Electric Mobility Roadmap Implementation Update

Environment and Climate Commission

November 29, 2023

Presenters:
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Roadmap Goals

- **Ensure Equity in Access to Electric Mobility**
  - Maximize electric mobility benefits in underserved communities

- **Improve Alternatives to Driving**
  - Shift trips to walking, biking, and shared electric modes

- **Achieve Zero Net Carbon**
  - Eliminate emissions from private vehicles

- **Demonstrate City Leadership**
  - Lead by example and guide the electric mobility transition

Roadmap Goals & Implementation Updates

- **Ensure Equity in Access to Electric Mobility**
  - *Berkeley E-Bike Equity Project*

- **Improve Alternatives to Driving**
  - *Micromobility Permit Program Improvements*
  - *Bay Wheels Bike Share Expansion*

- **Achieve Zero Net Carbon**
  - *Ava Community Energy DC Fast Charging Hubs*
  - *EV Charging for New Buildings*
  - *Electric Mobility Education and Outreach*

- **Demonstrate City Leadership**
  - *Electric Mobility Working Group*
  - *City Fleet Electrification Plan*
  - *Electric Mobility Charging Management*

Berkeley E-Bike Equity Project (BEEP) Update

Berkeley E-Bike Equity Project (BEEP)

- 56 income-qualified Berkeley households have received e-bikes for long-term use
  - Waterside Workshops, with GRID Alternatives, designed the program with community input

- Participants...
  - range in age from 20 to 82 years
  - submit monthly odometer readings and quarterly surveys; they receive quarterly safety checks and invites to community activities
  - have ridden over 6,500 e-bike miles as of Sept 2023
    - 82% report spending more time outside or exercising
    - 76% report now spending less on transportation
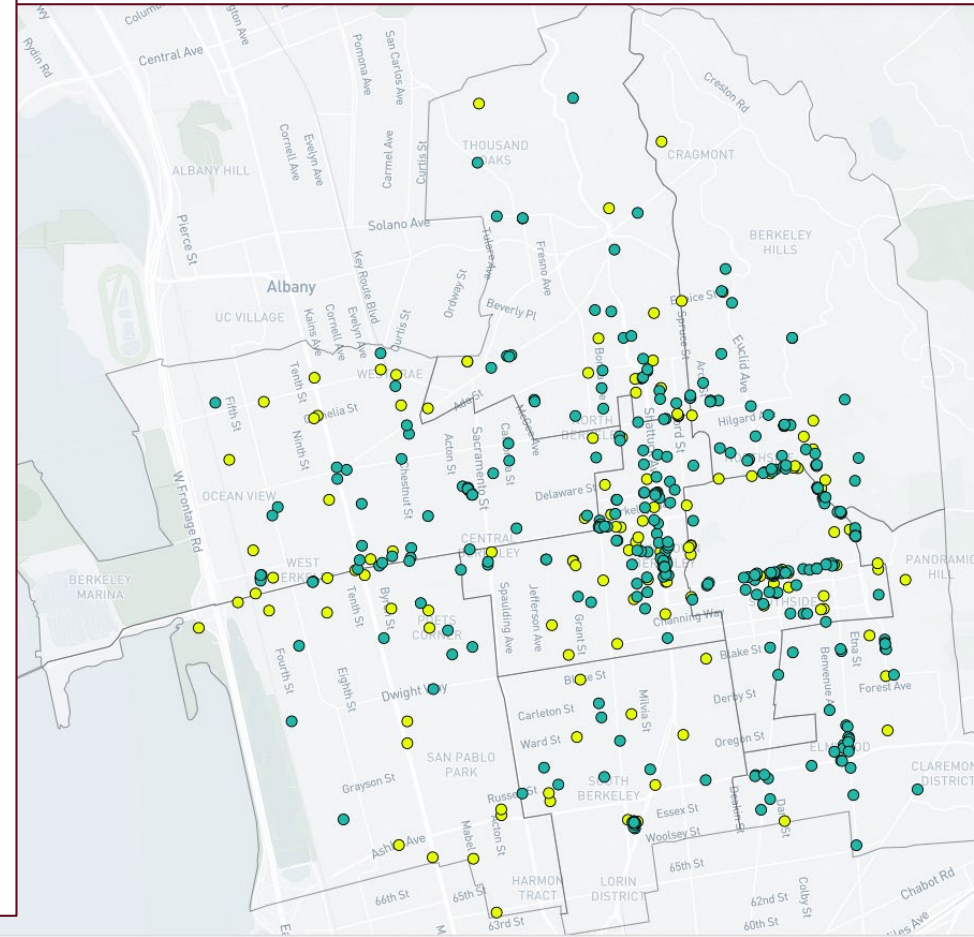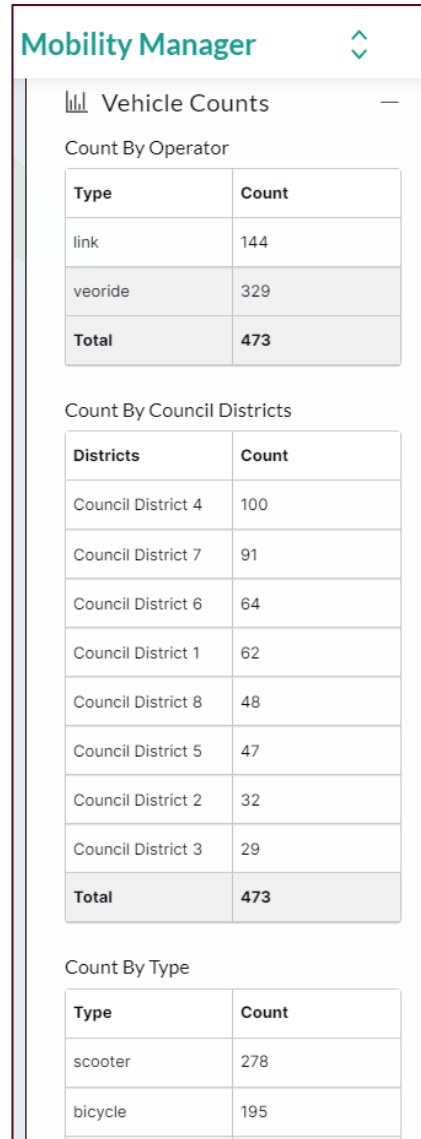
- Youth interns built and service the e-bikes

STREET LEVEL CYCLES

"I no longer depend on public transportation or ride sharing. I use the e-bike for all of my travels." – Julio

Shared Mobility Updates

Micromobility Updates

- **Shared Electric Micromobility Permit Program (SEMPP)**
  - Developing enforcement system for improper parking and sidewalk riding
  - Expanding service to the Berkeley Waterfront on December 1

- **BayWheels Bike Share E-Bike Expansion Agreement**
  - Add ~200 e-bikes to Berkeley network
  - Add 9 bike stations across the City

- **GIG Carshare**
  - Implemented new Citation Notification requirement

Mobility Manager

Vehicle Counts

Count By Operator

Type	Count
link	144
veoride	329
Total	473

Count By Council Districts

Districts	Count
Council District 4	100
Council District 7	91
Council District 6	64
Council District 1	62
Council District 8	48
Council District 5	47
Council District 2	32
Council District 3	29
Total	473

Count By Type

Type	Count
scooter	278
bicycle	195

DC Fast Charging Hubs

Ava Community Energy DC Fast Charging Hubs

- Working with Ava Community Energy (formerly EBCE) to install and operate public EV DCFC stations on municipal property
  - Approximately 10 dual-port stations per location
    - 4th Street and University Avenue
    - Adeline Street and Alcatraz Avenue (parking lot in the SE corner)

Photo by Ben Paulos

Mid-Cycle Building Code Changes

2022 Mid-Cycle Building Code Changes

Occupancy	Charging Space Type	2022 Berkeley *Green Code*			2022 Mid-Cycle *CAL*Green		
		% Rqd	Direct Connect?	Plug Standards?	% Rqd	Direct Connect?	Plug Standards?
Hotel/ Motel	EV Capable	20%	No	None	0%	NA	NA
	EV Ready (LPL2)	25%	No	None	40%	None	NEMA14-30R plug receptacle
	EVSE	5%	No	None	10%	No	J1772 or J3400
Multifamily	EV Capable	20%	No	None	0%	NA	NA
	EV Ready (LPL2)	25%	No	None	40%	Receptacle Power Source* 4.106.4.2.2.1(c)	NEMA14-30R plug receptacle
	EVSE	5%	No	None	10%	No	J1772 or J3400

* 4.106.4.2.2.1(c) = Dedicated branch circuit to multifamily dwelling unit's electrical panel (not re-assignable to another unit)

Ride Electric Outreach Events

6th Annual Ride Electric at the Harvest Festival

Fleet Electrification Updates

Fleet Electrification Updates

- **City Fleet Electrification Status**
  - 53 EVs and PHEVs, 26 Fleet-dedicated chargers
  - Fleet Electrification Assessment began in October 2023
  - Major Charger Projects in Pipeline: Corp Yard and Transfer Station

- **Electric Mobility Charging Management**
  - Implemented fleet EV charging regulations
  - Exploring development of City-wide Charger Project Standards and Guidance

Fleet Electrification Updates

- **EV Charger Funding Strategy**
  - **Quantify** short-term (2-5 years) funding needs to meet City mandates and State regulations
  - **Request** General Fund allocation for EV charging infrastructure projects in upcoming Budget Development process
 - **Track** State and Federal incentive and grant funding opportunities to supplement project costs

Revised Public EV Charging Price Structure

City-Owned Public Chargers

- **Goal**
  - Solicit feedback on proposed energy-based ($/kWh) public EV charging pricing structure

- **Purpose**
  - Create a more equitable EV charging price structure
  - Comply with State requirements
  - Cover City's operations and maintenance costs

City-Owned Public Chargers
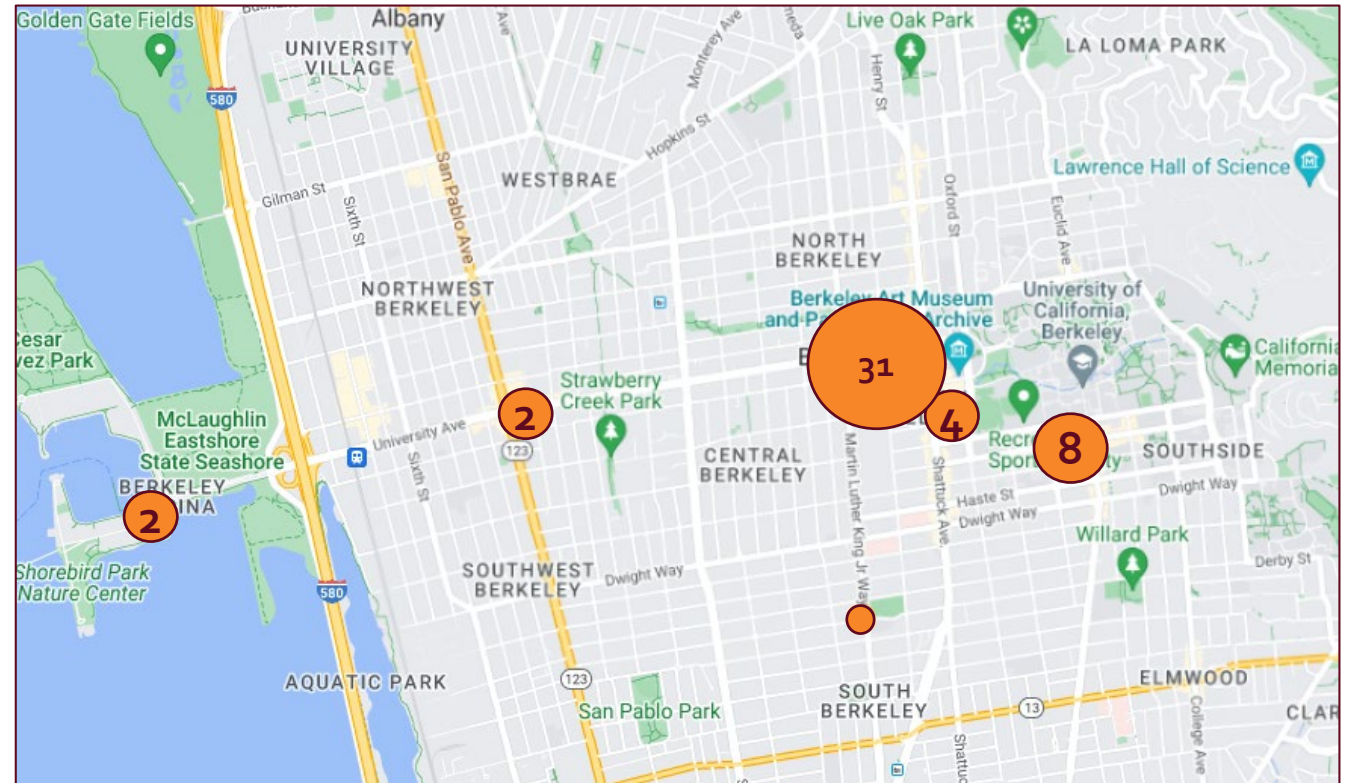
Proposed Pricing Structure - Methodology

1. Calculate actual energy costs ($/kWh)

2. Calculate actual ancillary costs ($/hr)

3. Develop baseline pricing structure to cover operational costs

4. Adjust specific price rates so as not to deter EV adoption

Proposed Energy Fee

- **$0.36/kWh**: average energy cost across 5 sites

- **$0.30/kWh**: proposed base energy fee

- **$0.40/kWh**: proposed Time-of-Use (TOU) energy fee

Energy

12 AM – 4 PM	$0.30/kWh
4 PM – 9 PM	$0.40/kWh
9 PM – 12 AM	$0.30/kWh

Proposed Ancillary Fee

- **$0.76/hour**: average cost per operational hour

- **$1.50/session**: proposed ancillary fee
  - Average active charging session is 2 hours

Energy

12 AM – 4 PM	$0.30/kWh
4 PM – 9 PM	$0.40/kWh
9 PM – 12 AM	$0.30/kWh

Ancillary

Per Session	$1.50

Benchmarking

- Neighboring City Comparison:
  - **$0.32/kWh**: Average EV pricing in Emeryville and Oakland
- Gas Comparison
  - **16%-33%** less expensive than gas *(Source: U.S. Energy Information Administration)*

Pricing Type	Unit Price ($)	Unit	Total Cost for 50 mi of Range
Proposed Base EV Charging	$0.30	per kWh + $1.50/session	**$7.46**
Proposed TOU EV Charging	$0.40	per kWh + $1.50/session	**$9.45**
SF Average Retail Gas	$5.40	per gallon	**$11.21**
Current EV Charging	$1.50	per hour	**$4.52-$9.03**

Proposed Overstay Fee

- **Rationale:** Current citation for exceeding 4 hr time limit at EV charging space is $30

- **$1/min up to 30 min:** proposed Overstay Fee
  - Triggered after 4 hours and 15 minutes of charging (15-min grace period)

- **Purpose**: Encourage turnover and allow access at chargers
  - Current rate structure selected specifically for this reason
  - Supports parking enforcement

Energy

12 AM – 4 PM	$0.30/kWh
4 PM – 9 PM	$0.40/kWh
9 PM – 12 AM	$0.30/kWh

Ancillary

Per Session	$1.50

Overstay Fee

First 4 hrs 15 min	Free
Thereafter, up to 30 min	$1.00/min

Proposed Council Recommendation & Next Steps

- To account for any operational cost increases, include <u>authorization to increase the energy and/or ancillary fees annually by a max 5%</u> without Council approval, as needed

- Next Steps
    - Incorporate feedback as needed
    - Present proposed Public EV charging price rate structure to Council in February 2024

Energy

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4 PM – 9 PM	$0.40/kWh
9 PM – 12 AM	$0.30/kWh

Ancillary

Per Session	$1.50

Overstay Fee

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Thereafter, up to 30 min	$1.00/min

Thank You!

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