



**CITY COUNCIL WORK SESSION AGENDA**  
**Electric Vehicle Infrastructure Planning Group (EVIPG)**

**Work Session - Municipal Building & Virtual**

**This meeting will be held in-person and virtual.**

**25 Crescent Road  
Greenbelt, MD 20770**

**OR**

**Virtual Participation:  
Join Zoom Webinar**

**<https://us02web.zoom.us/j/86458704786?pwd=UkczdHI5dWNBK0FWTCtsaW1qRIJjdz09>**

**Webinar ID: 864 5870 4786**

**Join By Phone: (301) 715-8592**

**Password (if needed): 111238**

**In advance, the hearing impaired is advised to use Video Relay Services (VRS) at 711 to submit your questions/comments or contact the City Clerk at (301) 474-8000 or email [banderson@greenbeltmd.gov](mailto:banderson@greenbeltmd.gov).**

**Wednesday, April 6, 2022**

**8:00 PM**

**Work Session Packet**

Work Session - Electric Vehicle Infrastructure Planning Group (EVIPG)

Suggested Action:

Reference: Greenbelt Advisory Committee on Environmental Sustainability (Green Aces)

Report - Report # 2022-02 (Electric Vehicle

Infrastructure: A Plan for Greenbelt)

Electric Vehicle Infrastructure: A Plan for Greenbelt

## Agenda

- Introductions
- Council Discussion
- Questions and Answers
- Other Items

[Green\\_ACES\\_Rec\\_2022-02\\_--\\_Electric\\_Vehicle\\_Infrasture\\_-\\_a\\_Plan\\_for\\_Greenbelt.pdf](#)  
[Electric\\_Vehicle\\_Infrastructure\\_\\_A\\_Plan\\_for\\_Greenbelt.pdf](#)

## City Council Work Session Agenda Item Report

Meeting Date: April 6, 2022

Submitted by: Shaniya Lashley-Mullen

Submitting Department: Administration

Item Type: Work Session Item

Agenda Section: Work Session Packet

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**Subject:**

Work Session - Electric Vehicle Infrastructure Planning Group (EVIPG)

**Suggested Action:**

Reference: Greenbelt Advisory Committee on Environmental Sustainability (Green Aces)

Report - Report # 2022-02 (Electric Vehicle

Infrastructure: A Plan for Greenbelt)

Electric Vehicle Infrastructure: A Plan for Greenbelt

Agenda

- Introductions
- Council Discussion
- Questions and Answers
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**Attachments:**

[Green\\_ACES\\_Rec\\_2022-02\\_--\\_Electric\\_Vehicle\\_Infrastructure\\_-\\_a\\_Plan\\_for\\_Greenbelt.pdf](#)

[Electric\\_Vehicle\\_Infrastructure\\_\\_\\_A\\_Plan\\_for\\_Greenbelt.pdf](#)



Greenbelt Advisory Committee on Environmental Sustainability

**GREENBELT ADVISORY COMMITTEE ON ENVIRONMENTAL SUSTAINABILITY  
REPORT TO CITY COUNCIL**

**Date: February 21, 2022**

**Recommendation # 2022-02**

**SUBJECT:** Electric Vehicle (EV) Infrastructure: A Plan for Greenbelt

**BACKGROUND:** Members of the the City of Greenbelt’s Green Team, Greenbelt Advisory Committee on Environmental Sustainability (Green ACES), the Advisory Planning Board (APB), and other Greenbelt residents interested in helping to make it easier to charge EVs for those living in, working in, and visiting Greenbelt formed an ad hoc group, the Electric Vehicle Infrastructure Planning Group (EVIPG). During much of 2021, this group met regularly online. This effort culminated in the production of the report, *Electric Vehicle Infrastructure: A Plan for Greenbelt*, which is attached.

**RECOMMENDATION:** Green ACES and the Greenbelt Green Team recommend that City Council adopt and implement the recommendations developed by EVIPG in the report, *Electric Vehicle Infrastructure: a Plan for Greenbelt*. The recommendations are summarized below:

- Whenever new construction is planned, or parking areas are being redone, or electrical infrastructure is being modified, consider including new EVSEs into the new design (or encouraging developers to include EVSEs in the design, in the case of non-City construction). Because a large portion of EVSE installation costs are due to trenching and installing electrical wiring, the best time to install EVSEs at a new location is when work is already planned for the site.
- Encourage new builders to include electric infrastructure for one level 2 EVSE for every 14 residents. This estimate is based on typical driving habits and charging needs, along with the results of our survey of Greenbelt residents.
- Consider installing L2 EVSEs in the parking lot near the Community Center, Aquatic and Fitness Center, and Municipal building. Including electricity costs into the annual budget and providing the electricity free of charge (or at a low cost) for City employees and 'non-fleet' private citizens would encourage EV adoption. Actively pursuing partnership opportunities with other organizations can help in providing infrastructure at a reduced cost.
- For commercial properties including hotels, office buildings, restaurants, and shopping centers, it is recommended that the City advocate for owners to ready infrastructure for L2 EVSEs, as described in section 3.2.5 of the report.
- Re-evaluate the charging algorithm for the DCFC. At the present time it does not promote EV usage, which was the original goal of installation. If it cannot be successfully renegotiated, consider removing the DCFC and using the existing wiring to install multiple L2 EVSE units.
- Consider developing a group purchase or discount program for L2 EVSE equipment for Greenbelt residents and businesses to promote EVSE installations, and thereby, general adoption of EVs.
- Consider installing solar parking shade structures where appropriate, partially financed through the currently available grant program.
- Consider developing a standardized permit request form specifically for EVSE installations in order to save time/cost on overhead in reviewing forms.
- Develop and conduct webinars or town hall meetings to inform Greenbelters about EVs and EVSEs.
- Add information and helpful links about EVs on the City of Greenbelt web pages.

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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Table of Contents	Page
<b>Executive Summary</b>	<b>1</b>
<b>Introduction</b>	<b>1</b>
<b>Background</b>	<b>2</b>
<b>The Problem</b>	<b>3</b>
<b>Common terminology</b>	<b>3</b>
<b>The Current Situation in Greenbelt, Prince George’s County, and Maryland</b>	<b>4</b>
<b>User EV Charging Needs and Solutions for Greenbelt</b>	<b>8</b>
<b>A Plan for Greenbelt: Recommendations for Action</b>	<b>12</b>
<b>Conclusion</b>	<b>15</b>
<b>Report Submission</b>	<b>17</b>

## Executive Summary

This document outlines forces of environmental change and technical advances that are leading to an increased presence of electric vehicles (EVs) on our roadways; discusses current facilities in Greenbelt for EV charging; presents recommendations for electric vehicle charging infrastructure standards for City of Greenbelt municipal facilities, businesses, multi-family and single family residences; [and concludes with bullet point recommendations to consider for adoption in Greenbelt.](#)

### 1. Introduction

Under the auspices of the City of Greenbelt’s Green Team, and in collaboration with the City’s Advisory Planning Board (APB), an *ad hoc* group was formed, naming itself the Electric Vehicle Infrastructure Planning Group (EVIPG). The self-defined charge and purpose of EVIPG is to research and assemble information regarding current and future needs for EV charging infrastructure in Greenbelt.

Rapid and continuing advances in battery technology, along with the exigencies of our changing climate and the need to reduce use of fossil fuels and greenhouse gas emissions, are having the result that use of electric vehicles (EVs) is growing rapidly. Many major automobile companies have promised to eliminate the production of conventional internal combustion engine (ICE) cars by the middle of the next decade. Such an abrupt transition in transportation is historically unprecedented and will have an enormous impact on the daily lives of many of our citizens, e.g., increased need for electric charging facilities, demise of gasoline stations,

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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reduced need for car repair facilities (EVs have greatly reduced maintenance needs) and other impacts not yet imagined.

In order to maintain our city as an attractive environment for residents, and to be responsible environmental stewards, it is important for the City to plan for plentiful and convenient access to charging stations for residents' EVs. Moreover, facilitating the deployment of easily accessible charging stations will encourage the transition from fuel-powered (internal combustion engine or 'ICE') vehicles to EVs, and will contribute to the global effort to mitigate the consequences of anthropogenic climate change that are already impacting populations here in Greenbelt and around the world.

Following a discussion of the background and identification of the problems and challenges, the report will:

- Describe the current EV situation in Greenbelt;
- Give a presentation of the unique EV charging needs for the varied types of residential, commercial and municipal development in the City;
- Present a plan for delivering EV charging infrastructure in an efficient and equitable manner;
- Conclude with a proposed plan of action for development and implementation of new policies to encourage expanded use of EVs and EV charging infrastructure in Greenbelt.

## 1.1. Background

Greenbelt's unique, historic nature as a planned green community has given our town a strong understanding and caring for our environment. Greenbelt residents for many years have strived to be leaders in environmental stewardship, actively caring for our natural resources even as our small city grows and our neighboring communities continue to develop an increasingly urban landscape.

The harsh realities of climate change continue to become more evident, and the contributing effect of fossil fuels on both climate change and pollution of the environment are accepted in science as incontrovertible facts. These factors, together with rapid technical advances, have led to the emergence of electric vehicles (EVs) in the marketplace and on our roadways. Studies have established that EVs use less energy and release significantly less carbon dioxide (the primary greenhouse gas resulting from human activity) over their life-cycle compared to Internal Combustion Engine (ICE) vehicles. EVs are also attractive to consumers because higher operating efficiencies and reduced maintenance needs result in dramatically lower lifetime cost of ownership compared to ICE vehicles. EVs often operate at an equivalent 'miles per gallon' rate of greater than 100-mpg, between three and four times greater than ICE vehicles.

As the number of EVs on our roadways continues to grow, and governments and manufacturers plan the obsolescence of ICE vehicles, the need has grown for communities to

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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provide an infrastructure for charging EVs. In the industry, an EV charger is called Electric Vehicle Supply Equipment (EVSE). Industry forecasts agree that the number of EVs in use is increasing rapidly, and will continue to do so over the coming years; the increased demand for EVSEs in our communities will necessarily grow in response.

## 1.2. The Problem

Although a small number of EVSE units have already been installed in Greenbelt, the absence of an overarching plan has resulted in a somewhat disorganized approach to implementation. As of October 2021, there are a total of six (6) operational public EVSEs in Greenbelt, leaving many EV owners without a convenient place to charge and discouraging EV ownership in the City; this is especially true for residents of multi-family dwellings. Publicly available charging infrastructure promotes environmental justice by giving all Greenbelt residents access to the economic, health, and environmental benefits of EVs. More importantly, City of Greenbelt planners have no standards or other tools with which to encourage developers to include EVSEs in future projects, nor to encourage owners and managers of existing multi-family communities to upgrade their properties by installing EVSEs to attract and retain residents.

A second challenge is to promote understanding and general acceptance by Greenbelt residents of EVs and EVSEs as being beneficial to Greenbelt, since many residents are not familiar with EVs and EVSEs. The automobile industry is undergoing a transition from vehicles powered by fossil fuels to emerging technologies including electric vehicles (EVs); the City of Greenbelt can embrace this important change by encouraging development of infrastructure to support EVs rather than promoting fossil-fuel dispensing facilities.

## 1.3. Common terminology

This section describes some common terms used when describing EVs. **Battery electric vehicles (BEVs)** are vehicles only powered by a battery rather than a gasoline engine. **Plug-in hybrid electric vehicles (PHEVs)** contain both a battery for all-electric driving (which can be charged from an external power source) and a gasoline engine. The term “**electric vehicle (EV)**” frequently refers to only BEVs, but can sometimes be used to refer to PHEVs as well (since even though PHEV batteries are much smaller than BEVs, PHEVs can be charged just like BEVs).

The **electric vehicle supply equipment (EVSE)** is used to supply power to an EV. An EVSE is sometimes colloquially called a “**charging station.**” Charging stations can be either mounted on a wall (e.g. in a garage in a home) or mounted on a free-standing pedestal (e.g. at a public EVSE).

There are typically three classes of EVSE: **level 1 (L1)** chargers, which are based on a standard 120-volt(V) circuit; **level 2 (L2)** chargers, which are based on a 240V circuit (typical of that used by a standard household clothes dryer); and **direct current fast chargers (DCFC)**. DCFC

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

EVSEs are sometimes called **level 3 (L3)** chargers. L1 chargers typically charge at 12-amperes(A), or around 1.5kW. Thus, to fully charge a 75kWh EV battery using a L1 EVSE can require up to 50 hours (battery capacities in EVs vary widely between manufacturers and models, and determine the driving range of a particular vehicle as well as the time needed to recharge.) L2 chargers typically charge at around 30A, or 7.5kw. Thus, a L2 charger can fully charge a 75kw-hr EV in around 10 hours, corresponding to a typical overnight charging session. L2 chargers are also called “**destination chargers**” since they are suitable for overnight or day-long charging. DCFCs are needed for charging while on long distance travel, where a short-duration, high-rate charging session is needed; a DCFC can charge at rates ranging from 50 to 250kw and can fully charge a car in around 30 to 60 minutes.

Because of the long charging times required for L1 chargers and because 240V circuits are typically available or can be easily installed in locations such as homes, apartments, or shopping centers, L2 chargers are a preferable choice in situations where an EV owner can leave the car either overnight or for a longer time during the day (e.g., at a work location).

There are currently four different connector plugs in common use. For L1 and L2 charging in North America, most EVs have a connector type called “**J1772.**” For DCFC charging, EVs other than Teslas use a plug called “**combined charging system**” (**CCS**). Some EVs manufactured by Nissan use a “**CHAdeMO**” connector for all levels of charging. EVs manufactured by Tesla use a proprietary connector provided by the manufacturer. Aftermarket adapters can be purchased to use Tesla connectors with non-Tesla cars (and vice versa).

## 2. The Current Situation in Greenbelt, Prince George’s County, and Maryland

### 2.1 Electric vehicles currently in Greenbelt

The number of full Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs) that are registered in the state of Maryland is shown in the table below; data is from the Maryland Department of Transportation’s Motor Vehicle Administration. Data is further broken out to show those EVs registered in Prince George’s County and in Greenbelt.

**Plug-in Vehicles Registered in Maryland, Prince George’s County, and Greenbelt\***

	Full Battery EVs	Plug-in Hybrid EVs	Total EVs
<b>Maryland</b>	23,297	15,148	38,445
<b>Prince George’s Cty</b>	1,983	1,327	3,310
<b>Greenbelt</b>	83	62	145

\*As of the end of September 2021, according to Maryland MDOT/MVA Open Data Portal

Each category is growing in Greenbelt by about one to three each month, with BEVs outpacing PHEVs.



# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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## Results of an EV Survey

EVIPG developed an EV survey and announced it in the *Greenbelt News Review*, on the City of Greenbelt website, and on social media platforms. As of April 8, 2021, 86 Greenbelt residents completed the survey. Of the respondents that indicated plans to purchase a new vehicle, 66% indicated they planned to purchase a BEV, and only 12% indicated they planned to purchase a fully fossil-fuel vehicle (not a BEV or PHEV). 33 of the respondents reported that they have a plug-in electric vehicle; 19 indicated that they have a full battery electric vehicle (BEV) and 14 reported they have a plug-in hybrid vehicle (PHEV). One respondent reported having 2 plug-in vehicles, and another reported having 3 EVs. The majority of respondents who reported owning EVs live in historic Greenbelt.

## EVs owned by the City of Greenbelt

The City currently owns three BEVs; two are used by inspectors in the Department of Planning and one is used by the Department of Public Works. City Council has expressed interest in purchasing BEVs where possible and has communicated this to a number of departments, most notably Public Works. In addition, the City owns one Neighborhood Electric Vehicle (NEV), a small open-bed truck used by Public Works primarily to collect trash at Buddy Attick Park. The City currently is working to secure a Maryland grant to facilitate purchase of one additional BEV as of this writing.

## 2.2 Charging infrastructure currently in Greenbelt

### 2.2.1 Charging of City-Owned Electric Vehicles

At present there are two L2 EVSEs at the Department of Public Works facility, for use in charging City-owned EVs. There is a plan to apply for a grant to offset the cost of installing an additional L2 EVSE at this facility.

### 2.2.2 Public charging

There are currently three Greenbelt locations that are available for public use:

- A Direct Current Fast Charger (DCFC) at Roosevelt Center next to the municipal building has plugs for both SAE Combo (CCS) and CHAdeMO public fast charging. It has been operating since October 2017 (with 2 months of down time in August/September 2020). Electric Vehicle Institute (EVI) of Baltimore owns, paid for, and installed the charger and provides for its billing and maintenance. The City of Greenbelt and EVI share in the revenue. The charging structure is meant for the City to “break even”. When initially installed, the City determined that charging would be free to the public, but there is now a \$2.00 Flat Fee plus \$0.17 per minute (e.g. so a 30 minute charge will cost \$7.10 (\$0.17\*30 + \$2). In 2018, the first full year of operation, there were 4,169 charging sessions. Unfortunately, a Laurel-based commercial taxi service became a frequent user

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

of Greenbelt's DCFC, at significant cost of electricity to taxpayers. City Council then determined to charge for DCFC use, and the City of Greenbelt paid EVI a fee to add this capability. In 2019, the only other full year with available data (due to the 2-month outage in 2020), the number of charging sessions dropped to 439. Following complaints from some Greenbelters about the high cost of charging, Public Works and EVIPG are exploring additional charging rates and methods.



DCFC at Greenbelt Municipal Building

- Under a new grant program, electric utility company PEPCO installed EVSE at two locations in Greenbelt that are available for public use; there are four L2 units at Schrom Hills Park, and one L2 unit at Springhill Lake Recreation Center. The cost to users is \$0.18/kWh. These EVSEs were placed in service in April 2021.



One L2 charger at the Springhill Lake Recreation Center offers public charging in West Greenbelt.



Four L2 chargers at the Schrom Hills Park offer public charging in East Greenbelt.

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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## **2.2.3 GHI charging**

GHI Technical staff report that, as of October 2021, a total of 7 EVSE permits have been issued: 3 are pedestal-mounts; 3 are wall-mounts in a garage; and one has not yet been identified/installed.

## **2.2.4 How Greenbelters charge their EVs/PHEVs**

Based on results from the EVIPG Survey, at the present time all but two Greenbelters reported charging their vehicles at home at least part of the time. Two plug-in hybrid owners reported charging only at commercial/destination chargers, but expressed the need to find a better alternative.

## **2.2.5 Greenbelt hotels**

There are six hotels in Greenbelt, none of which currently have any EVSEs.

Managers at each hotel stated that their parent company had not discussed with them the possibility of installing EV chargers, nor mentioned plans to roll out an EV charging network at its hotels. It is noted that one Greenbelt hotel is a Residence Inn by Marriott, and that Marriott reports more than 3,137 electric vehicle (EV) charging stations are available and ready for use at Marriott hotels. All hotel managers indicated that they are interested in exploring the idea of installing EV chargers for guests who own EVs. When asked the question, “If the City offered a webinar on Electric Vehicles, EV charging stations, and the competitive advantage they offer to attract EV owner guests, would you be interested in attending?” all replied that they would.

## **2.2.6 Greenbelt shopping centers**

At present, no shopping center in Greenbelt offers EV charging.

## **2.2.7 Greenbelt office buildings**

At present, there is one EVSE, located in the Capital Office Park, the sole unit in Greenbelt to offer EV charging to employees.

### 3. User EV Charging Needs and Solutions for Greenbelt

Below is an overview of the typical charging needs of an EV owner and then discussion of how these charging needs can be met in the home, apartment community, and commercial environments of our City. Whether and how EV owners pay for the electricity to charge their vehicles will determine the overall cost to implement and operate the EVSE installations.

#### 3.1 Charging needs of typical EV owners

Before addressing specific charging requirements for our City, it is helpful to consider the typical charging needs of an EV owner. Here we focus on the charging needs of EV owners resulting from typical daily local travel needs, rather than those undertaking long distance travel. A typical example to consider is one who drives 15,000 miles per year and owns an EV with a range of 300 miles, which is becoming the typical state of the art range of modern EVs. Thus, the typical EV owner may charge the car once or twice per week on average. The typical battery capacity of an EV with a 300 mile range is 75kW-hrs, and the current efficiency of EVs is around 4 miles per kilowatt-hour (kWh) or 0.25 kWh/mi. It must be noted that all of the above figures represent a broad range in 'real life' of actual miles driven, size of batteries, and electricity use per mile.

#### 3.2 Charging solutions for EV owners in the City

The charging options for EV owners vary widely depending on where an owner lives and works. While it may be relatively easy to install L2 EVSEs at a single family home, gaining access to such chargers in the context of an apartment or condominium complex or within GHI is a greater challenge. Thus, we separate our recommendations into specific housing and work environments: single family residential, multi-family residential, GHI, municipal and commercial properties.

##### 3.2.1 Single family residential

Level 2 charges can be easily, and relatively inexpensively, installed in single family residential homes. The 240-volt wiring needed for an EVSE is typically easy to install to the existing electrical panel and there are a wide variety of level 2 chargers on the market that can be purchased for installation within garages, carports and even outdoor locations. Total installation costs are typically in the range of \$750 - \$2600, although can be greater if the charger must be installed at an outside location far from the house electrical panel. As discussed previously, a typical EV will only need to be charged once or twice per week and the charging can be completed in a single overnight charging session. There is no need to visit a remote EVSE in such a charging environment. Individual homeowners can also take advantage of the reduced cost of electricity during nighttime charging that is offered by some providers. For the homeowner, home charging is most often the preferred choice for one's personal EV because of convenience and typically is the lowest energy cost.

November 23, 2021

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### **3.2.2 Multi-family residential**

Many Greenbelt residents live in apartments where they don't have the option to install a 'personal' EVSE; this presents a significant barrier to adoption of EVs in our community. In addition, there is ongoing construction of new rental apartment complexes within the City that will increase the number of residents who will need to find charging solutions as EVs begin to dominate the transportation environment. Given the relatively short time horizon in which EV deployment is likely and the multi-decade longevity of a rental apartment, it is essential that the City establish rational guidelines for EV charging for new multi-family construction within the city and offer suggestions to existing property owners for how to add EVSE infrastructure to their properties.

One important issue with regard to EV charging concerns how to collect fees for the electricity used to charge an EV. Many public level 2 EVSE in cities in the Washington DC area offer free charging (e.g., City of Hyattsville); in this case the cost of electricity is borne by the municipality, as a tiny percentage of the overall public budget. In the case of multi-family housing, a flat monthly fee could be added to the EV owners' rent. EVSE can be fitted with equipment to accept direct payment with a credit card or prepaid account, however this adds cost per kWh as a third-party business is needed to collect the monies, pay the credit card fees and utility bills, or reimburse the apartment complex owners; this can significantly increase the cost of charging beyond the actual cost of electricity and should be avoided, if possible.

#### **3.2.2.1. New development.**

In the case of new construction, the charging needs of the "typical" EV owner presented previously yields a sensible guideline for EV charging in the multi-family residential environment. An EV owner will typically need to charge the car once per week, either overnight or during an extended period during the day. Thus, an L2 EVSE installed in a multi-family residential environment may be able to fully charge two EVs per day or 14 EVs per week. If all residents were to become EV owners, the complex would require an L2 EVSE for every 14 residents of the complex to satisfy the charging needs of all cars. Thus, a reasonable guideline for new construction is for the builders to include the electric infrastructure for one level 2 EVSE for every 14 residents of the complex. We emphasize that it is unrealistic to suggest that all of these level 2 chargers be installed at the present time, since not everyone drives an EV yet. Rather, the underlying electric infrastructure should be put in place during the construction so that level 2 EVSE can be added as the demand for EV charging develops in the coming years. At the present time the City has no zoning or enforcement authority for such a recommendation. On the other hand, the City should advocate that it is in the common interest of developers and Greenbelt to provide an attractive rental environment, and to demonstrate environmental responsibility,

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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as in the decades to come the effects of climate change, and the rate of EV ownership, will both continue to rise.

### **3.2.2.2. Existing multi-family housing.**

In the case of the existing multi-family residential complexes, the guideline for the recommended number of level 2 EVSE per resident is the same as in new construction. The challenge is to retrofit the electrical infrastructure. Recognizing that although the cost to install electrical service capacity, wiring and EVSE in our existing apartment communities may be larger than for new development, the benefit to residents and to the City remains just as important. It may be possible to install grouped level 2 EVSE in designated locations within existing parking lots or garages as demand for EV charging increases, and this should be strongly encouraged by the City. Such charging facilities would increase the attractiveness of the property to prospective renters, which will provide a strong incentive to the owners to make this important capital improvement.

### **3.2.3 Municipal facilities**

There are a number of public facilities and associated parking lots within the City of Greenbelt, including the municipal buildings in Greenbelt's historic center, parking lots at the various parks, and the police station. There are now L2 EVSEs at Schrom Hills Park and the Springhill Lake Recreation Center, and a DCFC at the Municipal Building. The L2 EVSEs were recently installed by local utility company PEPCO; these are direct-pay units under the 'Greenlots' program, and the current cost as of this writing is reasonably competitive at \$0.18/kWh. The DCFC is severely underutilized at present because the cost of fast charging is very high. In contrast the Hyattsville DCFCs are free to non-fleet owners of EVs.

To encourage City employees to move from ICEs to EVs the City should install banks of L2 EVSEs in the parking lot near the Community Center, Aquatic and Fitness Center, the Municipal Building, and other municipal lots. City employees, employees in local businesses or park visitors can charge their EVs during the day while they are working or spending significant time in the various parks. Citizens who live close to the Center could also charge their cars overnight or on weekends if they live close enough to one of the City EVSE locations. Bikes or electric scooters can facilitate dropping off a car at a charging station and are already used by some citizens. It is important to note that L2 chargers need more time to recharge an EV battery than a DCFC does; a typical L2 EVSE delivers about 7.5kWh of electricity per hour of charging, which translates to about 30-miles of range per hour of charging (for a typical EV that averages 4-miles/kWh.)

The City should make all municipal L2 EVSEs available to employees and 'non-fleet' private citizens free of charge, absorbing the cost of electricity into the annual budget.

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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### **3.2.4 Greenbelt Homes, Inc. housing cooperative**

Greenbelt Homes, Inc. (GHI), the 1,600-unit housing cooperative in Greenbelt, established a policy in 2014 to facilitate members installing EVSE in their coop homes. The policy can be viewed at <https://www.ghi.coop/content/electric-vehicle-service-equipment-policy> .

GHI has sought, and the City has granted, permission for individual coop residents to install L2 EVSE units in the public Right-of-Way where that provides the closest access to EV parking; a Memorandum of Understanding has been drafted and accepted by the parties for this purpose. As of this writing there are seven (7) EVSE installations at GHI members' homes, three (3) of which are installed in the City Right-of-Way..

GHI homes present a unique challenge in planning for community-wide EVSE implementation, in that the rows of connected single-family homes, mostly built in the 1930's and 1940's, do not have sufficient electrical service capacity, either in individual units or in the overall buildings, to accommodate multiple EVSE installations. In addition, the layout of homes is such that many units do not have assigned parking spaces nearby; these are significant barriers to adoption of EVs for coop residents.

GHI is currently considering a proposal to install a bank of L2 EVSEs at the Administration building, which will serve employees and some residents. A second proposal in early stages of development considers adding electrical service to certain rows of stand-alone garages, which could then be provided with L2 EVSEs for residents' use.

### **3.2.5 Commercial properties**

Commercial properties in Greenbelt include hotels, office buildings, restaurants and shopping centers, all of which should be encouraged by the City to develop EVSE infrastructure. Occupancy profiles of these types of facilities vary widely from that outlined above for multi-family residential properties; therefore the same formula is unlikely to reflect the actual requirements for EVSE at commercial properties. Still, offering EV charging opportunities to employees, diners and shoppers can be a strong incentive to develop trade, and this trend will increase over time as EVs become more and more numerous.

#### **3.2.5.1 Hotels**

Hotels are an obvious choice for L2 EVSEs, as EV-owning guests are incentivized to stay at a facility that offers this amenity. Overnight charging can be included as a benefit, either cost-free or with a nominal charge added to the bill. It is recommended that the City advocate for hotel owners to ready

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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infrastructure for one L2 EVSE per 10 hotel rooms, and to install a bank of not fewer than four (4) L2 EVSEs as soon as possible.

### **3.2.5.2 Office buildings**

Office buildings in Greenbelt can benefit by installing EVSEs to attract new tenants and to encourage retaining existing ones. Facilities in the City have suffered in recent years from chronic, often severe vacancy rates; providing EV charging opportunities to prospective tenants can be a valuable incentive. L2 EVSEs can greatly benefit employees and encourage EV ownership. It is recommended that the City advocate for office building owners to ready infrastructure for ten (10) EVSE units, and to install a bank of not fewer than four (4) L2 EVSEs as soon as possible.

### **3.2.5.3 Restaurants**

Pad-site and other freestanding restaurants in Greenbelt can benefit by installing EVSE to attract diners. It is recommended that the City advocate for restaurant owners to ready infrastructure for four (4) L2 EVSE units, and to install not fewer than two (2) L2 EVSEs as soon as possible.

### **3.2.5.4 Shopping Centers**

Shopping Centers in Greenbelt can benefit by installing EVSE to attract shoppers. As stated above, even one hour at a level 2 EVSE can add 30 miles of range, making it likely that shoppers may spend more time in the center shopping or dining. Siting banks of EVSE near movie theaters and department stores can provide a strong incentive to EV-owning shoppers to visit such a center, as opposed to a shopping center without charging opportunities. It is recommended that the City advocate for shopping center owners to study the particular layout of stores at their respective properties, to ready infrastructure for six (6) EVSE units at selected location(s), and to install not fewer than two (2) L2 EVSEs at each selected location.

## **4. A Plan for Greenbelt: Recommendations for Action**

### **4.1. Implementation**

#### **4.1.1. Develop Workplace Charging for City Staff by 2024.**

- 4.1.1.1. The City of Greenbelt can demonstrate leadership by installing 'free-to-charge' L2 EVSEs in lots dedicated to city employees (police station and public works).
- 4.1.1.2. Effective planning for this infrastructure will involve communicating with staff that EVSEs would be made available to them free of cost.



# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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## **4.1.2. Develop Workplace and Public Charging for City Center**

- 4.1.2.1. The City of Greenbelt can demonstrate leadership by installing 'free-to-charge' L2 EVSEs in City-owned public parking lots.
- 4.1.2.2. Effective planning for this infrastructure will involve communicating with residents that EVSEs are available to use free of cost.

## **4.1.3. Consider creating an 'Adopt an EVSE' program for local groups, individuals, causes, or sponsors.**

- 4.1.3.1. In considering the deployment of new infrastructure, it may be beneficial to connect local clubs, city departments, or other interested organizations to the operation, appearance, or publicity of an individual charging station.
- 4.1.3.2. This could be accomplished by holding an EVSE-naming competition, offering opportunities for nominal cost-share to secure a mention on an honorary plaque (this EVSE co-sponsored and maintained by the Greenbelt Swim Team), or by dedicating individual chargers to a specific Greenbelt resident, department of city government, or other well-known entity.
- 4.1.3.3. Greenbelt Residents or Businesses could also choose to 'Adopt' an EVSE to regularly review the appearance of the infrastructure, as well as to determine whether it is operating properly.

## **4.1.4. Actively pursue select partnership opportunities to provide wider charging availability at no or low cost to City of Greenbelt residents and visitors.**

- 4.1.4.1. With the announcement that the Tesla Supercharger Network will soon accommodate other types of Electric Vehicles,<sup>1</sup> the city should consider applying to host a Tesla Supercharger Site or multiple L2 charging spaces as a Tesla Commercial Charging Partner<sup>2</sup>. The City should also consider pursuing relationships with other commercial entities to develop opportunities to host EVSE installations in Greenbelt.
- 4.1.4.2. Consider developing a Parking Lot Solar Canopy at Buddy Attick Lake Parking Lot, which could host EV charging for guests. There

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<sup>1</sup><https://www.forbes.com/sites/alistaircharlton/2021/07/21/elon-musk-says-tesla-superchargers-to-be-used-by-other-evs-this-year/?sh=23ff64891f4a>

<sup>2</sup> <https://www.tesla.com/support/commercial>

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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is currently a generous state-rebate program related to this type of installation.<sup>3</sup>

- 4.1.4.3. Consider the feasibility of installing EVSEs on street light circuits; contacting PEPCO about purchasing streetlights near public parking spaces and working with a developer such as FLO to install EVSEs that utilize the existing electrical connection, parking spaces, and current layouts that residents and visitors are already familiar with.<sup>4</sup>

#### **4.1.5. Re-evaluate the customer costs and pricing model for the DCFC in Greenbelt's historic center**

- 4.1.5.1. At the present time, the cost of the DCFC is comparable to an ICE vehicle, thereby not promoting EV usage as originally intended. Reducing the cost to charge at the Municipal Center DCFC would encourage EV owners to charge at this location. If it is not possible to reduce charging costs, as has been reported by the equipment provider, consider removing the DCFC and replacing it with multiple L2 EVSEs for City and public use.

## **4.2. Procurement**

### **4.2.1. Phased City Vehicle Replacement**

- 4.2.1.1. Because the city does not have direct zoning authority, the most meaningful way of positioning local government to accelerate progress is to shift vehicle procurement away from prolonging Greenbelt's reliance on fossil fuels. Develop and implement a simple plan or schedule to replace old or broken city vehicles with electric versions in the same vehicle-class.
  - 4.2.1.1.1. While not all city vehicles have ready electric alternatives, e.g. heavy trucks, backhoes, etc., most city-owned

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<sup>3</sup> The Maryland Energy Administration (MEA) offers a [Parking Lot Solar PV Canopy with EV Charger Grant Program](#), commonly referred to as the Solar Canopy Grant Program. The program will support installing solar photovoltaics on large parking spaces while still allowing parking to be offered and providing increased opportunity for plug-in electric vehicles (PEV) and plug-in hybrid electric vehicles (PHEV) to charge. Area of Interest II (AOI II) applications will focus on local governments and State agencies. Selected grantees meeting grant program requirements and restrictions may receive an award of up to \$600/kW of installed solar PV capacity, with a cap of \$300,000 per project. This grant provides a considerable portion of the cost of the PV EV canopy. One EV charging location Public Works has identified is the parking lot at Buddy Attick Park, the sole city-owned location within Greenbelt suitable for a PV EV canopy. The EV Infrastructure Planning Group recommends that City Council direct the city to apply for an MEA Solar Canopy Grant and undertake the installation of a canopy at Buddy Attick Park in conjunction with the renovation of the parking lot, which is scheduled to be undertaken in the near future.

<sup>4</sup> The EV Infrastructure Planning Group has been contacted by FLO, a business that specializes in installing EV charging stations connected to local streetlights. EVIPG is aware that PEPCO, not the City, owns most of the streetlights within Greenbelt. EVIPG does not know if suitable parking spaces are available near streetlights for EV charging stations. However, a number of neighboring municipalities are taking advantage of an opportunity to purchase streetlights from PEPCO and installing LED lighting to save on energy costs. If there are parking spaces in Greenbelt near streetlights suitable for EV charging stations, City Council may want to explore the possibility of purchasing its streetlights from PEPCO and working with FLO to install EV chargers powered by the streetlights. FLO is an approved vendor on the State's EVSE Rebate Program list and under numerous utility programs which helps streamline the procurement and installation process.

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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vehicles do have comparable electric versions that can be procured almost immediately.

- 4.2.1.1.2. Recommend developing a 'pilot' program to evaluate one or more EVs for use as police cruiser vehicles. This should include research of other law enforcement organizations nationwide regarding implementation of EVs.

## **4.2.2. Procurement Incentives**

- 4.2.2.1. Consider facilitating a group purchase of EVSEs by Greenbelt residents, which could promote adoption through cost savings and education of the public.
- 4.2.2.2. Consider developing a specific permit for EVSE installations, with reduced fee (or no fee) to encourage EVSEs in Greenbelt. A simple, standardized permitting request form, fully explaining the steps in the process, would ease burdens and allow permits to be approved more quickly. A form containing steps detailing the permitting process could help residents know what to expect when considering installing an EVSE.

## **5. Conclusion**

With the rapid shift from ICE vehicles to EVs due to factors such as high EV operating efficiency and reduced maintenance needs, it is time to take action to ensure that our local infrastructure is ready to handle the change. Even now, there are over 100 plug-in hybrids and full EVs in Greenbelt, and a majority of respondents in our survey of Greenbelt residents indicated an intention to acquire a BEV or PHEV in the future.

For many Greenbelt residents, installing an EVSE at home is not feasible because they live in a multi-family residential unit, or they have no assigned parking space, or their parking space is located prohibitively far from their unit. Therefore, for these residents, using a public EVSE or sharing with a friend may be the only option. There are currently only 5 public L2 EVSEs and 1 DCFC in Greenbelt, along with 2 EVSEs at the Department of Public Works (for City-owned EVs) and a number of EVSEs privately owned by Greenbelt and GHI residents. Sadly, Greenbelt hotels, shopping centers, and office buildings currently have little or no EV infrastructure.

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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Therefore, based on the information and recommendations presented in this report, the EVIPG recommends:

- Whenever new construction is planned, or parking areas are being redone, or electrical infrastructure is being modified, **consider including new EVSEs into the new design** (or encouraging developers to include EVSEs in the design, in the case of non-City construction). Because a large portion of EVSE installation costs are due to trenching and installing electrical wiring, the best time to install EVSEs at a new location is when work is already planned for the site.
- **Encourage new builders to include electric infrastructure** for one level 2 EVSE for every 14 residents. This estimate is based on typical driving habits and charging needs, along with the results of our survey of Greenbelt residents.
- **Consider installing L2 EVSEs** in the parking lot near the Community Center, Aquatic and Fitness Center, and Municipal building. Including electricity costs into the annual budget and providing the electricity free of charge (or at a low cost) for City employees and 'non-fleet' private citizens would encourage EV adoption. Actively pursuing partnership opportunities with other organizations can help in providing infrastructure at a reduced cost.
- **For commercial properties including hotels, office buildings, restaurants, and shopping centers**, it is recommended that the City advocate for owners to ready infrastructure for L2 EVSEs, as described in section 3.2.5 above.
- **Re-evaluate the charging algorithm for the DCFC.** At the present time it does not promote EV usage, which was the original goal of installation. If it cannot be successfully renegotiated, consider removing the DCFC and using the existing wiring to install multiple L2 EVSE units.
- **Consider developing a group purchase or discount program for L2 EVSE equipment** for Greenbelt residents and businesses to promote EVSE installations, and thereby, general adoption of EVs.
- **Consider installing solar parking shade structures where appropriate**, partially financed through the currently available grant program.
- **Consider developing a standardized permit request form specifically for EVSE installations** in order to save time/cost on overhead in reviewing forms.
- **Develop and conduct webinars or town hall meetings** to inform Greenbelters about EVs and EVSEs.
- **Add information and helpful links about EVs on the City of Greenbelt web pages.**

# Electric Vehicle Infrastructure: A Plan for Greenbelt

November 23, 2021

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By supporting universal access to EV charging infrastructure, Greenbelt can affirm its commitments to sustainability and 'going green' and be prepared for the inevitable changes coming to the automotive industry.

## **6. Report Submission**

Many Greenbelters have met virtually over the past months to develop this work. The subset who stepped forward as volunteers to write sections of the report include the following: Nathan Caudill, Jim Drake, Larry Hilliard, John Lippert, Ryan McClelland, Joe Ralbovsky, Luisa Robles, and Steve Skolnik.

This report is respectfully submitted to the Greenbelt Advisory Committee on Environmental Sustainability (Green ACES) and the Advisory Planning Board (APB) for review and action. It is hoped that the committee and board will vote to submit the report to the Greenbelt City Council for consideration, acceptance, and action.

Respectfully submitted on behalf of the full Electric Vehicle Infrastructure Planning Group,

Steve Skolnik  
EVIPG Facilitator