



Office of the City Manager

INFORMATION CALENDAR

April 15, 2025

To: Honorable Mayor and Members of the City Council  
From: Paul Buddenhagen, City Manager  
Submitted by: Jordan Klein, Director, Department of Planning and Development  
Subject: Climate Action Plan and Resilience Update

SUMMARY

The annual Climate Action Plan and Resilience Update is an opportunity to recognize Berkeley's local action and accomplishments, and renew commitments towards reaching its ambitious climate goals. This update coincides with Earth Day, a national celebration to raise awareness and encourage continued action to protect the environment and combat climate change, a cause particularly in need of local leadership in the face of reduced federal support.

The City of Berkeley is a long-time climate leader and must remain steadfast to reach its net zero carbon and Fossil Fuel Free City commitments by 2045, despite setbacks like the repeal of Berkeley's Prohibition of Natural Gas Infrastructure in New Buildings (2024). Berkeley was one of the first cities to adopt a Climate Action Plan (2009), followed by the Resilience Strategy (2016) to advance preparedness and equity to adapt to a changing climate. After declaring a Climate Emergency in 2018, the City Council adopted its current climate goals and created the Climate Equity Fund and Just Transition Pilot program, to provide building and transportation electrification opportunities for income-qualified residents.

The Berkeley Existing Buildings Electrification Strategy (2021) and Berkeley Electric Mobility Roadmap (2020) guide implementation of some of the recent climate action and resilience program efforts highlighted in this report. The work profiled occurs across city divisions, and in collaboration with the community, to reduce greenhouse gas (GHG) emissions and advance equity. These actions help to create healthier, safer and more resilient homes, infrastructure, parks, and other community assets for current residents and future generations. Based on the best currently available data from 2023, the Berkeley community has reduced overall GHG emissions by 41% since 2000, despite a population increase of 16%.

Climate action and resilience program efforts are divided into these five sections of this report:

- Buildings & Infrastructure
- Transportation
- Waste
- Community Engagement
- Adaptation & Resilience

Work is ongoing, as part of the Prepared, Safe, and Healthy Berkeley project<sup>1</sup>, to develop new equitable, community-identified metrics to measure and report Berkeley's progress in advancing climate resilience strategies. GHG emission reductions remain critical and urgent; this report highlights key existing and planned efforts designed to continue reductions in GHG emissions and advance preparedness for climate change impacts, developed in partnership with community and centered on its needs.

Continued advancement in meeting climate goals will require additional resources to fund projects and programs, particularly for low income and other marginalized communities. Given the federal landscape and uncertainty for both climate and equity support, opportunities for local, regional, state, and philanthropic funding will be key.

#### CURRENT SITUATION AND ITS EFFECTS

Berkeley's progress on climate action and the annual community-wide greenhouse gas (GHG) emissions inventory advance the City's Strategic Plan goal to be a global leader in addressing climate change, advancing environmental justice, and protecting the environment.

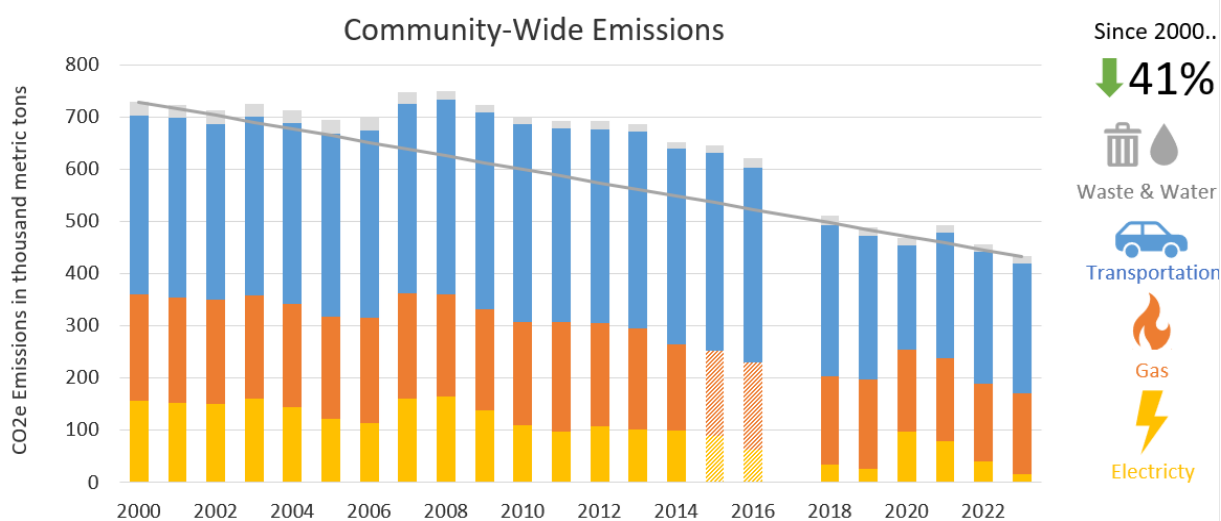
Using the most recently available data, City staff annually calculate community GHG emissions to understand which sectors and fuels contribute the most emissions in Berkeley, track progress toward climate goals, provide data that can be used for prioritizing programs and policies, and meet Berkeley's commitment to the Global Covenant of Mayors. Based on 2023 data, GHG emissions declined 41%<sup>2</sup> since the 2000 baseline and 12% since the 2021 data provided in the last report to City Council. See Figure 1 for more information.

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<sup>1</sup>City of Berkeley Prepared, Safe, and Healthy Berkeley project: <https://berkeleyca.gov/construction-development/land-use-development/general-plan-and-area-plans/prepared-safe-and-healthy>

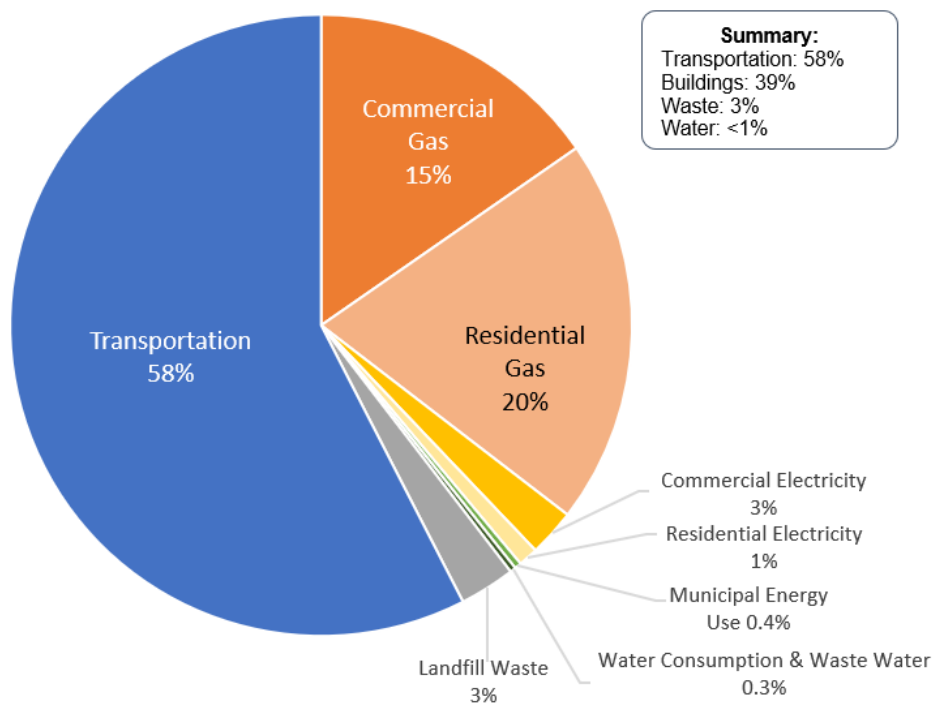
<sup>2</sup> GHG inventory methodology for the transportation sector changed in 2018 so it is challenging to definitively state the decrease in emissions. For more information on methodology, please see Attachment 1: 2023 Annual Greenhouse Gas Inventory

**Figure 1: Berkeley GHG Emissions Inventories including Sectors (2000-2023)**



As Figure 2 illustrates, transportation was the largest source of 2023 GHG emissions, accounting for 58% (249,028 mtCO<sub>2</sub>e), followed by the building sector, accounting for 39% (168,453 mtCO<sub>2</sub>e).

**Figure 2: 2023 Berkeley GHG Emissions Inventory, by Sector and Fuel**



For more information on the inventory, see **Attachment 1: 2023 Annual Greenhouse Gas Inventory**.

Key accomplishments and examples of recent climate action and resilience program implementation efforts, particularly since December 2023 when this report was last updated for City Council, are described below. Equitable climate action and resilience efforts elevate voices and priorities of communities who have been marginalized to ensure that policies and programs benefit those most impacted by climate change.

## **BUILDINGS & INFRASTRUCTURE**



The City is working with the Berkeley community to reduce energy use, promote cleaner energy, and equitably transition all buildings and infrastructure to clean electricity, in order to meet the goals of becoming a net zero carbon and Fossil Fuel Free City by 2045. Program implementation includes new building and equitable community decarbonization initiatives, and municipal decarbonization projects to reduce GHG emissions from buildings while improving safety, comfort and health.

### ***NEW BUILDING DECARBONIZATION***

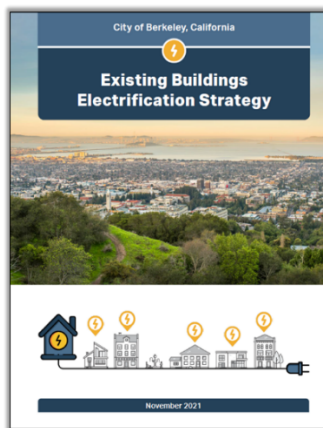
In July 2019, the City Council adopted the first ordinance in the nation to prohibit the installation of natural gas infrastructure in newly constructed buildings. Berkeley's Natural Gas Prohibition was in place from January 2020 to January 2024. The ordinance was repealed on June 4, 2024 following a Ninth Circuit Court of Appeals ruling that the ordinance was preempted by the federal Energy Policy and Conservation Act.

Since January 2024, new construction in Berkeley has been subject to the energy use and appliance requirements of the State's 2022 Energy and Green Building (CALGreen) Codes, which allow for the use of natural gas. Some new developments have continued to pursue all-electric designs, potentially to qualify for CA Environmental Quality Act (CEQA) GHG streamlining under the Bay Area Air District's 2022 CEQA Air Quality Guidelines, to save money on utility connection expenses or insurance costs, or for other project objectives. Building without natural gas appliances improves indoor air quality and safety by removing the potential for natural gas leaks and the harmful pollutants that arise from burning gas in stoves and other appliances. Removing natural gas from buildings will ultimately allow for the strategic decommissioning of natural gas distribution infrastructure and the associated leakage of methane, the main component of natural gas, a potent GHG.

The City should continue to evaluate and consider new opportunities for electrification in new buildings. In addition, the City has adopted local amendments to CALGreen that require low carbon concrete as well as EV charging and Construction & Demolition debris diversion requirements which exceed the State’s requirements.

**EQUITABLE BUILDING DECARBONIZATION**

Highlights from programs to equitably decarbonize and upgrade existing homes of lower income residents include the Climate Equity Fund, Bay Area Residential Decarbonization High Road Training Partnership, Just Transition Pilot, Home Electrification Equity Project, and Air District Indoor Appliances Implementation Working Group.



**Equity Guardrails**

The City’s equitable building decarbonization work is guided by the Berkeley’s Existing Buildings Electrification Strategy<sup>3</sup> (2021), that includes a set of “Equity Guardrails” which serve as minimum requirements that must be met in order to advance a policy, program or project. These guardrails were developed from targeted outreach with resilient communities that have been marginalized, to better understand and elevate their priorities and needs. While the guardrails were developed in the context of building decarbonization, the Planning & Development Department’s Office of Energy and Sustainable Development (OESD) applies these guardrails to all of its work. They include:

- Maximize Access to Health, Safety & Mobility Benefits
- Maximize Access to Economic Benefits
- Maximize Ease of Participation
- Promote Housing Affordability & Anti-Displacement



**MAXIMIZE ACCESS TO HEALTH, SAFETY & MOBILITY BENEFITS**



**MAXIMIZE ACCESS TO ECONOMIC BENEFITS**



**MAXIMIZE EASE OF PARTICIPATION**



**PROMOTE HOUSING AFFORDABILITY & ANTI-DISPLACEMENT**

<sup>3</sup> City of Berkeley Existing Buildings Electrification Strategy: <https://berkeleyca.gov/your-government/our-work/adopted-plans/berkeley-existing-buildings-electrification-strategy>

**Climate Equity Fund – Homes**

In 2021, City Council provided funding for building decarbonization improvements for low-to-moderate income residents' homes. Three agencies were awarded a total of \$250,000 to provide building electrification upgrades to increase resilience, support occupant health and reduce GHG emissions. As of February 2025, this ongoing project has supported the following building electrification upgrades:

- *Casa Joaquin Murrieta*: Greenlining Institute's student housing, for 40 low-income, first-generation UC Berkeley students of color. Upgrades include a ducted heat pump system with new high efficiency air handlers and a new central heat pump water heater.
- *Walnut House Cooperative*: 22-unit limited-equity cooperative multifamily building. Upgrades include a new central heat pump water heater to replace an old, gas boiler.
- *Single-family, income-qualified home*: Upgrades include heat pump HVAC system and smart thermostats.



*Casa Joaquin Murrieta heat pumps*

**Bay Area High Road Training Partnership for Good, Green Jobs**

The City of Berkeley is a partner in Rising Sun Center for Opportunity's Bay Area Residential Building Decarbonization High Road Training Partnership (HRTTP). The HRTTP is working to create high-quality, clean energy jobs in the residential building decarbonization sector that are accessible to women, people of color and other underrepresented groups. The partnership comprises local governments, workforce and training nonprofits, labor unions, contractors and regional agencies from across the Bay

Area. Together the H RTP developed labor standards and policy recommendations for public agencies that promote equity, job quality, and job access, and published several papers and guides in 2024 available on Rising Sun's website<sup>4</sup>.



### Bay Area Residential Decarbonization High Road Training Partnership

#### Mission

The H RTP seeks to increase job quality and equitable access for all workers in the residential decarbonization market, starting in the 9-Bay Area County region

#### Vision

A residential building decarbonization industry that supports quality jobs, engages a qualified workforce, and provides stable career pathways for disadvantaged workers while simultaneously reducing GHG emissions and building more resilient communities

### Just Transition Pilot Program

To ensure that income qualified residents and construction workers benefit from the transition off fossil fuels, City Council approved a resolution to develop a Just Transition Pilot Program (2022) with a budget of \$1,500,000. This program aggregates electrification and resilience installations for low-to-moderate income households (at or below 120% of the Area Median Income) and requires that upgrades be completed by pre-qualified contractors who meet minimum labor standards, to ensure that residential electrification construction work also provides equitable benefits to workers. Through a competitive process the City selected Rebuilding Together East Bay Network as the program implementor. Building on the work of the H RTP, the team is working to finalize the labor standards, develop a pipeline of income-qualified homes, provide support and training to contractors, and release a request for proposals for contractors to participate. The program is slated to complete implementation by the end of 2025.

### Home Electrification Equity Project

Berkeley participated in a two-year grant program awarded by ICLEI and funded by Google.org to advance electrification in income-qualified homes. The team was led by Habitat for Humanity East Bay/Silicon Valley and also included the cities of Fremont, Hayward and Oakland, as well as partners GRID Alternatives, Rebuilding Together East Bay Network, and Cal State East Bay. The project team created tools to assist cities in

<sup>4</sup> Rising Sun Center for Opportunity High Roads Training Partnership: <https://risingsunopp.org/policy/>

scaling electrification for low-income residents, conducted contractor trainings, and installed direct improvements in three Berkeley income-qualified homes which received one or more of the following: energy audits, solar + storage installation, electrical upgrades, and new electric appliances.



*Berkeley home that received electrification upgrades through the Home Electrification Equity Project*

### **Bay Area Air District Indoor Appliances Implementation Working Group**

To improve indoor air quality, the Bay Area Air District adopted amendments to Rule 9-4 and Rule 9-6 in March 2023 which establish zero-nitrogen oxide (NOx) emissions standards for gas furnaces and water heaters.<sup>5</sup> These rules phase in requirements, beginning in 2027, that will ultimately only allow zero NOx appliances, such as heat pumps, to be sold and installed in the Bay Area for new water heaters and furnaces. City staff are participating in the Bay Area Air District Indoor Appliances Working Group to identify and address implementation issues including technical and workforce readiness of the market and equitable transition to compliant appliances.

### ***BUILDING EMISSIONS SAVING ORDINANCE***

The goal of Berkeley's Building Emissions Saving Ordinance (BESO) is to reduce both energy costs and GHG emissions in Berkeley's existing buildings. BESO consists of a Time of Sale Program and a Large Building Program.

<sup>5</sup> Bay Area Air District Zero NOx rules: <https://www.baaqmd.gov/rules-and-compliance/rule-development/building-appliances>

### **BESO Time of Sale Program Highlights**

The BESO Time of Sale Program (for buildings under 25,000 square feet) requires building owners to complete and publicly report comprehensive assessments of their building's energy performance and opportunities for improvement prior to listing a building for sale.

Successes of the BESO Time of Sale Program include:

- 96% compliance in 2024, an increase of 24 percentage points from the 2020 compliance rate (72%)
- Launched a Home Energy Score assessment focused on electrification
- 4,356 energy assessments completed as of February 2025
- 3,519 Home Energy Scores<sup>6</sup> completed as of February 2025, with an average score of 4.5 out of 10
- 87 homes completed qualifying energy efficiency or electrification upgrades in lieu of energy assessments to satisfy BESO requirements as of February 2025

### **New BESO Time of Sale Energy Upgrade Requirements**

In December 2020, Berkeley City Council amended BESO to further align the program with the City's electrification and community resilience goals. The amendment included direction to staff to develop energy upgrade requirements for future Council consideration. In early 2023, staff assembled a Technical Advisory Committee (TAC) of building decarbonization experts from local, state, and federal organizations, including PG&E, Ava, California Energy Commission, the Berkeley Lab, Building Decarbonization Coalition, and contractors and architects, to advise on potential requirements at time of sale. Throughout 2023 and 2024, staff worked with the TAC, Bridge Association of Realtors, the Berkeley Rent Board, the Environment and Climate Commission, and the City Council Land Use, Housing, and Economic Development Policy Committee to develop a policy proposal. In February 2025, Council adopted the proposed amendments to BESO, including flexible energy upgrade requirements for small residential buildings, which will go into effect in 2026.

### **BESO Large Building Program**

The BESO Large Building Program (buildings over 25,000 square feet) requires annual energy benchmarking reports and energy assessments on a five-year recurring cycle for large multifamily and commercial buildings.

Successes of the BESO Large Building Program include:

- 342 energy benchmarks submitted in 2024, achieving 62% compliance

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<sup>6</sup> Developed by the US Department of Energy and its national laboratories, the Home Energy Score provides home owners, buyers, and renters directly comparable and credible information about a home's energy use. Each Home Energy Score is shown on a simple one-to-ten scale, where a ten represents the most efficient homes. More information can be found at: <https://www.energy.gov/eere/buildings/articles/home-energy-score>.

- 130 large building energy assessments completed as of February 2025
- Launched a benchmark scorecard to help building owners understand their buildings' energy performance, with 312 scorecards distributed as of February 2025

### **Building Performance Standards Large Building Program**

Building performance standards (BPS) establish building-level requirements, such as minimum GHG emissions reduction standards, by a specified date. These standards are generally applied to larger buildings, including multi-family residential and commercial buildings, to have the highest impact on the largest energy users. The size and type of building covered could expand over time. The U.S. Department of Energy awarded Berkeley and San Francisco a \$19.9 million grant in 2024 – approximately \$5.7 million of which will go to Berkeley – to develop BPS requirements that lead to the emissions reductions in the cities' large buildings. Pending release of funds by the federal administration, this grant will allow the first stage of BPS development to begin in 2025.

### ***BUILDING DECARBONIZATION INCENTIVE PROGRAMS***

Berkeley property owners have started transitioning their gas, water, and HVAC systems to electric heat pumps. Heat pumps utilize clean electricity, are highly efficient compared to their gas counterparts, reduce building GHG emissions, and provide a variety of other benefits including increased comfort and better indoor air quality. Property owners have taken advantage of several incentive programs<sup>7</sup> for heat pump water heaters (HPWH) and heat pump HVAC systems (HP HVAC), including TECH Clean California and BayREN.

- **TECH Clean California** is a statewide initiative, funded by California taxpayers and utility ratepayers, to accelerate the adoption of clean space and water heating technology across California in order to help meet the state goal of being carbon-neutral by 2045. Since its launch in 2022 through November 2024:
  - 93 Berkeley homes installed HPWHs qualifying for TECH Clean California rebates totaling \$291,300 in savings
  - 371 Berkeley homes installed HP HVACs qualifying for TECH Clean California rebates totaling \$689,000 in savings

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<sup>7</sup> For more information on rebates and incentives for electrification, please see *The Switch Is On* (<https://switchison.org/>) and the City of Berkeley's *Building Electrification* (<https://berkeleyca.gov/construction-development/green-building/building-electrification>) and *Financing Green Building Improvements* (<https://berkeleyca.gov/construction-development/green-building/financing-green-building-improvements>) webpages.

- **BayREN Home+** offered a variety of rebates for single family homes for heat pumps, insulation, duct sealing and replacement, and induction cooking appliances. Between 2019 and the conclusion of the BayREN Home+ program on October 18, 2024, a total of 1,751 of these measures were completed.
- **BayREN Multifamily:** Between 2014-2024, a total of 1,195 Berkeley units received a variety of energy and water saving upgrades, including electrification measures. This program now includes additional incentives for buildings that are located in communities experiencing health, heat or housing burdens.

The federal Inflation Reduction Act (IRA) of 2022 created programs to support clean energy retrofits. The California Energy Commission (CEC) was awarded \$590 million from the U.S. Department of Energy to launch three IRA programs: Home Efficiency Rebates (HOMES), Home Electrification and Appliance Rebates (HEERA), and Training for Residential Energy Contractors (CA-TREC).<sup>8</sup> These programs will provide rebates for whole home energy upgrades, reduce the cost of replacing old appliances in income-qualified homes, and support the training of contractors to install and maintain energy equipment.

### **CLEAN ENERGY TRANSITION**

As more buildings transition off fossil fuels, the City is ensuring that its electricity comes from clean, renewable sources through participation in Ava Community Energy (Ava; formerly known by the name East Bay Community Energy or EBCE).

In 2016, Berkeley City Council voted to join Ava. In 2019, Berkeley City Council voted to switch municipal facilities to Ava’s Renewable 100 (R100) electricity service, sourced from 100% wind and solar facilities. In 2021, City Council then voted to set R100 as the default service for residential (starting in March 2022) and commercial (starting in October 2022) customers. As of February 2025, 88% of Berkeley accounts are receiving R100 electricity service.

<b>Berkeley Customers by Sector</b>	<b>Total Accounts</b>	<b>Renewable 100</b>	<b>Bright Choice</b>
<b>Residential (excluding CARE)</b>	43,633	93%	7%
<b>Residential (CARE)</b>	5,719	41%	59%
<b>Non-Residential</b>	4,986	95%	5%
<b>All Accounts</b>	54,338	88%	12%

<sup>8</sup> For more information on the California Energy Commission’s IRA programs, please see <https://www.energy.ca.gov/programs-and-topics/programs/inflation-reduction-act-residential-energy-rebate-programs>

**MUNICIPAL BUILDING DECARBONIZATION**

City staff are working on energy efficient upgrades to municipal facilities and infrastructure including park and street lighting, traffic signals, pools, and irrigation pumps. Facility and infrastructure upgrades, in particular street light conversions (from high pressure sodium to LEDs) and building lighting conversions (first to fluorescents and more recently to LEDs), have significantly reduced electricity consumption and utility bill costs for the City. In 2024, the City began using a new software platform, Energy Manager, and started receiving PG&E bills for municipal facilities electronically. This now allows for review and detailed analysis, and when completed later in 2025, will also link to the City’s ERMA system for payment.

Recently completed municipal energy projects include:

- **Building Lighting Upgrades to LED:** The following sites have had high-efficiency lighting installed to reduce energy costs and ensure lighting quality for building occupants:

Site	Year Upgraded	Annual kWh Saved
Fire Station #4	2022	9,500
Fire Station #7	2022	26,000
Emergency Services Warehouse	2023	8,800
Telegraph/Channing Garage	2023	67,000
Oxford Garage	2023	27,800
1947 Center St.	2024	164,500
Main Library Phase I	2024	150,000
	<b>Total</b>	<b>453,600</b>

The energy savings from these lighting upgrades result in about \$185,000 in annual cost savings for the City. Additional lighting upgrades are planned for Fire Stations #2, #5, and #6, Civic Center, and South Berkeley Senior Center, as well as Main Library, Phase II.

Most of these lighting upgrades are financed using PG&E’s On-Bill Financing program, with no up-front cost to the City. PG&E’s On-Bill Financing pays the contractor directly and allows the City to repay the loan through monthly utility bill savings.

- **Heat Pump Water Heaters:** Installed in 2023 at no cost to the City through the ratepayer funded PG&E Government & K-12 Energy Efficiency Program:
  - Main Library
  - North Branch Library

- o South Branch Library
  - o Corporation Yard Green Room
  - o Corporation Yard Ratcliff Building
  - o Fire Station #3
  - o Fire Station #6
  - o Marina Restroom
  - o Harrison House
  - o Women's Daytime Drop-In Center
- **Kitchen Electrification:**
    - o South Berkeley Senior Center (2023)
    - o North Berkeley Senior Center<sup>9</sup> (2025)
  - **Building Envelope Improvements:**
    - o North Berkeley Senior Center: insulated windows and doors, roof insulation, draft sealing (completed in 2023)

### **Rising Utility Costs & Electrification**

In recent years, both commercial and residential PG&E electricity rates have increased significantly. In 2024, households experienced almost a 13% bill increase<sup>10</sup>. The high cost of electricity underscores the importance of energy efficiency and building envelope upgrades to reduce overall energy usage, as well as solar and battery installations to offset grid electricity and higher time-of-use pricing. While replacing gas systems with efficient all-electric heat pump HVAC and water heaters shifts the utility cost from gas to electricity, these additional energy efficiency upgrades can minimize electricity bill costs. Additionally, all-electric equipment improves indoor air quality and comfort, reduces GHG emissions, and increases safety.

Staff is working with member organizations such as the Local Government Sustainability Energy Coalition and Green Cities California to understand the causes and potential opportunities for issues such as electricity affordability and interconnection timelines.

### **Municipal Solar + Storage**

The City, alongside several other cities, is partnering with Ava to procure and install solar + storage systems at critical municipal facilities to provide increased energy resilience and clean back-up power. The proposed solar and battery installations are planned for the Corporation Yard and Live Oak Recreation Center. Construction is

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<sup>9</sup> Completion of the North Berkeley Senior Center kitchen electrification project is anticipated in 2025, combined with major wiring upgrades to the site.

<sup>10</sup> Ava Community Energy: <https://avaenergy.org/insight/pg-e-rate-increases-explained/>

expected to start in 2025, but may also be impacted by the federal pause on funding and new tariffs.

## **TRANSPORTATION**



The City strives to advance opportunities for people to safely walk, bike, take public transit, and electrify mobility options. As transportation is the largest source of Berkeley's GHG emissions, this work advances City climate goals. Additionally, it also improves public health and helps achieve Vision Zero to eliminate traffic deaths and serious injuries.

The City has taken a leadership role in facilitating transit-oriented development, including zoning reform as well as the Ashby and North Berkeley BART Station development projects, to create housing opportunities in proximity to transit, jobs, and other amenities. This provision of new housing for Berkeley's growing population near transit hubs and corridors minimizes private automobile travel and its associated GHG emissions and other air pollutants.

### ***ACTIVE TRANSPORTATION***

The Public Works Transportation Division leads the City's efforts to increase access and improve safety to a variety of mobility options beyond the automobile. In 2023, 34% of the trips taken within Berkeley utilized sustainable modes of transportation (walking, biking, and public transit). Highlights of recent efforts include improving pedestrian safety and bus accessibility.

#### **Southside Complete Streets**

In 2024, Public Works finished building the Southside Complete Streets project, a transformative project that makes the neighborhood south of the UC Berkeley campus a more walkable, bikeable, scooter-friendly, and bus accessible area. The project included:

- Pedestrian safety improvements: wider sidewalks, corner curb extensions (bulb outs), pedestrian refuges and safer signals
- Bicycle safety improvements: two-way protected bike lanes (cycle tracks); bike boxes at intersections, and dedicated bike traffic signals
- AC Transit support: dedicated bus lines with upgraded bus stops with boarding islands



*Southside improvements make it safer to walk, bike, scooter and bus*

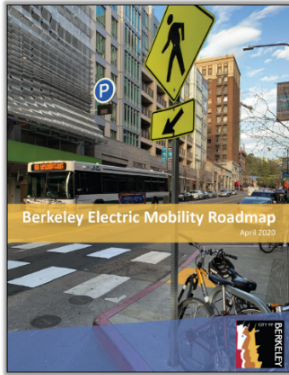
**Martin Luther King Jr. Way Vision Zero Quick Build**

In 2024, Public Works completed the Quick Build project on Martin Luther King Jr. Way (MLK Way), from Dwight Way to Russell Street, adding longer pedestrian street crossings and improvements to slow drivers, making walking safer in an area that sees thousands of walking trips every day. This half mile stretch of MLK Way serves community destinations like Berkeley High School, Washington Elementary School, Tim Moellering Field, Grove Park, the Berkeley Public Library's south branch and Ashby BART.



*MLK Vision Zero Quick Build crosswalk improvements*

## ELECTRIC MOBILITY



The Berkeley Electric Mobility Roadmap (2020)<sup>11</sup> identifies goals, strategies, and actions to create a fossil fuel free transportation system. The Roadmap supports the City's ongoing efforts to increase walking, biking, and public transportation, and helps to ensure equitable access to the benefits of clean transportation. In March 2023, the City hired an Electric Mobility Coordinator to support Roadmap implementation; the Coordinator convenes an interdepartmental Electric Mobility Working Group that meets biweekly.

The projects highlighted below reflect progress in achieving the four Electric Mobility Roadmap Goals:

1. Ensure Equity in Access to Electric Mobility
2. Improve Alternatives to Driving
3. Achieve Zero Net Carbon
4. Demonstrate City Leadership

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

- **Berkeley Electric Bike Equity Project (BEEP):** Local non-profit Waterside Workshops, with assistance from GRID Alternatives, developed and implemented BEEP using \$250,000 from the Climate Equity Fund. This electric bike (e-bike) program for income-qualified Berkeley households also included a youth education and workforce development program to service e-bikes and provide job training opportunities. With additional support from a UC Berkeley Chancellor's Grant, BEEP provided safety training and distributed 56 e-bikes to program recipients. Unlike other incentive programs that primarily seek to reduce the cost of e-bike ownership, BEEP employed a unique model that provided significant, ongoing support to participants throughout the one-year pilot (BEEP concluded in September 2024). Some program highlights include:
  - **134 Berkeley residents benefited** from the program including 114 residents using the e-bikes in the 56 BEEP households and 20 Waterside Workshops interns who assembled and maintained the e-bikes.

<sup>11</sup> City of Berkeley Electric Mobility Roadmap: <https://berkeleyca.gov/your-government/our-work/adopted-plans/berkeley-electric-mobility-roadmap>

- o E-bike access led to **transportation mode shifts** for the majority of BEEP participants. 77% reported a decrease in use of a car or motor vehicle and 51% reported a decrease in use of ride hailing (i.e., Lyft, Uber, etc.).
- o **69% of participants reported budget savings** on transportation costs. Participants saved an average of \$150 per year on fuel alone when replacing car miles with e-bike miles and avoided nearly \$900 in total car ownership costs on average.

*“I hope this pilot continues – to say it has been life changing to receive access to something I would not have been otherwise able to afford and that has been so transformative is an understatement.”* (LeeAnn, BEEP participant)

Please see the BEEP Final Report for more information<sup>12</sup>.



*“I now ride my e-bike. I even will take longer routes just to get more riding in and enjoy the outdoors.” – Sherry*



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

<sup>12</sup> City of Berkeley, Berkeley Electric Bike Equity Project Final Report: <https://berkeleyca.gov/sites/default/files/documents/BEEP%20Data%20Analysis%20Summary%20Report%20February%202025-reduced.pdf>

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

- **Electric Micromobility:** City Council adopted a resolution (2021) to establish a shared electric micromobility permit program for operators (currently Veoride and Lime) to provide Berkeley residents and visitors with sustainable commute options using electric scooters and e-bikes. To ensure equitable access to the electric scooters and e-bikes, at least 50% must be deployed in designated equity priority areas, and operators are required to provide both income-qualified programs and accessible options, such as sit scooters. In May 2023, the City approved two shared mobility operators to provide 400 stand-scooters and 400 seated-scooters in Berkeley.
  - In 2024 a total of 241,508 trips, representing 210,265 total miles, were ridden on shared electric scooters and bicycles, an increase of 8% more trips than in 2023.
  - Since the program launched in 2022 a total of 655,762 trips, representing 602,590 total miles, were taken on shared electric scooters and bicycles.
- **Electric Bicycle Share Expansion:** In 2025, through a partnership with the Metropolitan Transportation Commission (MTC), the Bay Wheels<sup>13</sup> bike share program (operated by Lyft) will be adding 221 e-bikes and 11 new docking stations to the existing fleet of 200 e-bikes in Berkeley. Supporting the City's transportation equity goals, the Bay Wheels Bike Share<sup>14</sup> for All program provides discounted memberships for income qualified residents.
- **Berkeley Pier-Ferry Project:** The City has been working with the Water Emergency Transportation Authority (WETA) on a plan to reconstruct the currently closed Berkeley Pier at the Berkeley Marina and add ferry service, specifically all-electric ferry service for travel between Berkeley and San Francisco. WETA has more than \$150 million in local, state and federal funding to begin working on their rapid-electric emission-free ferry program. Identification of more funds, needed for the pier-ferry construction phase, as well as public process and drafting of the CEQA document are planned for 2025.

**Achieve Zero Net Carbon** — *Eliminate emissions from private vehicles:*

- **Electric Vehicle Charging:** The City continues to promote the use of electric vehicles (EVs) and facilitate the installation of EV charging stations by offering streamlined permitting, educating property owners about EV charging and grant opportunities, and providing EV charging on municipal property. Based on field

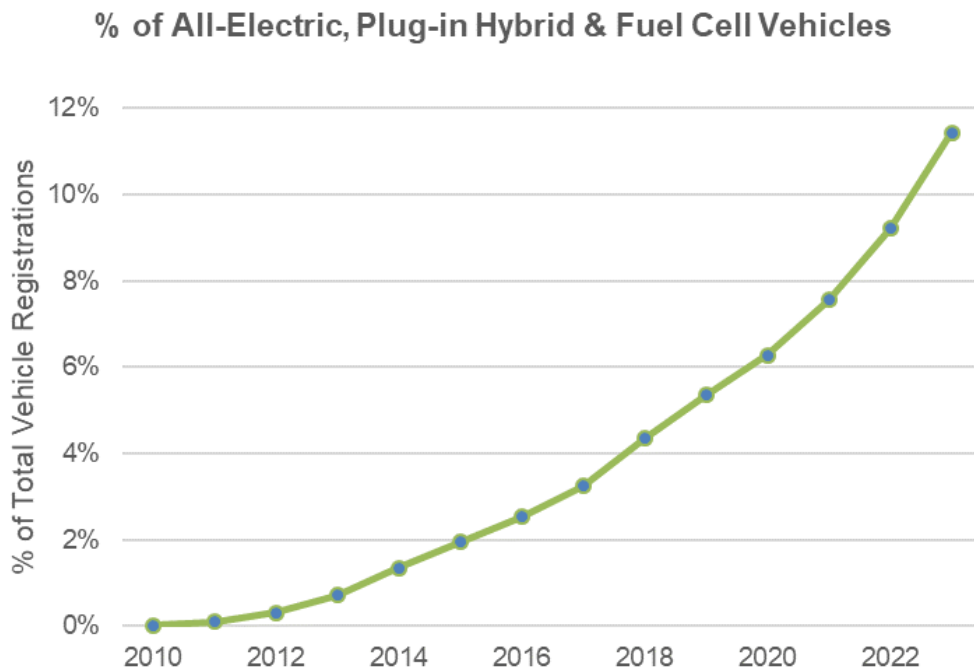
<sup>13</sup> Metropolitan Transportation Commission Bay Wheels: <https://mtc.ca.gov/operations/traveler-services/bay-wheels-bike-share-program>

<sup>14</sup> Lyft Bay Wheels Bikeshare for All: <https://www.lyft.com/bikes/bay-wheels/bike-share-for-all>

verification in October 2023, there are currently 129 publicly available EV charging ports in Berkeley (Level 2 and Direct Current Fast Chargers, or DCFC) in addition to at least 75 EV charging ports installed by businesses for their employees, or at multifamily apartment buildings. The City is partnering with Ava to develop public DCFC Hubs at two locations in Berkeley. In addition, local amendments to the 2022 CALGreen require levels of EV charging in new buildings in Berkeley which exceed state requirements.

- Clean Vehicle Adoption Rate:** Berkeley has a high all-electric and plug-in hybrid vehicle adoption rate. In 2023, 11.4% of all vehicles registered in Berkeley were all-electric, plug-in hybrid, and fuel cell vehicles compared to 5.2% statewide. See Figure 3 for a year-to-year comparison of Berkeley’s clean vehicle registrations.

**Figure 3: Clean Vehicle Adoption Rate by Year**



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

- Electrification of City Fleet:** Staff worked with Ava to conduct a municipal fleet electrification assessment, including a plan for EV deployment and associated charging infrastructure through 2030. The City is currently working to add EV charging for fleet vehicles at the Corporation Yard and has continued to increase

the number of EVs in the municipal fleet to meet City goals and comply with the State of California’s Advanced Clean Fleets regulation. As of March 5, 2025, the City’s municipal fleet has 578 total vehicles, including heavy equipment and bicycles, with these electric models:

Electric Vehicle Type	Number in Fleet
Sedan	34
Pickup Truck	10
SUV	8
Low-speed Utility Vehicle	5
Three-wheeled Scooter	2
Electric Bicycle	10
<b>Total</b>	<b>69</b>

Electric Equipment Type	Number in Fleet
Tractor	1
Forklift	1
Lift	2
Electric Harbor Boat	1
<b>Total</b>	<b>5</b>

**WASTE**



The City of Berkeley’s Public Works Zero Waste Division leads multiple cross-departmental efforts to reduce waste, increase recycling and composting, and support food recovery at City facilities and in the community. Highlights include:

**Zero Waste Strategic Plan**

The Zero Waste Strategic Plan, currently being finalized, will establish a framework and roadmap for reaching Berkeley’s goal of sending zero waste to landfills. It will provide recommendations for policies, programs, and infrastructure with an implementation timeline and estimated expenses.

This Plan will integrate with the Transfer Station Replacement. The two concepts in the Transfer Station Replacement Feasibility Study are currently being assessed for feasibility of construction while continuously operating the Transfer Station, including necessary CEQA review. Ultimately, the replacement facility will serve as a state-of-the-art zero waste facility to transfer garbage, sorted recyclables, compost, and other materials, to help achieve the City’s goal of zero landfilled waste.

**Senate Bill 1383**

California State Senate Bill 1383 (2016) is designed to reduce short-lived climate pollutants and requires 75% organic waste reduction by 2025 and a 20% increase in

recovery of edible food that is currently disposed by 2025. Local jurisdictions have significant, new requirements to implement additional waste reduction programs and enhanced reporting and enforcement protocols to comply with the state legislation. SB 1383 implementation started January 1, 2022. Key highlights include:

- Berkeley has 153 Edible Food Generators (i.e., restaurants and grocery stores) to donate excess edible food and eight food recovery organizations
- In 2023 (most recent available data), 425,286 pounds of edible food was recovered by food recovery organizations

### **Single Use Disposable (SUDs)**

The City's Single Use Foodware and Litter Reduction Ordinance, also known as SUDs, (Berkeley Municipal Code, Chapter 11.64) requires businesses selling prepared food for both on-site dining and take out to follow guidelines to reduce their usage of single-use disposables, including providing reusable foodware, color coded recycling and compost bins, and compostable take-out containers. Key highlights include:

- In fiscal year 2024, staff inspected 648 restaurants, and found that 175 or 27% were in compliance, providing reusables for on-site dining.
- The City is hosting three California Climate Action Corps fellows who are conducting outreach to local food-serving businesses, offering free technical assistance and up to \$300 to purchase reusable foodware containers or up to \$2,500 toward the rental or purchase of a dishwasher.

### **Construction & Demolition Debris Diversion**

The City requires all nonresidential construction projects and residential projects over a certain value to reuse or recycle construction and demolition debris at a rate that exceeds State requirements (Berkeley Municipal Code, Chapter 19.37). Through increased collaboration between Zero Waste and the Planning and Development Department, Zero Waste staff now participate in the New Construction Plan Check process to help architects and contractors understand and comply with Zero Waste requirements before breaking ground on new developments and renovations.

### **2025 and Beyond**

The Zero Waste Division is currently utilizing Cal Recycle grant funding, and seeking additional support through BayREN, to renovate the teaching kitchen at 1007 University (currently occupied by Berkeley Fire Department Emergency Medical Services) in order to increase capacity to recover and distribute excess food as well as provide shared capacity for dishwashing reusable foodware.

## COMMUNITY ENGAGEMENT



Community engagement and outreach, including programs, training and events, provides resources to residents, businesses and municipal employees to advance the City's climate and resilience goals. The City strives to engage a broad cross section of the community, and through equitable programs focuses on resilient communities who that have been marginalized and are most impacted by climate change. Various community engagement efforts are highlighted below.

### **Climate Equity Fund – Community Engagement**

Through the Council-funded Climate Equity Pilot (2021), the Ecology Center was awarded \$100,000 to develop and convene a Climate Equity Collaborative (CEC) of about a dozen community organizations serving Berkeley's marginalized communities. Working with the CEC partners, the Ecology Center provided climate change education at community events and distributed resilience measures such as Clipper cards, induction cooktops and air filters to income-qualified residents. The Ecology Center also provided stipends to community ambassadors to support program implementation. Work will conclude in 2025.



*Chef Camille demonstrating induction cooking at Climate Equity funded Healthy Black Families Induction Giveaway*

### California Climate Action Corps

The City is hosting four full-time California Climate Action Corps fellows for the 2024-25 program year, at no cost to the City. The California Climate Action Corps is an AmeriCorps program specifically focused on community engagement in the areas of urban greening, wildfire resilience, and organic waste and edible food recovery. One fellow is serving in the Urban Forestry Division to support tree planting efforts, with a focus on increasing tree canopy more equitably throughout the City. Three fellows are serving in the Zero Waste Division to support SB 1383 implementation, including training City staff on proper sorting, hosting information tables at community events, and conducting outreach to Berkeley restaurants to increase food waste collection and food recovery efforts. Additionally, the Zero Waste climate fellows are providing technical support to restaurants to ensure compliance with Berkeley's Single Use Disposables ordinance.

### East Bay Green Home Tours

Since 2021, the City has hosted virtual *East Bay Green Home Tours*<sup>15</sup> showcasing various efforts of local residents to save water and energy, increase resilience to drought and heat, electrify their appliances, and reduce the carbon footprint of their homes. Hundreds of people attend the event each year, and the online videos of the event continue to receive thousands of views. In 2024, in addition to a virtual tour, the event added in-person tours at 13 homes, with 853 home visits.

*"I loved being able to visit these homes and see what others have done to make their homes better. I learned a ton and was so inspired."* (2024 East Bay Green Home Tour attendee)



OECD staff greet visitors at a Berkeley home on the 2024 East Bay Green Home Tour



Berkeley Climate Action Coalition volunteer and OECD staff offer resources at the 2024 East Bay Green Home Tour

<sup>15</sup> East Bay Green Home Tour: <https://www.eastbaygreenhome.com/>

### Ride Electric

On October 19, 2024, OESD hosted the 7<sup>th</sup> Annual *Ride Electric* in conjunction with the City's Harvest Festival. The event offers electric bike and scooter test rides through the City's shared electric mobility providers and local bicycle retailers, a municipal fleet electric vehicle showcase, and multiple resources to income-qualified residents to help electrify their ride. Adaptive vehicles were added to the lineup this year.



*Families test riding electric bikes at Ride Electric*

### Business Outreach



The Office of Economic Development (OED) leads efforts to help businesses reduce their carbon footprint. Through its quarterly newsletters, presentations, one-to-one meetings with business owners, and outreach to local Business Districts, OED promotes grants, programs and other resources that help businesses upgrade their buildings, operate with environmental responsibility, and comply with City sustainability policies. OED also has a partnership with the

Alameda County Green Business program which has enrolled 141 Berkeley businesses in the program and has supported 79 Berkeley businesses to achieve the statewide recognized green business certification.

### Municipal Employee Sustainability & Zero Waste Training

Starting in 2024, OESD, in partnership with the Zero Waste Division, began delivering bi-weekly training to new employees presenting on Berkeley's climate and environmental leadership and resources to green the office. The training also includes an interactive activity to increase recycling and composting at City facilities. Additionally, staff delivered sustainability and zero waste trainings to current employees during staff meetings and special department events. As of February 2025, 712 employees have participated in these trainings.

### **Kala Art Institute Municipal Artist-In-Residence**

The Planning and Development Department participated in the Kala Art Institute’s Print Public Municipal Artist in Residence Program, an arts-integrated approach to urban planning and community activation. Through the program, artists worked with City departments as cultural strategists to help approach challenges such as climate justice and neighborhood revitalization in new ways that lift up voices that are less often heard. This past year, artist Cheryl Derricotte partnered on the Climate Equity Pilot and artist Marcel Pardo Ariza partnered on the San Pablo Area Plan. Their culminating art show, titled “Roadwork,” was on display at Kala from October 24, 2024 – February 14, 2025.



*Kala staff, City staff, and artists at “Roadwork” show by Cheryl Derricotte (third from left) and Marcel Pardo Ariza (fifth from left)*



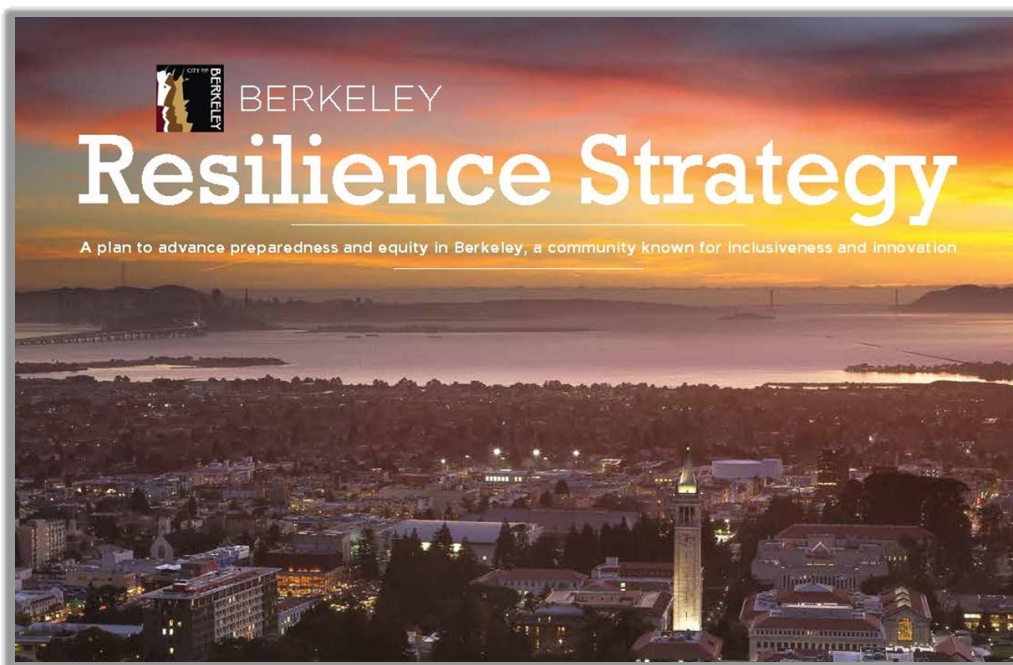
*Berkeley Electric Bike Equity Project (BEEP) participants engaging in Group Bookmaking Art with Cheryl Derricotte*

## ADAPTATION & RESILIENCE



The City strives to strengthen and prepare the community for shocks and stresses, including adapting to the impacts of climate change. The City's resilience efforts, as outlined in the 2016 Resilience Strategy, include the following goals:

1. Build a connected and prepared community
2. Accelerate access to reliable and clean energy
3. Adapt to the changing climate
4. Advance racial equity
5. Excel at working together within City government to better serve the community
6. Build regional resilience



Many City departments are coordinating and leading efforts to enhance resilience and help Berkeley adapt to a changing climate, including Planning, Public Works, Parks Recreation and Waterfront, Health, Housing and Community Services, and Fire. A summary of programs is provided below.

**Prepared, Safe and Healthy Berkeley Project**

The City of Berkeley received \$497,042 in funding from the State of California's Adaptation Planning Grant Program to help update the General Plan Disaster Preparedness & Safety Element, create a new Environmental Justice Element, and develop community-driven climate and resilience metrics. The Ecology Center, the City's community partner in this project, is leading equity-driven engagement with a Community Advisory Committee comprised of organizations serving resilient communities that have been marginalized and impacted first and hardest by climate change. In February 2024, the project team began hosting community events to gather input and ideas on how the City can create policies that better prepare Berkeley for natural disasters and climate change and reduce exposure to pollution. The outreach and development of these General Plan updates are anticipated to be completed in 2026.

**Local Hazard Mitigation Plan (LHMP)**

The Local Hazard Mitigation Plan (LHMP) is the main document that houses the City's climate adaptation work. The LHMP outlines the natural disasters and hazards that can occur in Berkeley and the actions the City is taking to reduce risk. It also lists actions that residents can take to reduce personal risk and help the City's collective mitigation efforts. The 2024 LHMP was approved by the California Office of Emergency Services and Federal Emergency Management Agency. The LHMP was presented to the City Council at the March 18, 2025 City Council meeting.

**Extreme Heat Planning**

An extreme heat day is when temperatures reach the 98th percentile of historic maximum temperature. In Berkeley, an extreme heat day is a day above 88.3 degrees Fahrenheit. The City developed extreme heat protocols for municipal response operations and a page on the City website dedicated to heat wave safety<sup>16</sup>. Staff continue to evaluate city infrastructure and community needs and are integrating best practices from other jurisdictions. The City is also participating in a regional group coordinated with UC Berkeley, the Berkeley Lab, and several Bay Area jurisdictions, to share and plan around extreme heat.

**Wildfire Smoke**

The Bay Area has experienced multiple days and periods of unhealthy air quality due to wildfire smoke in recent years. These events can coincide with heat waves, high fire risks, and/or Public Safety Power Shutoffs. To better address the threat of wildfire smoke, in 2019 the City of Berkeley participated in a grant led by Alameda County to create a communications protocol for responding to wildfire smoke and other air quality conditions. In addition, in 2023 the Office of Emergency Services secured 28 air cleaners from a Bay Area Air District grant. These air cleaners were distributed to public

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<sup>16</sup> City of Berkeley Heat Wave Safety: <https://berkeleyca.gov/safety-health/disaster-preparedness/heat-wave-safety>

facing sites including libraries and community centers for use when air quality is poor. The City is also working to advance emergency and resilience planning for extreme heat and high air quality index (AQI) events, including coordination with cities around North America, and local collaboration and outreach with community partners serving communities who have been marginalized.

### **Sea Level Rise**

In 2019 the City initiated the Waterfront Specific Plan project to develop a long-term vision for achieving a financially self-sustainable publicly owned Waterfront. The team conducted an extensive community outreach process and a draft Sea Level Rise Study for the Berkeley Waterfront. Preliminary findings indicate that three locations at the Berkeley Waterfront may experience periodic flooding by 2050 during a 100-year storm and King tide.

### **Groundwater Rise**

Shallow groundwater in coastal communities will rise as sea levels rise, increasing the risk of flooding communities from below. The City participated in a project funded by a 2020–2022 California Resilience Challenge grant, led by the San Francisco Estuary Institute Aquatic Science Center. The final report<sup>17</sup> provides groundwater mapping for existing and future conditions, suggestions on how to use this dataset for planning purposes, recommendations for additional modeling and assessments, and potential next steps. The City built upon this work by evaluating the impact of shallow groundwater rise and sea level rise on toxic materials stored underground, through an analysis conducted as part of the Prepared, Safe & Healthy Berkeley Project.

### **Tree Canopy Equity**

The City of Berkeley has a vibrant urban forest made up of approximately 38,000 street, park and median trees, managed and maintained by the Urban Forestry Division of the Parks, Recreation & Waterfront Department. Current tree inventories and canopy coverage data illustrate fewer trees are located in the West and South Berkeley, neighborhoods which also have higher populations of lower-income and historically marginalized communities. To address tree equity, over 1,000 trees were planted in Aquatic Park in 2024. In addition, the City plans to plant another 1,000 trees in West and South Berkeley neighborhoods over the next year. Funds have been secured through the California Natural Resources Agency's Urban Greening Grant (\$726,000) and an Environmental Enhancement and Mitigation Grant (\$576,000).

In addition, the City was awarded a federal Urban and Community Forestry grant from the Inflation Reduction Act for \$1,000,000 to hire staff and continue tree planting work over the next three years. This project aims to eliminate the past barriers to growing new street trees by promoting tree planting opportunities, engaging with communities

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<sup>17</sup> San Francisco Estuary Institute: Shallow Groundwater Response to Sea Level Rise: <https://www.sfei.org/projects/shallow-groundwater-response-sea-level-rise>

and gathering specific tree planting requests in areas with low tree counts, purchasing and planting drought tolerant trees and then providing the three years of watering investment to establish these trees. These new trees will help to provide shade, cooling, storm water benefits, and beautification in neighborhoods that have been historically underserved.

**Pollinator Gardens**

Pollinator gardens support bees and other insects and provide habitat and food for birds, reptiles and amphibians. Pollinator gardens also conserve water and sequester carbon from the atmosphere, while providing access to natural spaces in urban environments. Since 2020 several Berkeley parks and medians have been renovated in collaboration with the community to create space for native pollinator gardens and corridors. Pollinator gardens have been installed in the following locations:

- Cesar Chavez Park
- Charlie Dorr Mini Park
- Cragmont Park
- George Florence Park
- Haskell Mable Park
- James Kenney Park (2)
- John Hinkle Park
- King School Park
- Ohlone Park
- Prince Street Mini Park
- Remillard Park
- Strawberry Creek Park
- 63<sup>rd</sup> St Community Garden
- University Ave & Marina Blvd roundabout
- Berkeley Marina Sportsman Bait Shop (225 University) planter beds



*Volunteers installing the pollinator garden at San Pablo Park in 2021*



*Thriving pollinator garden at San Pablo Park today*

Below is a list of recent pollinator garden installations:

- Grove Park Pollinator Garden (2024)
- Grove Park Collaborative Garden (Food, Faith, & Justice, McGee Baptist Church) (2024)

- Aquatic Park: 8,413 new native plants and grasses installed on Bolivar Dr. between Addison and Bancroft (2024)
- University Avenue median: added 76 new native plants and grasses to replace contractor damage and beautify new *Berkeley Waterfront* median sign (2025)

### **Bay Area Climate Adaptation Network (BayCAN)**

Berkeley is a founding member and participates in the Executive Committee of the Bay Area Climate Adaptation Network (BayCAN), a network of local government staff helping coordinate an effective and equitable response to the impacts of climate change. BayCAN works to share best practices, develop opportunities for collaboration and program implementation, and secure funding and resources for equitable climate adaptation.

### **BACKGROUND**

The City of Berkeley is a long-time climate leader. Berkeley was one of the first cities to adopt a Climate Action Plan (2009), followed by the Resilience Strategy (2016) to advance preparedness and equity to adapt to a changing climate.

In recognition of the climate crisis, the City adopted additional climate goals to bolster the Climate Action Plan target of reducing greenhouse gas emissions 80% below 2000 levels by 2050. Berkeley's recent goals include:

- **Fossil Fuel Free Berkeley (2018):** City Council adopted a Climate Emergency Declaration and a goal of becoming a Fossil Fuel Free City
- **Race to Zero (2021):** City Council adopted a resolution for the Cities Race to Zero Campaign to establish a 2030 emission reduction target that reflects Berkeley's fair share of the 50% global reduction in carbon dioxide equivalent CO<sub>2</sub>e, committing to reduce emissions 60.5% from 2018 levels by 2030. This resolution also committed Berkeley to achieving zero net carbon emissions by 2045.

### **ENVIRONMENTAL SUSTAINABILITY AND CLIMATE IMPACTS**

The City's Climate Action Plan, Resilience Strategy, Local Hazard Mitigation Plan, and Strategic Plan all contribute to advancing the community towards a clean and resilient energy future that successfully meets Berkeley's climate goals. The City is actively working to advance a just transition to becoming a fossil fuel free City, through projects such as the \$1.5 million Just Transition Pilot Program and the Bay Area High Road Training Partnership.

### **POSSIBLE FUTURE ACTION**

This report provides the City Council an overview of climate implementation efforts across multiple City departments and highlights projects that are in collaboration with the community, and an update on GHG emission trends. The Climate Equity Fund and

Just Transition Program are examples of pilot programs that could be expanded, with additional funding, to increase equitable GHG emissions reductions. In the face of federal uncertainties, some funded programs, such as BESO's Building Performance Standards Large Building Program, may need new sources of support.

#### FISCAL IMPACTS OF POSSIBLE FUTURE ACTION

Mitigation of Berkeley's GHG emissions and adapting to the impacts of climate change are interrelated. Current investment to reduce community-wide emissions and enhance equitable climate adaptation and resilience, such as the Climate Equity Fund Pilot projects and the Just Transition Pilot, will help reduce the costs of addressing the impacts of climate change in the future.

Staff are closely monitoring the applicability and availability of regional, state, federal, and foundation funding to support the transition away from fossil fuels and other opportunities to advance clean energy and climate resilience goals. However, while Berkeley does have communities who have been marginalized, the City often does not qualify for state and federal funding that prioritizes disproportionately burdened communities as defined by CalEnviroScreen.<sup>18</sup> Moreover, the federal administration is freezing clean energy, equity, and climate related funding and programs, placing the onus of funding on municipalities and regional agencies. Continued advancement to meet climate goals will require additional resources to fund projects and programs, particularly for low income and other marginalized communities.

#### CONTACT PERSON

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Attachment:

1: Berkeley Greenhouse Gas Inventory (2022 and 2023)

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<sup>18</sup> CalEnviroScreen 4.0: <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>

## ATTACHMENT 1: BERKELEY GREENHOUSE GAS INVENTORY (2022 and 2023)

Based on the best currently available data from 2023, the Berkeley community has reduced overall greenhouse gas (GHG) emissions by 41% since 2000. There are three important considerations:

- Berkeley's emission reduction and fossil fuel free goals were set in the context of a growing population, so the 2023 emissions reductions were achieved with a 16% increase in population from the 2000 baseline.
- UC Berkeley and the Berkeley Lab are not included in Berkeley's GHG emissions inventory because their campuses are outside of the City's jurisdiction. However, both institutions track their own emissions reduction goals and are engaged community partners in addressing climate change. Learn more about these efforts online.<sup>19</sup>
- The transportation emissions methodology changed starting in 2018. Prior to 2018, the Bay Area's Metropolitan Transportation Commission (MTC), Travel Model One, was used to calculate transportation sector emissions; but that model could not account for changes to yearly commuting patterns or impacts from events like the COVID-19 pandemic. Starting in 2018, transportation data emissions are calculated through Google's Environmental Insights Explorer (EIE) which estimates vehicle miles based on aggregated and anonymized location history data.

To note, the last greenhouse gas inventory reported to Council in 2023 utilized Google EIE data and used national data to estimate the total miles traveled and fuel efficiency by each fuel category (gasoline, diesel, electricity, etc.). This year, staff was able to use local data for Alameda County for the fuel category breakdown. Alameda County data can account for local fuel efficiencies and electric vehicle adoption rates which are above the national average. Due to the change to local data for the fuel category breakdown, the updated emissions inventories for 2018-2021 are lower than what was reported to Council in 2023.

Since the last update to Council in 2023, staff completed the 2022 and 2023 greenhouse gas inventories. Berkeley's community-wide GHG emissions totaled 455,412 metric tons of carbon dioxide equivalent (mtCO<sub>2</sub>e) in 2022 and 432,806 mtCO<sub>2</sub>e in 2023.

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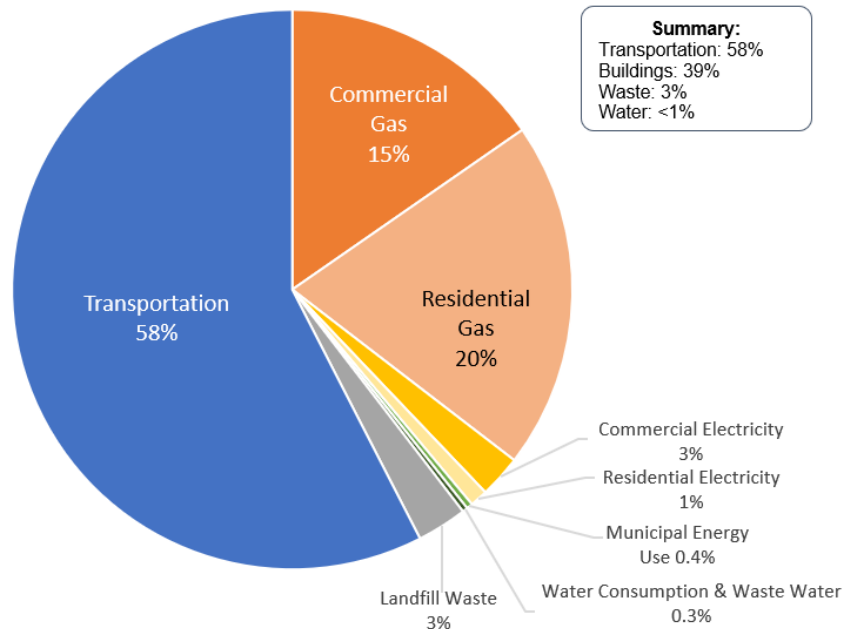
<sup>19</sup> UC Berkeley 2024 Sustainability Report <https://sustainabilityreport.ucop.edu/2024/locations/uc-berkeley/> and the Berkeley Lab 2024 Sustainability Report <https://sustainabilityreport.ucop.edu/2024/locations/lawrence-berkeley-national-lab/>

**Figure 1** is a pie chart of the 2023 community-wide GHG emissions inventory broken down by sector and fuel. The majority of Berkeley’s GHG emissions continue to come from the transportation and building sectors.

The transportation sector was the largest source of 2023 GHG emissions, accounting for 58% (249,028 mtCO<sub>2</sub>e)<sup>20</sup> and includes vehicles, BART, AC Transit, Amtrak and maritime vessels. The building sector was the second largest source of emissions in 2023 and accounted for 39% (168,453 mtCO<sub>2</sub>e)<sup>21</sup> of community-wide emissions. Energy usage data for Berkeley buildings, provided by Ava and PG&E, is broken down into residential and commercial (including industrial) buildings — for both electricity use and natural gas (gas) combustion.

Emissions from municipal energy use accounts for 0.4% (1,516 mtCO<sub>2</sub>e)<sup>22</sup> of the 2023 community-wide GHG emissions. Municipal energy consumption includes city buildings and other uses like streetlights and traffic signals. The remaining 3% (13,808 mtCO<sub>2</sub>e)<sup>23</sup> of Berkeley’s community-wide GHG emissions come from landfilled solid waste, water consumption, and wastewater treatment.

**Figure 1: 2023 Berkeley GHG Emissions Inventory, by Sector and Fuel**



<sup>20</sup> The transportation sector accounted for 55% (252,377 mtCO<sub>2</sub>e) in 2022

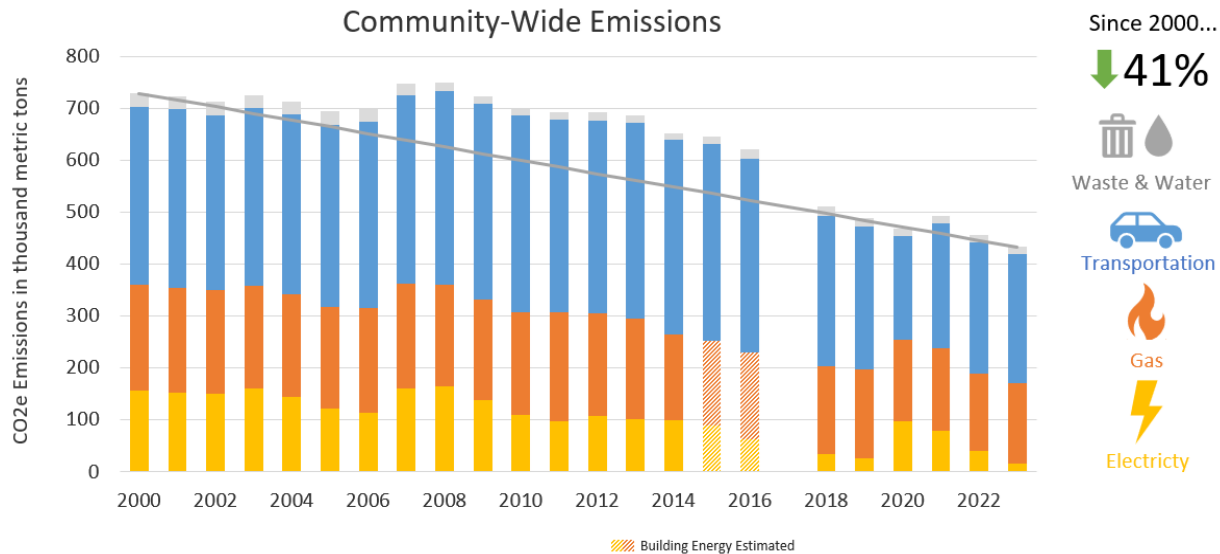
<sup>21</sup> The building sector accounted for 41% (187,662 mtCO<sub>2</sub>e) in 2022.

<sup>22</sup> Emissions from municipal energy use accounted for 0.3% (1,293 mtCO<sub>2</sub>e) in 2022.

<sup>23</sup> Landfilled solid waste, water consumption, and wastewater treatment accounted for 3% (14,080 mtCO<sub>2</sub>e) in 2022.

To identify and quantify reductions achieved, the most current community emissions from 2023 are compared to the Climate Action Plan (CAP) baseline year of 2000. A historic summary of Berkeley’s annual emissions inventories from 2000 to 2023 is provided in **Figure 2<sup>24</sup>**.

**Figure 2: Berkeley GHG Emissions Inventories including Sectors (2000-2023)**



Community-wide GHG emissions in 2023 decreased 41% from the 2000 baseline. As mentioned, due to the change in methodology in calculating transportation sector emissions there is a significant drop in emissions in 2018. From 2018 to 2023, community-wide emissions decreased by 15%. Berkeley’s original CAP goal of reducing GHG emissions by 80% from 2000 levels by 2050 was superseded by a commitment by the Berkeley City Council on May 11, 2021, to become net zero carbon emissions by 2045 or sooner, requiring an additional 59% reduction of GHG emissions over the next 20 years.

### Building Sector Emissions

Overall GHG emissions from Berkeley’s building sector decreased by 10% from 2022 to 2023 and are 53% below 2000 levels. Total community-wide electricity usage has decreased by 36% since 2000. Total community-wide natural gas usage decreased by 6% from 2021 to 2022 and increased by 4% from 2022 to 2023. Community-wide natural gas usage remains 24% below 2000 levels.

<sup>24</sup> Due to data access issues, the City was not provided with energy use data in 2015 and 2016, so building energy usage was estimated using assumptions and is represented with shaded coloring. No inventory was calculated for 2017, so that year of data is omitted.

### Impacts to Berkeley's Building sector emissions:

- **Transition to Ava Renewable 100** – Starting in 2022, all Berkeley customers were automatically opted-up into Ava's Renewable 100. This transition yielded a 62% decrease in emissions from city-wide electricity usage in 2023 from 2022 as many residents and businesses transitioned to Ava's Renewable 100 plan.
- **Ava Bright Choice Electricity Emission Factor** – The emission factor for Ava's default electricity product, Bright Choice, remains significantly higher than PG&E's base product, but has decreased 37% since 2020. The Bright Choice product accounts for 12% of Berkeley's 2023 community-wide electricity consumption. Ava is committed to providing 100% emissions-free Bright Choice by 2030.

### Transportation Sector Emissions

Overall GHG emissions from Berkeley's transportation decreased 14% from 2018, the most recent GHG inventory using the new methodology for on-road vehicles. Emissions from on-road vehicles are calculated using total miles traveled provided by Google Environmental Insights Explorer<sup>25</sup>. While total miles traveled by on-road vehicles decreased by approximately 37 million miles (roughly 6%) in 2023 compared to 2018, emissions from on-road vehicles decreased by approximately 40,000 metric tons of CO<sub>2</sub>e (roughly 14%). The decrease in emissions outpaced the reduction in miles traveled due to the increase of plug-in hybrid and electric vehicles.

### Landfill Solid Waste Emissions

Total community-wide landfill solid waste and overall emissions from the waste sector decreased by 2% in 2023 compared to 2022, placing current waste sector emissions 47% below the 2000 baseline.

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<sup>25</sup> Google Environmental Insights Explorer: <https://insights.sustainability.google/>

