



**LEBANON ENERGY ADVISORY COMMITTEE (LEAC)
NOVEMBER 17, 2022 - 4:00 PM
COUNCIL CHAMBERS, CITY HALL OR
REMOTE VIA VIRTUAL PLATFORM
LEBANONNH.GOV/LIVE**

-
- 1. Call to Order**
 - 2. Approval of Minutes**
 - A. October 20, 2022
 - 3. Old Business**
 - A. Community Power Coalition of NH/Legislation/PUC Regulations
 - B. Landfill Gas to Energy Project & Solar
 - C. EV charging RFP (Lebanon/Hanover/Hartford)
 - D. Report on Rental Decarbonization Pilot
 - E. Master Plan Update
 - F. Lebanon Strategic Plan/Miro Board Discussion
 - 4. New Business**
 - A. EV Subcommittee Report
 - B. Phase 3 Solar Discussion
 - C. Letters of Interest sent to the USDOT's Congestion Mitigation Air Quality Grant Program
 - D. Possible Solarized Program w/ Hartford
 - E. Report on Window Dresser's Build
 - F. Recent and Upcoming Conferences or Webinars of Note
 - G. EFM Report
 - 5. Open to the Public**
 - 6. Future Agenda Items**
 - 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
LEBANON ENERGY ADVISORY COMMITTEE
November 17, 2022

AGENDA ITEM 2
APPROVAL OF MINUTES:

October 20, 2022



LEBANON ENERGY ADVISORY COMMITTEE MEETING MINUTES

Council Chambers, City Hall

October 20th, 2022

4:00 PM

-- draft --

MEMBERS PRESENT*: Greg Ames (Chair, remote), Jon Chaffee (Vice-Chair), Clifton Below (Council Representative), Woody Rothe, Sherry Boschert (remote)

MEMBERS ABSENT: Meghan Butts (alternate), Gene Homicki (alternate), Devin Wilkie (Council alternate)

STAFF PRESENT: Tad Montgomery, Rebecca Owens – Planning Office (remote)

GUESTS PRESENT: none.

CALL TO ORDER: Meeting called to order by Greg Ames at 4:04 PM.

ACCEPTANCE OF MINUTES

Jon Chaffee moved to accept the July 2022 LEAC meeting minutes.

Woody Rothe seconded.

Roll Call:

The minutes were approved unanimously without change: (5-0)

OLD BUSINESS:

MASTER PLAN – ENERGY CHAPTER

Rebecca Owens presented another revised version of the Energy Chapter of the Master Plan and led a discussion on the revisions. This involved reviewing all previous revisions including the new Outcome 8 on equity. Tad Montgomery and Rebecca Owens will review and update the text earlier in the Chapter.

COMMUNITY POWER UPDATE

Asst. Mayor Below gave an update on the Community Power Coalition of NH (CPCNH). He said that Canterbury and Wilmot have now joined CPCNH, bringing membership to 22 communities, and he met recently with Concord's Financial Policy Committee which voted unanimously to send the proposal to join CPCNH to the City Council after legal review and a public hearing. The PUC recently adopted the municipal aggregation rules. CPCNH is in final negotiations with their energy vendor partners and for accounting services. They have first drafts written of their risk management policy, rates and reserves

* **QUORUM NOTE:** When LEAC has five members, three need to be physically present to create a quorum.

1 policy, and energy risk policy. An RFP was written to hire a firm to search for a CEO for CPCNH and
2 they have gotten eight responses. They are also drafting an RFP for accounting services. There was a
3 very successful presentation of CPCNH at the Local Energy Solutions Conference on 10/14 that Calpine
4 Energy and Ascent Analytics attended and presented at. CPCNH is negotiating with Clean Energy NH to
5 provide member engagement support. The event was very well received. Work now is laying
6 groundwork for public engagement in communities that might participate in 'wave one' so that
7 sometime shortly after Jan. 1 there can be an orchestrated public outreach campaign. Clifton Below
8 mentioned that there may be federal IRA funds to help develop the statewide data platform which will
9 support CPCNH's work. He also said that the PUC aggregation rules require there to be a designated
10 municipal aggregation contact for each member municipality, a designated data request person, and a
11 designated staff person.

12
13 **MOTION: Jon Chaffee moved to recommend that, as per the NH PUC Rules recently adopted, the City**
14 **designate Clifton Below as the Lebanon municipal aggregation committee contact person and data**
15 **request person to the PUC and utility, and designate Tad Montgomery as staff support person for the**
16 **committee. Sherry Boschert seconded.**

17
18 **Roll Call:**

19 ***The motion unanimously: (5-0)***

20
21 **LEGISLATIVE UPDATE**

22 No new news.

23
24 **LANDFILL GAS-TO-ENERGY PROJECT**

25 The microturbines arrived on 10/20/2022.



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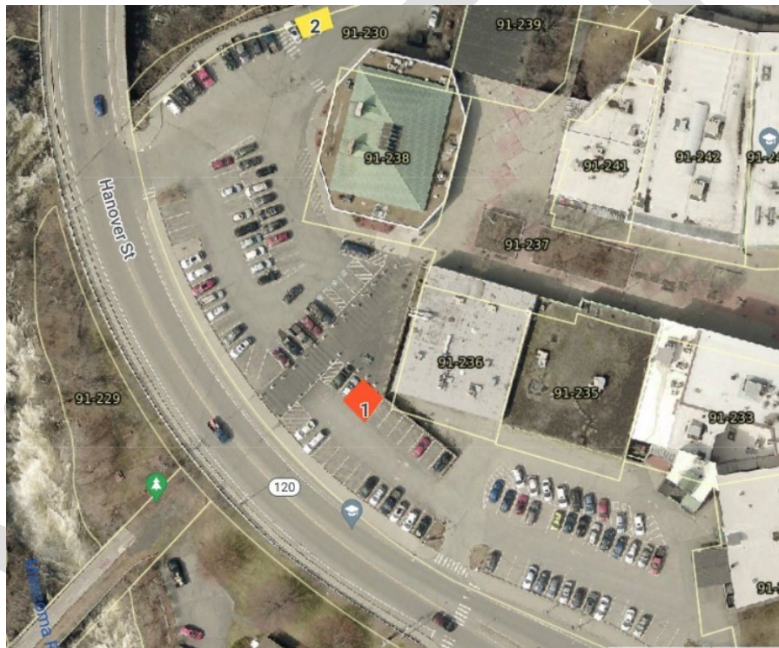
Donation of GM EV Charger:

EV Letter to Developers

A motion was made by Sherry Boschert to approve the letter as drafted with the edits suggested at this meeting to remove the qualifying word 'Housing' from development types.

Roll Call:

The Motion was unanimously approved. (5-0)



1 February EV Subcommittee

2 Tad Montgomery mentioned that the Council Chambers' floor will be undergoing renovations in
3 January/February and the February 12 EV Subcommittee meeting will likely take place at the Kilton
4 Library. Under the current schedule for the renovation regular LEAC meetings will not be affected.
5

6 **RENTAL DECARBONIZATION PILOT PROJECT**

7 Jon Chaffee and Woody Rothe gave an update on the project to dramatically improve the energy
8 performance of existing multi-unit housing in Lebanon. They are now working with three landlords.
9 The biggest hurdle at this point is income verification of the tenants.
10

11 **SOLAR**

12 Phase 3 Solar: Tad Montgomery talked about his recent conversations with ReVision regarding the
13 Phase 3 solar. They are reluctant to do solar trackers under a PPA for a few different reasons, but
14 happy to do them if the City owns the arrays outright. The big task now is to determine the goals and
15 objectives of the project. ReVision seems to be most interested in big projects that are easy to install.
16 LEAC members suggested as one goal to maximize production, especially in winter.
17

18 SB 321: If Lebanon can launch the pilot project with Liberty that has been enabled through SB 321
19 then we could install 1.2 MW of solar in addition to the 800 kW exportable by the LFGTE project and
20 sell much of it to offtakers in the City. This pilot enables direct sale of power intra-municipality to retail
21 or Community Power customers with credit for capacity tag curtailment/bolstering and avoided
22 transmission costs. This will improve the economics of battery storage and solar trackers substantially.
23

24 IRS Direct Pay: The federal IRA legislation enables government and municipal entities to receive the
25 same federal subsidy for renewable energy system installation as private entities, which will be
26 bumped back up to 30% of total project costs after 1/1/2023. Battery storage is eligible, too.
27

28 PUC and Net Metering: Clifton Below said that the NH PUC will be commencing a new proceeding on
29 net metering on 1/5/2023 and said that the City might want to request to be an intervenor in this, both
30 regarding the LFGTE and SB321 pilot projects.
31

32 **NEW BUSINESS & OTHER NEWS:**

33
34 **CITY STRATEGIC PLAN**

35 Tad Montgomery led a discussion of the City's new Strategic Planning process and read the list of
36 suggestions that have come so far from LEAC members and others on the subjects of energy, facilities,
37 and sustainability. Other suggestions that arose were:

- 38 • Progress on Building Energy Codes: new construction to be net-zero ready or other high-
39 performance standard
- 40 • Progress on an Environmental Purchasing Policy
- 41 • A Plan to Transition All Facilities Off Fossil Fuels
- 42 • Climate Action Plan

- Previous Energy Audits and Retro-Commissioning Used to Identify Energy Saving Measures
- LCP Offer a 100% Green Electricity Option

MICRO-GRID

Tad Montgomery has been charged with reaching out to Liberty regarding the development of a micro-grid and the SB321 pilot.

ENERGY & FACILITY MANAGER'S REPORT

- Energy Action Council Tad Montgomery and Jon Chaffee attended the monthly EAC on 10/20/22 and reported that service agencies are becoming overwhelmed with people suffering from high energy prices and the energy burden.
- Window Inserts Tad Montgomery is involved in organizing the Hartford/Hartland Window Dresser program and would like to bring it to Lebanon. The challenge is finding reliable volunteers. Window inserts are removable storm windows that are double-glazed with plastic around a pine frame that is sized for each window. These units are most helpful when used in old, drafty windows. To get the project brought to Lebanon he and Human Services Director Lynn Goodwin are reaching out to Lebanon residents to get their feet wet by helping with the Hartford/Hartland project November 5-9 in Wilder. Volunteer sign-up info can be found at: <https://signup.com/go/YYoqGcv>
- Teams Settings Tad Montgomery mentioned that he has adjusted the settings for LEAC's Teams meetings that should allow people to enter the meeting directly without waiting in the 'lobby' and enable anyone to present.

FUTURE AGENDA ITEMS

- LEAC work priorities for 2022-2023
- REC discussion continued
- Master Plan – continued discussion
- Landfill Gas-To-Energy update
- Solar Phase 3 update

UPCOMING EVENTS

None were mentioned.

NEXT MEETING

Is scheduled for Thursday, November 17th at 4 PM, City Council Chambers.

ADJOURNMENT

Greg Ames moved to adjourn the meeting at 6:05 PM, seconded by Sherry Boschert.

The vote to adjourn was unanimously approved. (5-0)

Respectfully submitted,

Tad Montgomery

AGENDA ITEM 4
NEW BUSINESS:
A. EV Subcommittee Report

GM Dealer Community EV Charging Program- Proposal to City Management

GM DEALER COMMUNITY EV CHARGING PROGRAM

PROPOSAL TO CITY MANAGEMENT

11/14/2022

OVERVIEW

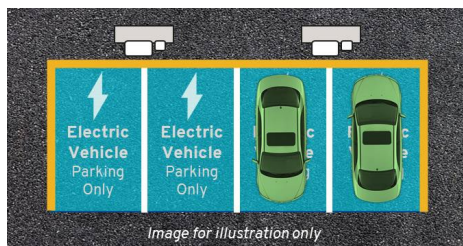
General Motors is offering free Level 2 EV charging stations to municipalities within the service territory of their dealerships. The estimated value of this is \$4,047. The City is applying for one dual-port charger and would be responsible for installation as well as maintenance in years 5 – 10. There is the potential for revenue.

PURPOSE

1. Develop EV charging infrastructure in publicly accessible areas within communities that lend to high dwell time scenarios – vehicles parked for a few hours or more like sports or entertainment venues, campuses, hospitals, hotels, multi-unit dwellings, etc. A focus is on underserved areas, aka “EV charging deserts.”
2. Partner with GM to develop EV charging infrastructure to help accelerate EV adoption.

SITE HOST REQUIREMENTS

- 1) City allows dealer and charge station operator access to the site during reasonable hours.
- 2) General liability insurance against personal injury, bodily injury, and property damage in an amount not less than \$1,000,000 per occurrence.
- 3) Chargers shall be installed in the dual (side-by-side) format substantially similar to either Figure 1 or Figure 2 below.



Chargers must be in a well-lit area and easily accessible, as well as compliant with the Americans with Disabilities Act (ADA) and provide appropriate accessibility.



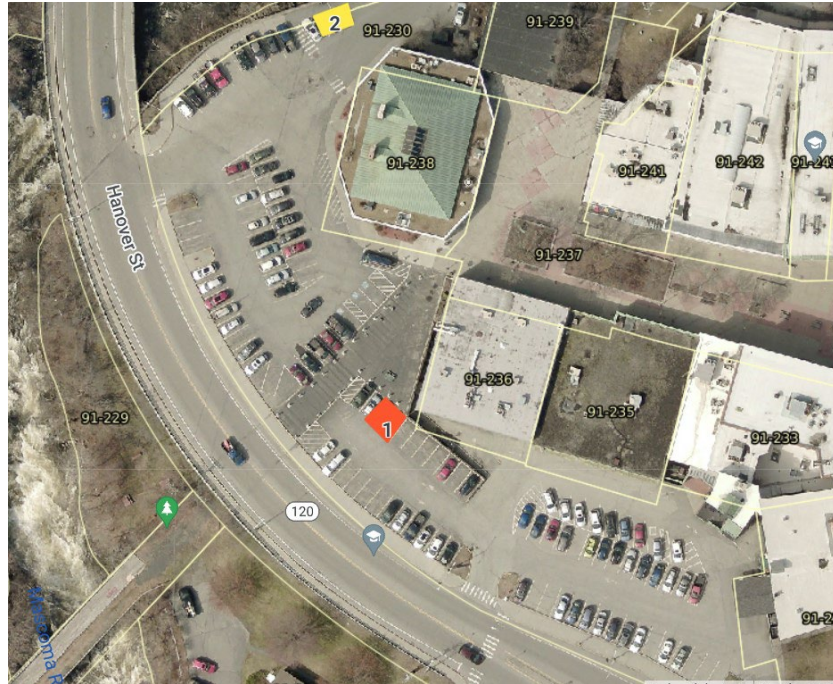
- 4) For the first 5 years following installation of a charger provided in connection with the Dealer Community Charging Program (“Charger”), the Dealer shall be responsible for the cost of operation, repair, and maintenance of the Charger. For the following 5 years, the Site Host shall be responsible for these costs, up to the useful life of the charger (estimated to be 10 years).
- 5) For the duration of the life of the charger(s), the site host shall provide reasonably safe and adequate facilities for EV electrical charging services, as site conditions require. For example, site conditions may require that the charger(s) be installed in suitable enclosures and shall be protected from accidental contact by unauthorized personnel, or by vehicular traffic, or by accidental spillage or leakage from piping systems. As further example, this may also require the use of bollards in front of the chargers and/or wheel guards as necessary.
- 6) The Site Host may be able to monetize the chargers. Dealer and Site Host are responsible for complying with any applicable federal, state, and local laws, regulations, and taxes governing the providing of charging to the public.
- 7) Site Host shall be responsible for the cost of installation of any charger provided in connection with the Dealer Community Charging Program as well as the removal of any such charger. The removal of the charger may be required in GM’s sole discretion if it is broken or after the useful life of the charger (estimated at 10 years), whichever occurs first.
- 8) Site Host (or any other party) may not rebrand the chargers for any reason unless GM, in its sole discretion, agrees to the change in writing.
- 9) Site Host and Dealer provide their express, written consent that Dealer, Flo, any other third-party vendor chosen by GM and reasonably necessary for this program, and GM may collect and share **all data** (see below) supplied from the DCC chargers, as needed and required.
- 10) Site Host and Dealer cannot obligate or bind GM to any additional obligation or responsibility not specifically identified by this program guide or otherwise agreed to in writing.
- 11) Equipment may not be re-sold.
- 12) All trademarks, branding, etc. on the chargers must be approved by GM.

SYSTEM SPECS

A spec sheet is attached for the Flo CoRe+ MAX Smart 80Amp Level 2 charging station.

LOCATION

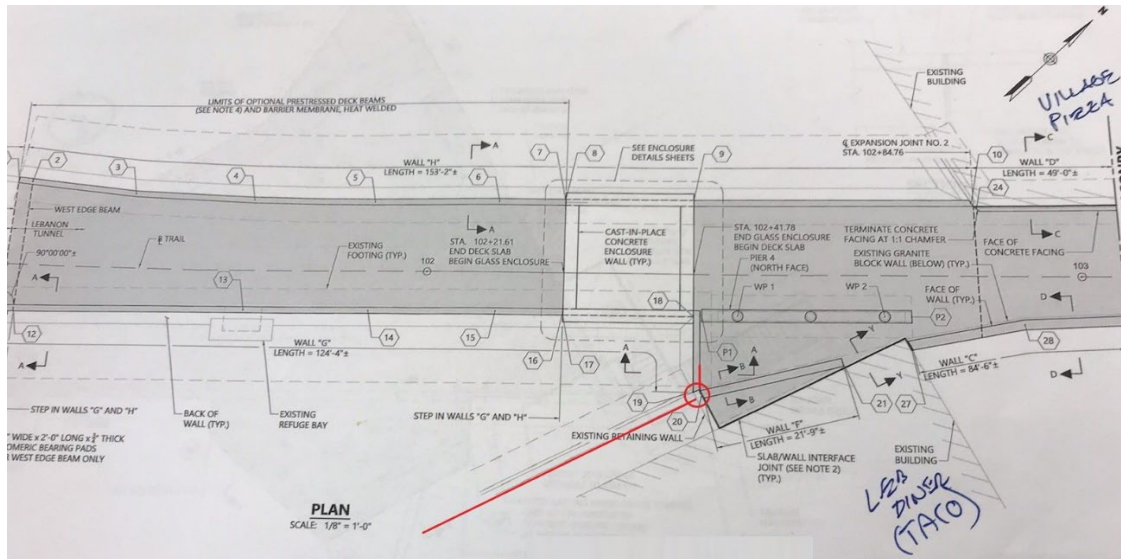
The aerial maps below show sites explored by DPW Staff for the GM L2 charger, with logistics of each site still being worked out.



Map 1

Site 1 on Map 1 is preferable due to ease of installation, access to electricity, and the visibility of the site. We have an estimate from a coring company of \$2,600 from a coring company to core from the corner of the tunnel bump-out near the electric panel to the corner of the trench below Lalo's Tacos. . Site 2 on Map 1, according to Ted Makalinaw, would require the installation of a transformer at substantial cost. In addition, the charger pedestal would be located on the edge between a sidewalk and the parking space, potentially creating problems for pedestrians on the sidewalk, sidewalk snowplows, and street snowplows.

Below is a plan of the tunnel where electricity would be obtained for Site 1 EV chargers. If possible, conduit would be pulled through a new hole in the corner of a bump-out in the tunnel (red circle) near an electrical panel and then the conduit would be run (red line) along the wall of the trench next to Lalo's Tacos.



Map 2

Map 2 shows two additional sites. Site 3 (red line) would have pedestal EV chargers on the ground underneath the retaining wall. Installation would be fairly simple and inexpensive with electricity run from a pole in the sidewalk right above. Site 4 (yellow rectangle) is in a grassy island in the lower Taylor St. lot. These two sites are on property with a long-term plan for re-development. DPW staff expressed concerns about how a development project there would deal with all of the (deeply) buried utilities underneath those lots. Map 2 has orange lines for sewer lines, blue for water lines. Some are 12' deep, one of the sewer lines handles all of Enfield's wastewater, and Operations Manager Rick Brown says that there are a bunch more that are not shown on this GIS layer. One suggestion is to locate the chargers in this lot and when/if that site gets developed the City could easily move them to a different location. As of 11/1/22 I do not have cost estimates to develop these two sites soon, but Ted and Rick both think it will be fairly inexpensive.

SITE HOST LOGISTICS & COSTS

Electricity: the City is responsible for providing electricity for these L2 chargers.

Charger Management System: GM has partnered with the company [Flo](#) for the maintenance, operation, and network of these chargers. Key Chevrolet has stated that it will be the City's responsibility to maintain the chargers from years 5-10, but the *Dealer Community Charging Guidelines* document that was provided to the EFM states the following:

“Dealer agrees that it will either execute a cost sharing agreement with the site host ensuring continuity of the charger for the remainder of its useful life, or if Dealer does not have such an agreement in place, Dealer agrees that it is Dealer's sole responsibility to ensure the charger is maintained and in good working order for the remainder of its useful life (not to exceed 10 years). Dealer agrees to ensure removal of the charger should it no longer be maintained, or if it becomes inoperable for any reason.”

In response to a question about how the system operates, Flo wrote: “The Chargers come with QR codes for both Apple and Android phones for drivers to download if not already using app. Privacy laws agreed by driver and payment form is entered. Charger can then be activated. Can utilize Plugshare (another EV charging app) as well.”

Value Offered by GM: below is a list of what GM and the Dealer are offering through this program for one dual-port charger, with GM's estimated costs/value:

Core+ pedestal mount for chargers	\$355
Core+ pedestal anchor kit	\$96
Core+ bracket, side by side configuration (1 bracket per side – 2 total)	\$250
Cable management system for wall and pedestal mount	\$766
Global management service for 5 years (charger networking & maintenance for two chargers on one pedestal: \$300 per year)	\$1,500

Warranty Plus for 3 years (2 chargers on one pedestal: \$360 per year)	<u>\$1,080</u>
TOTAL:	\$4,047

Costs to the City: Construction/installation costs to the City are estimated below:

Concrete Boring:	\$2,600
Ted's Labor: \$56/hr x 24 hrs:	1,500
Materials:	<u>3,000</u>
TOTAL:	\$7,100

GM's *Guidelines* state: "Dealer is responsible for ensuring all laws, regulations, and permitting requirements are met for installation" and there is a list of requirements for Installation Services, including licenses, insurance, and warranties. Long-term costs to the City (after year 5) are said by Flo to be: "\$150 per month software connectivity fee + electricity after initial installation investment."

User Charging Costs and Process: Attached to this proposal is a set of sample rate structures for charging from Flo. The chargers are flexible in their ability to set up different kinds of fee structures. When asked how electricity demand charges can be handled they wrote "Charger Pricing can offset demand scheduled by time of day." I assume that this is meant to address Time of Use rate structures (see below), not Demand charges.

Revenue Potential: Flo states that revenue generated through the use of these EV chargers is split between the City and Flo in the ratio of 85% City, 15% Flo, and disbursed quarterly. Revenues will be remitted direct to a City account "after FLO pays taxes quarterly if over \$50. Otherwise will carry over until amount grows to over \$50." Their *Guidelines* document states:

"The Site Host may be able to monetize the chargers. It is responsible to understand any applicable state and local laws, regulations, and taxes governing the providing of charging to the public, whether given as a free service or charging the consumer. Site Host should consult with its tax advisor and/or attorney, as necessary."

Flo has written that they will try to get us revenue modeling based on what we will likely see as usage over time from their historical data and the increase in EV Adoption in our area.

Liberty Utilities EV Charging Rates: Below are the electricity rates for EV charging under the Liberty special EV Time-Of-Use charging rate. Critical Peak is 3-8 PM weekdays, Off Peak is 8 PM to 8 AM, and On Peak is 8 AM to 3 PM:

Rate EV Plug in Electric Vehicle

Customer Charge (Fixed)		Distribution*		Other Delivery**	Liberty Utilities Energy Service***	
\$	11.35	Critical Peak per kWh	\$ 0.09097	\$ 0.20104	\$ 0.21739	\$ 0.50940
		On Peak per kWh	\$ 0.05020	\$ 0.01474	\$ 0.10376	\$ 0.16870
		Off Peak per kWh	\$ 0.03412	\$ 0.00450	\$ 0.06192	\$ 0.10054

Case Study: WRJ Level 2 Chargers: In order to get a comp I reached out to Hartford and got data for a similar ChargePoint EV charger in the VFW parking lot off South Main St. in WRJ. That is a two-port, four-plug system that in 2021 used 7,700 kWh of power and generated \$2,000 in gross revenues to the town. The revenue per kWh averaged \$.27/kWh. As of 11/1/22 I still have not seen Hartford's rate structure for the meter that the EV chargers are on, so do not know what net revenue is. Hartford charges \$1.00 per hour for two of the chargers and \$1.50/hr. for the other two. This translates to a user cost of \$.14/kWh to \$.65/kWh depending on how fast their car is charging on which charger.

Charger Specifications: "The charger recommended for this program will be hardwired, with a maximum power output of up to 19.2kW (80 amps). The charging connector will be SAE J1772 Type 1." See Spec sheet for more info.

Charging Network: The charging network is Ultium Charge 360, a Flo product which "may integrate charging networks, brand mobile apps, and other products and services." Site host is required to utilize Flo as a dedicated charge station operator (CSO). "As Flo's charger is utilized for a site installation, then Flo must manage the backend system and maintenance. This will create an ecosystem of chargers allowing customers to see real time charger data. Flo will ensure these stations are connected and accessible in the myBrand app for GM electric vehicle owners, and the Ultium version of the app for non-GM electric vehicle owners." Site host is required to use GM's CSO Flo, for maintenance and connectivity, with GM covering the cost of this for the first five years and the City as site host covering it for years 5-10. The cost of this network is currently: \$1,800 per year.

From the Flo website:

"The FLO Network is the largest in Canada and provides EV drivers with access to more than 4,500 charging stations from coast to coast. Using the FLO mobile app or their FLO network access cards, drivers can securely pay for charging sessions at any charging station on the network including those of FLO's partner networks."

Date Availability, Data Privacy: From Flo: "When charger is commissioned site host is provided a link to your own CSNMS interface. You can access anytime and see charging sessions, quantity of electricity used, charging times, saturation. Privacy laws are abided by FLO when driver agrees to use FLO app. No personal driver or vehicle information is shared." There is a Flo privacy agreement that each driver agrees to when they download the app.

Advertising: “Advertising on the charging stations, pedestal, or any other part of the charging infrastructure itself will be reserved for the Dealer, GM’s Ultium brand, and Flo. Site host will not be able to advertise on the charging station, pedestal, or any piece of the charging infrastructure.”

Maintenance: Dealer is responsible for maintenance in years 1-5. Dealers can sign up for 3-year or 5-year warranties. “The site host (is) responsible for the maintenance and connectivity after the initial five (5) years, to continue to keep the chargers in operable condition to reflect positively on its brand, the Dealer, GM, and Flo. It is strongly encouraged that the site host continue to utilize the services of Flo, to ensure continuity with the program.” The Flo maintenance agreement can be found at: <https://www.flo.com/download/29008>

Ownership: Flo stated in an 10/25/2022 email “Ownership agreement is transferred upon installation of charger from dealer to site host. Details and agreement provided by dealer. They (Dealer) have option to buy 3 or 5-year warranty.”

End of Life:

- “If the site host desires to discontinue the program after the initial useful life of the chargers (estimated at 10 years), it shall be responsible for the cost of removing the chargers, as necessary.”
- “The removal of any charger may be valid if it is broken or after the useful life of the charger.”
- “If the charging stations are found to not be in good working condition, GM reserves the right to require removal of the charger(s) at the site host’s expense if the program guidelines are not followed.”

References: Flo sent references from LA and NYC. “Others available if needed.” I have asked for references from smaller municipalities but not gotten them yet.

Timeline: From Flo: “Once approved, shipping is weekly.”

AGENDA ITEM 4

NEW BUSINESS:

C. Letters of Interest sent to the USDOT's Congestion Mitigation Air Quality Grant Program

Municipal-EV-Charging, Municipal-EV-Fleet, Police- Dept-Fleet-Electrification & Regional-EV-Charging



CITY OF LEBANON
Energy and Facilities Management
193 Dartmouth College Highway
Lebanon, NH 03766
(603) 442-6140 fax: (603) 448-2671
www.lebanonnh.gov/Energy

November 4, 2022

Mr. Thomas Jameson thomas.e.jameson@dot.nh.gov
Ms. Jodi Sottilaro jodi.m.sottilaro@dot.nh.gov
New Hampshire Dept. of Transportation
Bureau of Planning & Community Assistance
7 Hazen Drive, PO Box 483
Concord, NH 03302-0483

RE: City of Lebanon and Town of Hanover, NH Letter of Interest, Congestion Mitigation and Air Quality Improvement (CMAQ) Program – Project: Lebanon Municipal EV Charging Infrastructure Development

Dear Mr. Jameson and Ms. Sottilaro,

This letter represents a Lebanon response to the NH DOT's Call for Letters of Interest to pursue project funding through the CMAQ program. Lebanon anticipates requesting funding for the development of electric vehicle charging infrastructure (EVSE) for the City fleet.

The need for electric vehicle infrastructure development, both public and municipal, and the conversion of our municipal fleet are identified in Lebanon's Master Plan and the City has already commenced this work.

The City has begun the process of transitioning its fleet to electric. We now own two EV's: a Nissan Leaf and a Ford F150 Lightning. We have two municipal Level 2 charging stations, are negotiating our first city-owned public EV charging station, and have laid the groundwork for conversion of our police cruiser fleet to electric. The public Works Dept. hosted a regional demonstration of an electric streetsweeper last year and our Fire Department is continually reviewing new electric fire engines as they are developed. But the City is without adequate EV charging infrastructure to attain our broad fleet electrification goals and does not have the funds to install this equipment, primarily due to the \$60 million cost that we paid to separate our sewage from our stormwater over the last seven years.

The CMAQ grant request for this project is based on the City's preliminary exploration into EVSE development over the past year. The average cost estimates below are for a

dual-port Level 2 EV charger and a single DCFC charger, including capital cost, installation, network, extended warranty, and maintenance costs over five years.

Level 3 Charger – each (2022 prices)

Equipment – per charger:	\$80,000
Site Work – per site:	\$50,000
Extended Warranty – per charger:	\$5,000
Utility Interconnection – per site:	\$50,000
Network – 5 years – per charger:	\$5,000
Project Management – per site:	<u>10,000</u>
TOTAL:	\$200,000

Level 2 Charger – Dual Port (2022 prices)

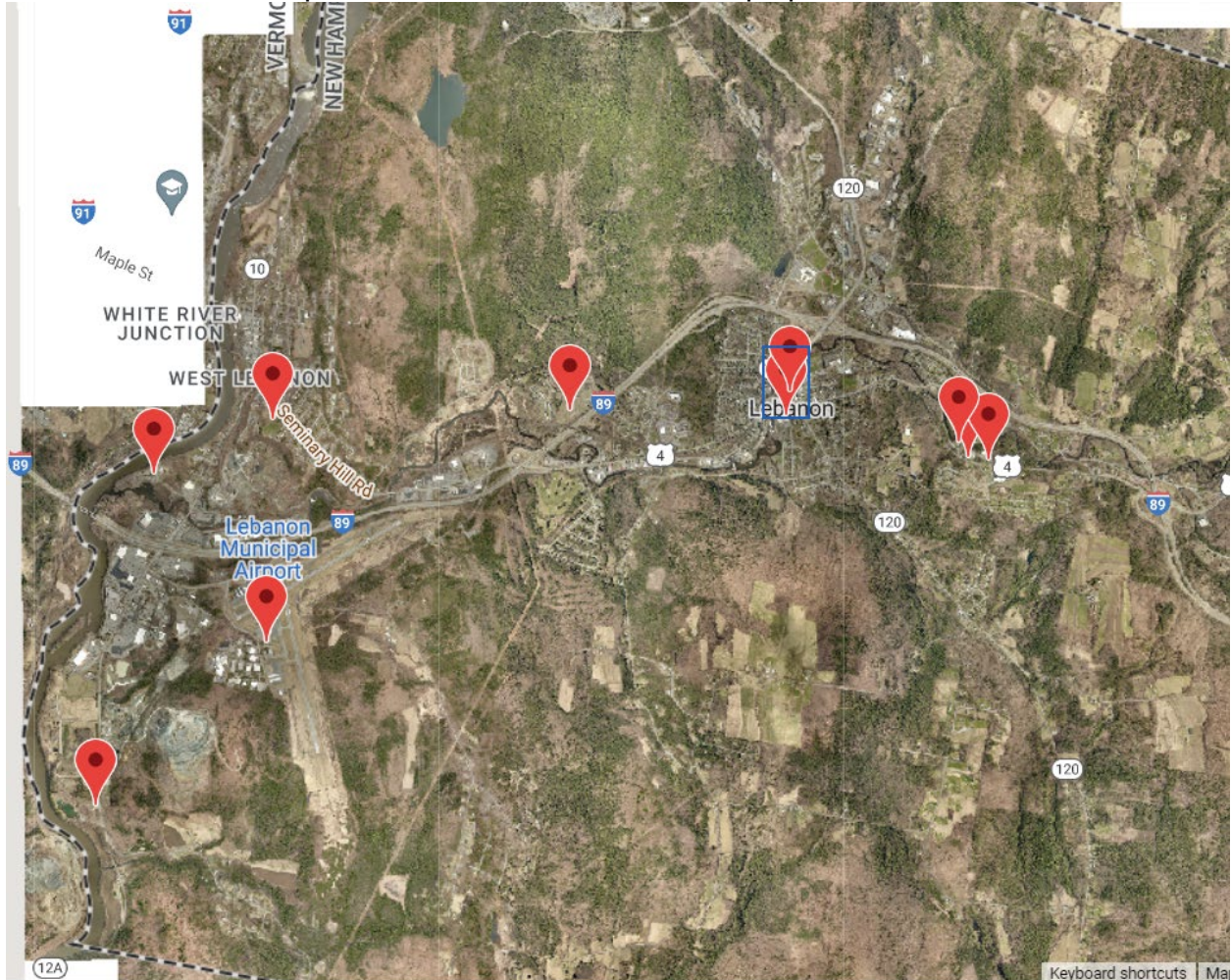
Equipment – per charger:	\$6,000
Site Work – per site:	\$10,000
Extended Warranty – per charger:	\$1,800
Network – 5 years – per charger:	<u>\$5,000</u>
TOTAL:	\$22,800

Based on the above EVSE costs, below is a list of municipal EV charging sites that we would develop under this CMAQ grant and their costs. This does not include EVSE for electric air mobility, public EV charging, or conversion of the PD fleet to EV's and corresponding EVSE because those are all being requested under different CMAQ LOI's.

Site	Address	EVSE Type	# of EVSE	Cost
Fire Station	12 S. Park St.	L3	2	\$ 280,000
Fire Station	12 S. Park St.	L2	2	\$ 22,800
DPW Maintenance Garage	185 Dartmouth College Highway	L3	2	\$ 280,000
DPW Maintenance Garage	185 Dartmouth College Highway	L2	4	\$ 28,800
DPW Administration Building	193 Dartmouth College Highway	L2	4	\$ 28,800
Wastewater Treatment Plant	28 Market St.	L2	2	\$ 22,800
Water Treatment Plant	0 Pumping Station Rd.	L2	2	\$ 22,800
Landfill	370 Plainfield Rd.	L3	2	\$ 280,000
Landfill	370 Plainfield Rd.	L2	4	\$ 28,800
Eldridge Fieldhouse	17 Spencer St.	L2	2	\$ 22,800
Civic Field Maintenance Shop	6 Aldrich Ave.	L2	2	\$ 22,800
Valley Cemetery Maint. Shop	258 Mascoma St.	L2	2	\$ 22,800
Airport Maintenance Garage	13 Airpark Rd.	L2	2	\$ 22,800
City Hall	51 N. Park St.	L2	2	\$ 22,800
			TOTAL:	\$ 1,108,800

It is the hope of the City to power these EV charging stations with renewable electricity from our landfill gas-to-energy system, City-owned solar, or through Lebanon Community Power.

Below is an aerial map of Lebanon with the locations pinpointed.



Total Project Cost:	\$1,108,800
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Grant Request @ 80%:	\$887,040
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City match: 20%.

We have initiated conversations with our local electric utility to enlist them in this public EV charging station development and asked if they would be willing to assist with the remaining 20% through their make-ready program. We have also approached EVSE development companies about a public-private partnership where they would contribute the 20%. As of Nov. 4, 2022, we do not have written commitments from either. A third

option is to find a 3rd party financier who would partner with the City for the 20% match in exchange for a fee. If none of these options comes through the City would contribute the 20% through its budget process or other funds.

The CMAQ activity that this project would fit into is:

Alternative fuel projects including participation in vehicle acquisitions, engine conversions, and refueling or charging facilities

The City has qualified, certified LPA persons on staff.

Sincerely,

Tad Montgomery

Tad Montgomery
Energy & Facilities Manager
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November 4, 2022

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Ms. Jodi Sottilaro jodi.m.sottilaro@dot.nh.gov
New Hampshire Dept. of Transportation
Bureau of Planning & Community Assistance
7 Hazen Drive, PO Box 483
Concord, NH 03302-0483

RE: City of Lebanon, NH Letter of Interest, Congestion Mitigation and Air Quality Improvement (CMAQ) Program – Project: Lebanon Municipal Fleet Electrification

Dear Mr. Jameson and Ms. Sottilaro,

This letter represents a Lebanon response to the NH DOT's Call for Letters of Interest to pursue project funding through the CMAQ program. Lebanon anticipates requesting funding for the purchase of electric vehicles to replace gas or diesel vehicles in the City fleet.

The need for electric vehicle infrastructure development, both public and municipal, and the conversion of our municipal fleet are identified in Lebanon's Master Plan and the City has already commenced this work. Lebanon now owns two EV's: a Nissan Leaf and a Ford F150 Lightning. We have two municipal Level 2 charging stations and are negotiating our first city-owned public charging station. There are also two private DC fast chargers in West Lebanon – a Tesla supercharger and one owned and run by Electrify America.

The City's Commitments

- City Council Resolution: The City shall comply with or exceed the most current edition of the New Hampshire Climate Action Plan (e.g., the 2009 plan aims to reduce greenhouse gas emissions 80% below 1990 levels by 2050)
- Master Plan Sec. F-4: The City of Lebanon should address (transportation) pollution through ... a reduction in municipal vehicle fleet fuel use.
- Master Plan Sec. F-4a: The City should also consider integrating electric vehicle charging stations in strategic locations ... installing vehicle charging stations within the City might encourage residents, businesses, and employees to use electric vehicles.
- Master Plan Sec. F-5 Commercial Sector: ... 70% of commercial carbon dioxide emissions are generated by vehicle emissions from their employees' commute. ... it is essential that the City of Lebanon lead by example and show businesses that ... exploring alternative and more efficient energy solutions ... is essential to significantly reducing energy use and greenhouse gas emissions in Lebanon.
- Master Plan Outcome 6.B: The City shall seek to eliminate greenhouse gas emissions and reduce the lifecycle costs of vehicles and machines in the municipal

- fleet, by implementing a long-term plan to electrify school and municipal vehicle fleets.
- Masted Plan Outcome 6 Action 2: Consider installing electric vehicle charging stations, for example at park and rides.
 - Masted Plan Outcome 6 Action 6: Purchase sustainable fuels, preferably from local vendors, for municipal machines and vehicles.
 - Masted Plan Outcome 6 Action 15: Assess the costs and benefits of offering City employees a commuter benefit (e.g., free EV charging).
 - Masted Plan Outcome 6 Action 17: Explore ways to incentivize residents and visitors to switch to zero emissions vehicles.
 - Masted Plan Outcome 8 Action 19: Accelerate adoption of electric vehicles, such as by updating development regulations to require EV charging infrastructure.
 - Masted Plan Outcome 8 Action 20: Avoid "charging deserts"; distribute public EV charging stations across the City, including in right of way convenient to public workers, subsidized housing, and similarly.

It is the hope of the City to charge these vehicles with renewable electricity from our landfill gas-to-energy system, City-owned solar, or through Lebanon Community Power.

Below is a list of vehicles in the City's replacement schedule that we believe can easily be converted to electric with the proposed CMAQ grant funds.

DESCRIPTION-MAKE/MODEL - CAPACITY	FUEL	2022 ICE COST	2025-2027 EV COST EST.
2004 VACALL SWEERPER/BASIN - 120 HP, 33,000 LBS GVW	D	\$ 550,000	\$ 750,000
2019 CAT SKID STEER - 75 HP, 7,500 LBS GVW	D	\$ 83,000	\$ 100,000
2018 FORD F-150 EXTENDED CAB - 1/2 TON, 290 HP, 7,000 LBS GVW	U	\$ 50,000	\$ 75,000
2013 FORD F-250 PICKUP - 3/4 TON, 400 HP, 10,000 LBS , GVW	U	\$ 50,000	\$ 75,000
2020 POLARIS RANGER UTV - 30 HP, 1,400 LB GVW	U	\$ 30,000	\$ 45,000
2005 CASE 420 SKID STEER - 56 HP, 7,500 LBS GVW	D	\$ 80,000	\$ 110,000
2017 FORD F-150 CREW CAB - 1/2 TON, 282 HP, 7,000 LBS GVW	U	\$ 50,000	\$ 75,000
2019 TOYOTA HIGHLANDER - 295 HP, 6,260 LBS GVW	U	\$ 40,000	\$ 55,000
2009 FORD TAURUS - 263 HP, 4,568 LBS GVW	U	\$ 50,000	\$ 75,000
2014 FORD FUSION - 175 HP, 4,450 LBS GVW	U	\$ 40,000	\$ 63,000
2015 ELGIN PELICAN SWEEPER - 4.5L, 99 HP, 16,000 LBS GVW	D	\$ 550,000	\$ 750,000
2009 ELGIN PELICAN SWEEPER - 4.5L, 99 HP, 16,000 LBS GVW	D	\$ 550,000	\$ 750,000
2001 FORD RANGER – 150 HP, 5,280 LBS GVW	U	\$ 50,000	\$ 75,000
TOTAL:			\$2,998,000

Total Project Cost: \$2,998,000

Grant Request @ 80%: \$2,398,400

City match @ 20%

The CMAQ activity that this project would fit into is:

Alternative fuel projects including participation in vehicle acquisitions, engine conversions, and refueling or charging facilities

The City has qualified, certified LPA persons on staff.

Sincerely,

Tad Montgomery

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RE: City of Lebanon Letter of Interest, Congestion Mitigation and Air Quality Improvement (CMAQ) Program – Project: Police EV Cruisers and EV Charging Equipment, 36 Poverty Lane, Lebanon NH.

Dear Mr. Jameson and Ms. Sottilaro,

This letter represents the City of Lebanon's response to the NH DOT's Call for Letters of Interest to pursue project funding through the CMAQ program. The City is requesting funding to purchase EV cruisers for the PD and install EV charging infrastructure.

The need for electric vehicle infrastructure development, both public and municipal, and the conversion of our municipal fleet are identified in Lebanon's Master Plan and the City has already commenced this work. Lebanon now owns two EV's: a Nissan Leaf and a Ford F150 Lightning. We have two municipal Level 2 charging stations and are negotiating out first city-owned public charging station. There are also two private DC fast chargers in West Lebanon – a Tesla supercharger and one owned and run by Electrify America.

The Lebanon Police Department has been informed by Ford Motor Company that Ford will cease manufacturing gasoline powered police cruisers in the next few years. To prepare for this the PD re-paved its parking areas and the pavement around the police station this summer with the express intention of installing fast Level 3 EV charging stations there in the near future. The goal is to install up to four dual-port DC fast chargers with 150 kW of charging speed per charger.

In support of this LOI we would like to point out that police cruisers are generally left running 24/7 because of the nature of their use. Police refer to this as the 'hot seat,' where one officer ends their shift, and another starts their shift and hops right into the same car. Because of this, and the substantial idling that police cruisers do, replacing police cruisers with EV's will have a disproportionately beneficial effect on air quality improvement.

The make and model of the police EV cruisers to be purchased is unknown at present. EV manufacturing is a rapidly evolving sector of the automotive industry. We do know that Ford is leading in this area, and we expect there will be an equivalent to the internal combustion Ford Police Interceptor that is currently produced. In 2021 [Ford submitted an all-electric police](#) pilot vehicle for testing as part of the Michigan State Police Evaluation and there are already prototype Ford EV police cruisers in use [in Canada](#). Chevy is also about to release its all-electric [Blazer EV PPV](#) with a price range of \$44,000 – \$65,000. Vehicles prices below are based on our best estimates.

The cost for the conversion of the PD's cruiser fleet and installation of charging infrastructure is estimated below.

Eight Cruisers over three years: 8 X \$70,000 = \$560,000

EV Service Equipment (2021 prices):

Hardware:	\$314,302
Shipping:	7,000
Extended Warranties (parts only):	39,064
Installation:	81,664
Interconnection: 50,000	
Project Management:	10,000

EVSE Subtotal: \$502,030

TOTAL: \$1,062,030

Project Cost: \$1,062,030

GRANT REQUEST: \$849,624

The City will meet the 20% match for this project out of City budget funds.

It is the hope of the City to power these EV charging stations with renewable electricity from our landfill gas-to-energy system, City-owned solar, or through Lebanon Community Power.

Below is an aerial view of the police station with pink lines showing the new electrical conduit and the white rectangle with red border showing where EV cruisers will be charged. Level 2 charging stations are also planned in the west parking area for staff vehicles. The conduit for these was also installed in summer of 2022 and the City will install those chargers as part of its overall electrification/decarbonization plan.



Figure 1: Lebanon PD, 36 Poverty Lane, Lebanon NH

The CMAQ activity that this project would fit into is:

Alternative fuel projects including participation in vehicle acquisitions, engine conversions, and refueling or charging facilities

The City has qualified, certified LPA persons on staff.

Sincerely,

Tad Montgomery

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RE: City of Lebanon and Town of Hanover, NH Letter of Interest, Congestion Mitigation and Air Quality Improvement (CMAQ) Program – Project: Regional Public EV Charging Infrastructure Development

Dear Mr. Jameson and Ms. Sottilaro,

This letter represents Lebanon and Hanover's joint response to the NH DOT's Call for Letters of Interest to pursue project funding through the CMAQ program. Lebanon and Hanover anticipate requesting funding for the regional development of public EV charging infrastructure.

Lebanon: The need for electric vehicle infrastructure development, both public and municipal, and the conversion of our municipal fleet are identified in Lebanon's Master Plan and the City has already commenced this work. Lebanon now owns two EV's: a Nissan Leaf and a Ford F150 Lightning. We have two municipal Level 2 charging stations and are negotiating our first city-owned public charging station. At the same time, much of the City is without adequate public EV charging infrastructure. Downtown Lebanon, the heart of the city, is considered an EV charging desert.

Hanover: On May 9, 2017, at the Hanover Town Meeting, the residents of Hanover voted to commit to utilizing renewable electricity for 100% of their needs by 2030 and 100% renewable transportation, heating, and cooling by 2050. Hanover is currently in the process of updating its Master Plan to enable a more sustainable community.

Hanover has two (2) level 2 charging stations in its 7 Lebanon Street Parking garage and Dartmouth College has recently installed several on their campus. The community has committed in its parking capital reserve to fund a share of charging infrastructure in

the community in the upcoming 2023-2024 budget. In addition, the Hanover Public Works' Fleet Department is developing a plan for the transition of the Town's fleet to Electric Vehicles. Currently all police cruisers have been converted to hybrid and the Public Works Department has funded the replacement of an Administration vehicle with a plug in electric.

Lebanon and Hanover have been working jointly for the better part of a year to develop a regional EV infrastructure plan that will serve not only the two communities but the region. Lebanon and Hanover are situated at the intersection of two (2) interstate highways (Route 89 & 91) and are home to two of the state's largest employers: Dartmouth College and Dartmouth Hitchcock Medical Center.

Below is a list of potential sites for public EV charging stations that we would propose developing under this CMAQ grant. In addition to these sites, we are developing a process that we will use to identify the greatest public EV charging needs in our region and roll out the infrastructure accordingly. The movement towards Electric Vehicles is evolving at a dramatic pace, and we want to remain nimble and flexible as needs, opportunities, and technologies shift. To this end we have developed a live map where we are registering expressed needs for EV charging. This map can be found here: [Upper Valley EV Charging Needs](#). At present this map is only editable by staff in the municipalities, but we hope to have a publicly interactable version soon.

To create a budget for this project we used EVSE infrastructure costs that the City and Town have developed for EVSE installation in the last year.

Level 3 Charger – each (2022 prices)

Equipment – per charger:	\$80,000
Site Work – per site:	\$50,000
Extended Warranty – per charger:	\$5,000
Utility Interconnection – per site:	\$50,000
Network – 5 years – per charger:	\$5,000
Project Management – per site:	<u>10,000</u>
TOTAL:	\$200,000

Level 2 Charger – Dual Port (2022 prices)

Equipment – per charger:	\$6,000
Site Work – per site:	\$10,000
Extended Warranty – per charger:	\$1,800
Network – 5 years – per charger:	<u>\$5,000</u>
TOTAL:	\$22,800

Two of our priorities for this public EV charging project are near workplaces and multi-family housing units. Most EV owners currently charge at home if they live in a single-family dwelling as this offers the cheapest and most convenient charging option. Our initial objective is to meet the needs of aspiring EV owners who do not have this easy capability. Our long-term goal is to make easy EV charging available to everyone, and to this end envision public EV chargers in most neighborhoods. Another priority is

EVSE close to public transportation. Note that both Lebanon and Hanover have a strong interest in powering this EVSE with renewable energy, which can be achieved through our Community Power programs. A preliminary list of public EV charging sites is given below.

Site	Town	Address	EVSE Type	# of Chargers	Cost
Parking Garage	Hanover	7 Lebanon Street	L2	2	\$22,800
Lot 1	Hanover	41 South Main Street	L3	2	\$280,000
Marshall Lot	Hanover	4 Maple Street	L2	4	\$28,800
Lease Lot	Hanover	6 School Street	L2	2	\$22,800
Public Works	Hanover	194 Lebanon Street	L3	4	\$440,000
Hovey Lane on street	Hanover	41 Lebanon Street	L2	6	\$34,800
Howe Library	Hanover	13 South Street	L2	2	\$22,800
Etna Library	Hanover	130 Etna Road	L2	2	\$22,800
Lot 5	Hanover	6 West Wheelock	L2	2	\$22,800
Crosby on Street	Hanover	4 Crosby Street	L2	2	\$22,800
Lebanon Airport	Lebanon	5 Airpark Rd.	L2	10	\$46,800
Dartmouth Coach	Lebanon	13 Labombard Rd.	L2	10	\$46,800
Lebanon Green	Lebanon	Park Streets	L2	5	\$31,800
Kilton Library	Lebanon	80 Main St.	L2	2	\$22,800
Taylor St. Parking Lots, City Hall	Lebanon	Taylor St.	L2	10	\$46,800
Centerra Mall	Lebanon	Centerra Parkway	L3	2	\$280,000
Centerra Mall	Lebanon	Centerra Parkway	L2	4	\$28,800
Rusty Bearings Skatepark	Lebanon	Glen Rd.	L2	2	\$22,800
Dartmouth Medical Ctr	Lebanon	1 Medical Center Dr.	L3	2	\$280,000
Dartmouth Medical Ctr	Lebanon	1 Medical Center Dr.	L2	10	\$46,800
Alice Peck Day Hospital	Lebanon	10 Alice Peck Day Dr.	L2	4	\$28,800
Bridge St. Park	Lebanon	3 Maple St.	L2	4	\$28,800
Miracle Mile Shopping Center	Lebanon	387 Miracle Mile	L2	6	\$34,800
Lebanon Middle School	Lebanon	3 Moulton Ave.	L2	4	\$28,800
Lebanon High School	Lebanon	195 Hanover St.	L2	6	\$34,800
Pat Walsh Park	Lebanon	Bank Street Extension	L2	4	\$28,800
Eldridge Park	Lebanon	Spencer St.	L2	4	\$28,800
				TOTAL:	\$1,987,400

Total Project Cost: \$1,987,400

Grant Request @ 80%: \$1,598,920

City & Town Match: 20%

We have initiated conversations with our local electric utility to enlist them in this public EV charging station development and see if they would be willing to assist with the remaining 20% through their make-ready program. We have also approached EVSE development companies about a public-private partnership where they would contribute the 20%. As of Nov. 4, 2022, we do not have commitments from either. A third option is to find a third-party financier who would partner with the Town and City for the 20% match in exchange for a portion of the revenues. As the first stations are deployed we will have a better sense of the revenue generation potential of these chargers. A fourth option is to offer these EV chargers to local developments and businesses in exchange for the 20% match and an agreement about how the EVSE will be used. Lastly, if the other funding does not come through, the City and Town would contribute the 20% through our regular budgeting process.

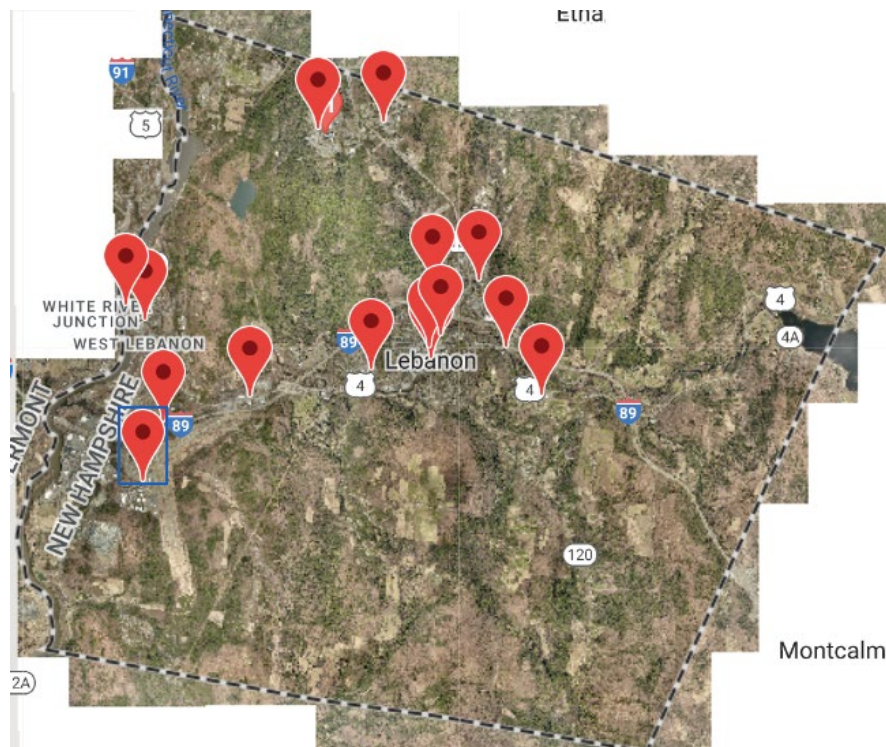


Figure 1: Lebanon Public EV Charging Infrastructure Locations

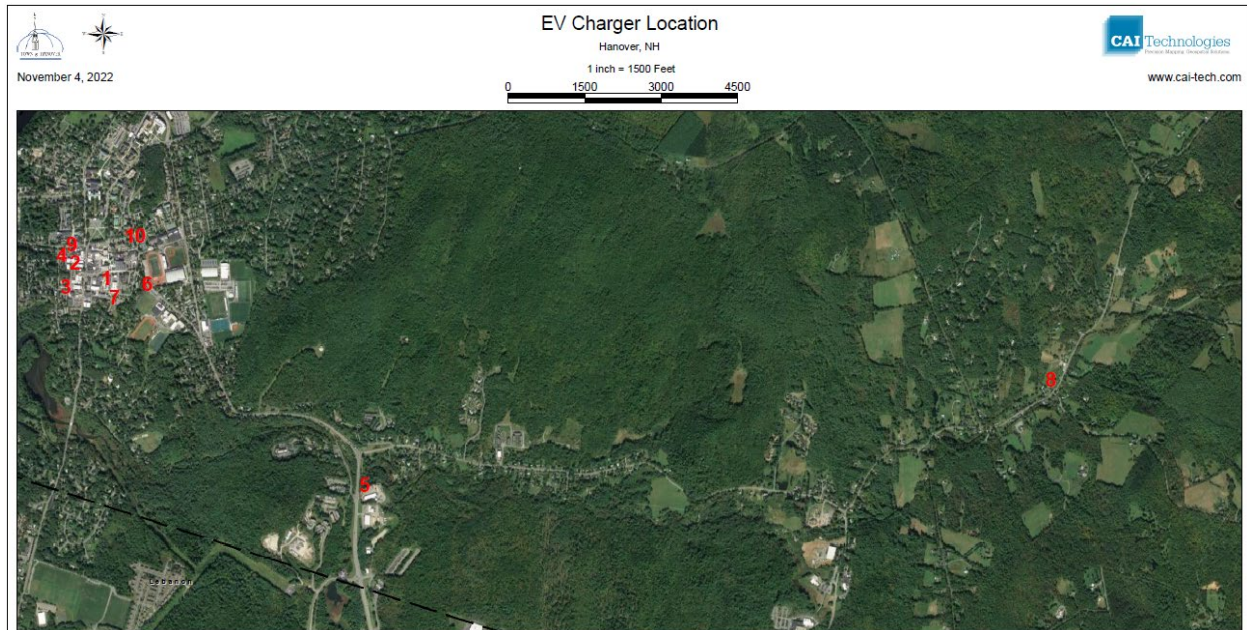


Figure 2: Hanover Public EV Charging Infrastructure Locations

The CMAQ activity that this project would fit into is:

Alternative fuel projects including participation in vehicle acquisitions, engine conversions, and refueling or charging facilities

The City has qualified, certified LPA persons on staff.

Sincerely,

Tad Montgomery (primary CMAQ LOI contact)

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