



# HEALTH & ENVIRONMENT COMMITTEE

## COMMITTEE MEETING

~ MINUTES ~

Monday, November 21, 2022

10:00 AM

Sullivan Chamber  
795 Massachusetts Avenue  
Cambridge, MA 02139

**The Health and Environment Committee will conduct a public hearing to discuss how to expand the availability of electric vehicle charging across the City and to review the effectiveness and accountability built into the City’s existing Green Fleet Policy**

Attendee Name	Present	Absent	Late	Arrived
Patricia Nolan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Burhan Azeem	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Dennis J. Carlone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Marc C. McGovern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Quinton Zondervan	<input type="checkbox"/> Remote	<input type="checkbox"/>	<input type="checkbox"/>	

A public meeting of the Cambridge Health and Environment Committee was held on Wednesday, November 21, 2022, to discuss how to expand the availability of electric vehicle charging across the City and to review the effectiveness and accountability built into the City’s existing Green Fleet Policy. The meeting was Called to Order at 10:00 a.m. by the Chair, Councillor Nolan. Pursuant to Chapter 20 of the Acts of 2022 adopted by Massachusetts General Assembly and approved by the Governor, this public meeting was hybrid, allowing participation in person, in the Sullivan Chamber, 2<sup>nd</sup> Floor, City Hall, 795 Massachusetts Avenue, Cambridge, MA and by remote participation via Zoom.

**Deputy City Clerk Crane called the roll.**

- Councillor Nolan – Present
- Councillor Azeem – Absent
- Councillor Carlone – Present
- Councillor McGovern – Absent
- Councillor Zondervan – Present - Remote

**Present – 3 Absent – 2. Quorum established.**

Councillor Nolan gave opening remarks and stated that this meeting is to continue the ongoing efforts to combat the climate crisis and move Cambridge towards fulfilling its climate goals. She introduced Kathy Watkins, Acting Commissioner of the Department of Public Works (DPW), and invited her to introduce DPW staff present.

John Nardone, Deputy Commissioner, DPW and Irina Sidorenko gave a summary of a PowerPoint presentation titled “Cambridge Clean Fleet.” (ATTACHMENT A).

Councillor Zondervan asked a question about the biofuel mix and where is the City going in that regard? Mr. Nardone stated that DPW has been using B20 as it works best for DPW. They have been reducing that down to B5 during the colder winter months. He said that they will continue

Minutes Acceptance: Minutes of Nov 21, 2022 10:00 AM (Committee Reports)

to monitor. He said that as those fuels become better, they will take a look at how to improve this.

Vice Mayor Mallon stated that Ms. Watkins referenced that in order to have the capacity for electric vehicle fleet, the DPW needs a permanent home with a place to install necessary infrastructure. Ms. Watkins said that it is a significant concern as they continue to look for space for DPW so that they can do expanding programs and electrification. She said that the amount of space and infrastructure associated with electrifying the fleet, they need to be somewhere where there is a consistent expectation that they will be there ten years from now and not on a year-to-year lease. Finding permanent space that the City has control over is a big part. Ms. Watkins said that the Hampshire Street site is very congested and is not sufficient for operational needs.

Susanne Rasmussen, Director of Environment and Transportation Planning, Community Development Department (CDD) introduced CDD staff present. She gave a summary of a PowerPoint presentation titled "City of Cambridge Electric Vehicle Charging Infrastructure." (**ATTACHMENT B**).

Councillor Nolan stated that she would open Public Comment. It was noted that Sebastian Stern left the Zoom and Marilee Meyer did not join the Zoom.

Councillor Nolan acknowledged Councillor Carlone and Councillor Zondervan for questions/comments.

The following individuals were also present to answer questions: Owen O’Riordan, Acting Deputy City Manager, Kathy Watkins, Acting Commissioner, John Nardone, Deputy Commissioner, Ellen Katz, Fiscal Director, Irina Sidorenko, John Keeter, Tom Rowlings, Department of Public Works, Susanne Rasmussen, Director of Environment and Transportation Planning, Charles Creagh, Bill Deignan, Transportation Planner, Seth Federspiel, Energy Planner, Community Development Department, Nancy Glowa, City Solicitor, Elliott Veloso, City Solicitor’s Office, and Maija Benjamins, Sean Tully, Gerhard Walker, Chad Gandolfi, Mark Baldwin, and Sophia Zhang, Eversource.

Councillor Nolan invited Eversource representatives to introduce themselves to talk about pole mounted chargers and respond to any concerns.

Maija Benjamins, Director of Strategic Project Development, introduced Sean Tully, Manager of Electric Mobility, Chad Gandolfi, Engineering Standards Group, and Mark Baldwin, Director of Electric Field Operations, Eversource.

Mr. Tully stated that as it relates to pole mounted chargers, Eversource is looking for a holistic solution to the garage-orphan issue for constituents and residents that do not have garages or driveways to charge an electric vehicle. They are looking at a number of different solutions, pole-mounted being one of them. He said that there are many parts of Cambridge where there are not overhead systems in the area. He said that Eversource does have pole-mounted and overhead infrastructure in the City. He said that there are other areas that may be fed from the underground. Some of the operational considerations that Eversource has goes around third-party attachment. He said that as it relates to transfers, having these on the poles would exacerbate double pole issues. Other issues that need to be worked through would be around the radius of the pole that is occupied by some equipment. Also, there are currently some regulations around utility pole-mounted metering on which they would need to work with the Electrical Department. In addition, it would need to be determined that when restoration is needed, who would be responsible for replacing and moving those chargers so they would be able to get customers back online.

Maija Benjamins said that the major question is who owns the infrastructure. She said that currently, Eversource requirements with the DPU state that Eversource cannot own it. She noted that she believes that it was the City's intent for Eversource to own the infrastructure which is not possible.

Vice Mayor Mallon stated that as it relates to pole-mounted EV chargers when she looks the Melrose, MA pilot with National Grid, she is not seeing some of the concerns that Eversource is bringing forward. She said that the City should push back on Eversource to be more aggressive in competing with National Grid on instituting a pilot because we are not going to meet EV charger goals without some innovative solutions that exist. She asked City staff if anyone followed-up with staff in Melrose, MA. Ms. Rasmussen stated that Cambridge has been speaking with Melrose staff and they participate in the regional conversation about EV installation. She said that Melrose is very satisfied. Ellen Katz added that as a Melrose resident and active member of the Melrose Energy Commission, it was a very innovative and fast pilot program put in place in Melrose. She said that she has heard very positive things. She said that she has not heard any negative feedback.

Vice Mayor Mallon asked about EV chargers at City Hall. Kathy Watkins responded that she expects that this would be designed over the next year or so. She said that the City is looking at 3 EV stations.

**A motion was made by Councillor Carlone to extend the meeting by 10 minutes.**

Councillor Nolan – Yes

Councillor Azeem – Absent

Councillor Carlone – Yes

Councillor McGovern – Absent

Councillor Zondervan – Yes - Remote

**Yes - 3 Absent – 2. Motion to extend passed.**

Maija Benjamin stated that of the 13 charging stations that have been installed in Cambridge, 7 have been funded through Eversource's program which includes the underground construction piece. She pointed out that there are other solutions besides the pole top charging piece which would require changes to zoning and permitting. She asked that Cambridge work with Eversource to look at other solutions as well.

Mark Baldwin stated that Eversource continues to look for solutions to pole-mounted systems.

Councillor Nolan gave an update on a Home Rule Petition from 2019 which was based on a Boston Home Rule Petition to allow charging as of right in condo developments across the city, is now in its third reading and the hope is that it will pass. In addition, she said that the idea of allowing a resident who has a charger in their garage to allow another to use their driveway to charge their car is proceeding.

Councillor Nolan asked if the 51% utilization on EV infrastructure included nighttime utilization. Ms. Rasmussen said that is 24-hour utilization rates.

Councillor Nolan asked if the City can re-use the 100% green plus Cambridge Electricity Aggregation Program to ensure that the electricity going into the chargers is 100% renewable. Ms. Rasmussen said that the chargers are not enrolled in the aggregation.

Councillor Zondervan asked about the zoning needs that Ms. Benjamins spoke of. Ms. Benjamins said that there would be changes required and Eversource is willing to work with the City on these issues.

**A motion to adjourn was made by Councillor Carlone.**

Councillor Nolan – Yes

Councillor Azeem – Absent

Councillor Carlone – Yes

Councillor McGovern – Absent

Councillor Zondervan – Yes - Remote

**Yes – 3 Absent – 2. Motion to adjourn passed at 12:11 p.m.**

ATTACHMENT A: Presentation titled “Cambridge Clean Fleet.”

ATTACHMENT B: Presentation titled “City of Cambridge Electric Vehicle Charging Infrastructure.”

**Clerk’s Note:** The City of Cambridge/22 City View records every City Council meeting and every City Council Committee meeting. This is a permanent record.

The video for this meeting can be viewed at:

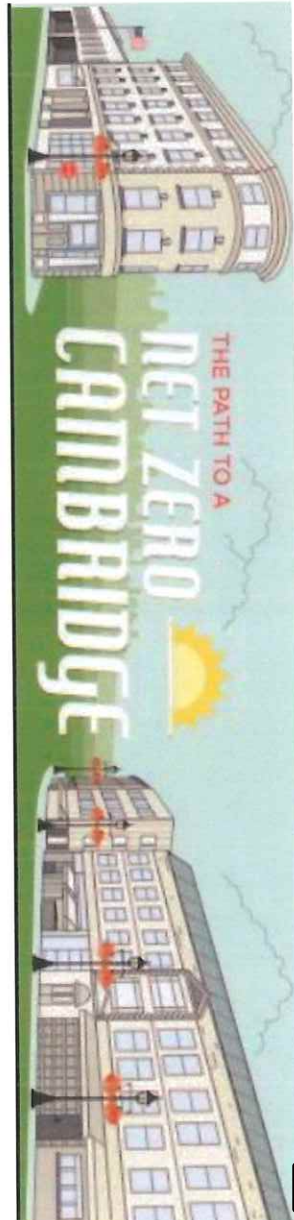
[Nov 21, 2022 10:00 AM - Health & Environment Committee - Committee Meeting \(granicus.com\)](https://www.granicus.com/ViewPage.do?document_id=1144&document_id=1144)

All meetings are “closed captioned”. After each meeting the “closed captioned transcripts” are available online at: <https://app.box.com/s/9qormcahynjt4pzpt1n5opixog13q7k5>

Please note that there is no editing of these “closed captioned transcripts” and they do not constitute a verbatim transcript prepared by a certified transcriber.



# CAMBRIDGE CLEAN FLEET



## AGENDA:

- Short Background
- Status Update
- Future Efforts



## CITY OF CAMBRIDGE GREEN FLEET POLICY

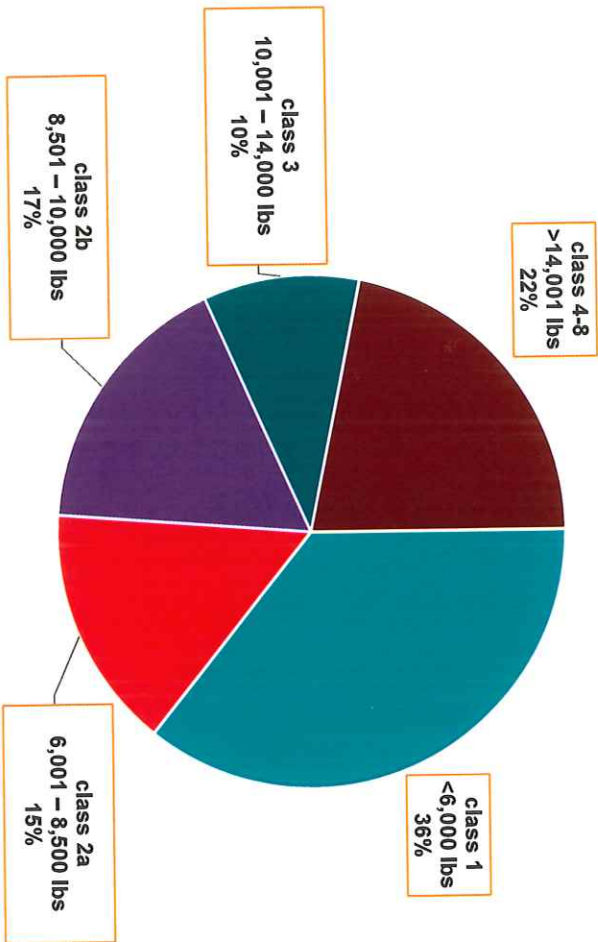
- **2006** – City manager convenes **Green Fleet Committee** to increase fuel efficiency of municipal vehicles; starts Green Fleet acquisition procedure
- **2010** – **Green Fleet Policy** adopted as part of an application for Green Community designation by DOER
- **2023** – Issue a New Clean Fleet Policy

### GREEN FLEET POLICY STRATEGIES

- A. Green Fleet Committee appointed by the City Manager to support the implementation of this policy
- B. Each department with vehicles shall maintain a comprehensive vehicle inventory.
- C. Vehicle Acquisition Procedure outlined
- D. All City vehicles shall comply with the state anti-idling law
- E. Maintain vehicles at optimal efficiency

# CAMBRIDGE FLEET COMPOSITION (363 vehicles)

Traffic, 20
School, 21
Water, 25
Fire, 42
Police, 106
DPW, 117

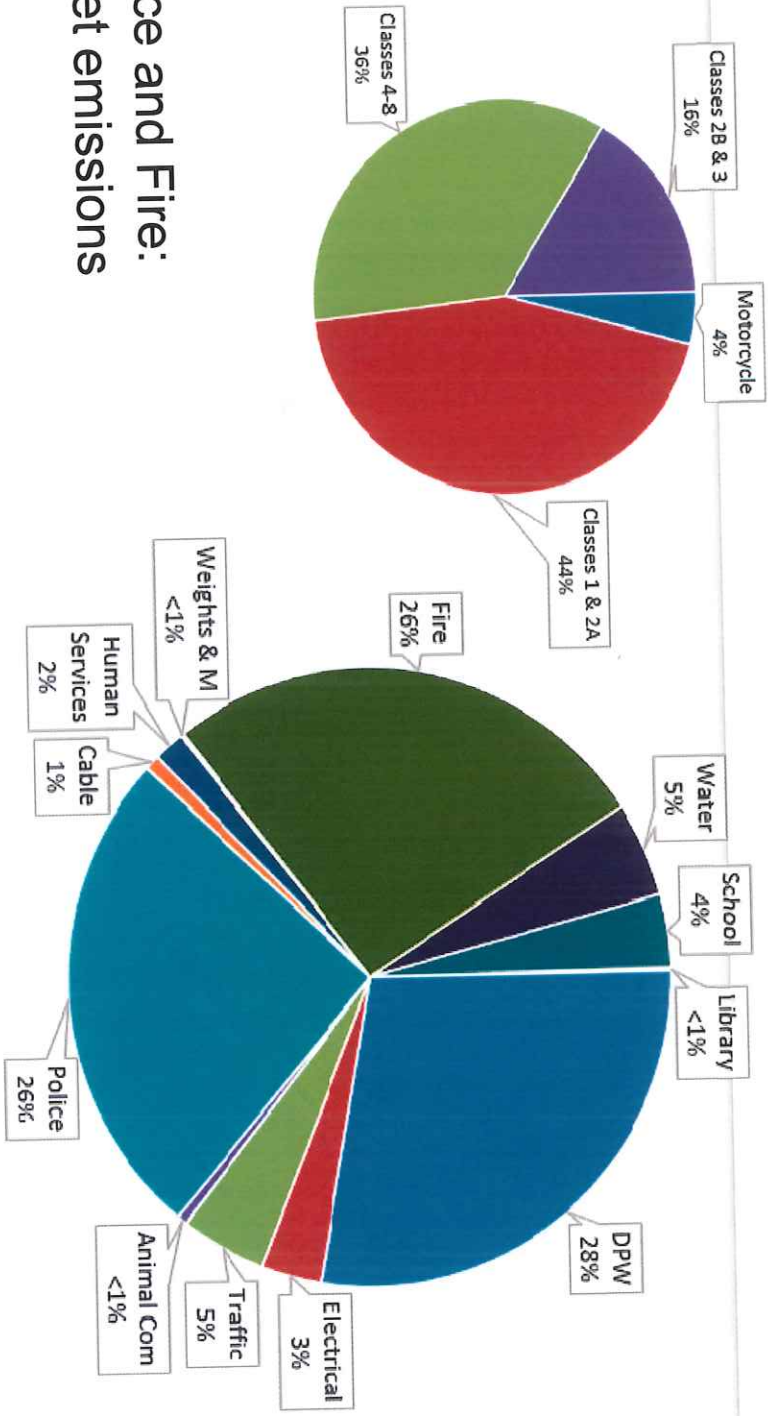


Based on the citywide fleet inventory FY20



# GHG EMISSIONS FROM MUNICIPAL FLEET

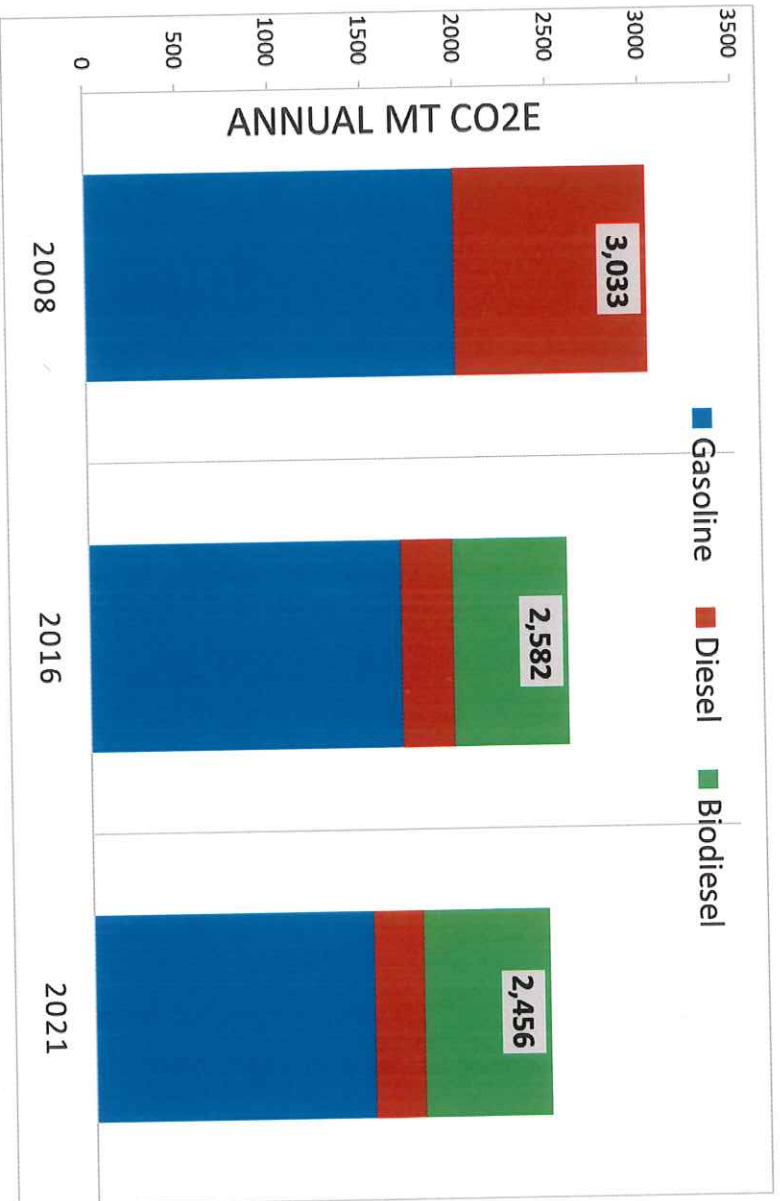
## By type of vehicle and department



DPW, Police and Fire:  
80% of fleet emissions

Based on the citywide fleet inventory FY20

## WHAT PROGRESS HAS BEEN MADE?



In 2021, emissions from municipal fleet were 19% lower than 2008 baseline

## STRATEGIES FOR CLEAN FLEET

- Alternative Fuels
- Advance Technologies for Medium/Heavy-Duty Vehicles
- Anti-Idling Campaign
- Electrifying Fleet





## ALTERNATIVE FUELS - BIODIESEL

City Departments use a more sustainable regionally sourced biodiesel blend – a form of diesel fuel partly derived from waste grease, oils and fats.

Use of biodiesel reduces particulate matter (PM), carbon monoxide (CO) and hydrocarbons (HCs) emissions





# ADVANCED VEHICLE TECHNOLOGIES

## Fire Apparatus APUs

CFD piloted an Auxiliary Power Unit (APU) for Fire Apparatus in FY21 to help reduce idling, save fuel and reduce emissions.

2 more Fire Pumpers on order with APU technology to be delivered in 2022.



Main Headquarters, Taylor Square and future station renovations incorporating electrical capacity to support future EVs.

## PHEV Rubbish Packers (3)



# ADVANCED VEHICLE TECHNOLOGIES AND TRAINING

## HYBRID ELECTRIC DRIVE (8 total)

DPW, DHP, Electrical Departments



## POLICE HYBRID CRUISERS



## IDLE REDUCTION





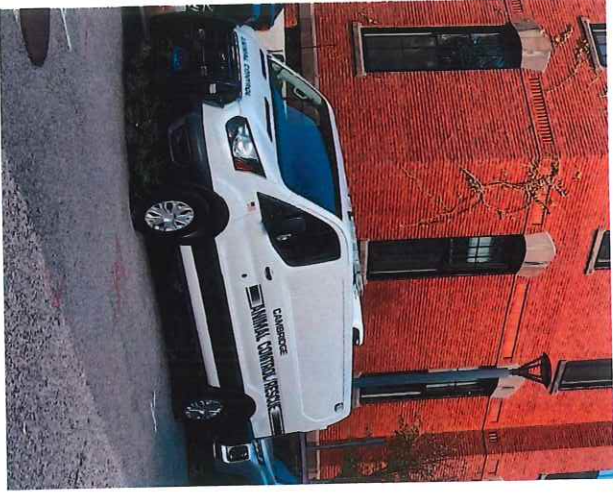


**PASSENGER VEHICLES: EVS + PHEVS**

- DPW is leasing 5 full battery electric vehicles, bringing the total number to 7
- T&P purchased a PHEV Subaru Crosstrek in FY21
- DPW purchased 2 PHEV Ford Escapes in FY22
- Fire Department 1 PHEV Ford Escape in FY23

# New EV Fleet Additions

Animal Control EV Transit (2)



DHSP EV Lightning Van





# EVs on Order

**DPW Mack LR packers (2)**



**Mach E Police Dept (3)**

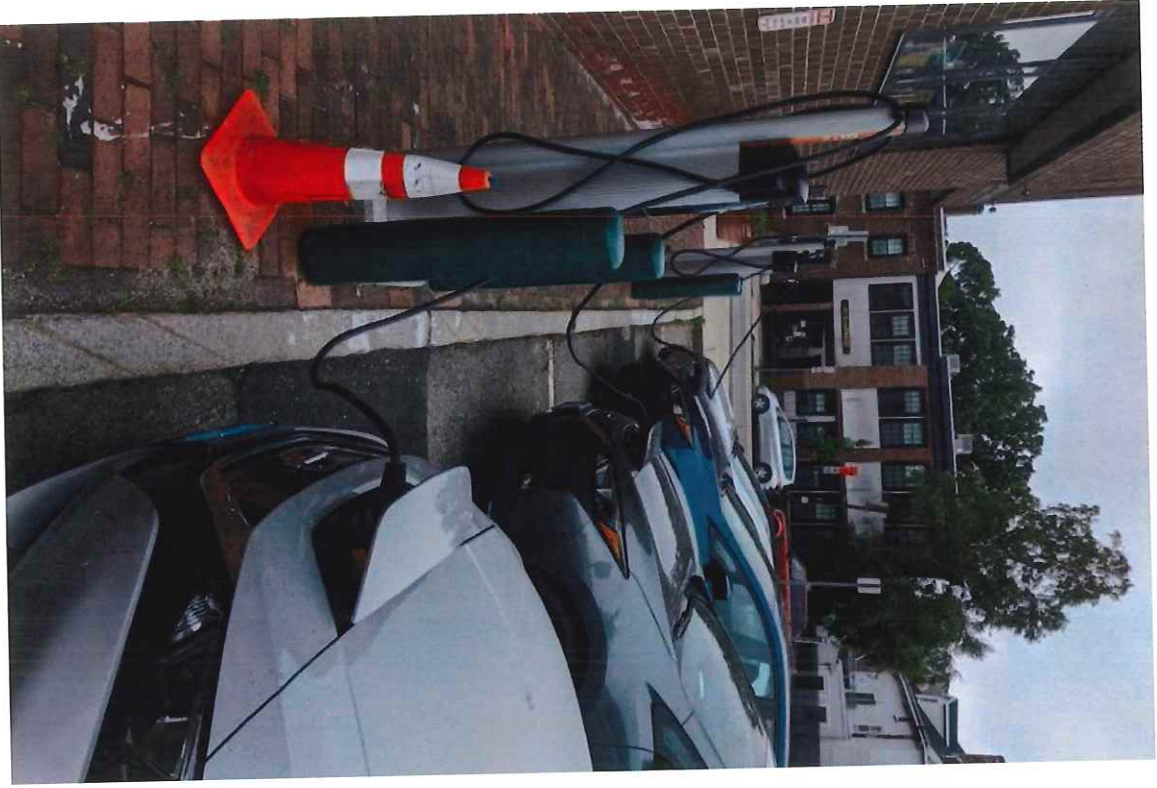


**DPW Ford Transit**



**Ford F-150 EV Fire Dept (2) - planned**





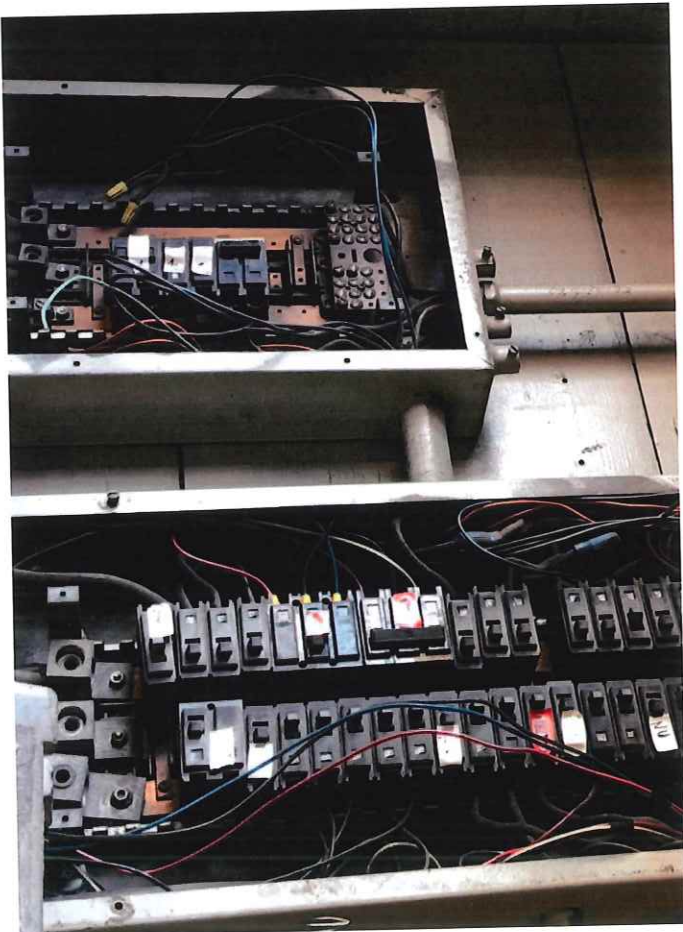
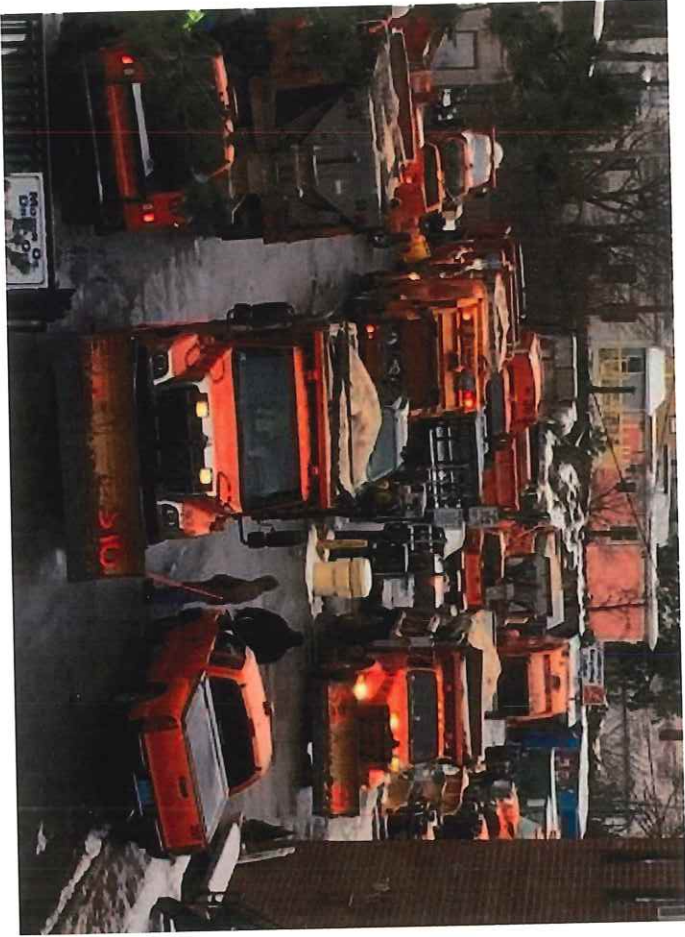
# Fleet Charging

Current: 9 Fleet stations (12 ports)

13 stations (26 ports) are in construction or planned during FY23 to support fleet EV expansion at Animal Commission, DPW, TP&T, Fire Department, Human Services, Police Department, Water Department

## DPW COMPLEX

### WHAT IT TAKES TO EXPAND FLEET ELECTRIFICATION





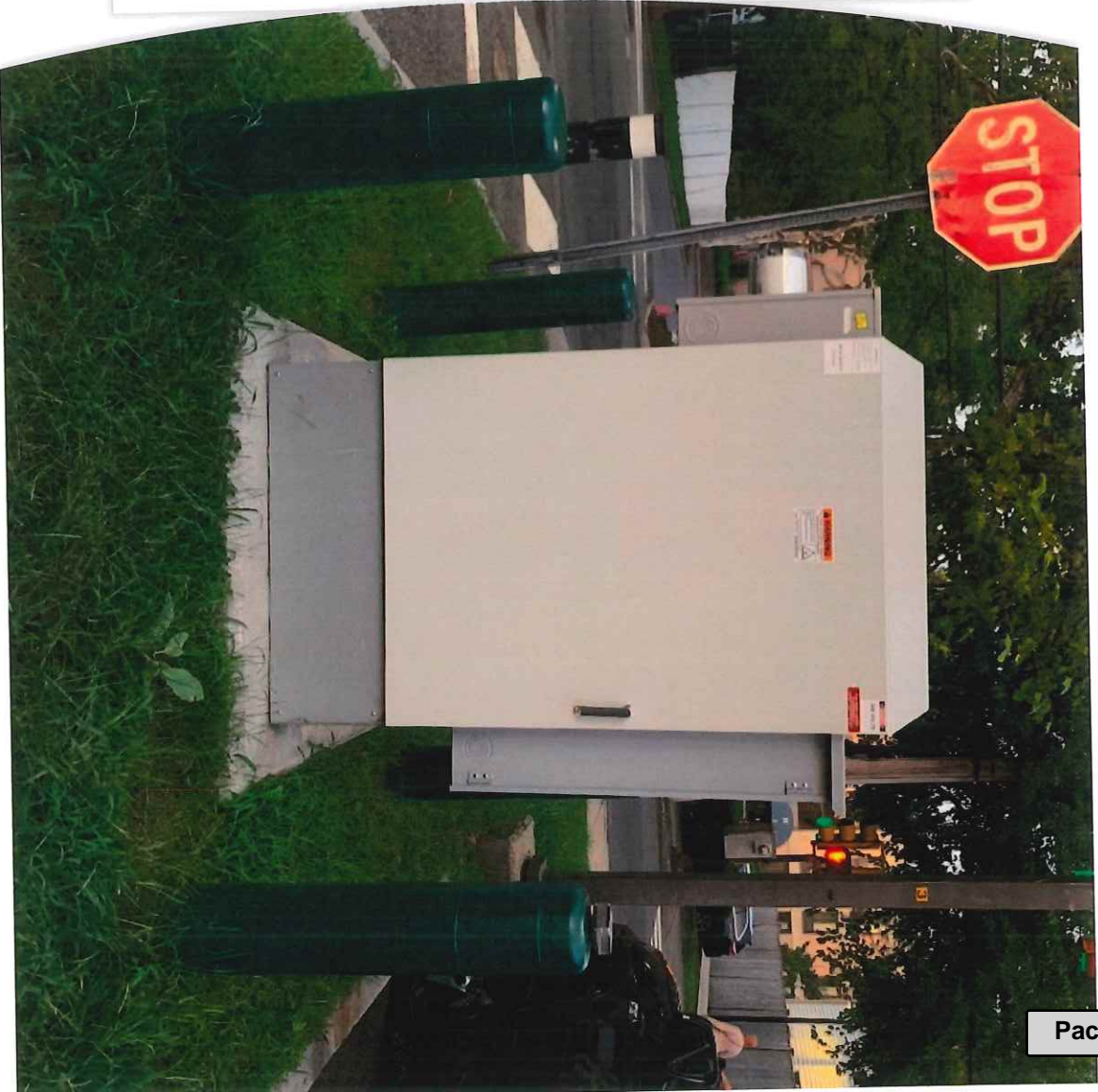
## CHALLENGES/ CONSTRAINTS

- Service requirements for snow and severe weather operations
- Fleet maintenance physical infrastructure
- 24/7 essential service requirements
- Electrical supply infrastructure and charging capacity
- Significant use of rented space
- Space for transformers, electrical cabinets, pads, bollards



## CHALLENGES/ CONSTRAINTS

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# GREEN FLEET (2010) PROPOSED CLEAN FLEET POLICY (2023)

## Guiding Principles of Clean Fleet Policy

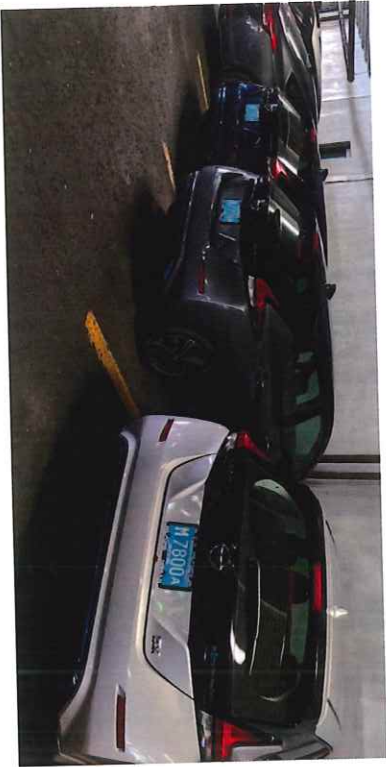
Support the City of Cambridge's transition to fossil-fuel-free and net zero emissions in municipal operations:

- Contribute to reducing climate change
- Reduce air pollutants that contribute to asthma, respiratory disease and other negative health impacts, particularly in children, the elderly and other vulnerable populations.
- Pathway with specific targets to get to Net Zero emissions from City Fleet

# KEY ELEMENTS:

## Passenger Sedans (<6000 lbs)

Zero Emissions

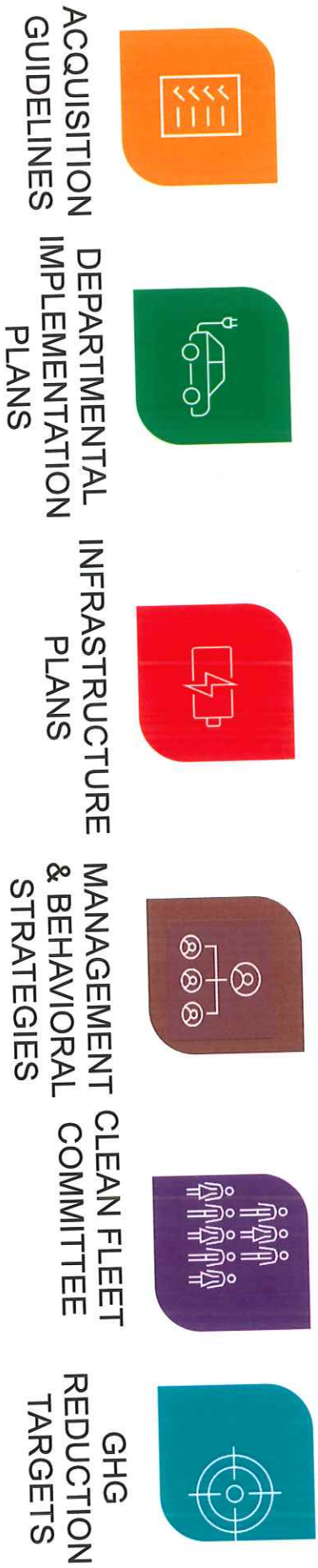


## Heavy Duty Vehicles

Significant impact on reducing greenhouse gas emissions and potentially greater cumulative benefit over time.



# KEY CLEAN FLEET POLICY ELEMENTS



## LOWEST-EMITTING VEHICLE FIRST


### LOWEST-EMITTING VEHICLE

- Does it meet operational and functional needs?
- Commercially available for purchase in New England
  - Regional maintenance and repair vendors
  - Charging/fueling requirements allow it to function effectively
  - Charging infrastructure will be available

## UNDERSTAND COST AND BENEFITS

**\$** Total Cost of Ownership: purchase, maintenance and fuel over expected life vehicle

plus:

 Environmental, social and public health costs/benefits from increased/reduced exposure to GHG emissions and conventional air pollutants



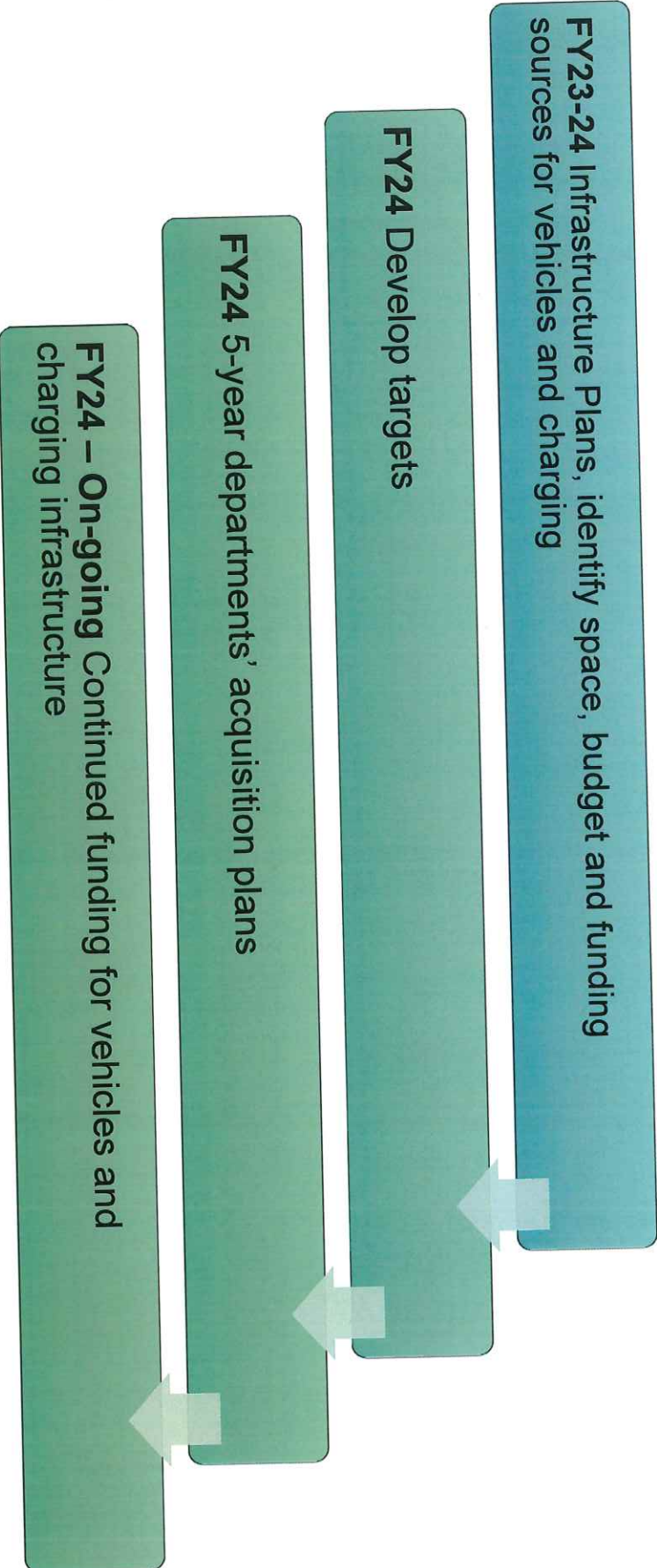
# TARGETS & TIMELINES

GHG Reductions

Zero Emission Vehicle Acquisitions

Charging Infrastructure Installations

# IMPLEMENTATION PLANNING



# Example of DPW 5 Year Vehicle Plan

- Support fleet in good repair, use resources effectively and achieve fleet electrification
- Combination of purchase and lease
- Replace vehicles every 8 to 12
- 2 rubbish packers each year
- Expand equipment to provide additional services
- Expand electric charging infrastructure

## 167 Pieces of Equipment

Type	Qty
Arrow Board	2
Asphalt Truck	2
Backhoe	3
Brine Truck	2
Car	11
Catch Basin Truck	2
Chipper Trailer	3
Compressor trailer	1
Crane Truck	1
Dump Truck	3
Hook lift	9
Leaf Blower	3
Loader	1
Mini Excavator	3
Pickup Truck	14
Power Roller	1
Rack Body Truck	2
Rubbish Packer	18
Service truck	1
Sewer Vac Truck	2
Sidewalk Machine	11
Skid Steer	2
Small Dump Truck	13
Small Pickup	18
SnowFighter	2
SUV	6
Sweeper	2
Tractor	4
Trailer	9
Utility Truck	13
Work Van	5



# Example of DPW 5 Year Vehicle Plan









FY25	ICE	Hybrid	Electric
Rubbish Packer	\$ 309,000	\$ 412,000	\$ 746,750
Rubbish Packer	\$ 309,000	\$ 412,000	\$ 746,750
Small Dump w/Salter	\$ 133,900	\$ 133,900	\$ 133,900
Sidewalk/Bike lane machine	\$ 190,550	\$ 190,550	\$ 190,550
Utility Truck	\$ 87,550	\$ 87,550	\$ 87,550
Asphalt Truck	\$ 250,000	\$ 300,000	\$ 500,000
Dump Truck w/Salter	\$ 242,050	\$ 242,050	\$ 242,050
H600 Hook Lift Dump	\$ 190,550	\$ 190,550	\$ 190,550
Small Pickup	\$ 36,050	\$ 46,350	\$ 61,800
Small Pickup	\$ 36,050	\$ 46,350	\$ 61,800
REFURBISH	\$ 103,000	\$ 103,000	\$ 103,000
Misc Equipment	\$ 75,000	\$ 75,000	\$ 75,000
*Leasing 8 Electric Admin Vehicles	\$ 75,000	\$ 75,000	\$ 75,000

As purchases get closer, evaluate through the NEW Clean Fleet Policy.  
 Shaded vehicles currently not available.

# THANK YOU!

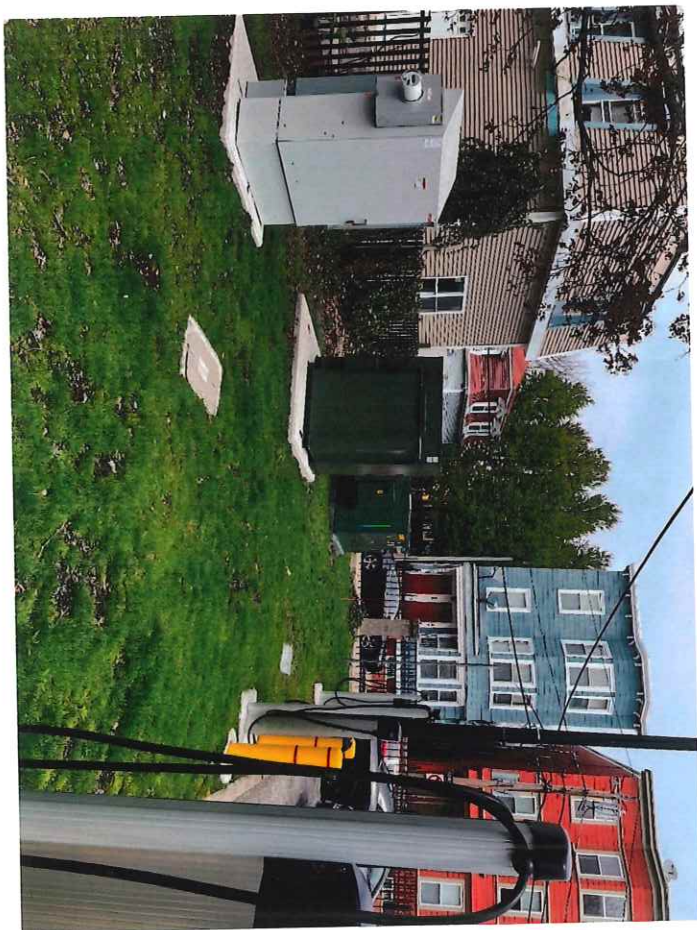
CAMBRIDGE DPW

# US EPA Vehicle Weight Classification System

 <p>CLASS 1 6,000 lbs or less</p>	 <p>CLASS 5 16,001-19,500 lbs</p>
 <p>CLASS 2 6,001-10,000 lbs</p>	 <p>CLASS 6 19,501-26,000 lbs</p>
 <p>CLASS 3 10,001-14,000 lbs</p>	 <p>CLASS 7 26,001-33,000 lbs</p>
 <p>CLASS 4 14,001-16,000 lbs</p>	 <p>CLASS 8 33,000 lbs or more</p>



# EVSE Infrastructure Space needs



Transformers, electrical cabinets, pads, bollards



*11/21/2022*



# CITY OF CAMBRIDGE

## ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

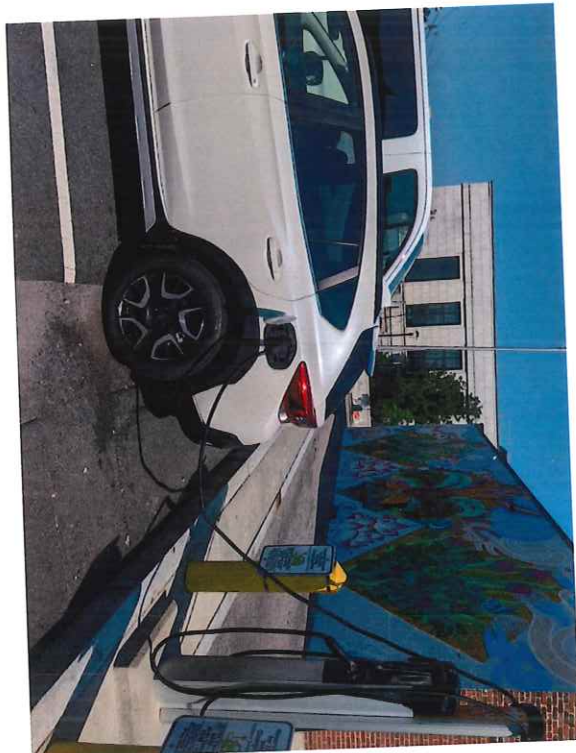
Health and Environment Committee Hearing – November 21, 2022





## Content / Agenda

1. Background & Trends
2. Goals & Status
3. Planning & Engagement
4. Implementation



Lot 8 EV Charger





## Background & Trends

- ▶ Massachusetts has set goal of 300,000 EVs by 2025
- ▶ Stated intention of prohibiting sales of gas-powered vehicles by 2035 to follow California policy
- ▶ Total number of EVs currently registered in Massachusetts ~51,000 of which ~60% were fully electric (Boston Globe, April 9, 2022)
- ▶ New federal funding will increase rebate amounts and provide incentives for new as well as used cars





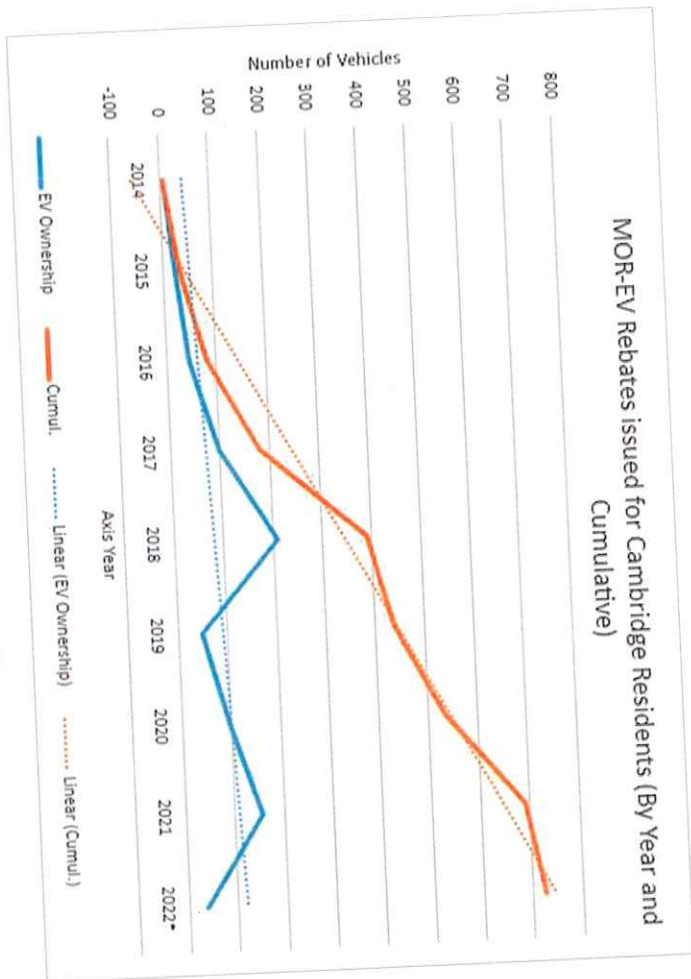
## Background & Trends

- EVs registered in Cambridge: 5,093 (MADOT, November 2022)
- Battery Electric Vehicle ownership is about 2% of all vehicles.
- Hybrid ownership is about 10% of all vehicles
- Recent MOR-EV rebates show BEVs increasing in popularity:

MOR-EV Rebate Statistics for Cambridge (as of October 2022)	
Battery Electric Vehicle (BEV)	456
Plug-in Hybrid Electric Vehicle (PHEV)	201
Plug-in Hybrid Electric Vehicle Plus (PHEV+, >10 kw)	85
Zero Emissions Motorcycle (ZEM)	1



# Background & Trends



\* 2022 represents data as of October 2022

MOR-EV Rebates Issued by Year		
	Cambridge	Massachusetts
2014	8	631
2015	26	1032
2016	47	1806
2017	99	3233
2018	210	7120
2019	49	1928
2020	97	2672
2021	154	5429
2022*	53	2389
<b>Total</b>	<b>743</b>	<b>26240</b>



## Goals & Status

- Renewable energy target by 2035; coincides with state goal
- Net Zero Transportation Plan target completion FY24
- City focus is on supporting adoption of EVs by residents without access to off-street parking
- 100 new charging ports next 5 years (Climate Crisis Working Group)
  - Install level 2 chargers in high demand areas in residential areas
  - Install DC fast charge in a number of high turnover areas
- Electrify city fleet and allow public use of chargers when feasible
- Include micro-mobility charging in strategy





## Goals and Status

### Existing Publicly Accessible Chargers

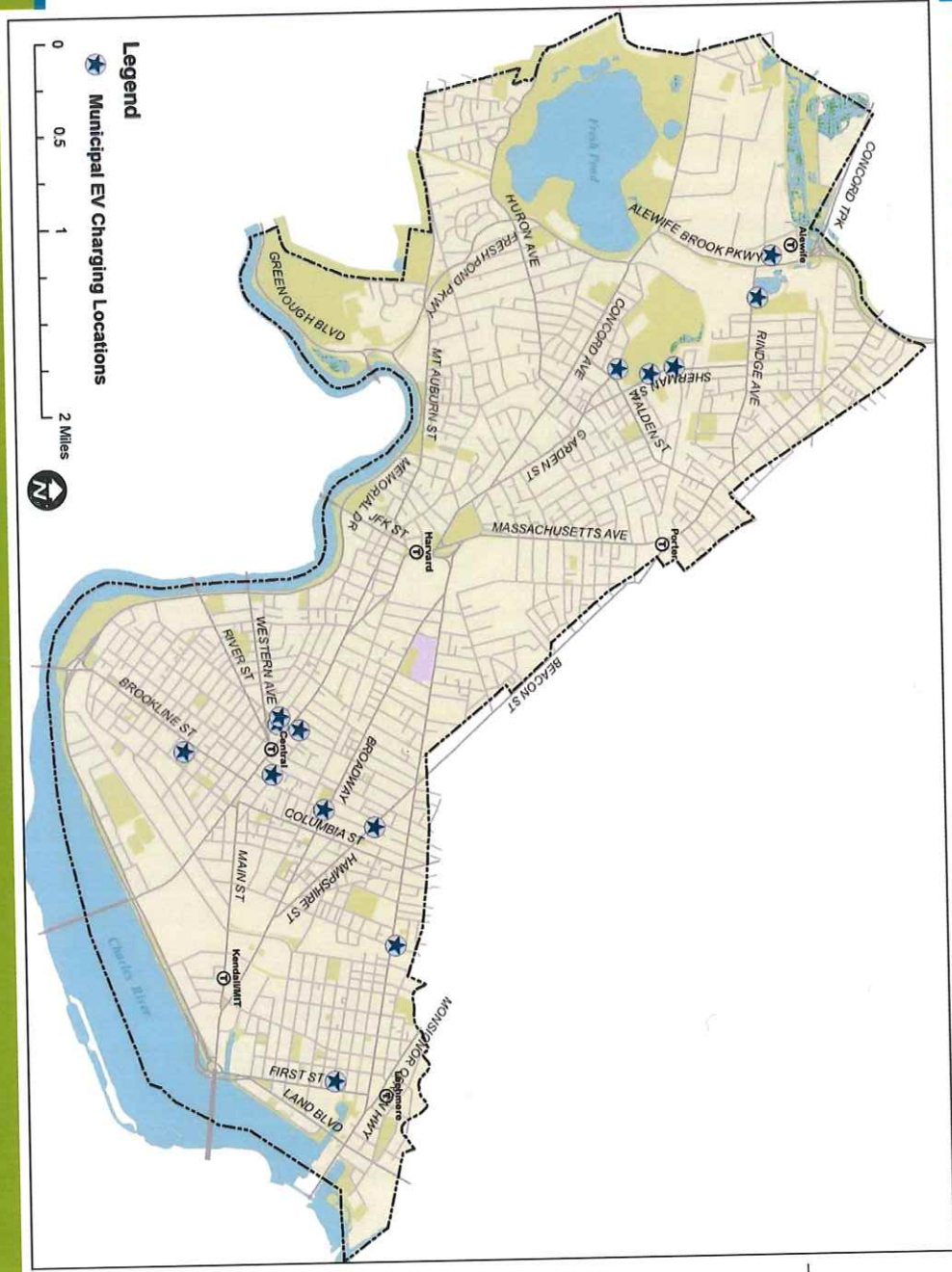
- To date the City has installed charging stations with a capacity of 35 vehicles in 13 locations
- Located at municipal parking lots and facilities and two curb-side (4 spaces)
- Many EV charging stations in private lots/garages – 163 total
  - 25 publicly accessible e.g. Galleria and Porter Square shopping center
  - Work-based chargers for employees



New EV charger and signage on Tudor Street



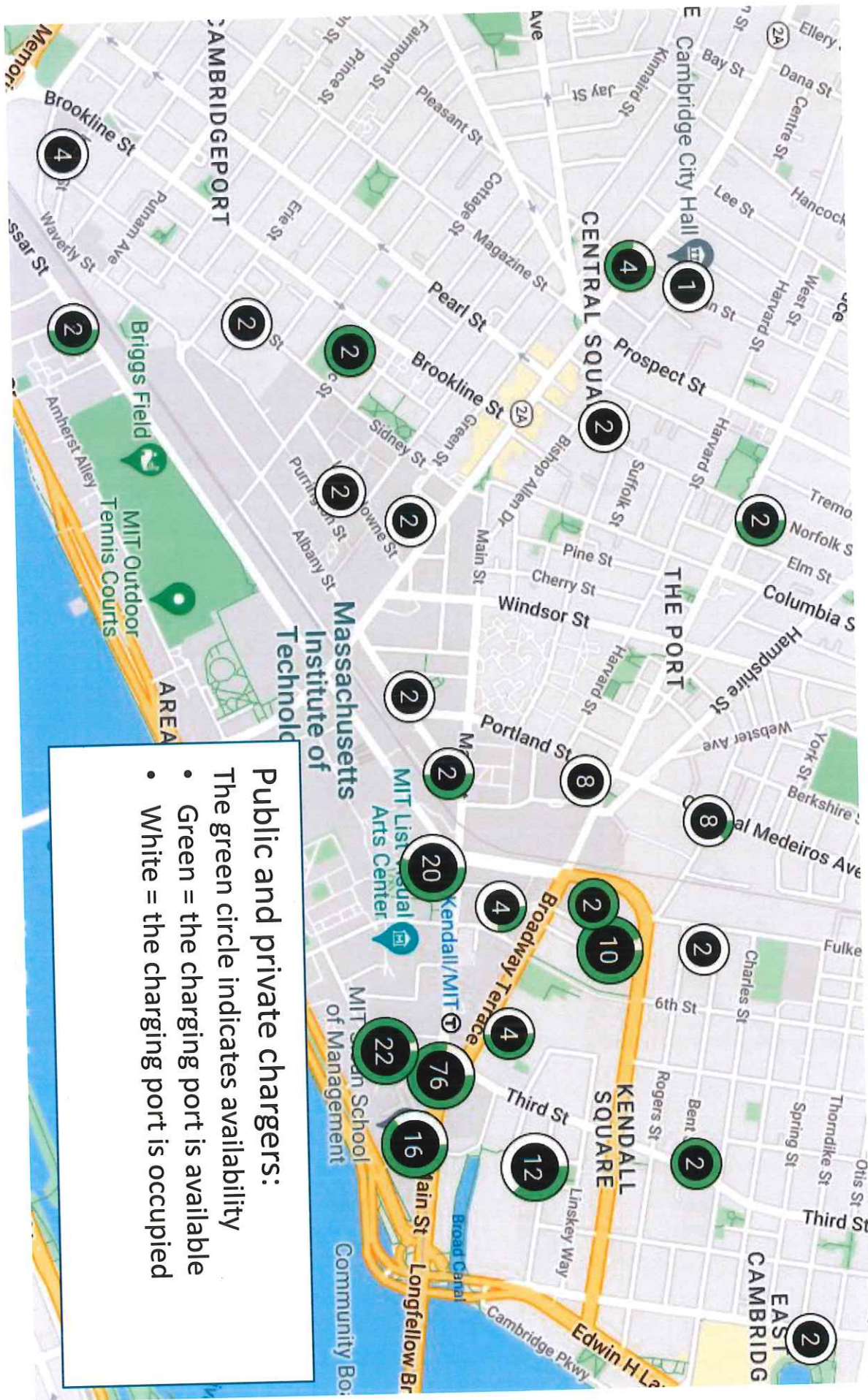
# CITY-OWNED CHARGING STATIONS



Locations:

- 147 Hampshire St
- First Street Garage
- Bishop Allen Drive
- City Hall, Inman Street
- 7 Warren Street
- 375 Green Street
- 420 Green St
- 177 Garden St
- 99 Sherman St
- 341 Rindge Ave
- 73 Sherman St
- Tudor St
- Norfolk St









## Goals & Status

### Charger Utilization

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#### City-Owned Chargers:

- Average Charging Time: 2 hrs 30 m
- Average Utilization Rate: 51% of time
- Unique users annually: ~1500



## Planning & Engagement

### Community Engagement

- Public meeting January 2022
- Gave background on EVs and charging
- Introduced the on-street charging pilot program
- Developed neighborhood EV request tool on website



Dual-head Charger at 99 Sherman St

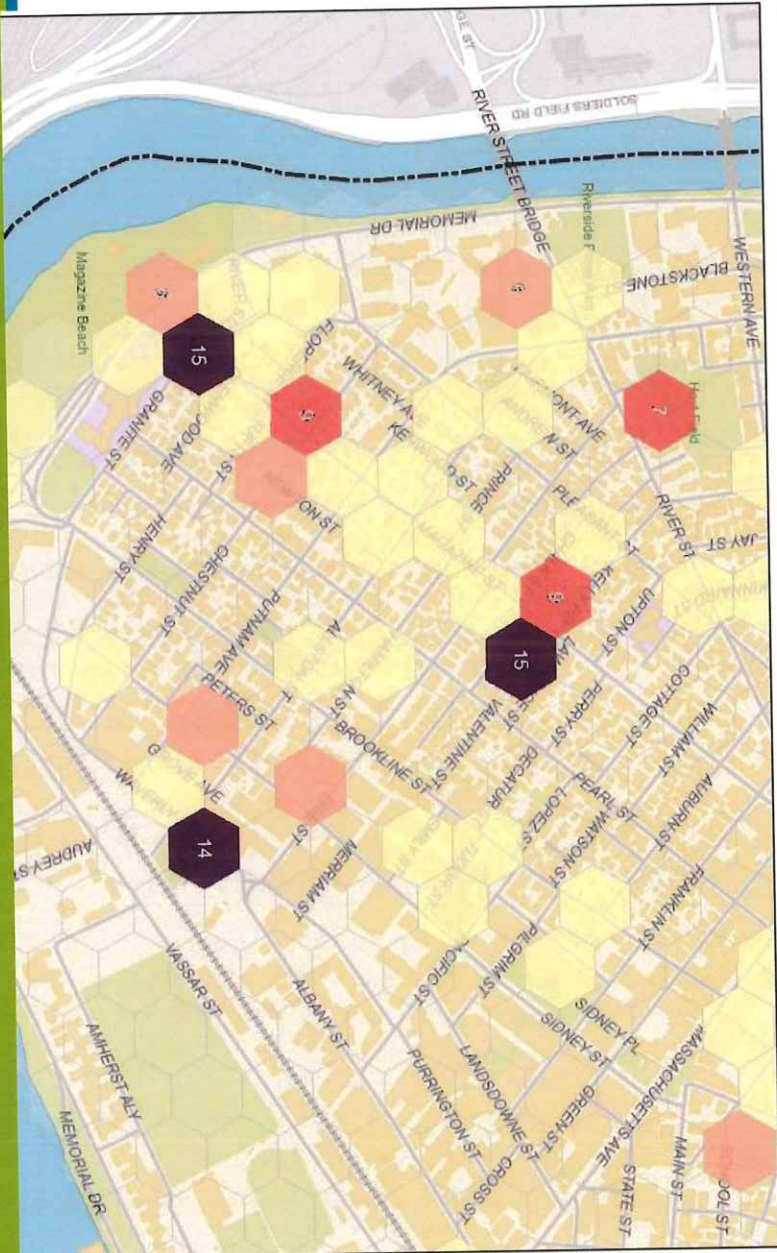




# Planning & Engagement

## Cambridge EV Charging Request Tool

- ▶ High demand areas
- ▶ 1,205 total votes to date
- ▶ Helpful as we investigate additional sites for possible EV installations







## Planning & Engagement

### Process for Identifying New Locations

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1. Review public input map for high-demand areas
2. If part of upcoming construction, add to project
3. Locate nearby electrical infrastructure or cabinet
4. Confirm presence of 6-foot wide, or wider, sidewalk
5. Coordinate with DPW, Electrical Department and Eversource to determine cost and space needs
6. Notify public of proposed location and solicit feedback

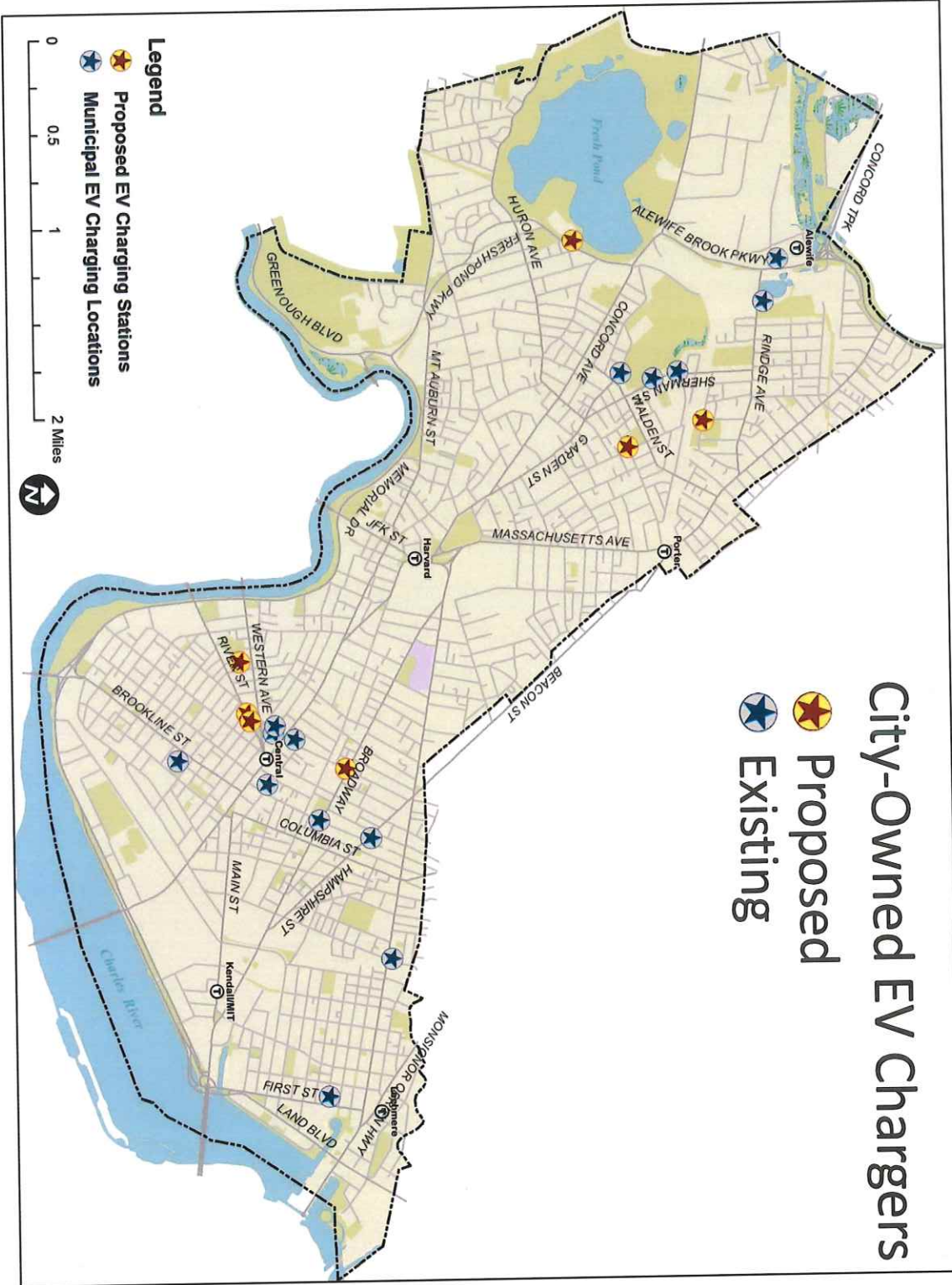


## Planning & Engagement

### Expected in FY23

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- *Tudor Street (completed)*
  - *Norfolk Street (completed)*
  - Upland Road
  - Pemberton Street
  - Moore Youth Center
  - Inman Street
- Higher demand areas
  - Focus on residents without driveways
  - Using existing electric boxes in nearby parks
  - Available for residents with parking permits
  - Including disability access in installations



Minutes Acceptance: Minutes of Nov 21, 2022 10:00 AM (Committee Reports)





## Planning & Engagement

### In Planning FY24

- 16 curbside locations by parks, plus Water Treatment Plant
- Large infrastructure projects:
  - River Street reconstruction –at least two charging locations (4 ports)
  - The Port infrastructure projects – in planning @ Harvard St & Columbia St.





## Implementation

### Current EV Charger Installation Costs

- Range from a low of \$35-50k, where no major sidewalk/curb alterations or new electrical cabinets needed
- Up to \$125-150k, if curb ramps or extensions and new electrical cabinets needed

### Potential Lower Cost Installations

- Pole-mounted chargers:
  - Eversource concerns about pole crowding and safety
- Investigate other charging station solutions such as FLO
  - Less bulky; includes meter, no cabinet needed



## Implementation: Funding Opportunities

### **Eversource Make Ready Program**

- Make Ready by Eversource – provides funds for electrical
- New funding round is awaiting approval by DPU

### **Mass EVIP**

- Provides up to \$50k per street address for charging installation
- Requires that chargers be available to public for a substantial period of the day (meters or open parking)

### **NEVI and New Federal Funding Sources**

- Provides charging funding for interstate highways, or locations within one mile of interstate access points





## Implementation: City Funding Available

### City Funding Available for EV Charger Installation FY20-23

	FY20	FY21	FY22	FY23
Capital Budget	\$100,000	\$100,000		\$50,000
Participatory Budget				\$250,000



# Implementation: Planned & Proposed EV Chargers

## Preliminary Scenario for CCWG goal of 100 new EV charging ports

EV Chargers: 5-Year Installation Schedule





## Implementation: Pricing Policy & Enforcement

- Pilot charging ports are in residential permit zones and open to all Cambridge permit and visitor pass holders
- Current costs are \$0.189 per kWh drawn, plus \$0.15 per hour
  - ~\$10 for a full charge depending on the car
- Costs are not fully covered by charges
- Parking rates also apply in lots/garages
- Signage indicates only for active charging





Thank You



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