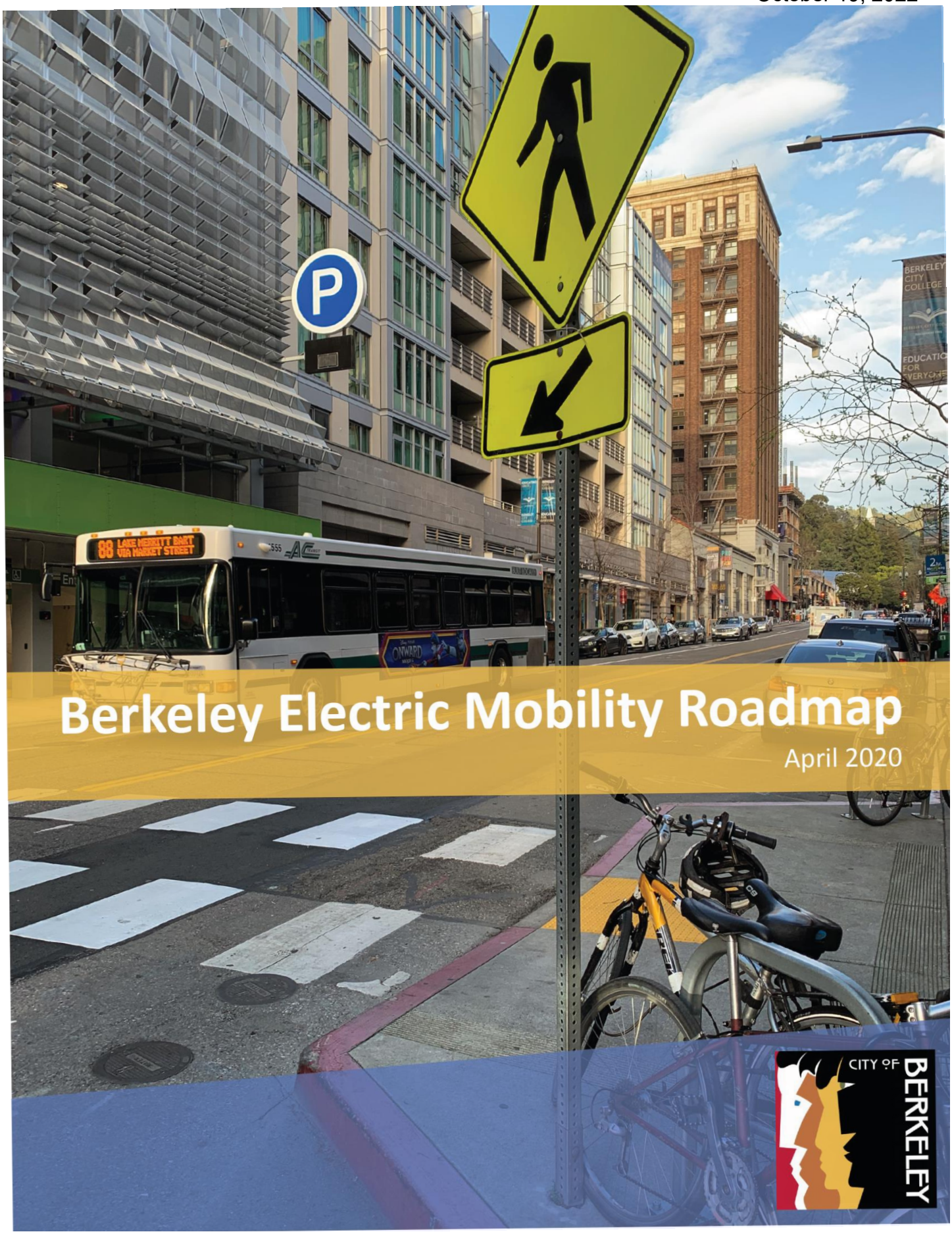


# Berkeley Electric Mobility Roadmap

April 2020

CITY OF BERKELEY


## Executive Summary

The City of Berkeley has a strong history of sustainability leadership. In 2006, Berkeley voters overwhelmingly endorsed a ballot measure to reduce the community's greenhouse gas emissions by 80% below 2000 levels by 2050. In 2018, Berkeley City Council signaled the urgency and importance of climate action by declaring a Climate Emergency and the goal of becoming a Fossil Fuel Free City as soon as possible. Also in 2018, Governor Brown signed Executive Order B-55-18, committing California to carbon neutrality by 2045.

With transportation responsible for 60% of Berkeley's greenhouse gas emissions, carbon neutrality cannot be achieved without electric mobility. Cleaner electricity, now available through East Bay Community Energy, and State and local commitments to 100% renewable electricity by 2045, give electrification tremendous promise. The Berkeley Electric Mobility Roadmap is an essential building block of Berkeley's overall climate strategy.

This effort will not be easy. Transportation was the only sector in which Berkeley's emissions rose between 2000 and 2016. Furthermore, because high-quality transportation options are critical to residents' livelihood and well-being, this Roadmap must also equitably support access to opportunity. This Roadmap focuses on the movement of people, rather than freight. In doing so, it supports alternatives to driving, such as walking, biking, and quality public transit for all stakeholders.

This Roadmap centers equity by acknowledging and addressing the inequalities of our current transportation system. Early engagement of community-based organizations and nonprofits helped to identify important mobility gaps for low-income constituents, renters, communities of color, people with disabilities, and other priority stakeholders. Equity was used as a lens through which all proposed strategies were filtered.

The guiding vision established for the Electric Mobility Roadmap **is to create a fossil fuel-free transportation system that integrates with and supports the City's ongoing efforts to increase walking, biking, and public transportation use in Berkeley, and ensures equitable and affordable access to the benefits of clean transportation.** The following goals were identified to guide the creation and implementation of the Roadmap to achieve Berkeley's vision for inclusive electric mobility:

1. **Ensure Equity in Access to Electric Mobility:** ***Maximize Electric Mobility Benefits in Underserved Communities***: The City is committed to equity in electric mobility, both in the process of developing the Roadmap as well as in implementing equitable solutions that are meaningful and measurable,

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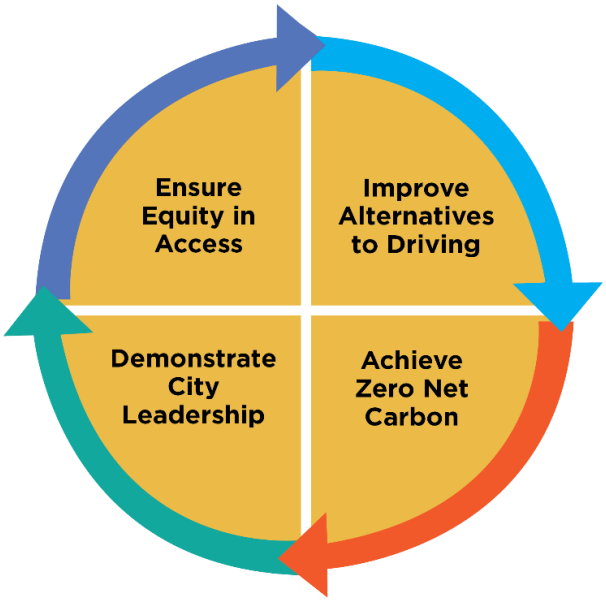
and that ensure the clean air and economic benefits of a transition to electric mobility are inclusive and accessible to underserved communities and businesses.

2. **Improve Alternatives to Driving:** ***Shift trips to walking, cycling, and shared electric modes***: A key goal of this Roadmap is to complement Berkeley's efforts to shift trips to walking, biking, and shared modes to reduce congestion, improve quality of life, and support healthier outcomes from increased physical activity and reduced transportation pollution. The Roadmap focuses on increasing the accessibility of active and shared electric mobility options in Berkeley, particularly as the population continues to grow.
3. **Achieve Zero Net Carbon Emissions:** ***Eliminate emissions from private vehicles:*** Clean, safe, and attractive alternatives to driving are critical; in addition, the remaining vehicles must become carbon-free. This Roadmap goal is to scale adoption of light-duty electric vehicles (EVs) in Berkeley to a level that will enable the City to reach carbon neutrality by 2045, if not before. The City and its stakeholders envision increasing awareness and education about EVs, increasing access to EV charging options, and increasing the amount of clean energy to power EVs.
4. **Demonstrate City Leadership:** ***Lead by example and guide the electric mobility transition:*** The City aims to lead by example by accelerating electrification of the city fleet, and by taking tangible, meaningful, city-led actions to increase equitable electric mobility. Additionally, the City will guide implementation of the Roadmap, and will continue adjusting the plan as transportation trends and market conditions evolve.




While the vision and goals of this Roadmap are ambitious, the City has already shown leadership in electric mobility adoption. In 2017, Berkeley had the seventh highest EV sales share of cities in California (16%), and by mid-2019 had 105 publicly listed EV charging ports. In addition, a variety of other electric mobility options are becoming available to the Berkeley community, including eight new electric school buses, several hydrogen fuel cell and battery-electric buses for AC Transit, Bay Wheels' shared pedal assist e-bikes, and an anticipated electric scooter pilot. The Roadmap builds on a strong record of action at the City level as well as on available programs, policies, and regulations to support electric mobility at the state, region, and utility


scales. In the past several years, the City has installed over 70 public EV charging ports, streamlined permitting for home EV charging, increased requirements for EV readiness in new construction, implemented a residential curbside EV charging pilot, conducted electric mobility outreach through the City's website, and hosted annual Ride Electric events and EV 101 workshops.

Even with this progress, the urgency of the climate crisis necessitates a rapid increase in electric mobility adoption. To reach zero net carbon by 2045, scenario modeling conducted for the Roadmap indicates that EV sales shares would need to reach about 90% by 2025 and nearly 100% by 2030 (up from 16% in 2017). This translates to EVs being approximately 25% of the community-wide in-use fleet by 2025, 55% by 2030, and 100% by 2045.

Achieving the ambitious goals set forth in this Roadmap requires electric mobility options to become ubiquitous and well-utilized, with benefits that are broadly shared. The Roadmap explores solutions to the key barriers to adoption of electric mobility, including cost and financial access, education and awareness, access to EV charging, physical challenges and disabilities, and technology access. These barriers must also be viewed within the broader context of regional and systemic challenges that have led to unreliable transportation options and longer commutes, particularly for low-income communities and communities of color, due to displacement and the increasing cost of living. Stakeholders highlighted how these communities often face compounded challenges due to the intersection of poverty, race, and disability, which underscores the need for an integrated approach to provide access to clean, affordable, reliable transportation.

The Roadmap's goals, indicators and targets, and strategies are the culmination of a 15-month process of engaging residents and stakeholders, analyzing existing and future mobility options (including the EV market), assessing barriers, and collaboratively crafting appropriate solutions. The resulting strategies are summarized in the table below, and are described in greater detail in the Roadmap. For each strategy, the Roadmap includes actionable steps, lead departments and partners, timelines, and approximate costs. Over the next five to ten years, the City and its stakeholders will collaborate to implement these strategies, monitor progress, and adjust course as needed.

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| Goals | Key Indicators and Targets | Strategies |
|---|---|---|
| **Ensure Equity in Access to Electric Mobility:** Maximize electric mobility benefits in underserved communities | ✓ **Increase access to mobility**<br>✓ **Reduce air pollution**<br>✓ **Increase economic opportunity** | 1: Community Driven Equity Pilot Projects |
| | | 2: One Stop Shop for Electric Mobility |
| | | 3: Digital and Financial Access to Transit and Shared Mobility |
| | | 4: Accessible Electric Mobility |
| | | 5: Equitable Workforce and Business Strategies |
| | | 6: Electric Bus Rapid Transit Routes |
| **Improve Alternatives to Driving:** Shift trips to walking, biking, and shared electric modes | ✓ **Increase non-auto mode share**<br>✓ **Increase access to electric mobility options** | 1: Access and Use of Shared Mobility and Transit |
| | | 2: Electrification of Shared Transportation Fleets |
| | | 3: Shared Electric Mobility Hubs |
| **Achieve Zero Net Carbon:** Eliminate emissions from private vehicles | ✓ **Increase electric vehicle adoption**<br>✓ **Expand public and workplace EV charging**<br>✓ **Increase electric mobility awareness and education** | 1: EV Charging in New and Existing Buildings |
| | | 2: EV Charging Permitting |
| | | 3: Public EV Charging on City Property |
| | | 4: Private EV Charging Site Hosts |
| | | 5: Electric Mobility Education and Outreach |
| | | 6: Smart, Resilient, Clean, and Affordable EV Charging |
| | | 7: Electrification of Private Fleets |
| | | 8: Disincentivize Fossil Fuel Vehicles without Creating New Inequities |
| **Demonstrate City Leadership:** Lead by example and guide the electric mobility transition | ✓ **Increase electric vehicles in the City fleet**<br>✓ **Increase capacity for electric mobility** | 1: City Fleet Electrification Plan |
| | | 2: Electric Mobility Charging Management |
| | | 3: Electric Mobility Planning Integration with Streetscape & Construction Projects |
| | | 4: Local Innovation to Support Electric Mobility |
| | | 5: Electric Mobility Roadmap Implementation Working Group |
| | | 6: Funding for Roadmap Implementation |