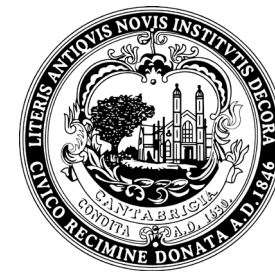


# CITY OF CAMBRIDGE

## ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

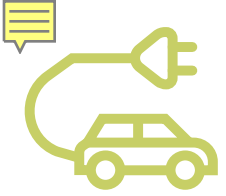
Health and Environment Committee Hearing – November 21, 2022



CAMBRIDGE  
CDD@344

COMMUNITY DEVELOPMENT DEPARTMENT  
344 Broadway



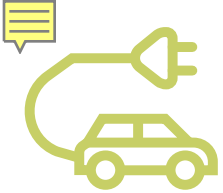


# Content and Agenda

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



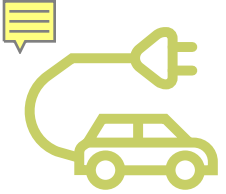
Lot 8 EV Charger



## Background & Trends

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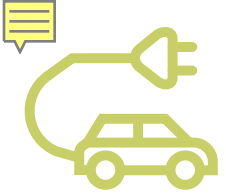
- Massachusetts has set goal of 300,000 EVs by 2025
- Stated intention of prohibiting sales of gas-powered vehicles by 2035 to follow California policy
- Total number of EVs currently registered in Massachusetts ~51,000 of which ~60% were fully electric (Boston Globe, April 9, 2022)
- New federal funding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



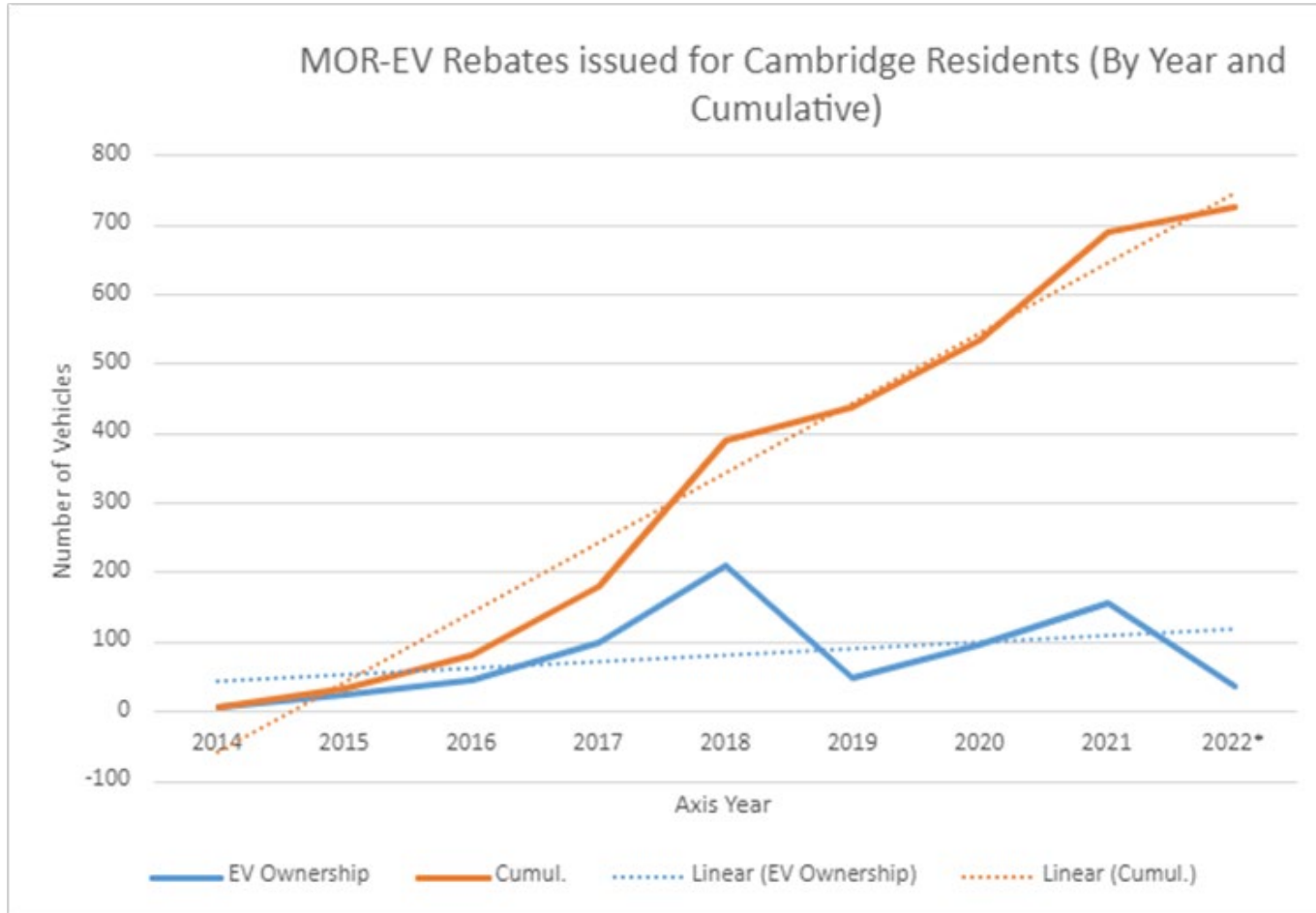
# Background & Trends

- 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:

<b>Battery Electric Vehicle (BEV)</b>	<b>456</b>
<b>Plug-in Hybrid Electric Vehicle (PHEV)</b>	<b>201</b>
<b>Plug-in Hybrid Electric Vehicle Plus (PHEV+, &gt;10 kw)</b>	<b>85</b>
<b>Zero Emissions Motorcycle (ZEM)</b>	<b>1</b>

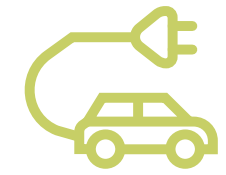


# Background & Trends



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

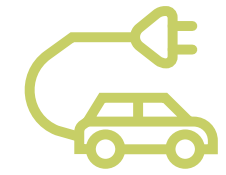
\* 2022 represents data as of October 2022



## Goals & Status

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- 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

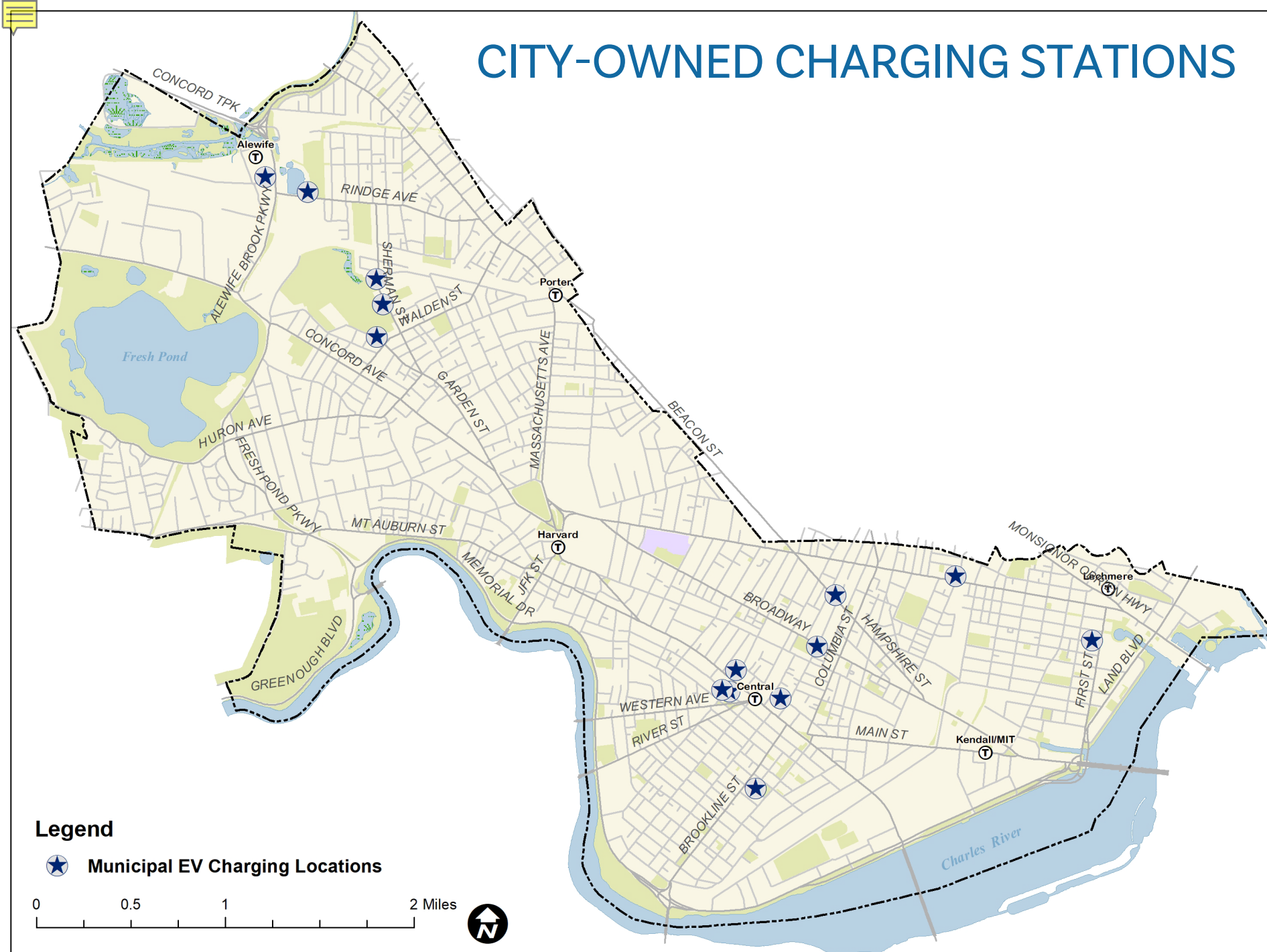
## Locations:

- 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

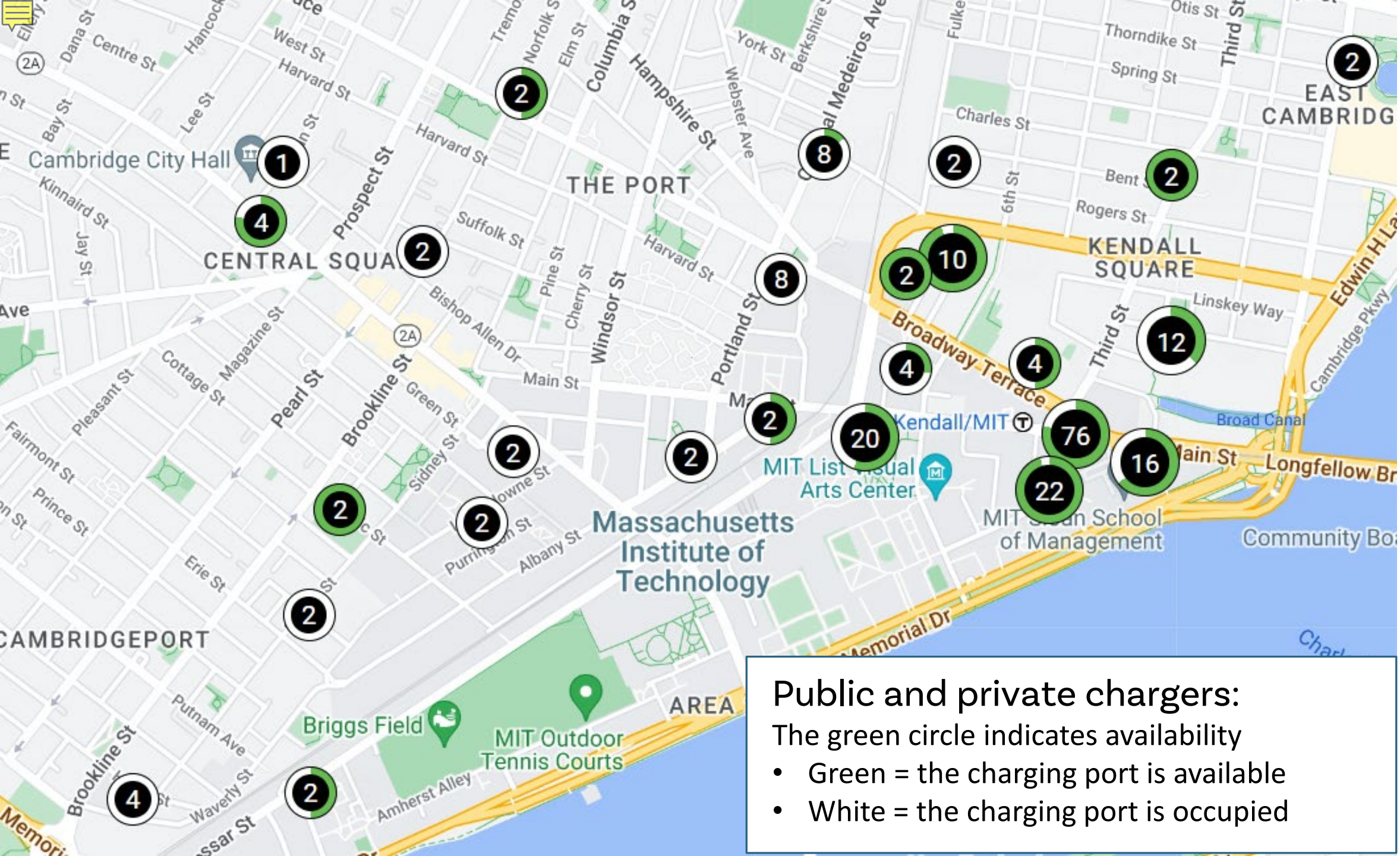
## Legend

 Municipal EV Charging Locations

0 0.5 1 2 Miles



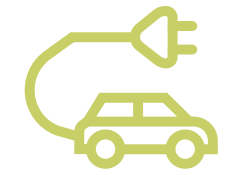




### Public and private chargers:

The green circle indicates availability

- Green = the charging port is available
- White = the charging port is occupied



## Goals & Status

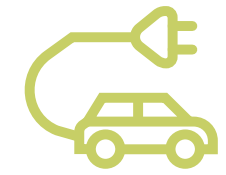
# Charger Utilization

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### City-Owned Chargers:

- Average Charging Time: 2 hrs 30 m
- Average Percentage of Time that a Station is Occupied: 37% of time
- Unique users annually: ~1,500



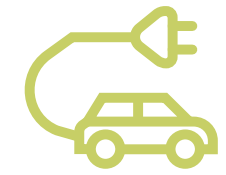
# Planning & Engagement

## 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



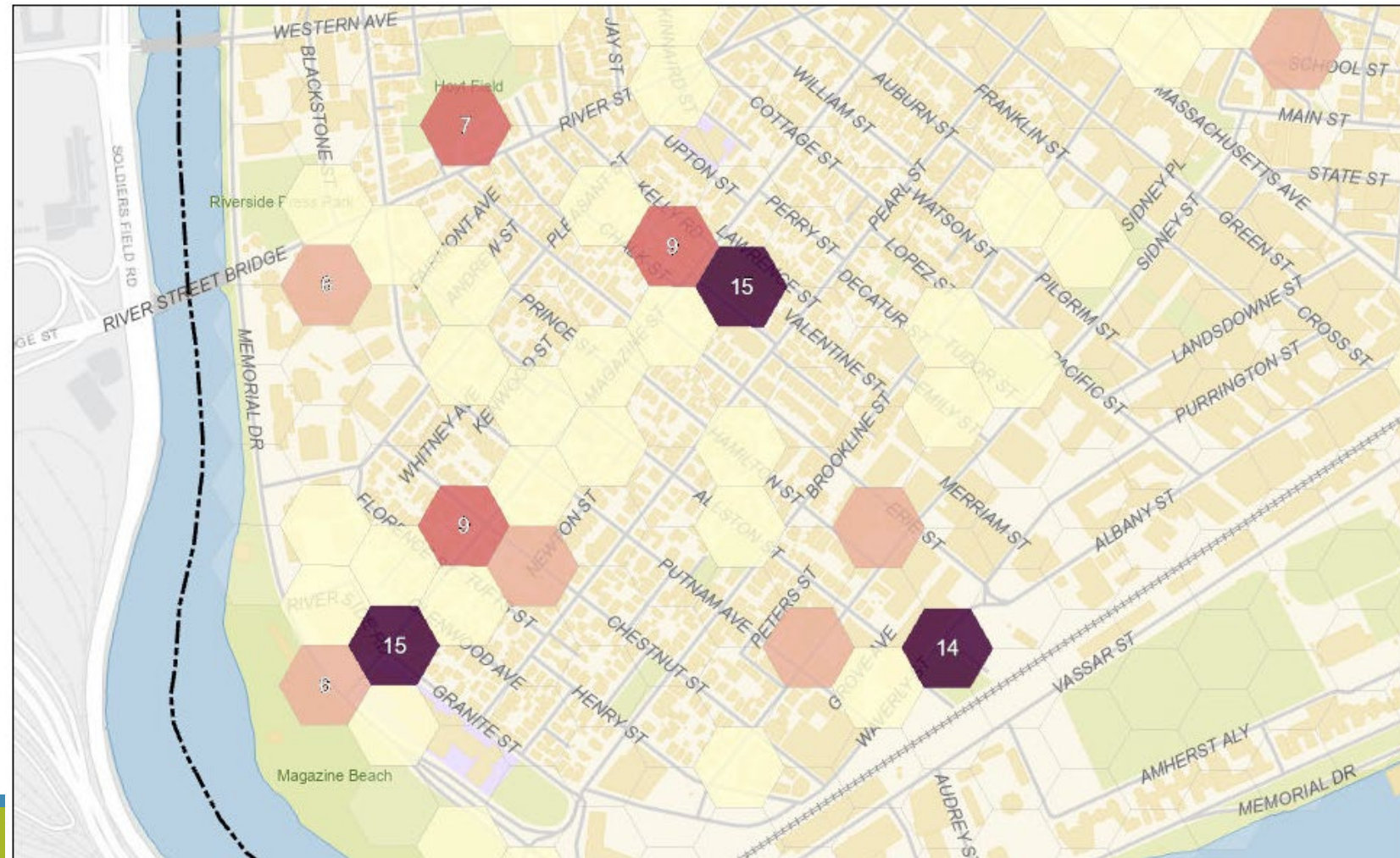
Dual-head Charger at 99 Sherman St

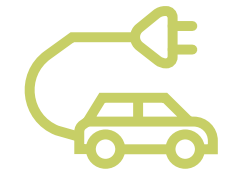


# Planning & Engagement

## Cambridge EV Charging Request Tool

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



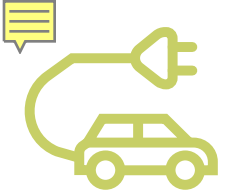


## Planning & Engagement

### 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



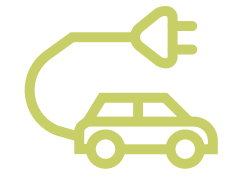
# Planning & Engagement

## Expected in Fiscal Year 23

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

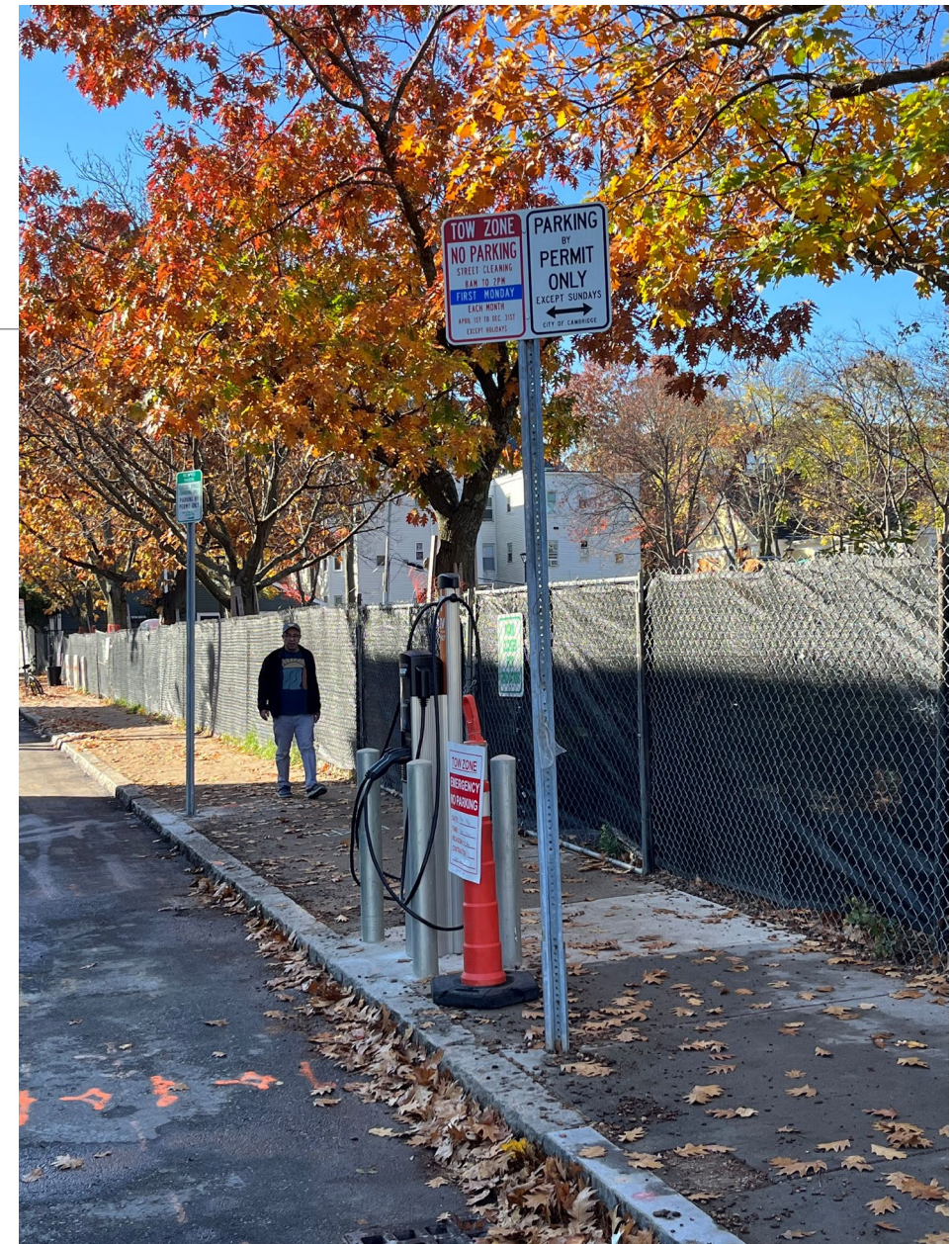




# Planning & Engagement

## 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.







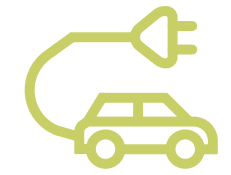
## Implementation

### 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**

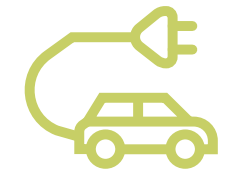
- Make Ready by Eversource – provides funds for electrical
- New funding round is awaiting approval by DPU

## **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**

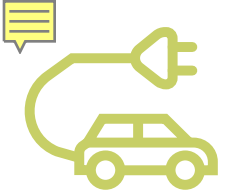
- Provides charging funding for interstate highways, or locations within one mile of interstate access points



## Implementation: City Funding Available

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

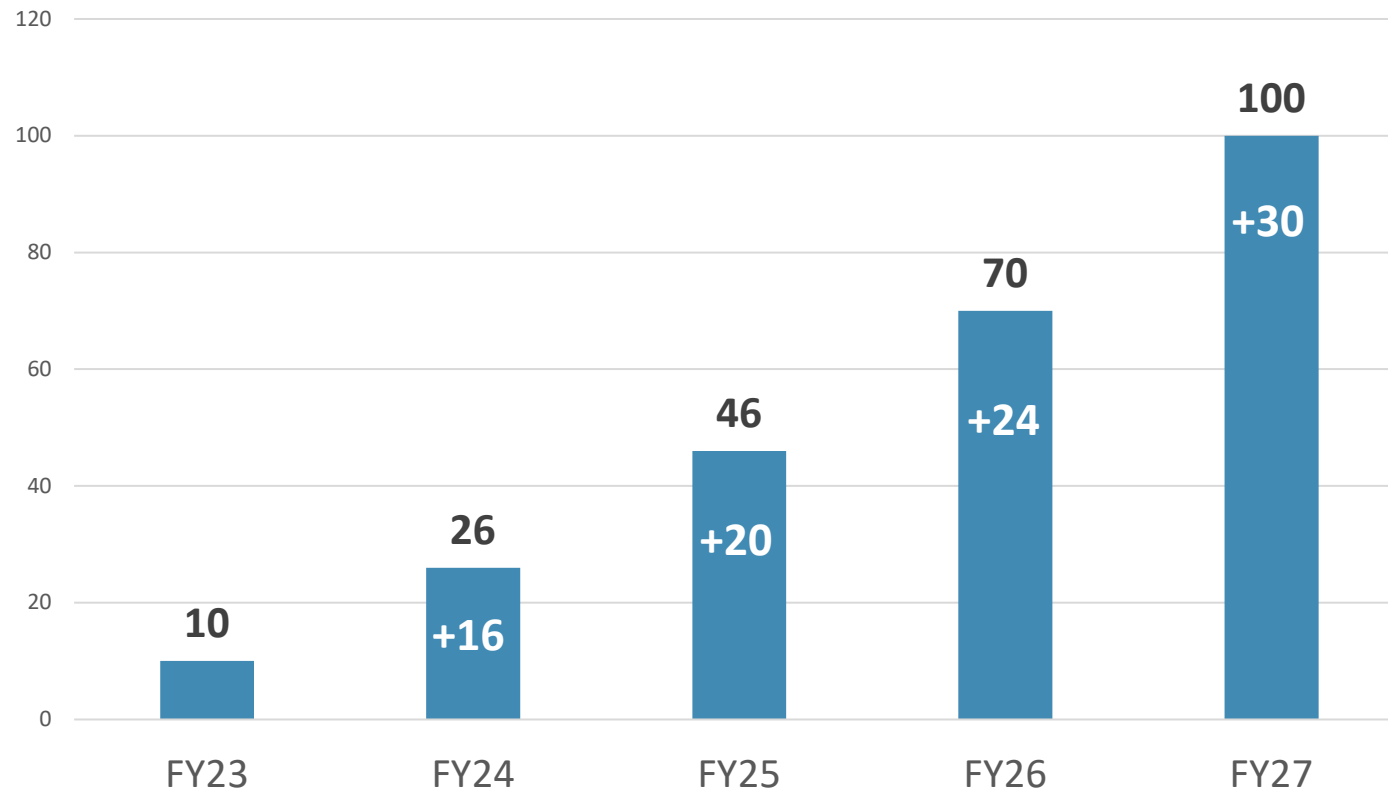
	FY20	FY21	FY22	FY23
Capital Budget	\$100,000	\$100,000		\$50,000
Participatory Budget				\$250,000

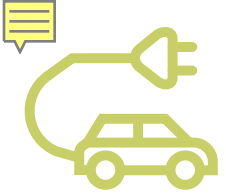


# Implementation: Planned & Proposed EV Chargers

Preliminary Scenario for CCWG goal of 100 new EV charging ports

EV Chargers: 5-Year Installation Schedule

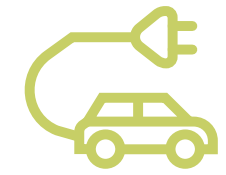




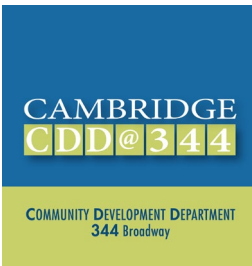
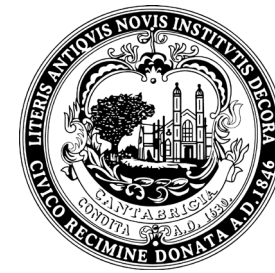
## Implementation: Pricing Policy & Enforcement

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- 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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Assistant City Manager

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Director, Environment and Transportation Planning

**Bill Deignan**  
Transportation Program Manager

**Charlie Creagh**  
Transportation Project Planner

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Acting Commissioner

**John Nardone**  
Assistant Commissioner

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**Irina Sidorenko**  
Energy and Sustainability Analyst

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