



**ELECTRIC VEHICLE (EV) SUBCOMMITTEE
LEBANON ENERGY ADVISORY COMMITTEE (LEAC)
MAY 9, 2024 - 3:00 PM
COUNCIL CHAMBERS, CITY HALL OR
REMOTE VIA VIRTUAL PLATFORM
LEBANONNH.GOV/LIVE**

-
- 1. Call to Order**
 - 2. Approval of Minutes**
 - A. April 11, 2024
 - 3. Old Business**
 - A. E-street sweepers (Granite State Clean Fleet Grant)
 - B. Lebanon workplace charging program
 - C. Earth Day EV Expo- 4/21/24
 - D. Solar e-bike charging stations
 - E. Letter to school board
 - F. EV infrastructure plan for Lebanon TIFF area
 - 4. New Business**
 - A. Preferred acronym: EVCE or EVCS?
 - B. New funding opportunities
 - C. Lebanon fleet EV's
 - 5. Open to the Public**
 - 6. Upcoming Events & Future Agenda Items**
 - A. Upper Valley EV Expo - Sunday, September 29, 2024, from 12-4PM at the New London Historical Village, 179 Little Sunapee Road.
 - 7. Adjournment**

Meetings are open for in-person and remote attendance. Members of the public that wish to attend remotely may do so by going to LebanonNH.gov/Live where you will find instructions on how to enter the meeting. Members of the public will be able to participate and ask questions through the City's virtual platform or by phone. Please note: Should technical difficulties occur during the meeting that disrupts virtual or phone connection(s), the meeting will continue without remote access capabilities.

AGENDA
ELECTRIC VEHICLE SUBCOMMITTEE OF THE
LEBANON ENERGY ADVISORY COMMITTEE
May 9, 2024

AGENDA ITEM 2
APPROVAL OF MINUTES:

APRIL 11, 2024



ELECTRIC VEHICLE SUBCOMMITTEE MEETING MINUTES

(Subcommittee of the Lebanon Energy Advisory Committee)

City Hall Council Chambers

April 11th 2024, 3:00 PM

-- Draft --

MEMBERS PRESENT: Sherry Boschert (Chair), Tom Benzel, Clifton Below.

MEMBERS ABSENT: none.

STAFF PRESENT: Tad Montgomery, Energy & Facilities Manager (minutes)

GUESTS PRESENT: Bill Stearns (LEAC member), Henry Bromberg (LEAC Chair), Vijay Prithiv

1. **CALL TO ORDER:** Meeting called to order by Sherry Boschert at 3:04 PM.

2. **APPROVAL OF MINUTES:**

Tom Benzel moved to accept the March 2024 EV Subcommittee minutes;
Sherry Boschert seconded. Approved unanimously.

3. **OLD BUSINESS**

A. **Granite State Clean Fleet Grant for Street Sweepers** – Tad Montgomery gave an update of the grant. The project budget has gone through another revision and DPW Staff will be requesting a supplemental appropriation from City Council. There is the hope or expectation that most City expenses for this project will be covered through the federal Direct Pay financial incentive.

B. **Employee EV Charging Policy** – Sherry Boschert and Tad Montgomery discussed a draft policy that Ms. Boschert has written for City Staff use of City EV chargers. One issue that was discussed was how City staff can most easily track usage of their EV charging and recompense the City, since current City EVCE are not networked or connected to the internet and cannot track usage. Mr. Below suggested the use of CT meters, which cost \$200-400 and can perform this service through connection to a local WIFI system. Other members of the Committee expressed an interest in reviewing and commenting on the draft policy, and Ms. Boschert said that she would send it around. Tad Montgomery asked that comments be sent to him.

C. **Drive Electric Earth Day Event** – Sherry Boschert and Bill Stearns gave an

update on the organizing for this event, happening Sunday, April 21st, noon to 3 PM, in the Shaw's parking lot in West Lebanon. There are now 24 electric vehicles registered to participate. The website for this event is: NHEV.org. There will be talks at the event on winter driving, financial incentives in NH & VT, and EV charging. Sherry Boschert and Junction Arts Media are developing two short videos to publicize the event.

- D. **EV Infrastructure Plan for Lebanon TIF District** – Ms. Boschert gave an update on recent work on this project. She, Tad Montgomery, and Clifton Below recently walked the downtown area discussing possible sites in detail, and Mr. Below showed them the online Liberty utility map that gives the location and capacity of different lines and locations on the local grid. While in the Hanover St. parking lot they met the owner of 20 West Park St., who expressed a strong interest in hosting EVCE on his property next to the parking lot. Ms. Boschert & Mr. Montgomery are drafting an RFP for this TIF District EVCE in conjunction with their participation in a Harvard Kennedy School bootcamp on green procurement.

4. NEW BUSINESS

- A. **Welcome Bill Stearns** – Sherry Boschert welcomed Bill Stearns to LEAC, and to the EV Subcommittee as soon as Chair Bromberg has a chance to appoint him.
- B. **New EV Technologies** – Tom Benzel gave an overview of a new Level 2 EVCE that he has been researching, manufactured by [EVSE LLC](#) based in Connecticut. They mount to a utility pole, can have one (\$5,400) or two (\$9,000) ports, have retractable cables that reduce trip hazards, and can be combined with an additional networking system called Amped-Up for \$1,300 plus an annual subscription fee. Mr. Benzel said that there has been a pilot of this EVCE in Burlington since Oct. 2023. Mr. Below mentioned another pilot that National Grid has been undertaking in Melrose, MA since 2021.

Mr. Below discussed a new Level 3 EVCE called Gravity that Google has invested in. It is AC only, can charge nine times faster than a standard Level 2, and has the capability of bi-directional charging. Mr. Below has requested information from the company but has not heard back yet. Information on this EVCE can be found [here](#).

- C. **Solar e-Bike Charging Stations** – Mr. Montgomery discussed the preliminary stages of e-bike charging station development in West Lebanon

(Kilton Library) and downtown Lebanon that has been directed by the City Manager. A meeting is being organized for stakeholders to give input and start the planning process for this project.

- D. Draft Letter to School Board** – Ms. Boschert described a letter that she had just drafted to School Board members encouraging them to consider bus fleet electrification.

E. Other:

- Strategic Plan – Tad Montgomery mentioned EV elements in the Strategic Plan process and recommended that EV Subcommittee members attend the City Council meeting where this will be discussed, tentatively set for April 25th.
- Solar EVCE Proposal to City Council – Tad Montgomery said that a proposal for Solaflect-type EV chargers will be discussed by the City Council at their meeting on April 17th. This is part of the TIF District EVCE project. Ms. Boschert described other solar EVCE that she and Mr. Montgomery have been researching, including one called [Beam Global](#).
- E-Bike Sharing Program – Vijay Prithiv said that he thought that the four towns around Dartmouth would make a great place for an e-bike sharing program: Hanover, Norwich, Hartford, and Lebanon.
- Multi-Unit Housing EVCE – Mr. Prithiv also expressed an interest in getting public EVCE installed at condos and apartment complexes. Ms. Boschert said that New Jersey got a grant recently to install EVCE at all apartment complexes in the state, and she would like to apply for something similar for the Upper Valley, perhaps in a future CFI grant round.

UPCOMING EVENTS AND FUTURE AGENDA ITEMS:

- **Drive Electric Earth Day Event** – to be held in West Lebanon on Sunday, April 21st, noon-3 PM, at 10 Benning Street, West Lebanon (Shaw's supermarket parking lot).
- **Upper Valley EV Expo** – New London will host the 2024 Upper Valley EV Expo on the last weekend in September.

NEXT MEETING:

Thursday, May 9th, 3 PM, Council Chambers, City Hall.

ADJOURNMENT:

Clifton Below moved to adjourn the meeting at 4:19 PM, seconded by Tom Benzel. The motion passed unanimously without a hint of consternation.

Respectfully submitted,

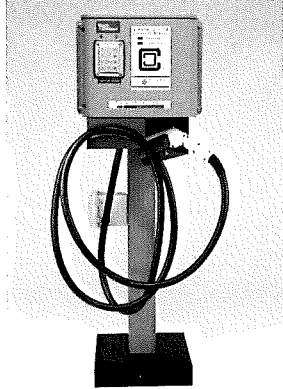
Tad Montgomery

DRAFT

AGENDA
ELECTRIC VEHICLE SUBCOMMITTEE OF THE
LEBANON ENERGY ADVISORY COMMITTEE
May 9, 2024

AGENDA ITEM 3
OLD BUSINESS:

LEBANON WORKPLACE CHARGING PROGRAM- LIBERTY TECHNOLOGIES: EV CHARGING CODES



Liberty Technologies: Access Only Keypad EV Charging

<https://www.libertyplugins.com/products/access-only-keypad>

The Liberty Plugins **Access-Only Keypad** provides a way for you to limit access to your chargers by certain individuals, and for limited durations of time (minutes, hours, or days) that you specify.

- No networking
- No memberships
- No fobs
- Lower cost

It doesn't measure energy use (kWh); it doesn't need batteries; it doesn't need proprietary access cards, and; it doesn't need a network. And the best part: this setup costs less than half what you'll pay for a "fully networked" EV charger with a color screen and bunch of other features you'll never use.

The **Access-Only Keypad** works like an electronic padlock that "opens" a specific charger for a specific period of time.

With the **Access-Only Keypad** attached to one or two EV chargers, the accompanying Liberty Plugins service allows you sell or give away one-time use numeric codes that you generate via a simple Web site or, you can have EV drivers to generate their own access codes via a simple smartphone application. Either way, each code is used only once, only with a specific charger, and only for a specific period of time. And, for a low, fixed monthly fee, the LibertyPlugins code-generation service lets you generate as many free or one-time-use Access codes as you need.

Liberty Plugins provides kits and factory installation for for 240-Volt ClipperCreek and AeroVironment EV chargers — others are coming soon. If you need to measure or bill for kilowatt-hour (kWh) dispensed, check out the Liberty Plugins HYDRA-R.

Liberty Technologies: One-Time Use EV Charging Codes

<https://www.libertyplugins.com/products/one-time-use-access-codes>

Many EV drivers appreciate the ability to get access to EV charging without having to join a network or carry membership cards. And equipment owners appreciate not having to pay large fees for monthly services or each transaction.

If you're not concerned with measuring electricity usage, one-time-use access codes ("charge authorization codes") are an easy and effective way to limit access to only certain EV drivers, and only for certain periods of time.

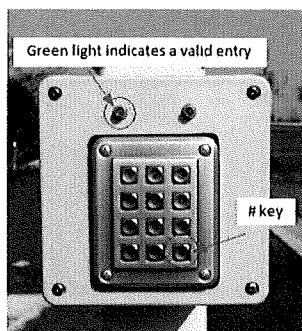
Two options for using one-time use codes

1. Drivers purchase and generate their own codes using their phone (EV drivers pay using their credit cards)

Using the system is easy. Drivers simply plug in, launch the phone app and enter the charger number. Payment is processed against the credit card, and a charge authorization code is displayed. EV drivers simply enter the code number using the keypad and the charging session begins. Charging stops when the session time expires or the vehicle is unplugged. EV drivers pay a small monthly fee and normal credit card transaction fees apply.

2. Equipment owner generates and issue codes using the Liberty Plugins Web site (one, low fixed monthly fee)

Want to do your own billing, or give away charging codes for free? For a small, fixed monthly fee, equipment owners can generate and issues codes at any time. This method eliminates credit card fees for EV drivers and puts the freedom to implement billing in the hands of the equipment owner. Simply log in to the secure Liberty Plugins site, and generate a code. Provide the code to the driver, and they're good to go. The drive simply enters the code number using the keypad and the charging session begins. Charging stops when the session time expires or the vehicle is unplugged.



AGENDA
ELECTRIC VEHICLE SUBCOMMITTEE OF THE
LEBANON ENERGY ADVISORY COMMITTEE
May 9, 2024

AGENDA ITEM 3
OLD BUSINESS:

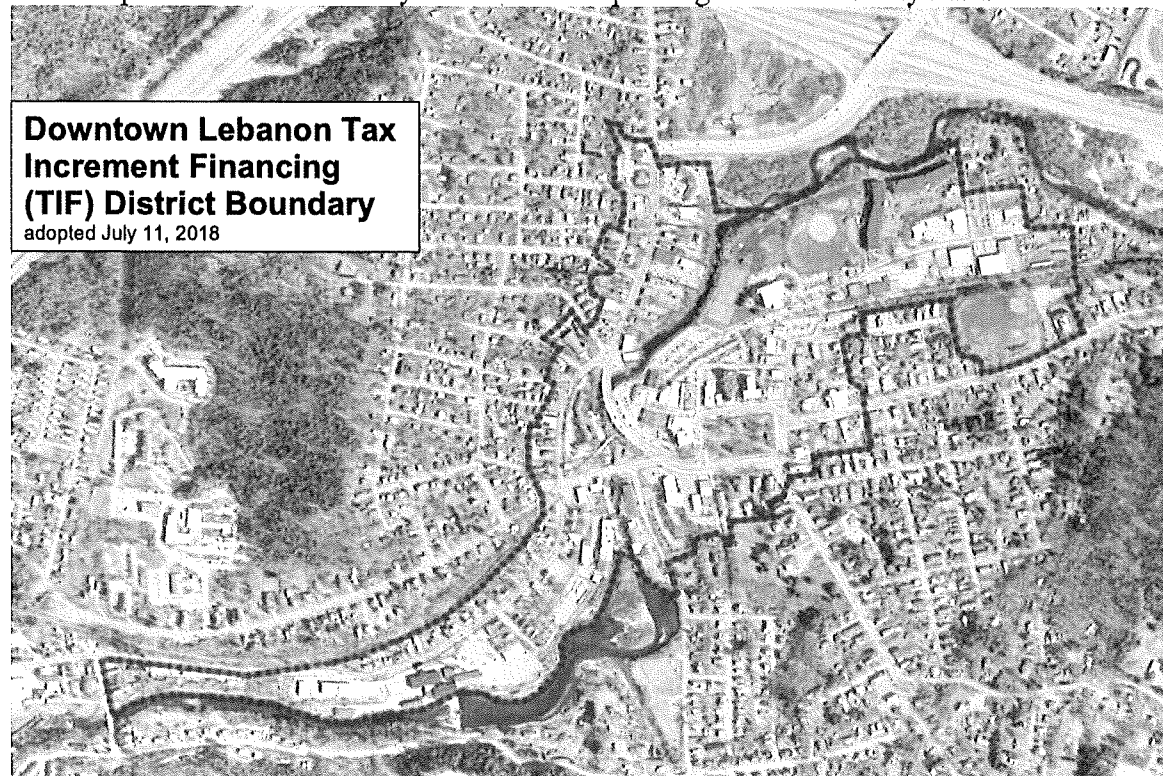
**D. SOLAR E-BIKE
CHARGING STATIONS-
TIFF DISTRICT & EVSE
AUTOMATIC CABLE MGMT.,
SINGLE UTILITY POLE
DOCUMENTS**

Potential Sites for Lebanon Tax Increment Financing District EV Charging Stations

May 3, 2024

Introduction

Here are some sites to consider for installation of public EV charging stations (EVCS) within the downtown Lebanon Tax Increment Financing Funds (TIFF) boundaries, based on conversations between city staff, Lebanon Energy Advisory Committee members, and others. Note: We are avoiding locating any structurally permanent EV Charging Equipment (EVCS) in the expected redevelopment area around Taylor Street – the parking lots behind City Hall.



To emphasize the economic benefits that are a cornerstone of the TIFF program, this proposal highlights a radius of 328 feet from each EVCS, a proximity that was shown in recent research to induce an average 13% increase in monthly sales for nearby businesses after EVCS were installed. This exercise broadly identified seven “zones” where EVCS could be installed to benefit the most businesses:

- 1) Downtown West (near Lebanon Mall)
- 2) Downtown Middle (near City Hall)
- 3) Downtown East (near Parkhurst, Bank, or School Streets)
- 4) Hanover Street northern half (nearing Route 120)
- 5) Hanover Street southern half (nearing South Park Street)
- 6) Mechanic Street (near Rivermill)
- 7) Bank Street

This review of possible locations focuses on city-owned properties. **Important:** We are not necessarily proposing to install EVCS at *ALL* of these potential locations initially but ideally would like some charging in each of the seven “zones.” At this stage we would appreciate Liberty’s assessment of the feasibility and cost for each site to inform our choices and/or to include in an RFI/RFP. Some sites we are considering for fast-charge stations and some for Level 2 (L2) stations, either on pedestals or utility pole-mounted. We aim for one fast-charging station and multiple L2 stations.

Part One: City-owned properties

1 – Hanover Street parking lot, southeast corner: Fast charging; one dual-port pedestal with “EV Capable” infrastructure work to easily add another dual-port charger in the future.

Minimum total electricity capacity needed: 660 kW – 330 kW initially and 330 kW in the future.

Question for Liberty: Will one or more additional transformers be needed? If two or more are needed, what would be the cost difference if we install just one now and one later? Is this feasible?

2 – Parkhurst Street at Spencer Street, on-street spaces: Fast charging as described in (1) *or* two dual-port L2 pedestals and EV Capable work to add two more dual-port pedestals in the future.

Fast charging - Minimum total electricity capacity needed: 660 kW – 330 kW initially and 330 kW in the future.

Question for Liberty: Will one or more additional transformers be needed? If two or more are needed, what would be the cost difference if we installed one now and one later? Is this feasible?

Or

L2s - Minimum total capacity needed: 32 kW

3 – Lower municipal parking lot: A freestanding SolaflectEV tracking solar charging station.
Liberty not needed.

4 – Hanover Street parking lot, north-central section: A single dual-port L2 pedestal.

Minimum total capacity needed: 16 kW, but we might prefer faster L2s and 40 kW.

5 – Utility pole NG, 119, 1, 69/3 FP (see pole photos in individual site descriptions, below) in city-owned parking lot at 55-57 Hanover St.: Two pole-mounted L2 ports.

Minimum total capacity needed: 15-20 kW (depending on the EVCS that we pick)

6 – One of two side-by-side utility poles (GSECo 6; or 6 NET&T C9, GSECo, 19, 6) on street in front of 87 Hanover St.: One pole-mounted L2 port.

Minimum total capacity needed: 8-10 kW (depending on the EVCS that we pick)

7 – Utility pole GSECo 2, 6FP on street in front of city-owned 0 Mascoma Street: One L2 port.

Minimum total capacity needed: 8-10 kW (depending on the EVCS that we pick)

8 – Utility pole GSECo 3, 2VZ on street in front of 11 Bank Street (AVA Art Gallery): One L2 port. *Minimum total capacity needed: 8-10 kW (depending on the EVCS that we pick)*

9 – Utility pole 2, 2VZ on street in front of 11 School Street: One L2 port.
Minimum total capacity needed: 8-10 kW (depending on the EVCS that we pick)

Two Potential Fast-charge Locations

Site 1: Hanover Street lot, Downtown West zone. In the Hanover Street lot (see blue rectangle) behind the Whipple Building (formerly Citizen's Bank Building): Two dual-port fast chargers (minimum 150 kW each port). Whipple Building manager Richard Balagur (603-448-1100) expressed support for the idea. Economic radius (see colored circle) suggests this site would benefit the Lebanon Mall businesses, for example.



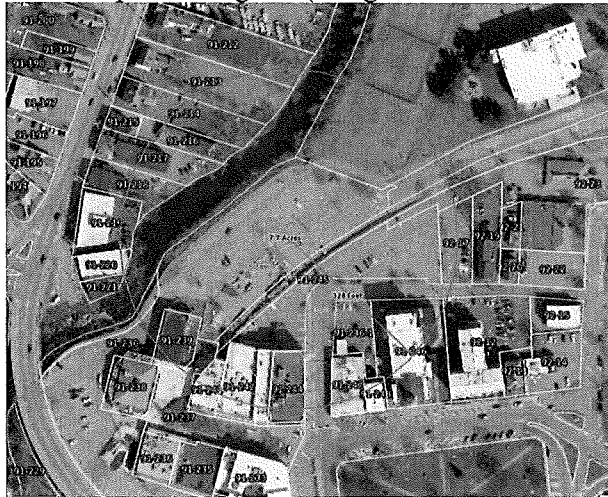
Site 2: Parkhurst Street, Downtown East zone. Either two dual-port fast chargers (minimum 150 kW each port) or two dual-port L2 pedestals. Secondary goal: infrastructure work to make the other four parking spaces EV Capable (with conduit, breaker space, junction box, etc. to allow future installation of EV chargers).



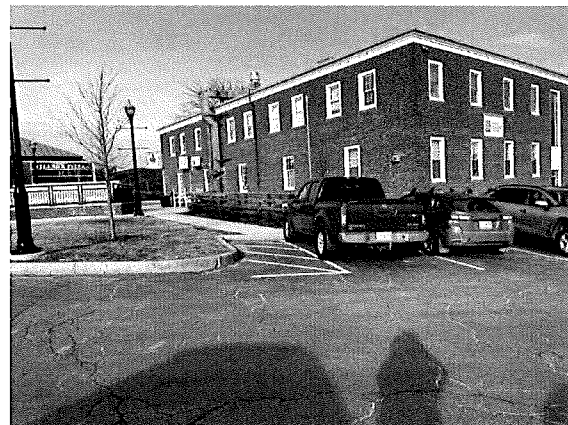
Eight Potential L2 Locations

(See *Site 2* as a possible L2 pedestal location if it isn't chosen for a fast-charge station.)

Site 3: Lower municipal parking lot, Downtown Middle zone. Electrical capacity is provided by the sun. The SolaflectEV can be relocated for use by the City's fleet and employees when redevelopment begins. (Image is of a SolaflectEV elsewhere.)

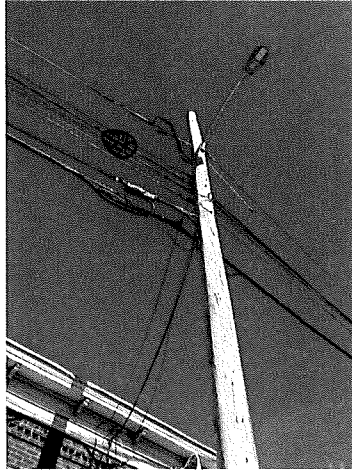
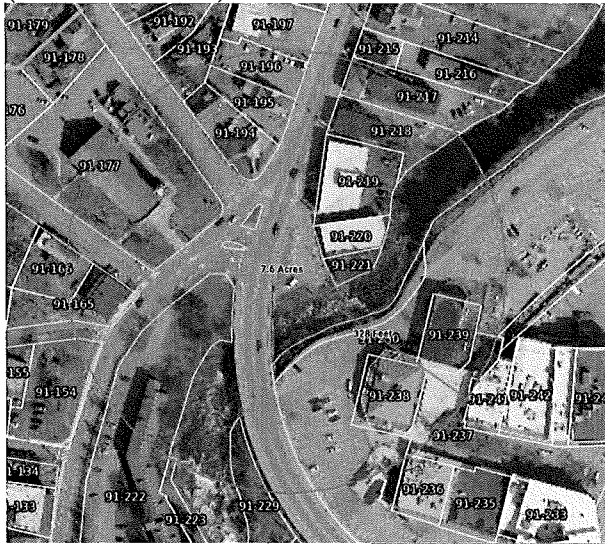


Site 4: Hanover Street lot, Downtown West zone. Two parking spaces in the north-central part of Hanover Street Parking lot, in a location previously selected by the City for a possible two-port L2 pedestal.

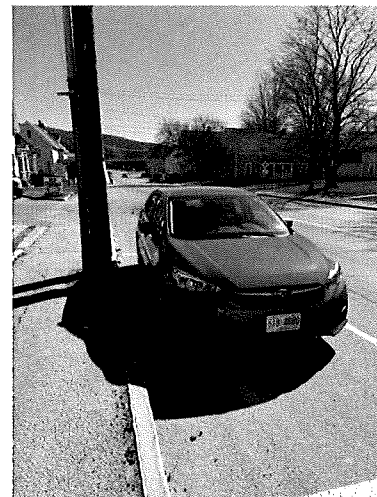
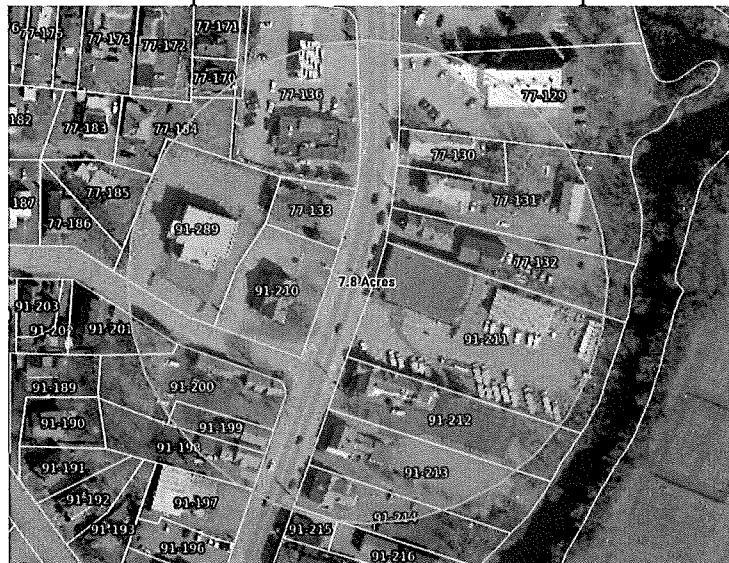


Site 5: Utility pole in city-owned parking lot at 55-57 Hanover St., Hanover Street South zone. A dual-port, pole-mounted L2. Businesses on site include a minority-owned hair salon, Apothecary, Dazzle Cupcakes, and Burnham.

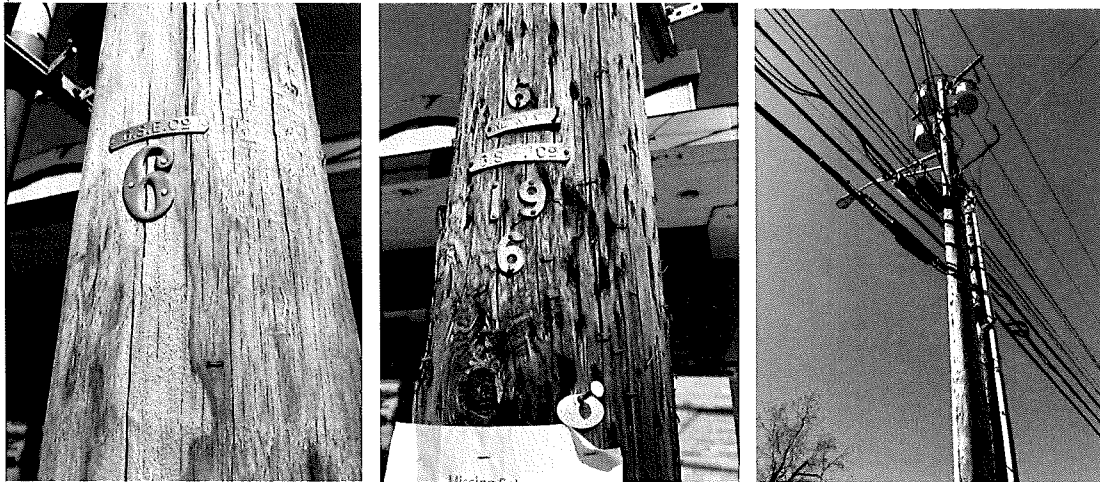
(Site 5 continued)



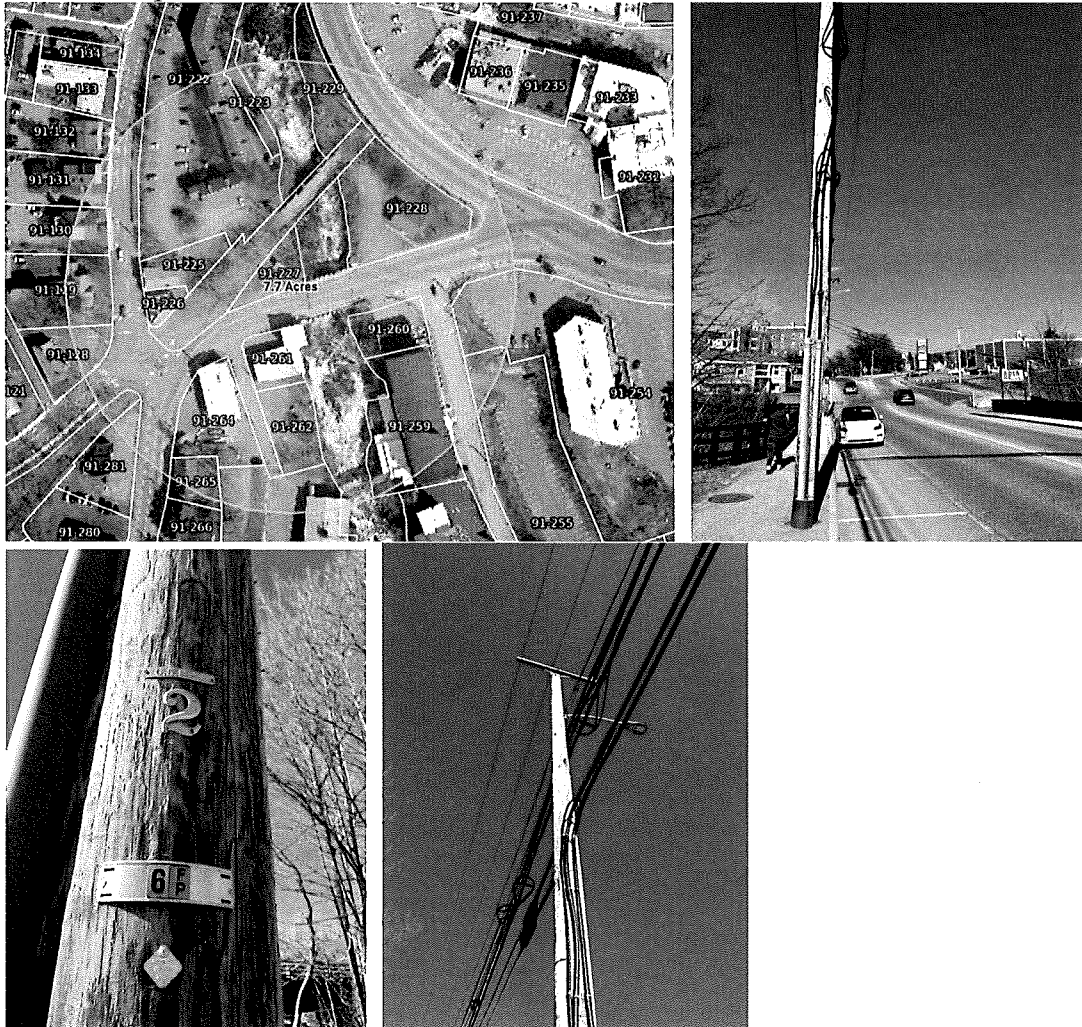
Site 6: One of two utility poles in front of 87 Hanover St. (U-Haul store): Hanover Street Middle zone. One L2 port. Economic benefits reach parts of north and south Hanover Street.



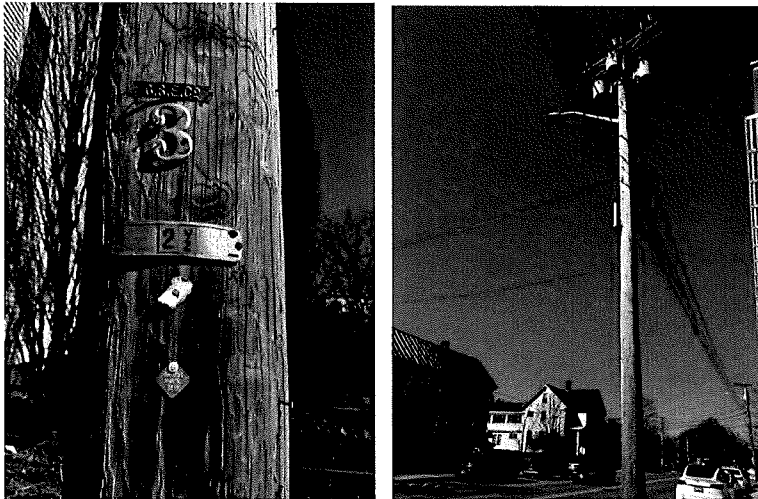
(Site 6 continued)



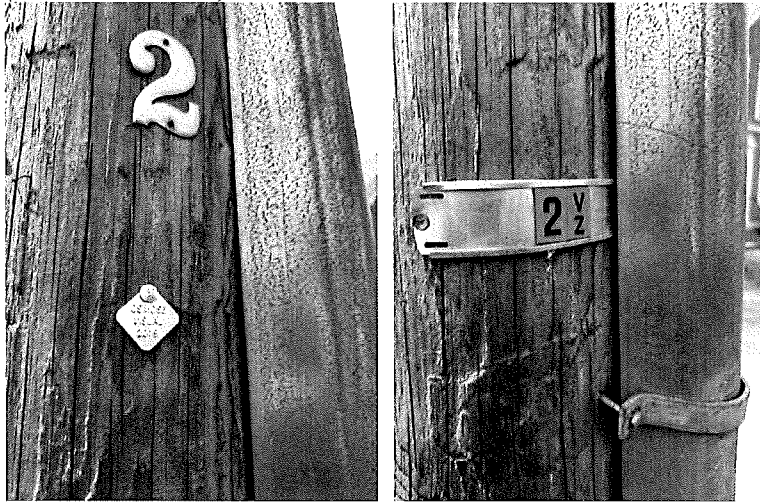
Site 7: Utility pole on street at city-owned 0 Mascoma Street (parcel 91-277): Downtown West zone. Dual-port L2 station.



An aerial photograph of a residential neighborhood. The image is overlaid with a grid of white lines representing property boundaries. Numerous lot numbers are visible, including 92-22, 92-18, 92-14, 92-61, 92-60, 92-54, 92-48, 92-55, 92-57, 92-50, 92-72, 92-71, 92-65, 92-68, 92-67, 92-70, 92-06, 92-122, 92-121, 92-120, 92-124, 92-123, 92-147, 92-138, 92-137, 92-136, 92-140, 92-135, 92-134, 92-133, 92-132, 92-131, 92-130, 92-129, 92-128, 92-127, 92-126, 92-125, 92-124, 92-123, 92-122, 92-121, 92-120, 92-119, 92-118, 92-117, 92-116, 92-115, 92-114, 92-113, 92-112, 92-111, 92-110, 92-109, 92-108, 92-107, 92-106, 92-105, 92-104, 92-103, 92-102, 92-101, 92-100, 92-99, 92-98, 92-97, 92-96, 92-95, 92-94, 92-93, 92-92, 92-91, 92-90, 92-89, 92-88, 92-87, 92-86, 92-85, 92-84, 92-83, 92-82, 92-81, 92-80, 92-79, 92-78, 92-77, 92-76, 92-75, 92-74, 92-73, 92-72, 92-71, 92-70, 92-69, 92-68, 92-67, 92-66, 92-65, 92-64, 92-63, 92-62, 92-61, 92-60, 92-59, 92-58, 92-57, 92-56, 92-55, 92-54, 92-53, 92-52, 92-51, 92-50, 92-49, 92-48, 92-47, 92-46, 92-45, 92-44, 92-43, 92-42, 92-41, 92-40, 92-39, 92-38, 92-37, 92-36, 92-35, 92-34, 92-33, 92-32, 92-31, 92-30, 92-29, 92-28, 92-27, 92-26, 92-25, 92-24, 92-23, 92-22, 92-21, 92-20, 92-19, 92-18, 92-17, 92-16, 92-15, 92-14, 92-13, 92-12, 92-11, 92-10, 92-09, 92-08, 92-07, 92-06, 92-05, 92-04, 92-03, 92-02, 92-01. A specific lot is highlighted with a red outline and labeled '7.8 Acres'. The lot is located in the center of the image, between the 92-60 and 92-50 lot lines. The lot is rectangular and contains a large, light-colored building. The surrounding area is residential with many other lots and buildings. The image is in black and white.



(Site 9 continued)



NEXT STEPS:

- Ask Liberty to assess the infrastructure capacity, feasibility, and associated potential utility/interconnect costs for these sites and whether they can contribute make-ready support.
- Gather data on numbers of users of fast-charge stations or L2s, anticipated revenues, etc.
- Talk with Community Power Coalition of New Hampshire (CPCNH) about potential ownership of the chargers.
- Draft an RFP; present the draft to the City Manager and City Council.
- If the RFP is approved, release it as an RFI for initial feedback, then issue a final RFP.

EVSE LLC Smart Level 2 EVSE with Automatic Cable Management, Single Utility Pole

PRODUCT SPECIFICATION

Product Line: **EVSE**

Product: **3704 Utility Pole Series**

Smart Level 2 EVSE with Automatic Cable Management, Single Utility Pole

The Model 3704 Utility Pole Series electric vehicle charger provides 208 - 240V AC up to 40A. Designed as per the SAE J1772 requirements to meet or exceed all safety codes specified by UL and NEC, the unit is engineered for exterior utility pole mounting, while meeting or exceeding all NEMA 3R specifications. The charger receives power from the utility pole, removing the need for trenching, conduits, long runs, etc. In addition, a power disconnect box is installed on the 5068-050 Mounting Frame to easily remove input power to the charger for pre-wiring or for any maintenance or cycle testing.

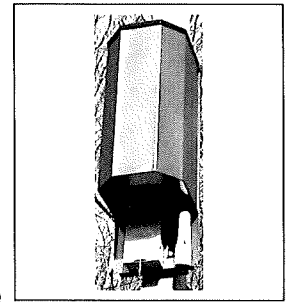
The charger is equipped with a state-of-the-art cable management system, which fully retracts and protects both the cable and the connector from harsh weather and vandals. The cable management system is ADA compliant and eliminates tripping hazards. Modular in design, the charger can be configured for ID card and credit/debit processing through the addition of an RFID Card Reader, and a QR Code Reader that communicates with fobs or cellphones via mobile applications. Communication options are available for facilitating communication between the 3704 and host network for data collection purposes.

Description: The Model 3704 is a 9.6 kW utility pole-mounted EVSE charger with AutoCoil™ cable retraction, capable of providing up to 40A at 208-240VAC, single phase at 50/60 Hz. The charger provides up to 9.6 kW (208/240 VAC @ 40A) to the electric vehicle when activated. It is also available at 7.2 kW (208/240 VAC @ 30A). This unit complies with the SAE J1772 specifications for supplying electrical power to a J1772-compatible Electric Vehicle (EV). When the 3704 has been activated for a charge cycle via either an ID card or QR Code, the cable drops to the ADA height of 48 inches and the user simply pushes the button on the J1772 connector to walk the cable to the vehicle for charging.

Data Router: The charger is equipped with a Data Router providing five LEDs indicating the status of the charger.

Cable Management: The J1772 power cable and connector are stored high above when not in use, and locked in place for protection from vandals. When a valid charge activation is received, the connector drops to an ADA height of 48 inches and the user simply pushes the button on the J1772 connector to walk the cable to the vehicle for charging.

When the button is released, the cable stops. Before plugging into the vehicle, the button can be depressed again if more cable is required. When the connector is removed from the vehicle, the cable automatically retracts to the stored position.



Power Management: The charger provides up to 9.6 kW (208/240 VAC @ 40A) to the electric vehicle when activated. It is also available at 7.2 kW (208/240 VAC @ 30A). Power is continually monitored and the charger disconnects power to the vehicle if the voltage deviates from the acceptable range, or if the load current exceeds the maximum level. The charger can also receive *Load Shed* commands via host communication networks, signaling it to reduce power by either percent of total or to designated current levels, including simulated Level 1 (7A).

The 3704 also includes a Random Start feature. In the event of a deep voltage sag or momentary power outage, it delays its restart for a random time period of between two to five minutes after the power has been restored. Once the charger restarts, it *ramps up* to the required maximum power at a rate of 1A/second. This prevents power surges when restoring power to multiple chargers.

Communication Options: A Gateway Module with a cellular host connection can be installed internally to facilitate two-way communication with the host network. The 3704 communicates to the internal Gateway directly, or multiple chargers can use Zigbee to talk to one charger/Gateway using the ZigBee Mesh protocol, allowing wireless connections. ZigBee networks are secured by 128-bit symmetric encryption keys, so security is assured.

The Gateway Module then connects to an external network via a Cellular modem. The Cellular modem securely transmits encrypted payment data to and receives authorizations from external PCI-compliant processors. Communication can also link the EVSE network with third-party network management providers for reporting and call center support.

Product Code: 3704-A04xx

Label Description: **3704 EVSE for Utility Poles**

© EVSE LLC 2020. All Rights Reserved. This specification is confidential and shall not be duplicated, published or disclosed, in whole or in part, without prior written permission of EVSE LLC.

Marketing: DS
Date: 7/20/20
EVSE LLC, 89 Phoenix Ave., Enfield, CT 06082
860-745-2433

Engineering: GC
Date: 7/20/20