Mayor
CAROLINE SIMMONS

DIRECTOR OF OPERATIONS
MATTHEW QUIÑONES

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CITY OF STAMFORD

OFFICE OF OPERATIONS
888 WASHINGTON BOULEVARD
P.O. BOX 10152
STAMFORD, CT 06904-2152

DATE: Monday, June 3, 2024

TO: Board of Finance

FROM: Matt Quiñones, Director of Operations

SUBJECT: Government Center Garage EV Installation

Dear Board of Finance Members,

Thank you for your continued consideration of the CT DEEP Grant funding to support the Government Center garage electric vehicle charger installation project.

Following our prior discussion on this item, I organized a working group to review the City's next steps as it relates to EV infrastructure planning.

We have consolidated our findings in the supporting materials sent to you which include:

- Appropriation request detail.
- Product brochure of the level 2 charging station used in the schematic design and pricing estimates.
- Proposed layout of chargers on the 4th floor of the Government Center garage.
- Responses to previously asked questions by Board Members at past Board of Finance meetings.
- Total project cost estimate.

We look forward to our discussion on this topic and please feel free to contact me with any questions.

Capital Project Appropriation Request

5/30/2024

FY 23/24

Project:	**001394**	**Electric Vehicle Installation – 4th Floor GC Garage**
Agency:	**0220**	**Operations: Engineering**

Oracle Date	
Commitments	
Obligations	
YTD Balance	
Amount Available	
Unfunded	

Total Request: $731,818.55

Part A - Description of Request

This request is for the purchase and installation of 12 Dual-Port Level II Electric Vehicle Chargers located on the 4th Floor of the Government Center parking garage. These chargers will be open to the public and will also serve the future electric fleet vehicles used by city employees.

The administration will charge a fee to cover the operating costs of electric consumption when used by the public. The exact fee will be set closer to when the chargers are ready for use as the electric price fluctuates over time, and the $/kWh rate will likely change from now until project completion. A fee will not be charged for use by city fleet vehicles.

Included in the total cost are the chargers, electrical 'make-ready' components and infrastructure, engineering design, labor, and a 5-year maintenance contract. This project is eligible to receive CT Department of Environmental and Energy Protection (DEEP) grant funding (65% Grant, 35% City Match). This project is also eligible to receive utility incentives, estimated to be $40,000. As the incentives are not a guarantee, they are not factored into this appropriation request.

Part B - Appropriation Request Detail

	FY 23/24	Capital Forecast						
Fund Source	**Amount**	**FY 24/25**	**FY 25/26**	**FY 26/27**	**FY 27/28**	**FY 28/29**	**FY 29/30**	**Total**
State Grant	475,682.06	0	0	0	0	0	0	475,682.06
Bond (City)	256,136.49	0	0	0	0	0	0	256,136.49
Total	**$731,818.55**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$731,818.55**

Part C - Project History

Part D - Approvals

Preparer OPM Dept	**Date** 05/30/2024	**OPM Director/OPM Asst Director** Elda Sinani (Jun 3, 2024 10:08 EDT)	**Date** Jun 3, 2024
Department Head Louis Casolo	**Date** May 30, 2024	**Director of Administration**	**Date** Jun 3, 2024
Director Matt Quinones (May 30, 2024 23:02 EDT)	**Date** May 30, 2024	**Mayor**	**Date** Jun 3, 2024

Supplemental Capital Project Appropriation Request

Project: Stamford Government Center Garage Electric Vehicle Installation – 4th Floor

Location: 888 Washington Blvd, Stamford, CT 06901 – 4th Floor of Parking Garage

Agency: Operations, Engineering, Fleet Vehicle Maintenance

Total Request: $731,818.55

Summary: This request is for the purchase and installation of 12 Dual-Port Level II Electric Vehicle Chargers located on the 4th Floor of the Government Center parking garage. These chargers will be open to the public and will also serve the future electric fleet vehicles used by city employees.

The administration will charge a fee to cover the operating costs of electric consumption when used by the public. The exact fee will be set closer to when the chargers are ready for use as the electric price fluctuates over time, and the $/kWh rate will likely change from now until project completion. A fee will not be charged for use by city fleet vehicles.

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Appropriation Request Detail	
Fund Source	Amount
State Grant	$ 475,682.06
Bond (City)	$ 256,136.49
Total	$ 731,818.55

ChargePoint 6000 Series

Level 2 AC charging for businesses

Prepare for the future of electric mobility with a complete, connected charging solution.

Maximize charging, minimize complexity

The ChargePoint® 6000 Series (CP6000) makes you part of the future of electric mobility, now. Our integrated electric vehicle (EV) charging solution offers convenient, reliable AC charging for your employees, customers, visitors, residents or fleets. No matter what your organization's goals or your drivers' needs, we provide a complete package that makes it easy to get started and measure success. With flexible software controls, advanced station design and power management capabilities, you can easily scale your charging capacity while controlling costs.

ChargePoint's integrated solution includes:

+ Charging management software
+ Station hardware providing up to 19.2 kW per port
+ Driver app and network
+ Owner and driver support
+ ChargePoint Assure® service program
+ Turnkey installation via partner network

Ready to charge where your business needs it

Workplace


Retail


Parking


Commercial fleet

Hospitality


Multifamily residential


Healthcare


Education

Manage charging with ease

Flexible software simplifies charging management and makes it easy to update settings as you go. Monitor usage, set pricing, manage energy and simplify reporting across all your stations, including hardware already installed.

Comprehensive

Eliminate uncertainty and make charging work for your business by accessing all the controls, real-time status and analytics you need.

Dynamic

Make your investment go further through flexible pricing policies, driver access control, Waitlist and more.

Optimised

Reduce electrical upgrade and energy costs while serving more drivers with Power Management.

Prepare for tomorrow

CP6000 is ready to serve your drivers now and grow with your changing needs to meet new demand. Future-proof your charging with modular station hardware and automatic software updates for the latest features.

Scalable

Manage costs and complexity as you grow with a solution designed to anticipate future requirements.

Configurable

Tailor charging to your needs, thanks to flexible power inputs, station configurations and installation options.

Modular

Simplify installation and field servicing with a modular station design.

Keep your drivers happy

Reduce operational headaches, keep stations in use, improve productivity and generate positive brand association by enhancing driver satisfaction. ChargePoint provides everything you need to give your drivers a superior charging experience.

Effortless

Deliver unique value to your organization by giving drivers charging designed for convenience and accessibility.

Supported

Provide excellent service without additional effort by relying on our multi-language driver support.

Connected

Attract drivers and make charging easier with our broad charging network, roaming partnerships, mobile app and driver services.

Charge with confidence

Reliable charging is critical for your business and your drivers. Choose the solution you can depend on to maximize charging availability, minimize operational disruption and control total cost of ownership.

Reliable

Keep charging ready with tested solutions engineered for quality, safety and continuous use.

Integrated

Save time and effort with a complete solution and a single partner for your software, hardware, service and support needs.

Protected

Succeed without distractions thanks to ChargePoint Assure, our industry-leading maintenance and management service package.

Benefits of the ChargePoint 6000 Series

Get automatic software updates using reliable cellular connectivity and OCPP communication to the ChargePoint cloud.

Increase station availability with a rugged station designed for easy maintenance.

Keep cables clean and safe for low-hassle charging using integrated cable management.

Enhance visibility with real-time LED charging status indicators.

Give drivers access to pricing information, instructions and charging status with a 8″ (inch) interactive display supporting multiple languages, video upload and gesture controls.

Make it easy for authorized drivers to start charging with multiple authentication methods (NFC, RFID, remote and more).

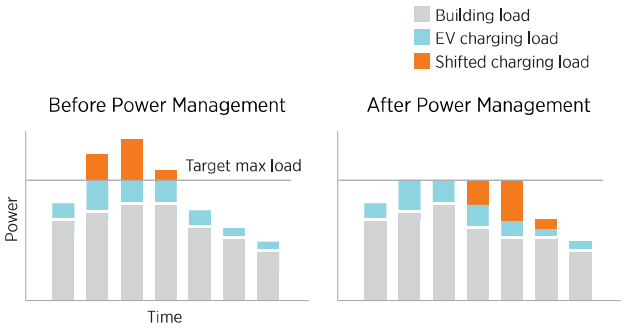
Reduce installation and operational costs with dual port stations that efficiently serve two parking stalls.

Reinforce your brand with customizable station inserts and video uploads for the display.

Focus on your core business by relying on ChargePoint Assure for proactive monitoring, uptime guarantees, and committed service levels.

Turn capital expenses into a predictable operational expense by getting the CP6000 solution as a subscription through ChargePoint as a Service.®

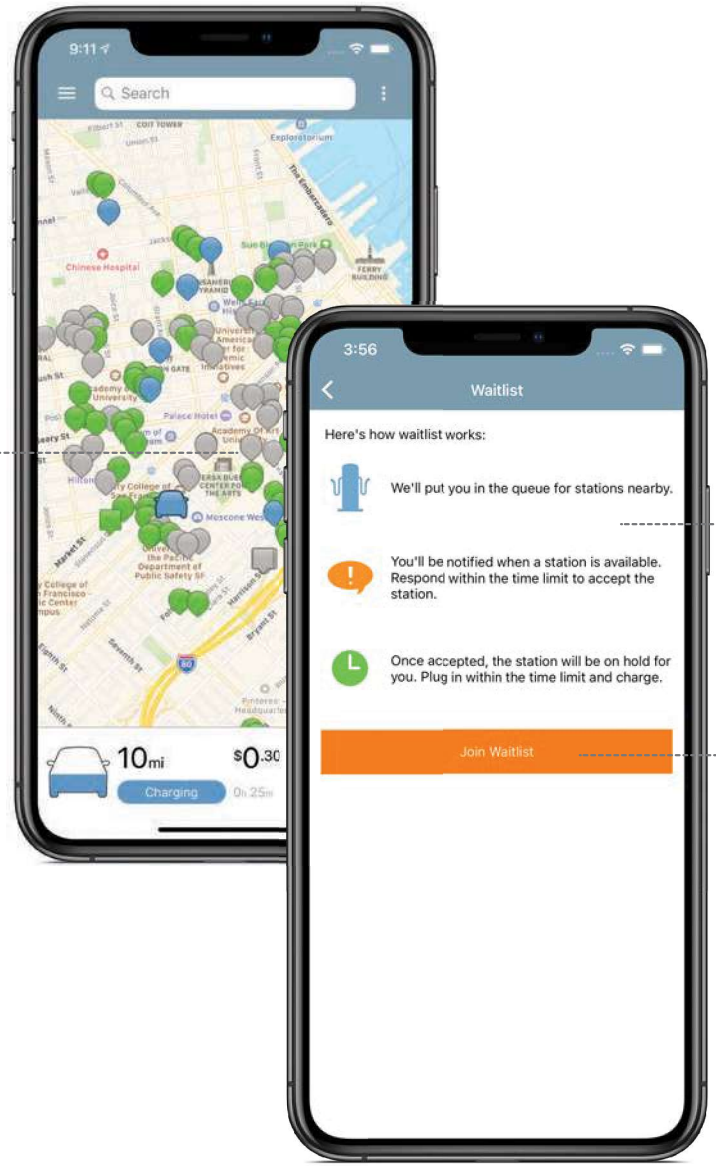
Gain peace of mind by relying on ChargePoint support to help drivers get charging faster.



Make your investment go further with flexible settings, pricing policies, dashboards, analytics and more. Manage your existing Open Charge Point Protocol (OCPP) compliant stations with ChargePoint network software.

Avoid electrical upgrades, reduce electricity bills and serve more drivers with Power Management.

Attract drivers by making your stations part of the broad ChargePoint network.



Download on the App Store

GET IT ON Google Play

Enhance driver satisfaction with the user-friendly ChargePoint app. Integrations with vehicle systems and navigation apps provide drivers seamless access to your stations and the ChargePoint network wherever they go.

Maximize station use and save time with Waitlist, which lets drivers enter a queue if all ports are in use and get notified when it is their turn to plug in.

Specifications

Feature	Description
Power	3.7 - 19.2 kW per port
Connectivity	4G LTE with GSM as backup
Authentication and payment	RFID, tap to charge (NFC), remote via mobile app or in vehicle, contactless credit card, EMV chip credit card option (for -CHIP models only)
Interface	8" (inch) interactive display with full colour, UV protection, gesture touch controls and multi-language support
Connector	SAE J1772 cable
Network communication protocol	OCPP 2.0.1
ISO 15118 standard	Supported
Operating temperature range	-40°C to 50°C
Certifications	UL Certified, Energy Star Certified*

Configuration options

Feature	Description
Port type	Integrated cable
Number of ports	Dual, single
Mounting options	Pedestal, wall
Cable length	18', 23'

* Energy Star Certified only applies to dual port versions of the CP6000 hardware.

Pedestal mount

CP6011B-50A-L5.5
CP6011B-80A-L5.5
CP6011B-50A-L5.5-CHIP
CP6011B-80A-L5.5-CHIP
Pedestal mount,
single port, 18' cable

CP6021B-50A-L5.5
CP6021B-80A-L5.5
CP6021B-50A-L5.5-CHIP
CP6021B-80A-L5.5-CHIP
Pedestal mount,
dual port, 18' cable

Wall mount

CP6013B-50A-L5.5
CP6013B-80A-L5.5
CP6013B-50A-L5.5-CHIP
CP6013B-80A-L5.5-CHIP
Wall mount,
single port, 18' cable

CP6023B-50A-L5.5
CP6023B-80A-L5.5
CP6023B-50A-L5.5-CHIP
CP6023B-80A-L5.5-CHIP
Wall mount, dual port,
18' cable

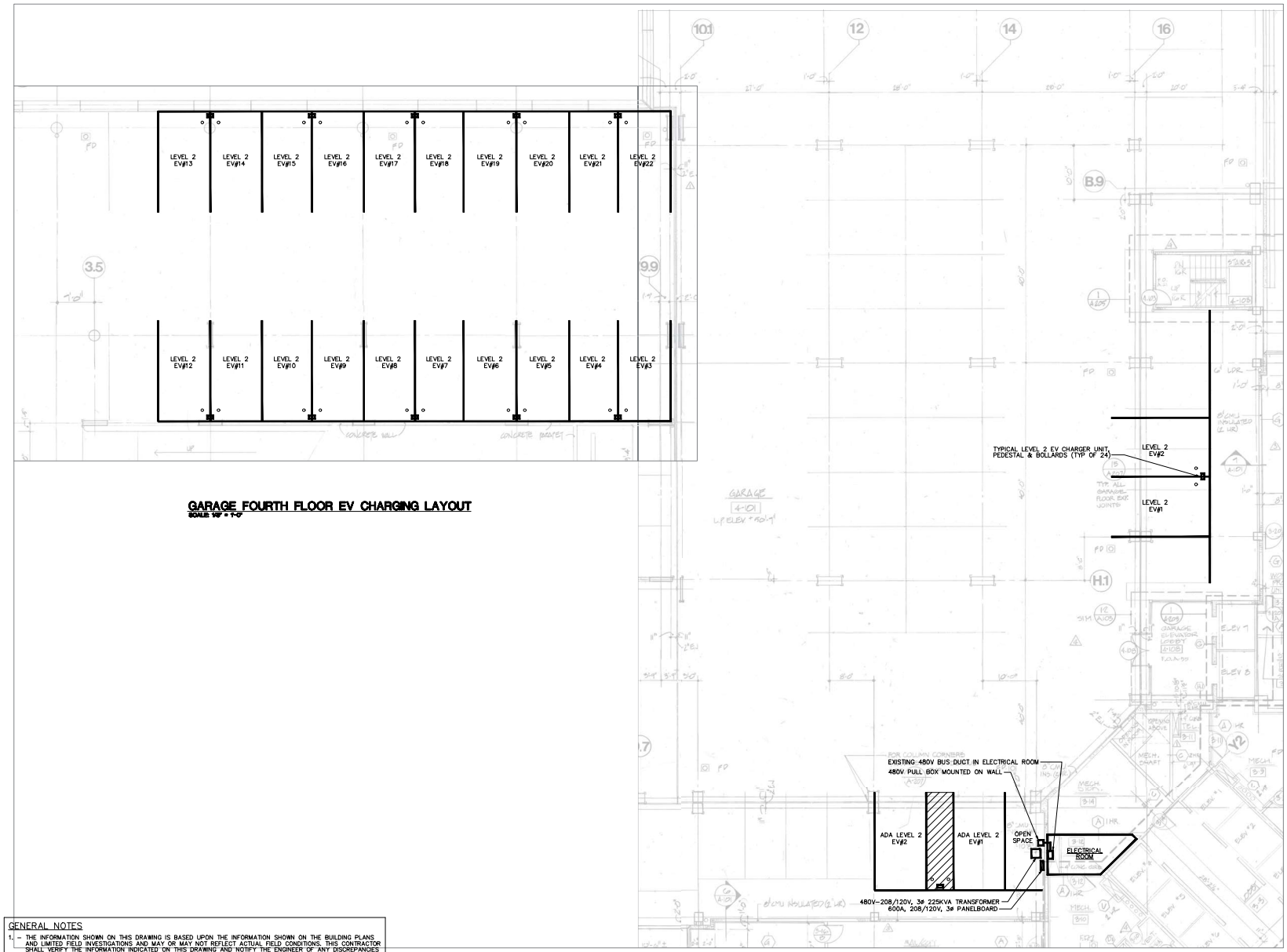
Let's get started

Ready to deploy EV charging for your organization? Our experts will help you identify your charging goals and advise on the best approach.

Learn more and take the interactive 3D product tour at chargepoint.com or email sales@chargepoint.com.

BR-CP6000-NA-00. March 2023. PN 73-001416-01-1.

Listed by Underwriters Laboratories Inc.



GARAGE FOURTH FLOOR EV CHARGING LAYOUT

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. - THE INFORMATION SHOWN ON THIS DRAWING IS BASED UPON THE INFORMATION SHOWN ON THE BUILDING PLANS AND LIMITED FIELD INVESTIGATIONS AND MAY OR MAY NOT REFLECT ACTUAL FIELD CONDITIONS. THIS CONTRACTOR SHALL VERIFY THE INFORMATION INDICATED ON THIS DRAWING AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES
2. - THIS CONTRACTOR IS REQUIRED TO PERFORM THIS WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, PRIOR TO SUBMITTING HIS BID. REGULATIONS, ORDINANCES, ETC., AND TO MEET THE REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND OWNER, WHETHER OR NOT SPECIFICALLY INDICATED OR SPECIFIED ON THIS DRAWING.
3. - ALL PENETRATIONS THRU FLOOR AND WALLS SHALL BE FIRE STOPPED WITH "THOMAS AND BETTS" - FLAMESAFE, TYPE FST FIRESTOP COMPOUND OR APPROVED EQUIVALENT, CONFORMING TO ASME E814/UL1479.

NOTES

REV.	DATE	BY	REVISION
1	02/12/24	MM	SCHEMATIC DESIGN FOR REVIEW

SUBMITTED FOR PRICING ONLY

Consulting Engineers:

MUSCO ENGINEERING ASSOCIATES

375 Morgan Lane, Unit 307
West Haven, CT 06516
(203) 932-1901 FAX (203) 931-1550
www.muscoengineering.com

Project:

CITY OF STAMFORD
EV STATION PROJECT

888 WASHINGTON BOULEVARD
STAMFORD, CT 06901

Date:	03/01/24
Scale:	NONE
Drawn By:	SK
Checked By:	MM
Project No.	240101-1

SEAL

Sheet Title:

GARAGE 4TH FL LEVEL EV CHARGING LAYOUT

Dwg. No.

E-4

Government Center Garage Electric Vehicle (EV) Project

Responses to Previously Asked Questions from Board Members

1. **Will the administration charge a fee for the public use of the chargers?**
   Yes, the administration will charge a fee for the public to utilize the chargers. This fee will be based on a $/kWh rate to cover the cost of electric consumption. The exact fee will depend on the price of electricity at the time the chargers are ready for use. After three (3) years of a fee that does not result in a profit (to comply with grant requirements), the administration will reevaluate the fee structure based on utilization and need. City fleet vehicles will not pay the fee, but utilization will be tracked accordingly.

2. **Can these chargers support newer EVs with more advanced battery technology?**
   Based on multiple discussions with EV vendors and installers, while battery technology may evolve, charging connector standards will remain for the foreseeable future which will ensure that future vehicles can still accept a charge on older equipment.

3. **Can the grant be used for other locations around the city? Why just the Government Center?**
   The CT Department of Energy and Environmental Protection (DEEP) confirmed that the grant can be used for other locations. However, several strategic reasons led to the selection of the Government Center as the project site for receiving the grant funding:

   - *Fleet Electrification:* Mayor Simmons' Climate Executive Order, signed on April 21, 2023, calls for the development of an EV fleet and installation of EV charging infrastructure. Since as many as 47 fleet vehicles are housed in the Government Center parking garage, installing chargers at this location would facilitate the transition to EVs for the fleet. This aligns with broader sustainability initiatives and carbon reduction targets.

   - *Public Access*: As part of the grant requirements, the chargers must be accessible to the public. While the city intends to use the proposed chargers to support the planned fleet, most fleet charging will occur overnight when the Government Center has the lowest occupancy. This ensures that the public has ample opportunity to access the chargers during peak use hours of the Government Center. Currently, there are three functional chargers in the Government Center, but they are almost always occupied during business hours. Additionally, these chargers are over ten years old, and today's charging technology is much more robust and efficient compared to existing chargers. Increasing the number of chargers improves public access and convenience to them.

   - *Electrical Capacity and Infrastructure*: The Government Center already has an electrical service large enough to support the installation of additional EV chargers. While the project will require some electrical work, it will not necessitate the more intensive and costly electrical service upgrades that would be required at other locations. This reduces both the complexity and cost of the project, making for efficient use of the grant funds as a result.

4. **What is the administration's plan for EVs and EV charging infrastructure from a broader perspective?**

Regarding EVs, the City's administration intends to pursue the purchase of electric vehicles to replace the conventional internal combustion engine (ICE) vehicles to align with the broader sustainability goals and reduce operating costs. Fleet Maintenance has identified 20 vehicles that would be deemed a priority to replace based on their current condition and age, many of which are over two decades old. On average, these vehicles travel roughly 4500 miles per year per vehicle. Fleet Maintenance estimates that the $/mile cost of maintenance work is approximately $0.25/mile. Hence, the total annual maintenance cost for these 20 vehicles is about $22,500. Conversely, a comparable electric vehicle variant has an estimated maintenance cost per mile of $0.06/mile, according to the DOE[1]. Therefore, for these 20 vehicles, the city would save roughly $17,100 per year in avoided maintenance costs.

Additionally, EVs have a substantially lower amount of carbon emissions compared to conventional gas vehicles. Based on the total number of gallons of gasoline consumed by these 20 vehicles in one year, the relative metric tons of carbon dioxide equivalent emissions (MTCO2e) per year is 20.2 (2.6 homes energy use for one year). In contrast the electric variants to these vehicles' is would produce nearly half the emissions, or 11.30 MTCO2e/year (1.5 homes energy use for one year). As the electric grid mix in CT becomes cleaner with more renewables, the equivalent emissions from the EVs will be reduced.

It's important to note that the city has experienced a significant growth in EVs over the last few years, and access to charging is an increasing demand. According to DEEP, as of December 31, 2023, there are 44,313 EVs registered in the state. At the end of 2019, DEEP reports that 11,677 EVs were registered in CT, and 2123 vehicles (about 18%) are registered in Stamford[2]. To address the growing demand for EVs, the city will continue to review other locations that would be good candidates for EV charging infrastructure.

5. **Are there any risks of fires?**

Studies have shown that the rate of combustion accidents is significantly lower in EVs than in ICE vehicles. One such study conducted by the National Transportation Safety Board reported 1,530 ICE Vehicle fires per 100,000 sold, while EVs account for just 25 per 100,000[3].

The chargers themselves are required to be built to comply with strict Underwriters Laboratories (UL) and International Electrotechnical Commission (IEC) safety standards, and the site electrical work must conform to National Electrical Code (NEC) installation standards. Close adherence with all manufacturing and installation codes helps ensure a low risk of accidents occurring.

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[1] https://www.energy.gov/eere/vehicles/articles/fotw-1190-june-14-2021-battery-electric-vehicles-have-lower-scheduled

[2] https://portal.ct.gov/-/media/deep/air/mobile/cheapr/ev-reg-fact-sheet.pdf

[3] https://www.kbb.com/car-news/study-electric-vehicles-involved-in-fewest-car-fires/

6. Can the parking garage withstand the extra weight of electric vehicles?

The government center parking garage slab is designed for a uniform live load of 50 lbs per square foot, based on available drawings from the original construction. In general, EVs vary in weight by an average of 20-30% over internal combustion engine (ICE) vehicles. However, the fleet vehicles the city is looking to procure include the Chevrolet Bolt EUV, Toyota bZ4X, Kia Niro, Nissan Leaf, and the Ford Mustang Mach-E (potentially for the police department) – all of which have gross vehicle weight ratings (GVWR) lower than the load rating of the garage slab for a typical 9’ x 20’ parking space. Note: the GVWR is the curb weight of the vehicle plus the total maximum weight of passengers, cargo, and any additional equipment.

Unless multiple ICE and/or EVs with total individual weights above 9,000 lbs are expected to be parked side-by-side in the garage, the overall impact on the garage based on the fleet vehicles proposed is in a range of what exists now. In the case where there is more demand or city operations see heavy EVs or ICE vehicles, those vehicles should remain on the ground level unless a more in-depth analysis is conducted to examine the effects those vehicles have on the structure that currently exists. It's also prudent for the city to post signage limiting heavy vehicles to remain on the ground level.

CITY OF STAMFORD
GOVERNMENT CENTER EV INSTALLATION

SUMMARY OF ESTIMATE 4/21/2024

ITEM	DESCRIPTION	AMOUNT	COMMENTS
1	**DIVISION 2**		
2	DEMOLITION	$ 25,000.00	
3			
4	**DIVISION 3**		
5	CONCRETE	$ 4,000.00	
6			
7	**DIVISION 5**		
8	MISCELANEOUS METALS	$ 3,000.00	
9			
10	**DIVISION 26**		
11	ELECTRICAL	$ 368,769.17	
12			
13	**DIVISION 32**		
14	BOLLARDS	$ 14,400.00	
15	PAVEMENT MARKING	$ 500.00	
16	SIGNS	$ 4,000.00	
17			
18	SUB TOTAL	$ 419,669.17	
19	GENERAL CONDITIONS	$ 50,360.30	12%
20	SUB TOTAL	$ 470,029.48	
21	OVERHEAD AND PROFIT	$ 47,002.95	10%
22	SUB TOTAL	$ 517,032.42	
23	BOND	$ 10,340.65	2%
24	SUB TOTAL	$ 527,373.07	
25	ESCALATION	$ 31,642.38	6%
26	SUB TOTAL	$ 559,015.46	
27	CONTINGENCY	$ 111,803.09	20%
28	TOTAL	$ 670,818.55	

ABOVE IS CONSTRUCTION ONLY - NO SOFT COSTS

29	ELECTRICAL CD DEVELOPMENT	$ 16,000.00
30	5-YEAR MAINTENANCE CONTRACT	$ 45,000.00
31	**TOTAL**	**$ 731,818.55**