



Kate Harrison  
Councilmember District 4

ACTION CALENDAR  
April 20, 2021

To: Honorable Mayor and Members of the City Council  
From: Councilmember Harrison  
Subject: Refer to the City Manager to Prioritize Municipal Fleet Modal Shift to Electric Bicycles and Other Forms of Zero-Emissions Mobility Where Feasible

RECOMMENDATION

Refer to the City Manager to prioritize municipal fleet modal shift to electric bicycles and other forms of zero-emissions mobility, where feasible, as part of ongoing efforts to achieve a zero-emissions fleet by 2030.

CURRENT SITUATION, EFFECTS, AND RATIONALE FOR RECOMMENDATION

The City of Berkeley and broader world is facing a climate emergency, requiring municipalities to rapidly transition towards zero carbon programs and operations. In response to Council direction in 2019, the Public Works Department is in the process of transitioning its light, medium and heavy-duty fleet to zero emissions vehicles. Replacing the City's fleet with zero-emissions vehicles will require significant budgetary and carbon investments. Given the carbon, environmental, and budgetary costs of these investments, it is in the public interest to explore opportunities to shift the mode of municipal transit, where feasible, to less-intensive modes, including electric bicycles, scooters and public transportation. This item refers to the City Manager to prioritize such modes of transportation for City operations as feasible.

BACKGROUND

According to the best available science, wealthy nations must achieve near net-zero emissions by 2030 or earlier in order to delay extremely catastrophic warming. Implicit in the U.N.'s global 2050 net-zero targets to keep emissions as close as possible to 1.5 degrees Celsius is the assumption that advanced industrialized nations will near zero by 2030.<sup>1</sup>

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<sup>1</sup> IPCC, 2018: Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate*

On June 25, 2019, the Council referred to the Manager to create an Action Plan by June 2020, to aggressively accelerate the implementation of the electrification of the City's municipal fleet and phase out fossil fuel use in municipal vehicles by 2030 with consideration of an earlier transition for light-duty passenger vehicles.<sup>2</sup> In 2020, the Department of Public Works in conjunction with the Office of Energy and Sustainable Development and the East Bay Community Energy, submitted their report to the Council.<sup>3</sup> Public Works staff have also committed to submit to Council progress reports every six months and to include detailed rationales justifying any contracts before the Council that include the purchase of any new fossil fuel vehicles. In January 2021, Council passed an additional referral requesting staff to draft a policy phasing out the purchase of new municipal passenger vehicles between 2025-2027.<sup>4</sup> On March 3, 2021, Chair Harrison held a hearing on Public Works' "Action Plan for Greening the City of Berkeley Fleet of Vehicles" at the Facilities, Infrastructure, Transportation, Environment, & Sustainability Policy Committee.<sup>5</sup>

As of February 2020, the City fleet, excluding emergency response vehicles, consisted of 99 passenger sedans and SUVs, 30 parking enforcement scooters, 88 medium-duty pick-up trucks and vans, and 98 heavy-duty vehicles, all domiciled in 15 dispersed

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*change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. *World Meteorological Organization, Geneva, Switzerland, 32 pp.*  
<https://www.ipcc.ch/sr15/chapter/spm/>.

<sup>2</sup> Berkeley City Council, "An Action Plan for Greening the City of Berkeley Fleet of Vehicles," June 25, 2019, [https://www.cityofberkeley.info/Clerk/City\\_Council/2019/06\\_June/Documents/06-25\\_Annotated\\_Agenda\\_pdf.aspx](https://www.cityofberkeley.info/Clerk/City_Council/2019/06_June/Documents/06-25_Annotated_Agenda_pdf.aspx).

<sup>3</sup> City Manager, "Referral Response: An Action Plan for Greening the City of Berkeley Fleet of Vehicles," July 28, 2020, [https://www.cityofberkeley.info/Clerk/City\\_Council/2020/07\\_Jul/Documents/2020-07-28\\_Item\\_26\\_Referral\\_Response\\_\\_An\\_Action\\_Plan.aspx](https://www.cityofberkeley.info/Clerk/City_Council/2020/07_Jul/Documents/2020-07-28_Item_26_Referral_Response__An_Action_Plan.aspx)

<sup>4</sup> Berkeley City Council, "Introduce an Ordinance terminating the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025," January 19, 2021, [https://www.cityofberkeley.info/Clerk/City\\_Council/2021/01\\_Jan/Documents/01-19\\_Annotated\\_Agenda\\_pdf.aspx](https://www.cityofberkeley.info/Clerk/City_Council/2021/01_Jan/Documents/01-19_Annotated_Agenda_pdf.aspx).

<sup>5</sup> Department of Public Works, "City of Berkeley Municipal Fleet Electrification Assessment Presentation," Berkeley Facilities, Infrastructure, Transportation, Environment, & Sustainability Policy Committee, March 3, 2021, [https://www.cityofberkeley.info/uploadedFiles/Clerk/Level\\_3\\_-\\_City\\_Council/FITES%20Presentation%20on%20Electric%20Vehicles.pdf](https://www.cityofberkeley.info/uploadedFiles/Clerk/Level_3_-_City_Council/FITES%20Presentation%20on%20Electric%20Vehicles.pdf).

locations.<sup>6</sup> A partial itemized vehicle replacement list is included as part of Attachment 1.

Although replacing fossil fuel vehicles with electric versions is a critical part of the City's strategy to meeting climate goals, it is also critical to maximize any opportunity to avoid unnecessary procurement and purchase of new vehicles wherever possible to avoid new embodied emissions, reduce electric demand, and save precious budgetary climate resources that might otherwise be shifted to other climate programs benefiting community members.

Purchases of new vehicles, whether electric or otherwise, are associated with significant greenhouse gas emissions, environmental destruction and lifecycle energy use. While these emissions are not currently included in the Berkeley's traditional GHG inventory, they should arguably be included as part of the City's consumption inventory.

Certain City services that are currently delivered through vehicles could be potentially shifted to lighter and significantly lower-carbon electric bicycles or other modes of transportation. For example, the City has already referred budget resources to staff to relaunch and expand the Berkeley Police Department bike and foot patrols.<sup>7</sup> While it may not be possible to shift all modes, any shift provides significant climate and health benefits.

A recent University of Oxford study concluded that even partial substitution of vehicle travel with walking, cycling or e-biking are critical strategies for addressing climate change and lower mobility-related lifecycle CO<sub>2</sub>, and that cyclers have 84% lower CO<sub>2</sub> emissions impact as compared to non-cyclers.<sup>8</sup>

In addition, recent and local real-world monitoring and research by Walk Bike Berkeley suggests that:

- E-bikes get anywhere from 1000 to almost 4000 miles per gallon equivalent
- E-bikes cost less than a penny a mile to charge
- E-bikes can go 40 to 140 times as far as a 30-mpg gas car per pound of climate emissions with California's electric energy mix

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<sup>6</sup> "An Action Plan for Greening the City of Berkeley Fleet of Vehicles," July 28, 2020, p. 39.

<sup>7</sup> Councilmember Harrison, "Budget Referral: Police Foot Patrol in Downtown," March 13, 2018, [https://www.cityofberkeley.info/Clerk/City\\_Council/2018/03\\_Mar/Documents/2018-03-13\\_Item\\_19\\_Budget\\_Referral\\_Police.aspx](https://www.cityofberkeley.info/Clerk/City_Council/2018/03_Mar/Documents/2018-03-13_Item_19_Budget_Referral_Police.aspx)

<sup>8</sup> "Study Shows Walking, Cycling, & e-Biking Make Significant Impact On Carbon Emissions," CleanTechnica, February 3, 2021, <https://cleantechnica.com/2021/02/03/study-shows-walking-cycling-e-biking-make-significant-impact-on-carbon-emissions/>.

- E-bikes are about 10 to 30 times more efficient than electric cars at fighting climate change
- E-bikes get 30-100 times more miles per pound of battery than an electric car<sup>9</sup>

Importantly, service territories in the Berkeley hills are no longer out of reach with new electric bicycle technology.

For police patrols, e-bikes offer the same ability as pedal bikes to increase community contact and situational awareness and to go places patrol cars cannot go. They offer advantages by doing this with extra speed and power for chases.

E-bikes also can be deployed more rapidly and at less cost than electric vehicles not only because lower capital costs, but also because they do not require expensive and highpower charging infrastructure. E-bikes use a small highly portable charger that can be plugged into any standard 120-volt outlet. They also have swappable batteries that can be replaced even faster than a gas-powered car can be refilled, eliminating downtime for charging.

Cargo e-bikes are also now being introduced into municipal fleets for small load deliveries at great savings of carbon and operating cost.

Although greenhouse emissions from the municipal fleet pale in comparison to citywide transportation emissions, the Council has concluded that the transitioning of the municipal fleet will also help inspire our residents and businesses, and will help spur new innovations that will assist with the broader citywide transition.

Micromobility and associated infrastructure costs significantly less than vehicles and associated infrastructure. Any savings accrued from avoided costs could be shifted towards climate programs that assist the broader community with eliminating transportation emissions. For example, the City has significant funding needs within its pedestrian, bicycle and Electric Mobility Roadmap.

It is in the public interest to pursue opportunities to mode shift municipal vehicles to avoid unnecessary vehicle cost and impacts as feasible.

#### FINANCIAL IMPLICATIONS

The item would require staff time to consider potential transportation modal shifting,

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<sup>9</sup> Walk Bike Berkeley, "E-Bike 1000 MPG Project," <https://sites.google.com/view/ebikestudy>.

however successful shifts would likely save the City significant cost savings in both capital and operational budgets.

ENVIRONMENTAL SUSTAINABILITY

Supporting alternative mobility infrastructure will complement and accelerate Berkeley's ongoing efforts to reduce carbon emissions at an emergency and equitable pace in line with the Climate Action Plan, Climate Emergency Declaration and Mobility Roadmap.

CONTACT PERSON

Councilmember Kate Harrison, Council District 4, 510-981-7140

Attachments

1. Partial Itemized Vehicle Replacement List

East Bay Community Energy Fleet Electrification

Table 14: Itemized Vehicle Replacement List

Chassis	Unit #	Mk	Model	Type	Year	Dedicated Use	Division	Fuel Use	EV Fraction	Replace In	Replace with
Sedan	9102	Hon	Civic	Hybrid	2003	New Employees	Engineering	0.27	100%	2020	BEV sedan
Sedan	478	Frd	Taurus	Wagon	1999	Pool Vehicle	Equip Maint Pool	0.37	100%	2021	BEV small wagon
Sedan	489	Frd	Taurus	Wagon	1999	Pool Vehicle	Equip Maint Pool	0.67	100%	2021	BEV small wagon
Sedan	4011	Toy	Prius	Hybrid	2011	Special Purpose	Bldg & Safety	0.11	100%	2021	BEV sedan
Sedan	4108	Toy	Prius	Hybrid	2009		DHS Admin	0.15	100%	2021	BEV sedan
Sedan	6404	Frd	Fusion		2011		Comm Collection	0.13	100%	2021	BEV sedan
Sedan	6900	Hon	Civic	CNG	2003		Marina Operations	0.60	100%	2021	BEV sedan
Sedan	8192	Hon	Fit		2008	Special Purpose	Portable Meals	0.24	100%	2021	BEV sedan
Sedan	8457	Hon	Civic	Hybrid	2003	Special Purpose	FYC PROGAM	0.11	100%	2021	BEV small wagon
Sedan	8518	Frd	Focus		2001		South Berkeley Senior	0.51	100%	2021	BEV sedan
Sedan	9011	Toy	Prius	Hybrid	2002		Equip Maint Pool	0.52	87%	2021	BEV small wagon
Sedan	9013	Hon	Civic	Hybrid	2003		Equip Maint Pool	0.81	55%	2021	BEV small wagon
Sedan	9103	Hon	Civic	Hybrid	2003	Pool Vehicle	Equip Maint Pool	0.37	100%	2021	BEV small wagon
Sedan	9104	Hon	Civic	Hybrid	2003	Special Purpose	Housing Code Enforcement	0.18	100%	2021	BEV small wagon
Sedan	9106	Toy	Prius	Hybrid	2006	Code Enforcement	Housing Code Enforcement	0.16	100%	2021	BEV sedan
Sedan	9107	Toy	Prius	Hybrid	2006		Comm/ Radio's	0.50	90%	2021	BEV sedan
Sedan	9108	Toy	Prius	Hybrid	2006		Equip Maint Corpyrd	0.30	100%	2021	BEV sedan
Sedan	9109	Toy	Prius	Hybrid	2006		Equip Maint Pool	0.42	100%	2021	BEV small wagon
Sedan	9110	Toy	Prius	Hybrid	2006		Equip Maint Pool	0.26	100%	2021	BEV small wagon
Sedan	9111	Toy	Prius	Hybrid	2006		Parking Enforcement	0.31	100%	2021	BEV sedan
Sedan	9112	Toy	Prius	Hybrid	2006	Inspector	Building & Safety	0.16	100%	2021	BEV sedan
Sedan	9116	Toy	Prius	Hybrid	2010		Neighborhood Svc's	0.20	100%	2021	BEV small wagon
Sedan	9117	Toy	Prius	Hybrid	2011		DHS Admin	0.27	100%	2021	BEV sedan

East Bay Community Energy Fleet Electrification

Chassis	Unit #	Mk	Model	Type	Year	Dedicated Use	Division	Fuel Use	EV Fraction	Replace In	Replace with
SUV	1966	Frd	Escape	Hybrid	2009		Fire Training	0.87	55%	2021	PHEV SUV
SUV	2906	Frd	Escape	Hybrid	2009	Special Purpose	Equip Maint Corp yrd	0.13	100%	2021	BEV small wagon
SUV	4110	Frd	Escape	Hybrid	2008		Equip Maint Pool	0.62	79%	2021	BEV small wagon
SUV	6889	Frd	Escape		2008		Street Light Maint	1.34	72%	2021	PHEV SUV
SUV	6890	Frd	Escape	Hybrid	2009	Special Purpose	Equip Maint Corp Yard	0.06	100%	2021	BEV small wagon
SUV	9017	Frd	Escape		2009		Engineering	2.50	39%	2021	BEV small wagon
SUV	9115	Frd	Escape	Hybrid	2009	Assigned	Engineering	0.21	100%	2021	BEV small wagon
SUV	9604	Frd	Escape		2013		Trans/Disp Svc's	1.02	95%	2021	BEV small wagon
SUV	9605	Frd	Escape		2014	Special Purpose	Office of Trans.	0.16	100%	2021	BEV small wagon
Sedan	4805	Toy	Prius	Hybrid	2012		Comm/ Radio's	0.32	100%	2022	BEV sedan
Sedan	8506	Toy	Prius	Hybrid	2012		Building & Safety	0.32	100%	2022	BEV sedan
Sedan	8507	Toy	Prius	Hybrid	2012		Building & Safety	0.46	99%	2022	BEV sedan
Sedan	8508	Toy	Prius	Hybrid	2012		Building & Safety	0.30	100%	2022	BEV sedan
Sedan	8509	Toy	Prius	Hybrid	2012		Building & Safety	0.54	84%	2022	BEV sedan
SUV	1973	Frd	Escape		2013	Fire	Fire Prev/Insp/ Invest	0.50	100%	2022	PHEV SUV
SUV	1974	Frd	Escape	4WD	2013		Fire Operations	0.59	100%	2022	PHEV SUV
SUV	1975	Frd	Escape		2013		Fire/Supp/Rescue /Haz	1.10	88%	2022	PHEV SUV
SUV	1976	Frd	Escape	4WD	2013		Fire Operations	1.88	51%	2022	PHEV SUV
SUV	1977	Frd	Escape	4WD	2013		Fire Operations	1.69	57%	2022	PHEV SUV
SUV	2909	Frd	Escape		2013		Meter Repair Admin	2.55	38%	2022	PHEV SUV
SUV	8519	Frd	Escape	4WD	2013		Building & Safety	0.71	100%	2022	PHEV SUV
SUV	8520	Frd	Escape	4WD	2013	Inspector	Building & Safety	0.48	100%	2022	PHEV SUV
SUV	9004	Frd	Escape	Hybrid	2012		Corp Yard Mgmt. Office	1.35	36%	2022	BEV small wagon
SUV	9019	Frd	Escape	Hybrid	2012		Parks Facilities	0.27	100%	2022	BEV small wagon

Chassis	Unit #	Mk	Model	Type	Year	Dedicated Use	Division	Fuel Use	EV Fraction	Replace In	Replace with
SUV	9021	Frd	Escape		2013		Library Services	0.34	100%	2022	BEV small wagon
SUV	9119	Frd	Escape		2013		Engineering	0.99	98%	2022	BEV small wagon
SUV	9120	Frd	Escape		2013	New Employees	Engineering	0.41	100%	2022	BEV small wagon
Sedan	8006	Toy	Prius	Hybrid	2008		ASP	0.64	71%	2023	BEV sedan
Sedan	8007	Toy	Prius	Hybrid	2008		ASP/Crisis	0.63	72%	2023	BEV sedan
Sedan	9123	Toy	Prius	Hybrid	2013	Special Purpose	Vector Control II	0.11	100%	2023	BEV sedan
Sedan	2381	Frd	Escape		2014	Special Purpose	Sewer Maint	0.36	100%	2023	BEV small wagon
Sedan	8510	Toy	Prius	Hybrid	2014		Building & Safety	0.43	100%	2024	BEV sedan
Sedan	8511	Toy	Prius	Hybrid	2014		Building & Safety	0.39	100%	2024	BEV sedan
Sedan	9113	Toy	Prius	Hybrid	2009	Special Purpose	IT ADMIN	0.10	100%	2024	BEV sedan
Sedan	9126	Toy	Prius	Hybrid	2015		Meter Repair	0.20	100%	2024	BEV sedan
SUV	4114	Frd	Escape		2015		Bldg Maint	0.66	100%	2024	PHEV SUV
Sedan	1595	Frd	Fusion	Hybrid	2016		Parking Enforcement	0.24	100%	2025	BEV sedan
Sedan	8009	Toy	Prius V	Hybrid	2015		ASP/FSP	0.80	56%	2025	BEV sedan
Sedan	8010	Toy	Prius V	Hybrid	2015		ASP/FSP	0.71	64%	2025	BEV sedan
Sedan	8521	Toy	Prius V	Hybrid	2015		Building & Safety	0.36	100%	2025	BEV sedan
Sedan	8011	Toy	Prius V	Hybrid	2016		ASP	0.59	76%	2026	BEV sedan
Sedan	8012	Toy	Prius	Hybrid	2016		ASP/Crisis	0.32	100%	2026	BEV sedan
Sedan	8013	Toy	Prius V	Hybrid	2016		ASP/FSP	0.70	64%	2026	BEV sedan
Sedan	8014	Toy	Prius V	Hybrid	2016		Mental Health	0.73	62%	2026	BEV sedan
Sedan	8015	Toy	Prius V	Hybrid	2016	Special Purpose	FYC PROGAM	0.19	100%	2026	BEV sedan
Sedan	8016	Toy	Prius	Hybrid	2016		Mental Health	0.40	100%	2026	BEV sedan
Sedan	8232	Toy	Prius	Hybrid	2016		Tuolumne Camp Trk.	0.48	93%	2026	BEV sedan
Sedan	8512	Toy	Prius V	Hybrid	2016		Building & Safety	0.31	100%	2026	BEV sedan
Sedan	8522	Toy	Prius V	Hybrid	2016		Building & Safety	0.51	88%	2026	BEV sedan
Sedan	9024	Toy	Prius V	Hybrid	2016		Building & Safety	0.25	100%	2026	BEV sedan



East Bay Community Energy Fleet Electrification

Chassis	Unit #	Mk	Model	Type	Year	Dedicated Use	Division	Fuel Use	EV Fraction	Replace In	Replace with
Sedan	9025	Toy	Prius	Hybrid	2016	Special Purpose	Neighborhood Services	0.07	100%	2026	BEV sedan
Sedan	6406	Toy	Prius	Hybrid	2016		ZW Admin	0.17	100%	2027	BEV sedan
Sedan	8017	Toy	Prius V	Hybrid	2017		ASP/Crisis	0.66	68%	2027	BEV sedan
Sedan	9026	Toy	Prius V	Hybrid	2017	Special Purpose	Toxics Management	0.13	100%	2027	BEV sedan
Sedan	9118	Toy	Prius	Hybrid	2012	Special Purpose	FYC Program	0.13	100%	2027	BEV sedan
Sedan	9121	Toy	Prius	Hybrid	2012		ASP/Crisis	0.21	100%	2027	BEV sedan
Sedan	9122	Toy	Prius	Hybrid	2012		ASP/FSP	0.78	58%	2027	BEV sedan
Sedan	9022	Toy	Prius V	Hybrid	2014	Inspector	Health Inspections	0.20	100%	2028	BEV sedan
Sedan	9023	Toy	Prius V	Hybrid	2014	Special Purpose	Toxics Management	0.11	100%	2028	BEV sedan
Sedan	9125	Toy	Prius V	Hybrid	2014		Vector Control	0.24	100%	2028	BEV sedan
Sedan	8008	Toy	Prius	Hybrid	2015		ASP/Crisis	0.37	100%	2030	BEV sedan

