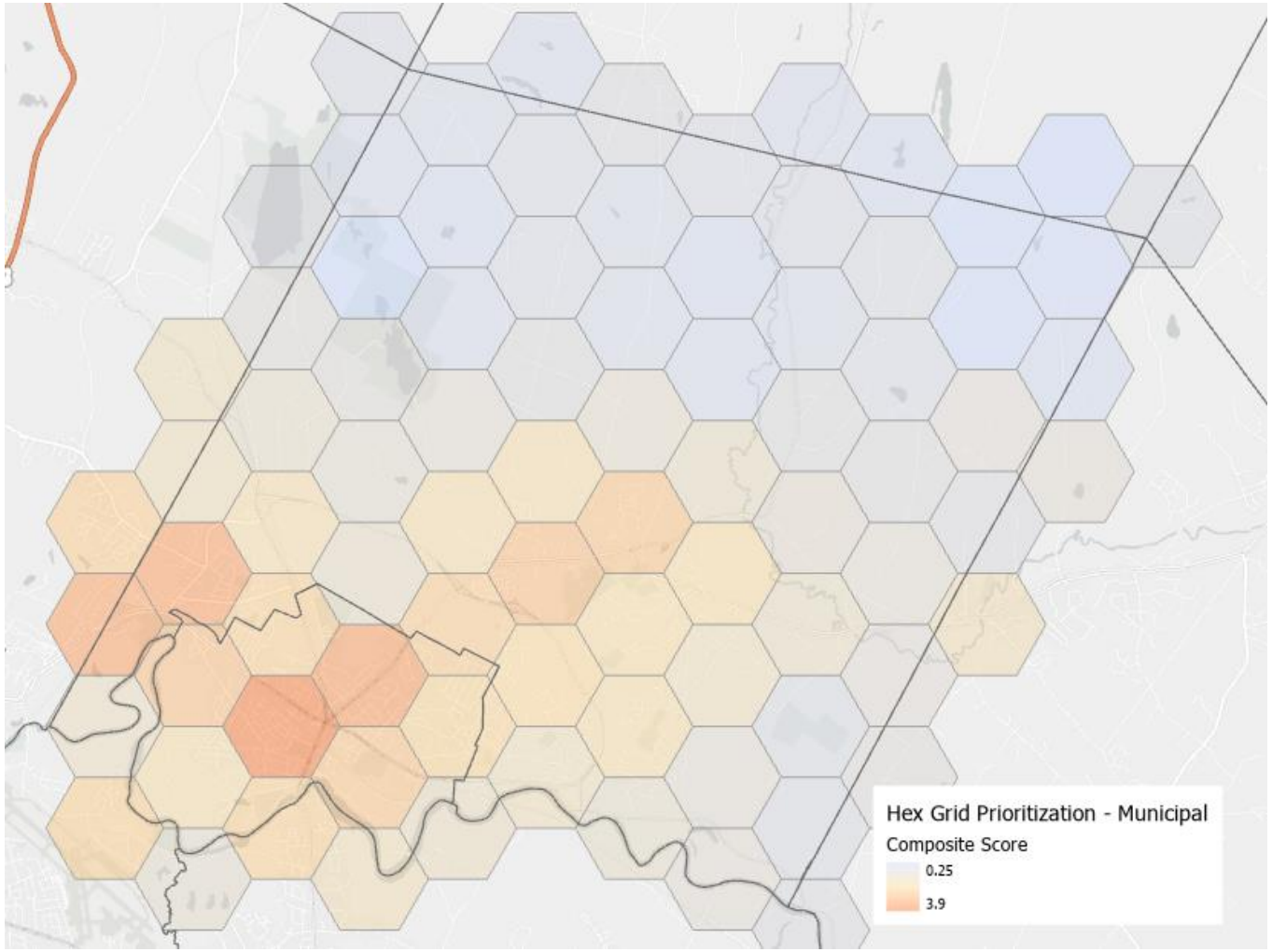
Developing a Municipal Charging Plan

- Schools and municipal facilities may be a good place to begin
- Prioritization factors such as multifamily housing, employment, income, racial composition, traffic, and walkability were used in State plan
- Consider context with State investments
- Support site host outreach



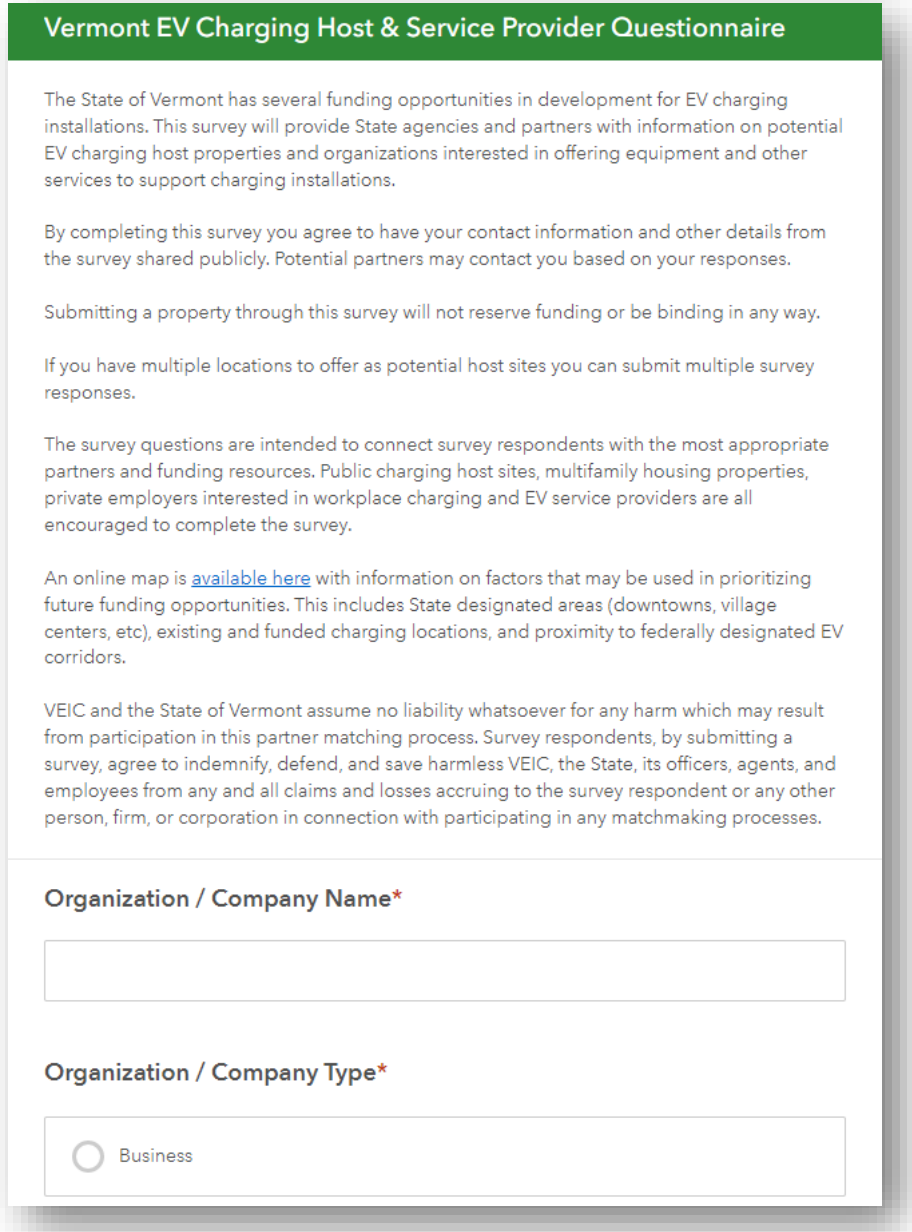
Developing a Municipal Charging Plan

- Sample municipal-scale prioritization results for Essex and Essex Junction
- Statewide prioritization had composite scores about twice the maximum shown here



Charging Host Site / Partner Survey

- Survey to support future EV charging funding opportunities
- Property owners / businesses can express interest in installing EV charging or serving as a host location
- Service providers can volunteer information on types of equipment and services available
- Responses to be shared publicly
- When survey is advertised may be in touch to help get the word out



Vermont EV Charging Host & Service Provider Questionnaire

The State of Vermont has several funding opportunities in development for EV charging installations. This survey will provide State agencies and partners with information on potential EV charging host properties and organizations interested in offering equipment and other services to support charging installations.

By completing this survey you agree to have your contact information and other details from the survey shared publicly. Potential partners may contact you based on your responses.

Submitting a property through this survey will not reserve funding or be binding in any way.

If you have multiple locations to offer as potential host sites you can submit multiple survey responses.

The survey questions are intended to connect survey respondents with the most appropriate partners and funding resources. Public charging host sites, multifamily housing properties, private employers interested in workplace charging and EV service providers are all encouraged to complete the survey.

An online map is available here with information on factors that may be used in prioritizing future funding opportunities. This includes State designated areas (downtowns, village centers, etc), existing and funded charging locations, and proximity to federally designated EV corridors.

VEIC and the State of Vermont assume no liability whatsoever for any harm which may result from participation in this partner matching process. Survey respondents, by submitting a survey, agree to indemnify, defend, and save harmless VEIC, the State, its officers, agents, and employees from any and all claims and losses accruing to the survey respondent or any other person, firm, or corporation in connection with participating in any matchmaking processes.

Organization / Company Name*

Organization / Company Type*

Business

veic

Vermont EV Charging Host & Service Provider Questionnaire

Conclusion

- EVs are here
- EV-readiness in new construction offers significant savings
- EV bylaw updates are helpful
- Electrifying municipal fleets can set the example and provide lessons learned
- Funding opportunities are coming – communities with plans will have a head start
- Willing site hosts are a key element to successful installations

Tesla Supercharger DC fast charger at South Burlington Healthy Living

Contact

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EV Resources

- Vermont ACCD EV Charging Grant Programs
- Drive Electric Vermont EV Charging Installation Resources
- US DOE Alternative Fuels Data Center – EV Infrastructure Projection Tool (EVI-Pro) Lite
- Chittenden County Regional Planning Commission EV Charging Station Guidebook – prepared by VEIC
- Vermont Clean Cities
- Cape Code Commission Model Municipal EV Bylaw
- Southern Maine Planning & Development Commission & Maine Clean Communities Coalition – Municipal EV Readiness Toolkit
- City of Boston, MA – Electric Vehicle Readiness Policy For New Developments
- Electrification Coalition EV Policy Dashboard
- Consumer Reports - Battery Electric Vehicles & Low Carbon Fuel Survey