



City of Cambridge

Executive Department

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CMA 2025 #249
IN CITY COUNCIL
October 6, 2025

To the Honorable, the City Council:

Please find attached the Zero Emissions Transportation Plan from Director of Environment and Transportation Susanne Rasmussen, Mobility Strategy Manager Stephanie Groll, and Community Engagement Manager Marlees West Owayda.

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Cambridge Zero Emissions Transportation Plan

City of Cambridge

2025



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<https://www.cambridgema.gov/Departments/communitydevelopment/netzero-transportationplan>

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Executive Summary

Why a Zero Emissions Transportation Plan, and Why Now?¹

The climate crisis, with impacts such as extreme heat, worse air quality, and more frequent weather emergencies, is already reshaping life in Cambridge and around the globe. In response, the City of Cambridge has committed to achieving net zero greenhouse gas (GHG) emissions by 2050. Net Zero² refers to the balance between the amount of greenhouse gas that's produced and the amount that's removed from the atmosphere. Transportation contributes a significant portion of Cambridge's emissions, with 94% coming from private on-road vehicles.³ The intent of the Zero Emission Transportation Plan (ZETP) is not only to make it so that no climate pollution coming from transportation goes into the air in Cambridge, but also to create a more accessible and equitable transportation system that makes traveling around the city work better.

To meet our climate commitment, we need to act now. The history of how transportation and city-planning decisions have worked in the city is important to consider as we work towards these outcomes. Policy-driven housing discrimination in Cambridge created inequities that were deepened by planning decisions over generations. The result was unequal advantages across communities, which created an uneven landscape for implementing change. These inequities will make the transition to zero emissions easier for some residents than others. Acknowledging this context is essential as Cambridge works toward realizing a zero-emissions transportation system that serves everyone.

Four key goals guided the Zero Emissions Transportation Plan:

- Remove climate pollution from transportation
- Make moving around Cambridge more accessible, safe, and enjoyable
- Improve economic opportunity and address historic injustices
- Create a stronger and more connected community

1. The Cambridge "Zero Emissions Transportation Plan" was originally called the "Net Zero Transportation Plan" while it was in development. Staff changed the name after community members asked for a clearer term than "Net Zero."

2. For more information on what it means to be "net zero," visit <https://www.nationalgrid.com/stories/energy-explained/what-is-net-zero>.

3. See page 27 of the 2019 Cambridge Community GHG Inventory: https://www.cambridgema.gov/-/media/Files/CDD/Climate/ghginventory/2019cambridgecommunitywideghginventory_summaryreport.pdf

How We Made the Plan

A key goal of the Zero Emissions Transportation Plan process was to develop and test new and more inclusive ways of engaging in planning with Cambridge communities. We aimed to include many voices—especially those who have been underheard, underserved, and excluded in the past. We identified an additional 3 priorities: build deep and lasting City-community relationships, foster community trust in City planning, and facilitate ongoing engagement.

Working with an Advisory Group and drawing on input from the wider community, City staff developed a long list of potential actions that could advance the goals of the Plan. This work was further shaped by engagement with residents across the city through more than 50 public events, focus groups, community and city advisory committee meetings, and one-on-one conversations. Frequent community input guided how potential actions were refined and which ideas were included, adapted, or removed from consideration.

In parallel, City staff worked with technical consultants to develop a baseline estimate of greenhouse gas emissions from transportation in Cambridge and a technical model to quantify the impact of potential actions. This baseline was used to calculate the amount of emissions that the Plan would need to eliminate, after accounting for reductions in ongoing and projected transportation emissions between now and 2050, and to look at how proposed actions would reduce emissions in the future.

What We Learned

- People want to make a change, but they need support to do so.
- People want to know that the City hears their mobility concerns and is doing something to address them.
- “Don’t punish me for owning and using a car—make it easier for me not to.”
- Pricing actions, such as making it more expensive to own or park a car, feel punitive and inherently inequitable.
- We need to do a better job communicating about the changes that are coming.
- Seniors and people with disabilities, in particular, need a reliable, convenient, and dignified way to get around, even when their best option is not a car.
- Electric vehicles (EVs) and charging need to be more affordable, accessible, and approachable. At the same time, EVs are only part of the solution, because they create as many traffic and safety concerns as gas cars.
- Housing needs to be more affordable to allow people to live closer and have easy access to the places they go to regularly.
- Those who are responsible for creating more emissions should have more responsibility for reducing them.
- Not all actions have to be for all people.

What is in the Plan?

The Plan describes and recommends actions in six categories:

1. **Community engagement:** Engaging people equitably to improve their transportation experience
2. **Buses and shuttles:** Improving bus and shuttle service
3. **Bike, walk, and micromobility:** Making it accessible, safe, and enjoyable for people to walk, bike, and take a scooter
4. **Reducing car trips:** Giving people more travel choices to reduce the need to drive
5. **Reducing car ownership:** Making it easier to not own a car
6. **Electric vehicles:** Encouraging a shift to electric vehicles

The City has prioritized a set of near-term actions based on their impact, feasibility, cost, and alignment with community input. These include:

- Provide a high degree of City support to help residents navigate transportation changes, and access transportation options and discounts
- Enable better bus frequency and reliability by installing bus priority projects on important routes
- Improve access to bikes through support for community groups and improvements to the Bluebikes system
- Increase availability of publicly accessible charging and fast charging for electric vehicles, e-bikes, and e-scooters

What Comes Next?

Cambridge's next step is the development of a Cambridge Access and Mobility Plan—a city-wide transportation planning process launching in 2025. This plan will build on the ZETP's foundation, further integrating land use, safety, accessibility, and sustainability to create a transportation system that meets the needs of Cambridge residents—now and in the future.

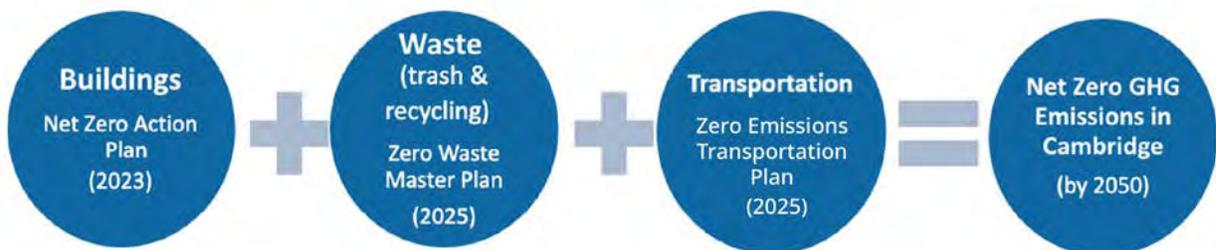
Introduction

Transportation is the Last Piece of Our Climate Strategy to Address Greenhouse Gas Emissions

Climate change impacts are already creating critical challenges for individuals and communities, and for governments' response in Cambridge and beyond. These impacts will become much more severe if emissions are not reduced. For example, some major impacts in Massachusetts include:

- Extreme heat / worse air quality (leading to learning loss, more childhood asthma, death)
- Worse weather emergencies (from floods, dangerous storms, sea-level rise)
- More economic struggles (increased demand for public services, like emergency response, food assistance, health insurance)

To address Cambridge's contribution to climate change, the City Council has committed to an ambitious climate agenda, including the use of 100% renewable energy by 2035 and achieving net zero emissions by 2050. Net Zero⁴ refers to the balance between the amount of greenhouse gas that's produced and the amount that's removed from the atmosphere. The City of Cambridge estimated how many emissions we have in Cambridge, most recently in 2019⁵, and there are plans to address emissions through the Net Zero Action Plan for buildings and the Zero Waste Master Plan. However, transportation accounts for an important share of the city's greenhouse gas (GHG) emissions and the Zero Emission Transportation Plan is the last piece of the City's strategy to achieve net zero emissions by 2050.



4. For more information on what it means to be “net zero,” visit <https://www.nationalgrid.com/stories/energy-explained/what-is-net-zero>.

5. A 2024 update to the community Inventory of greenhouse gas emissions will be available at the end of 2025.

Why Did We Make the Zero Emissions Transportation Plan?

The intent of the Zero Emissions Transportation Plan is not only to eliminate transportation-related emissions in Cambridge, but also to create a more accessible and equitable transportation system that makes traveling around the city work better for all residents.

The history of how transportation and planning have worked in the city is important to consider as we work towards these outcomes. Housing discrimination⁶ in Cambridge created inequities that were deepened by subsequent planning decisions over generations, resulting in uneven economic and social advantages across communities. Disparities in the distribution of public resources have also created an uneven landscape for implementing change. As a result of these inequities, the transition to “zero emissions”—meaning no climate pollution coming from transportation that goes into the air—will be easier for some residents than others, depending on the advantages they've accumulated over time. Addressing this is essential as Cambridge works toward realizing a zero emission transportation system that serves everyone in Cambridge.

Given this context, four key goals guided the Zero Emission Transportation Plan:

- **Remove climate pollution from transportation**
- **Make moving around Cambridge more accessible, safe, and enjoyable**
- **Improve economic opportunity and address historic injustices**
- **Create a stronger and more connected community**

The first two are longstanding goals the City has worked to achieve over the past 35 years. The second two are also City goals, but are now addressed together with transportation actions in this plan. This Plan documents the City’s commitment both to remove climate pollution from transportation in Cambridge and to create a better, more equitable transportation system for everyone in the city. The Plan will inform citywide transportation policies.

6. For example, redlining was a racist practice of denying loans and discouraging investment in majority black and immigrant neighborhoods throughout the United States. Highway expansion in the mid-1900’s resulted in the destruction and displacement of many dense, thriving, black and immigrant neighborhoods – often the ones that had been redlined. The proposed inner-belt highway lines up exactly with the map of redlining in Cambridge, but was stopped by community members who worked together to fight it. However, a truck route still goes through the Coast, exposing neighbors to more noise and pollution than areas without a designated truck route.

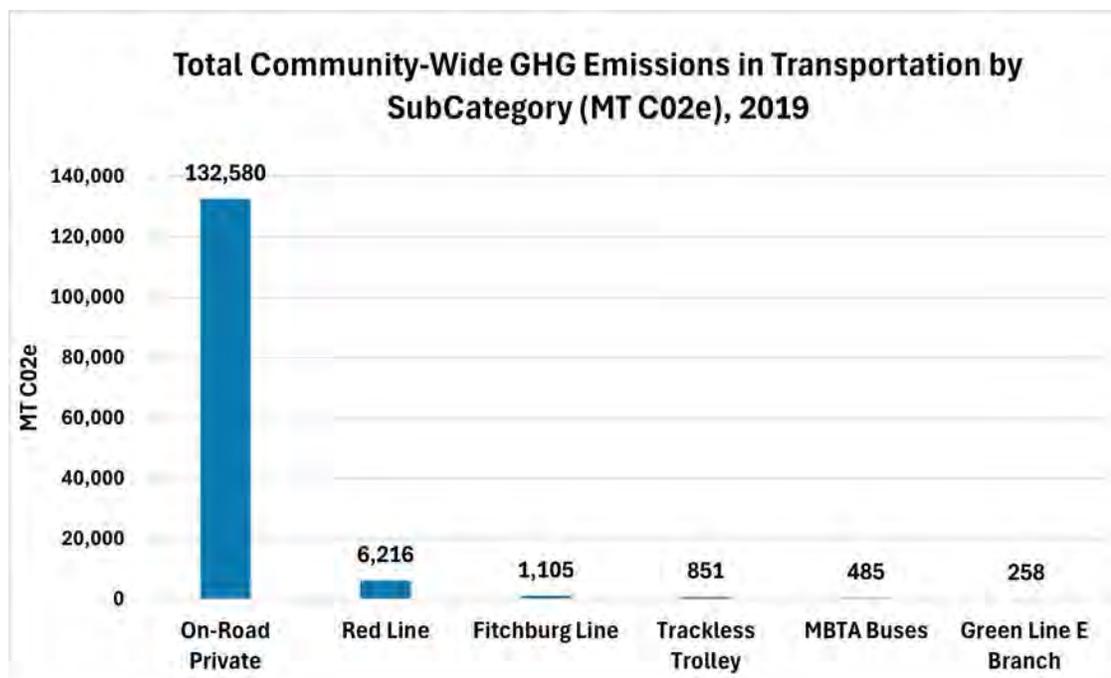
How do We Eliminate Transportation Emissions?

Transportation and Emissions Trends in Cambridge

Most of Cambridge's transportation emissions come from on-road private vehicles, that is, 94% of all transportation GHG emissions. On-road private vehicles include personal and commercial private cars and trucks. This Plan is focused on on-road emissions only and does not address other sources of emissions such as air travel by residents and businesses or consumer habits that generate deliveries in Cambridge. This Plan seeks to address emissions within the city, but many trips through Cambridge include travel in other cities, which the City cannot control (though it can have some influence, especially with regional coordination).

Because most of Cambridge's transportation emissions come from on-road vehicles, the Plan recommendations primarily focus on shifting away from private vehicle use and reducing emissions from private vehicles that are still on the road.

Figure 1



Source: 2019 Cambridge Greenhouse Gas Inventory: <https://www.cambridgema.gov/CDD/climate-andenergy/greenhousegasemissions/communityemissions>

As illustrated in the Figure 1, on-road private vehicles, including Cambridge municipal fleet vehicles and commercial vehicles, account for 94% of total transportation emissions. These are vehicles principally garaged in Cambridge. Since 2019, trackless trolleys⁷ have been replaced with hybrid diesel-electric buses and in 2025 they will be replaced by 100% electric buses.

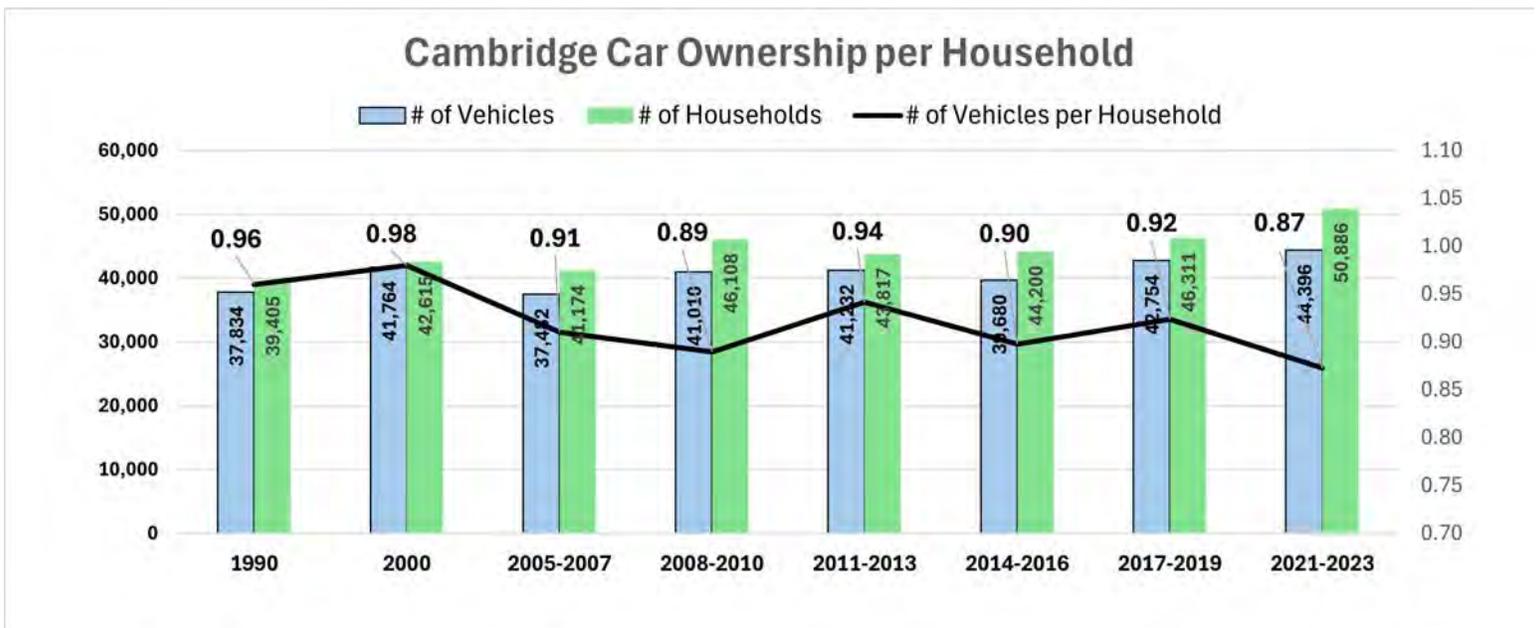
Walking and biking are not presented on the graph, as they do not emit GHG. In addition, emissions of delivery vehicles are not counted in this estimate, unless the vehicle is principally garaged in Cambridge.

Cambridge Vehicle Ownership Trends

Now we'll look at vehicle ownership trends. People who don't own cars tend to get around more by walking, biking, and taking transit, even if they also sometimes take a ridehail vehicle. Lower vehicle ownership also makes it possible to use the city space that would be used for parking for other things that people need and want.

As shown in Figures 2 and 3, analysis of Cambridge resident trends since 1990 shows a decrease in cars per household. While American Community Survey data indicates a slight increase in the total number of cars owned in Cambridge, the average number of cars per household has declined because the number of households has increased at a faster rate than the number of cars.

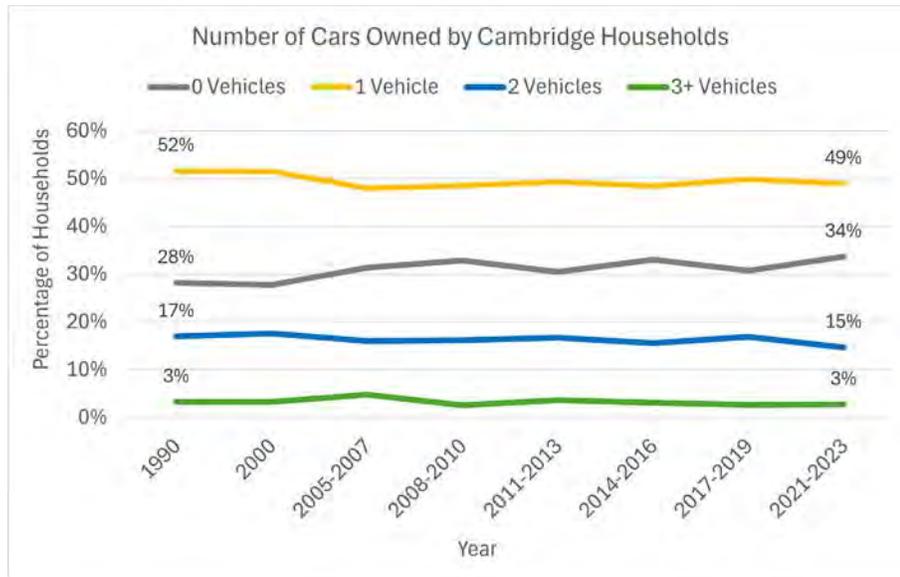
Figure 2



Source: US Census and American Community Survey 3-year averages

7. Trackless trolleys are electric buses powered by overhead wires.

Figure 3



Source: US Census and American Community Survey 3-year averages

Table 1 illustrates car ownership trends over the past seven years. While the total number of registered vehicles (about 42,000 vehicles) and resident parking permits (RPPs) (about 37,000 vehicles) has remained relatively even, they have generally decreased over time on a per-household basis due to growth in the number of households in Cambridge that own fewer vehicles.⁸

Table 1

Year	# Households ACS	# Resident Parking Permits	# RPPs per HH	RMV Date	RMV (all vehicles)	RMV (EVs)	% EVs	# RMV Veh/HH
2018	45178	37026	0.82					
2019	46311	38745	0.84					
2020	N/A	37357	N/A	1/1/2020	42058	416	1.0%	
2021	48748	35326	0.72	1/1/2021	41757	565	1.4%	0.86
2022	50241	37180	0.74	1/1/2022	42516	774	1.8%	0.85
2023	50886	39246	0.77	1/1/2023	42266	1028	2.4%	0.83
2024	N/A	37237	N/A	1/1/2024	41668	1441	3.5%	
2025				1/1/2025	41823	1841	4.4%	

Sources: Households (HH) = American Community Survey, Resident Parking Permits (RPP) = City of Cambridge Department of Transportation, # Registered Vehicles = Registry of Motor Vehicles (RMV), # Electric Vehicles (EVs) = Massachusetts Municipal Vehicle Census.

8. Note: The City recently created a new limit on the number of vehicles that individuals are allowed to get a residential parking permit for—that limit is now four permits.

The Massachusetts Vehicle Census shows that the percentage of commercial vehicles out of total vehicles registered in Cambridge has declined slightly in recent years: from 4% in 2020, to 3% in each year of 2021 through 2025. Therefore, about 5,303 metric tons of CO₂ are emitted by commercial vehicles that are principally garaged in Cambridge.⁹

Table 1 also shows electric vehicles have increased from 1% to 4% of all passenger vehicles, a fourfold increase from 2020 to 2025. The table shows a difference between the number of Registry of Motor Vehicles (RMV) and number of resident parking permits because not all vehicle owners obtain residential parking permits. This is likely the group of residents that have off-street parking available and do not need a Resident Parking Permit to park on-street.

Reducing Greenhouse Gas (GHG) Emissions From Transportation Can be Challenging

While working to eliminate transportation emissions, the City is also committed to improving people's transportation options and making it easier for them to move around. To bring these goals together, we are working on making a plan that allows everyone to contribute in some way and increases and improves peoples' options, rather than just making it harder for people to drive. Getting to zero emissions for transportation will be a significant shift in peoples' transportation behaviors. Not every option works for every person, so the plan needs to have a variety of ways to shift behaviors to bring down emissions. Additionally, in cases where the changes create difficult adjustments or burdens, the Plan seeks to reduce the harm or discomfort of that shift.

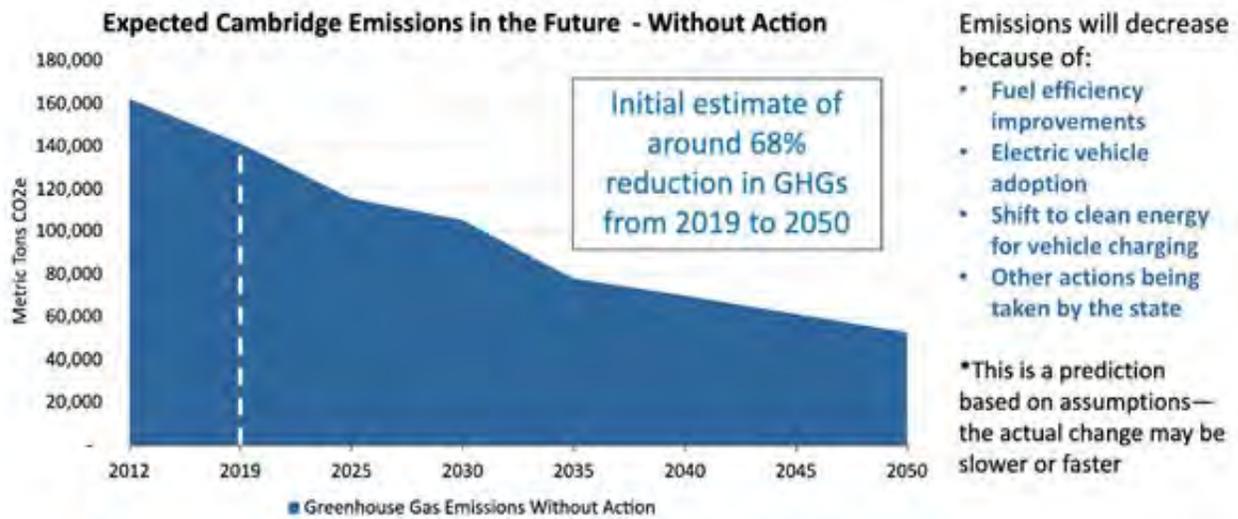
Ongoing and Projected Transportation GHG Reductions

Transportation emissions are expected to decrease significantly in the coming years and decades due to changes in technology and policies already underway. This will be the result of federal changes (ex. fuel-efficiency regulations)¹⁰, state policies and plans (e.g. MBTA improvements, roadway tolls, EV goals and policies, etc.) and market forces (ex. decreasing prices for EVs, electric bikes, etc.). Additionally, there are plans already in place in Cambridge that will help reduce emissions, such as more mixed-use areas and development near public transportation, construction of bike lanes and improved bus infrastructure, etc. All these changes already underway are estimated to reduce emissions compared to 2019 levels by 68% by 2050. This reduction is described further in Appendix 2.

9. Community members wondered how many emissions are generated by commercial vehicles during the engagement for this Plan.

10. This analysis was conducted in the previous Federal administration, and emissions are subject to change as Federal policies and programs change.

That leaves a remaining gap of approximately 32% of emissions that we still need to eliminate.



Source: Arup consultant analysis. Full analysis described in Appendix 2.

Electrification

Transition from fossil fuel vehicles to electric vehicles means that — even for trips that are likely to remain in a vehicle, such as those not yet served by transit—GHG emissions can be avoided. Electrification is a useful tactic alongside mode shift and land use change. While the latter two are imperative for lasting change, they also tend to evolve gradually due to complex connections among policies, regulations, politics, funding, and other issues. Electrification, which is shaped by policy but also by market forces, can evolve more quickly.

This shift is shown in historical data about EV purchasing, which is used to project the future share of EVs. Upfront, the shift to EVs is expected to increase under existing State policies and incentives, thereby significantly contributing to GHG reductions.

The future share of EVs is the number of electric vehicles in use, divided by the number of all vehicles in use, regardless of their fuel type.¹¹

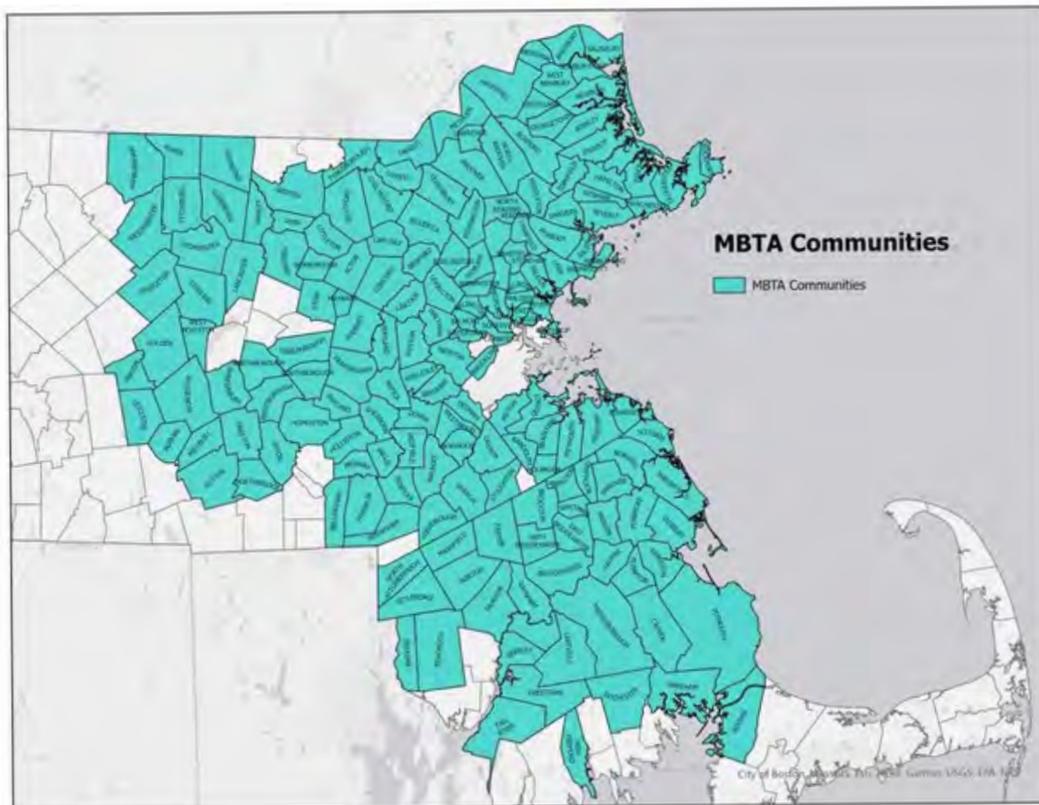
11. Data about the EV stock in the United States is sourced from the IEA Global EV Outlook 2021, which provides historical data from 2010 to 2020, and projections for 2025, 2030, and 2040 under two scenarios: the Stated Policies Scenario (SPS) and the Sustainable Development Scenario (SDS). The SPS reflects the impact of existing policies and announced targets, while the SDS is aligned with the Paris Agreement goals and net zero emissions by 2050. The stock share of EVs is expected to increase significantly in both scenarios, reaching more than half of the total car stock by 2040 in the SDS, and by 2050 in the SPS. This study references the more conservative SPS scenario.

State and Local Initiatives

The state sets policies and incentive programs to promote compact communities that make it easier to build a life around public transportation and shift to using electric vehicles.

Land Use Policy

Massachusetts has instituted policies to increase transit-oriented development in communities that have access to public transportation. In 2021, the legislature passed a law, the MBTA Communities Act, requiring communities that are near public transportation stations to have at least one zoning district of reasonable size in which multi-family housing is permitted as of right, located not more than half a mile from a commuter rail station, subway station, ferry terminal, or bus station, and has no age restrictions and suitable for families with children. These changes encourage growth near public transportation, which can help ensure more trips (including to employment centers like Cambridge) will happen on public transportation instead of by car.



Source: Executive Office of Housing and Livable Communities, <https://www.mass.gov/info-details/multi-family-zoning-requirement-for-mbta-communities>

Electric Vehicle Adoption

Drivers can benefit from existing state rebates and grants—including Massachusetts Offers Rebates for Electric Vehicles (MOR-EV), Massachusetts Electric Vehicle Incentive Program (MasseVIP), and DRIVE for New Vehicles. These programs make electric vehicles more affordable, with provisions aimed at making it easier for low-income residents to buy an EV. Additionally, Massachusetts is advancing grid decarbonization and improvements to combustion engine fuel efficiency standards to make gas cars more efficient. These changes have impacts on reducing the lifecycle GHG emissions for transportation.

These state programs were consistent with those at the federal level until 2025. The future of federal support for EVs is uncertain at this time and the City will continue to monitor federal programs.

Local Initiatives

The City of Cambridge is making planning and transportation changes to make the places people need to go closer to their homes and workplaces. It is also building more infrastructure and services to make it easier and safer to bike, walk, and use micromobility, as well as connect to public transportation options. Envision Cambridge is a comprehensive plan that set goals for 2030. Completed actions include reducing parking requirements, increasing separation between bike and cars, and improving engagement with seniors and people with disabilities on mobility projects. The Community Development Department (CDD) has led several efforts, such as a zoning amendment that allows multifamily housing as-of-right citywide up to six stories or more depending on the district.

How Did We Develop the Zero Emissions Transportation Plan?

Technical Approach

City staff worked with technical consultants to develop a baseline estimate of greenhouse gas emissions from transportation in Cambridge. This baseline was used as the starting point to measure the potential emissions reduction of possible actions.

Working with an Advisory Group and drawing on input from the wider community, City staff developed a long list of potential actions. Over the course of the planning effort, frequent community input guided how this list was refined and which ideas were included, adapted, or removed from consideration.

Three main sources from leading organizations guided our technical framework:

- **Greenlining Institute's Mobility Equity Framework** was used to help develop the goals for the plan and considerations for how to evaluate potential actions.
- **California Air Pollution Control Officers Association's (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity**. This handbook provides methods for quantifying GHG emission reductions from a list of measures primarily focused on project-level actions. The Handbook also includes methods for assessing potential co-benefits of different climate vulnerability reduction measures, as well as measures that can be implemented to improve health and equity.
- **Argonne National Laboratory's Alternative Fuel Lifecycle Environmental and Economic Transportation (AFLEET) Tool**: The spreadsheet provides detailed energy, emission, and cost data for alternative fuel and advanced vehicles (AFVs), including light-duty, heavy-duty, and off-road AFVs. This spreadsheet was used to estimate the GHG emission reduction potential of increased accessibility and usage of electric vehicle charging.

A detailed explanation of the technical approach and the assumptions underlying the model is included in Appendix 2.

The Planning Process

A key goal of the ZETP process was to develop and test new ways of engaging in planning with Cambridge community members. This included a new approach to inclusive engagement, putting the focus on getting community input starting from the very beginning to guide the development of a plan, rather than creating options or a draft plan and then asking for community reactions. The process aimed to include many voices—especially those who have been underheard, underserved, and historically excluded in the past.

We identified an additional 3 priorities: build deep and lasting City-community relationships, foster community trust in City planning, and facilitate ongoing engagement.

Following Engagement Best Practices

We followed best practices for an equitable and effective process. This meant using the guiding principles that an equitable process should:

1. Be guided by community voices
2. Be transparent
3. Prioritize underserved, underheard, and historically excluded groups of people.
4. Reduce harm
5. Build long-term relationships.
6. Be accessible.

Advisory Group

The process centered on the formation of an advisory group composed of community organizations that serve or represent Cambridge residents, particularly those who may have been left out of planning efforts in the past, who could contribute lived experience and important perspectives on behalf of their communities.

Advisory Group (AG) members met for 18 months to share their experiences and relay community feedback about their mobility needs. The AG raised issues that affect equity in transportation, as well as other challenges that impact people in their communities. To support the AG process and make AG members' influence as meaningful as possible, significant time was spent over multiple meetings sharing information with the members about land use and transportation planning. Topics included transportation planning tools, opportunities, evolution in Cambridge, historical shortcomings, the role of community advocacy, accomplishments, etc. Increasing members' familiarity and fluency in these topics supported a deeper, more technical ongoing discussion in the Plan development. In addition to the Community Development Department Transportation and Environmental Planning staff managing the project, the AG was supported by facilitation and technical consultants.

The process also emphasized building relationships among the AG and between AG members and City staff. Time was spent in each meeting connecting socially over food, and most of the meetings were spent in dialogue with brief substantive presentations to share information and frame issues for AG deliberation. AG members were encouraged to partner in developing meeting agendas, ask questions, and suggest topics about which they would like to learn more in future meetings.

AG members contributed valuable insight and experience to the process, though their “day jobs” were not focused on transportation issues. Recognizing that they offered their time to this process amidst other work and community commitments, the City secured a grant through the Urban Sustainability Directors Network (USDN) to provide stipends to compensate AG members for their time. This support also made it possible for members from community-based organizations not typically focused on transportation issues—but whose constituencies are significantly impacted by transportation issues—to defray the cost of their staff participating in the process. Also recognizing that members’ other commitments may at times conflict with AG meeting times, the project team offered the option for 1-1 catch-up calls with members who had to miss a meeting. This helped make the commitment to the ongoing process more manageable and accessible for busy members with multiple commitments and kept them up to date as the meetings built on each other.

Zero Emission Transportation Plan Advisory Group Members

Member Name	Affiliation
James Pierre	Adius Arts Initiative, Founder
Lonnell Wells	Cambridge Bike Giveback, Founder
Farris Blount	Cambridge Black Pastor's Alliance, Junior Pastor
Rachel Tanenhaus	Cambridge Commission for Persons with Disabilities, ADA Coordinator/Executive Director
Omriqui Thomas	Cambridge Public School Student
Ali Sorrels	Cambridge Women's Center, Co-Director, Operations & Administration
Yao Wu	Chinese American Association of Cambridge, Member
Ben Engle	Food For Free, Chief Operations Officer
Nora Sears	De Novo Center for Justice and Healing, Volunteer and Training Coordinator (replaced Elizabeth Brusie, Assistant Legal Director)
Ibrahim Omar	Islamic Society of Boston Cambridge
Karim Razazz	Islamic Society of Boston Cambridge
Guerlancia Laurent	Margaret Fuller Neighborhood House, Community Liaison and Adult Enrichment Coordinator
Angela Vierling-Classen	North Cambridge resident



- The second wave occurred at the stage of the Draft Plan (November 2024). The purpose of this second wave was to share information about the Plan and its goals and share the draft actions being considered to include in the Plan for feedback and refinement based on community input.

Community Engagement Team at the Community Development Department (CET@CDD)

CET@CDD was an invaluable partner in the engagement efforts in the ZETP. CET@CDD provided feedback directly at many points communities. Additionally, they recruited participants from their communities and co-hosted two focus groups.

Small-group meetings hosted by Advisory Group members

Some AG members hosted informal focus-group meetings with their communities/ organizations to gather additional, targeted feedback during the development of the Plan.

Focus groups

In addition to the CET-convened meeting, the project staff hosted several other focus groups with particular interest groups such as neighborhood associations and transportation/sustainability advocates, to gather additional targeted feedback.

Community Engagement Activities

In addition to the AG process, City staff connected with many community members through a wide range of forums at more than 50 events (See Appendix 1) to share information about the ZETP process and hear ideas and concerns about transportation in the city that informed the Plan. Key engagement activities and forums included the following:

Community Meetings

The project team held two waves of in-person and virtual community meetings:

- The first wave occurred mid-way through the development of the Plan (March 2024). The purpose of this first wave was to share information about the Plan and its goals, discuss the categories of actions and issues being considered in the Plan, and get ideas and feedback about the broad categories and potential actions within them.

Committee meetings

Project staff met with several City advisory committees to discuss the Plan and get feedback at various points in the process.

Joining community events

Project staff attended numerous events throughout the city to share information about the Plan and gather feedback. This engagement—typically informal through tabling and activities at fairs, cookouts, community-based organizations’ events, etc.—helped broaden the reach of engagement, bringing information and opportunities to provide input to community members who otherwise may not have learned about or provided feedback on the Plan. may not have learned about or provided feedback on the Plan.

City Council hearing

Project staff and Advisory Group members presented draft strategies for the Zero Emissions Transportation Plan at a hearing of the City Council’s Health & Environment Committee.¹² The hearing discussion helped inform this report.

Emails, online feedback form, and individual conversations

Community members shared thoughts and feedback on draft actions with project staff throughout the planning process.

Community input from all these engagement activities was synthesized as it was

collected and brought to the AG to discuss and integrate into the Plan. This process ensured that the Plan reflected community ideas, feedback, and concerns and that the AG’s guidance was grounded in a broad range of community voices.

12. The Plan was called the Net Zero Transportation Plan at the time of the hearing.

What we Learned from the Community to Guide the Plan

Over the course of the process with the Advisory Group and the broader community, we heard a number of critical recurring themes. This feedback guided the development of all actions in the Plan:

People want to make a change, but they need support to do so.

Community members were enthusiastic about potential changes and improvements to Cambridge's transportation systems and showed a willingness to adopt new transportation behaviors. However, they emphasized that they need better transportation options to address practical barriers they face to choosing options that reduce climate pollution.

People want to know that the City hears their mobility concerns and is doing something to address them. The responses need to be co-led by the community.

The City should engage in partnerships with the many communities in Cambridge by supporting community-led projects. In cases where change is hard, it needs to acknowledge those challenges and work with the community to figure out how the harm or the discomfort of change can be managed.

“Don’t punish me for owning and using a car—make it easier for me not to.”

- There are some very real reasons that it can be hard to live without using a car.
- People are making the best transportation choices they can, given the options available.
- Actions should be focused on improving the choices available to people, rather than making it harder for them to use their car, if that is what is accessible to them.
- Public transportation needs to be better: more reliable, more frequent schedules, and it needs to feel safe and clean
- Biking and walking need to be safer and more accessible

Cars increase people’s independence. Other transportation options must address these needs. With cars, benefits people experience include:

- I don’t have to wait for a bus that makes me late.
- I can get to a job that is far from home, or to multiple jobs in one day.
- I can go on a weekend trip outside the city.
- I can get my kid to afterschool activities.
- I am more protected from violence when inside my car.

At the same time, cars are also causing people to lose independence. People would love to be less reliant on cars if other options were available. With cars, disadvantages people experience include:

- I don't leave my house after I get home from work because I don't want to lose my parking.
- I plan around my kids' lives because I have to be available to drive them places.
- I can't receive visitors in my home because they can't find parking.
- My health is especially impacted by particulates caused by vehicle traffic that worsen air quality.
- Traffic congestion makes every trip take much longer.

Pricing actions (such as making it more expensive to own or park a car) feel punitive and inherently inequitable.

- A small increase in these costs will weigh most heavily on people with less money and just be absorbed by people with more money. They will not significantly change behavior in either case.
- Means-testing (i.e. requiring people to prove their low-income status) creates onerous obstacles to receiving support and incentives. Time-intensive administrative tasks required to demonstrate eligibility demand more time and effort from people already facing systemic barriers who may benefit most from those incentives.

We need to do a better job communicating about the changes that are coming.

- Acknowledge the challenges that could come with transitioning to new kinds of transportation.
- Clearly explain the problems that these Plan actions will solve and how these connect to the concerns people expressed. I plan around my kids' lives because I have to be available to drive them places.
- I can't receive visitors in my home because they can't find parking.
- My health is especially impacted by particulates caused by vehicle traffic that worsen air quality.
- Traffic congestion makes every trip take much longer.

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We need to do a better job communicating about the changes that are coming.

- Acknowledge the challenges that could come with transitioning to new kinds of transportation.
- Clearly explain the problems that these Plan actions will solve and how these connect to the concerns people expressed.

Seniors and people with disabilities, in particular, need a reliable, convenient, and dignified way to get around.

In some cases, it may not be an option not to use a car. The Plan needs to take seriously the need to improve these people's mobility options and disrupt the pattern of their needs being left out, as has occurred historically in other planning efforts and contexts.

Electric vehicles (EVs) and charging need to be more affordable and accessible.

This needs to include education and outreach to help make it easier for people to consider the change in habits required and feel comfortable using an EV.

Also, EVs are only part of the solution.

EVs can eliminate transportation-related emissions, but still create traffic and safety concerns. They also have other negative effects because of the intensity of resources required to build and operate them.

Housing needs to be more affordable to allow people to live closer to where they need to go.

People need easy, close access to the places they go to regularly if we expect them to walk, bike, or take public transportation

Those who are responsible for creating more emissions—and who have more resources now as a result—should have more responsibility for reducing them.

If we don't specifically call out the needs of marginalized voices, they're going to continue living with at least as many burdens as more privileged people, as a matter of course. Individuals and large institutions who have profited from the system as it has functioned should take on more responsibility for reducing emissions.

Not all actions have to be for all people.

All communities and different types of people should be able to see themselves in the Plan. There must be many transportation options, so people see ways to contribute to emissions reduction and have opportunities to improve their mobility.

To be successful in eliminating GHG emissions, we need to:

- Support a broad culture of sustainable mobility that reflects and invites participation from the broad Cambridge community.
- Infuse social connection into our transportation network to make travel a part of what enriches people's lives.
- Ensure the transition is as comfortable as possible

Recommendations

How Did We Decide on These Recommendations?

Throughout this process, we evaluated how each of the following recommendations would advance our core goals:

- Remove climate pollution from transportation
- Make moving around Cambridge more accessible, safe, and enjoyable
- Improve economic opportunity and address historic injustices
- Create a stronger and more connected community

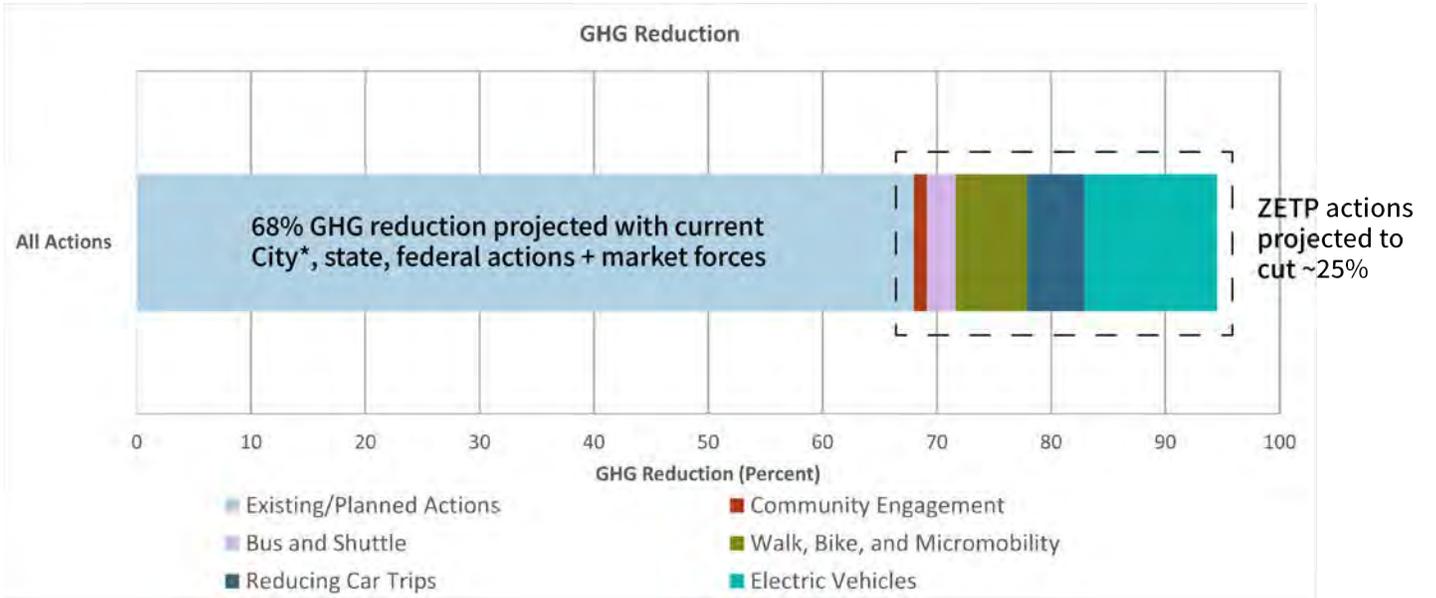
To guide our approach, we used national best practices for quantifying transportation emissions to develop a baseline and then calculate the emissions reduction potential of actions. We prioritized solutions that would deliver the greatest impact with the most equitable outcomes. While some recommendations do not have a direct impact on emissions, they will improve the quality of people's transportation experience and will help make some of the more challenging parts of transitioning to zero emissions transportation more feasible and appealing. Finally, we focused on developing a plan that addressed factors that the City can control, or at least directly influence.

Strategies to Get to Zero Emissions by 2050

The Plan focuses on six categories of recommended actions:

1. **Community engagement:** Engaging people equitably to improve their transportation experience.
2. **Buses and shuttles:** Improving bus and shuttle service
3. **Bike, walk, and micromobility:** Making it accessible, safe, and enjoyable for people to walk, bike, and take a scooter
4. **Reducing car trips:** Giving people more travel choices to reduce the need to drive
5. **Reducing car ownership:** Making it easier to not own a car
6. **Electric vehicles:** Encouraging a shift to electric vehicles

The plan contains actions that encourage a shift in behavior. If we do all these actions, we expect to eliminate about 25% of the remaining GHG emissions based on the 2019 GHG Emissions Inventory. This leaves an estimated 7% of emissions, which we will monitor as we get updated models of emissions and address with future updates to this plan.



Source: Arup consultant analysis. Full analysis described in Appendix 2.

Community Engagement

Community engagement actions are about partnering with Cambridge residents to improve people’s mobility options and collaboratively transition to new transportation systems and behaviors. The goal of this category is to make transportation more affordable, inclusive, and responsive to community needs by increasing awareness, engagement, and building support for community-led initiatives.

Why do we have "community engagement" as its own category?

- We need an inclusive process to hear directly from communities about how to improve sustainable mobility options and then communicate changes.
- We need to strengthen relationships and build trust.
- We need to partner with community groups and build shared ownership in this transition.

Tag	Action	What could this look like?
CE-1	Provide a high degree of City support to help residents navigate transportation changes, and access transportation options and discounts.	<p>Examples:</p> <ul style="list-style-type: none"> • Offer one-on-one support, using the Cambridge Economic Opportunity Committee’s model, to help residents enroll in income-eligible programs and opportunities (remotely, by phone, or in community spaces). • Add clear bicycle route signage, like San Francisco’s “Wiggle” signs that direct cyclists to various points of interest via safe infrastructure). • Expand the Safe Routes to School program for Cambridge youth through the school system. For example, incorporate transit training into the existing 2nd and 6th grade walking and bicycling training. • Develop a one-stop-shop strategy to help residents enroll in discounted transit, Bluebikes, and other non-transportation programs, such as food and fuel assistance. • Explore creation of a seamless online system for eligibility screening and enrollment in discounted programs. • Provide accessible transportation information and workshops, with additional efforts to reach underheard, underserved, and historically excluded people. <p>Considerations:</p> <ul style="list-style-type: none"> • Ensure outreach about resources, events, and opportunities to engage is shared in multiple languages through diverse channels, including Harvard Crimson, CCTV, Cambridge Day to reach broad audiences such as youth and college students.

<p>CE-2</p>	<p>Encourage community-led initiatives that improve awareness of low-carbon transportation options and support a culture of sustainable mobility across many different communities.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Provide dedicated funding and staff resources for relationship-building, such as an expanded Community Engagement Team or activities proposed by community groups. ● Identify Neighborhood mobility “community connectors” within communities to connect residents to resources, opportunities, and trainings. ● Hold neighborhood conversations to address and solve mobility issues. ● Collaborate with youth ambassadors to host events and ensure seniors and people with disabilities can participate safely. ● Partner with community members to create an all-mode etiquette and education program. ● Engage Transit, Bike, Pedestrian, and Climate committees, and Youth Council to support community relationship-building efforts.
<p>CE-3</p>	<p>Conduct a transportation security index survey.</p>	<p>Effects of this action:</p> <ul style="list-style-type: none"> ● Information collected on how residents’ lives are shaped by their transportation needs and options will provide a better understanding of: <ul style="list-style-type: none"> – How safe, easy, reliable, and comfortable people’s transportation experiences are – Potential disparities in transportation experiences across different groups, such as racial or income disparities – Ongoing progress in reducing transportation disparities over time. <p>Considerations:</p> <ul style="list-style-type: none"> ● Use a wide range of tools to gather input and make participation accessible to all.

Buses and Shuttles

The buses and shuttles actions aim to improve public transportation by improving the frequency and reliability of buses, upgrading on-demand shuttle services for seniors and people with disabilities, and expanding community knowledge and access to existing bus and shuttle services. These strategies collectively seek to make bus and shuttle transportation more efficient, accessible, and responsive to the range of community transportation needs.

Tag	Action	What could this look like?
BAS-1	Enable better bus frequency and reliability by installing bus priority projects on important routes (signal priority, queue jumps, or bus lanes).	<p>Examples:</p> <ul style="list-style-type: none"> ● Combine new bus lanes with pedestrian safety measures in the same construction phase to maximize benefits. ● Spearhead regional efforts to develop funding and design solutions to support the MBTA’s Bus Network Redesign priorities. ● Advocate for extended bus service hours on key routes serving essential workers, hospitals, and universities. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Queue jump lanes and new signals at certain intersections to help buses move ahead of traffic and operate more reliably. ● Fewer travel lanes and/or less parking for private cars on some streets to provide more street space for vehicles transporting more passengers. ● More dedicated bus-only lanes to support three times as many buses per hour on key Cambridge routes, with MBTA requiring bus lanes for municipalities to qualify for improved service. ● Decreased street congestion over time, with peak-hour traffic remaining until more people shift from driving to taking the bus. ● More comfortable bus stops (e.g., with shelters, real-time bus information, and larger areas for wheelchair users).

<p>BAS-2</p>	<p>Improve on-demand shuttle service for people with disabilities and seniors.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Enhance service in the following ways: : <ul style="list-style-type: none"> – Offer specialized vehicles to accommodate a range of disabilities, ensuring comfort and safety for all passengers. – Hire and train compassionate drivers who understand the unique needs of the disability community and provide assistance as needed. – Provide coverage to and from key locations in Cambridge and surrounding areas, facilitating access to medical appointments, employment, social events, and more. – Use real-time booking technology (call center and app). ● Investigate regional collaboration opportunities to expand Door2Door shuttle service hours and eligibility by trip-purpose and income. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Accessible, reliable transportation that allows seniors and individuals with disabilities, to travel with dignity, maintain their independence and actively participate in their communities.
<p>BAS-3</p>	<p>Expand knowledge of, access to, and comfort with public transit options, including existing publicly accessible shuttles, especially for youth.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Include shuttle availability in transportation information and incorporate shuttles in transit-planning efforts. ● Include education about how to use the public transit system in middle school curriculum. ● Explore options to expand CharlieCard subsidies for more students. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Availability of transit data in a format that ensures shuttles are included in transit and trip-planning apps (GTFS). <p>Considerations:</p> <ul style="list-style-type: none"> ● Work with private and institutional shuttle providers to ensure public access to their services.

13. Community members have asked for clearer rules and guidance for micromobility devices like scooters. The Massachusetts Department of Transportation is developing recommendations to clarify rules for e-bikes and e-scooters, and the City aims to incorporate those and address any other aspects that can be advanced locally.

Walk, Bike and Micromobility¹³

The walk, bike, and micromobility actions seek to make walking, biking, and scootering practical, accessible, and appealing travel options. By developing comprehensive infrastructure, support systems, and community programs, these actions further the convenience, accessibility and safety of these options for residents of all ages and abilities.

Tag	Action	What could this look like?
WBM -1	Improve and maintain walking infrastructure.	<p>Examples:</p> <ul style="list-style-type: none"> ● Provide equitable maintenance and attention to sidewalks in low-income and historically burdened neighborhoods. ● Keep sidewalks remain smooth and easy to walk and roll on, free of snow, leaves, and other obstructions, and marked with clear directions to accessible routes. ● Continue to fund and implement DPW’s Five-Year Plan for Sidewalk and Street Reconstruction and the Miscellaneous Sidewalk Program. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● New infrastructure for comfortable walking in hot weather, including water fountains, shade, and public benches beyond bus stops, located according to shade data identifying the hottest streets. ● Raised crosswalks, improved visibility at intersections, and flashing beacons at high-traffic locations to make walking to other modes easier and safer.
WBM -2	Improve bicycle infrastructure, including building the Citywide Bicycle Network Vision.	<p>Effects of this action:</p> <ul style="list-style-type: none"> ● A network of safe, comfortable streets for people of all ages and abilities to use, providing access to all destinations in the city. ● Reduction of some car lanes and/or street parking to create safe biking space. Decreased street congestion over time, with peak-hour traffic remaining until more people shift from driving to biking. ● Less reliance on private cars and buses for school and activity-related trips as more families bike with their children and more youth bike independently. <p>Considerations:</p> <ul style="list-style-type: none"> ● Work with CCPD to integrate safer crossing of bike lanes for people with disabilities . ● Increase access to charging and storage for e-bikes and e-scooters. ● Clarify rules and regulations for e-scooters and other small e-devices. ● Establish clear procedures for handling and tracking pedestrian and cyclist crashes, as well as bike theft to inform future policy.

<p>WBM -3</p>	<p>Improve access to bikes through support for community groups and improvements to the Bluebikes system.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Support community organizations in providing access to bikes, bike repair, and riding education. ● Coordinate with the MBTA to improve bike storage at stations. ● Establish a regional, centralized governance structure for Bluebikes to improve system performance. ● Develop a strategy to expand Bluebikes stations so most Cambridge residents and workers are within a 3-minute walk (about 170 Bluebikes stations), with ongoing evaluation of future needs. ● Add more electric bikes to the Bluebikes system and explore integration of accessibility options. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Convenient, affordable access to bikes and cargo bikes, combined with education in riding, repair, and safety, delivered through the City’s education efforts and community-led culture-building activities. ● Easier alternatives to driving, with e-bikes for longer trips and high-quality connections to buses and trains. ● Slight parking reductions if curbs are extended for new stations. ● Education efforts will be a part of an all-mode etiquette and education program in action CE-2.
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Reducing Car Trips

Reducing Car Trip actions reduce resident dependence on car travel through creating more integrated transportation systems and leveraging technology, policy, and regional cooperation. While reducing car trips is an important strategy to address transportation emissions, it is important to recognize that individual travel choices are complex and influenced by various factors, such as personal identity, life experiences, and specific trip circumstances. When discussing reducing car dependency during community engagement events, the community raised concerns over punitive measures that make residents feel penalized or shamed for owning a car or forced into uncomfortable behavior shifts. Advisory Group members shared these concerns. Therefore, the actions developed in this category focus on improving support and options for other transportation modes.

Tag	Action	What could this look like?
RCT-1	Expand employer and property owner responsibility for supporting sustainable transportation.	<p>Examples:</p> <ul style="list-style-type: none"> ● Develop a strategy for community engagement about transportation options that aligns with legally regulated processes. ● Require more properties, including residential and commercial properties with 20 or more parking spaces, to limit driving trips. <p>Increase the number of properties offering employees cash incentives to take public transit or bike instead of using parking, starting with larger properties and later including smaller ones.</p> <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Increased access to discounted T passes and other non-car mobility incentives for people who live or work in Cambridge. ● Greater reliance on buses, trains, carpools, bikes, and walking. ● Reduced traffic congestion, improved safety for vulnerable road users and less competition for parking. ● Potential costs increases for business owners, if property owners pass on expenses. <p>Considerations:</p> <ul style="list-style-type: none"> ● Recognize that some people will continue to drive due to the nature of their work (e.g., cleaning crews) or disability needs. ● Share the program’s results and celebrate the successes of participants.

<p>RCT-2</p>	<p>Research possible approaches to use technology to improve Cambridge residents’ experience of getting around, with financial support for residents with low incomes.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Offer sponsored access to a trip-planning app so people can plan trips across all modes more easily. ● Provide monthly financial support in a mobility wallet for low-income residents to cover transportation expenses, such as transit fares, Bluebikes membership, bicycle purchase and maintenance, EV carshare membership, etc.
<p>RCT-3</p>	<p>Participate in State and regional discussions about congestion or emission pricing in Greater Boston.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Coordinate with neighboring municipalities to discuss regional congestion- or emission-pricing, in partnership with the State. ● Investigate opportunities for participating in State discussions, determine representatives to participate, and establish the City’s position. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Significant reduction in traffic and air pollution, with potential improvements in traffic safety and increased funding for transportation. <p>Considerations:</p> <ul style="list-style-type: none"> ● Ensure Cambridge’s input in these conversations reflects community needs and desires and uses an equitable approach. For example: <ul style="list-style-type: none"> – Drivers could pay a fee to enter the urban area, with gas-powered cars paying more than electric and hybrid cars, and with discounts for low-income individuals. ● Conduct a study on the emissions reduction potential of road pricing, potentially partnering with other municipalities in Greater Boston. ● Discuss, if applicable, whether the State should adopt vehicle miles traveled as a new metric for assessing the impact of new development.
<p>RCT-4</p>	<p>Create better connections between transportation modes.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Establish uniform standards at key intersections and squares. ● Explore options for seamless fare transfers between MBTA and Bluebikes. <p>Effects of this action:</p>

<p>RCT-5</p>	<p>Further expand coordination with neighboring municipalities and universities on regional projects and key advocacy issues.</p>	<p>Examples:</p> <ul style="list-style-type: none"> • Address transportation emissions with neighboring municipalities as part of a regional system, through the Massachusetts Mayors’ Association and other staff level efforts. <p>Effects of this action:</p> <ul style="list-style-type: none"> • Increased coordination between neighboring municipalities and universities, resulting in: <ul style="list-style-type: none"> – Unified advocacy to state officials on regional policies and major projects (e.g., emerging technology issues like micromobility) – Joint applications for grants and other funding opportunities – Expanded connections to multi-use paths and better bus and commuter rail service – Less traffic on Cambridge streets when fewer people commute alone in cars – Reduced air pollution – Increased traffic safety – Fewer pass-through car trips in Cambridge
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Reducing Car Ownership

Reducing Car Ownership actions encourage car-free transportation by providing incentives and support for residents who forgo car ownership. The goal is to reduce car dependency, traffic, and parking demands and make it easier for residents to rely on walking, biking, and public transportation. Feedback from the community and the Advisory Group emphasized that the City should carefully design any such programs to avoid unintended consequences and ensure equitable access to incentives, especially for lower-income individuals and people who already live without a personal vehicle. Reducing car ownership is a critical path to get to zero emissions. Most of the impactful strategies are indirect, like making other modes work better, but this Plan acknowledges the importance of this shift with its own category since it is a key piece of the puzzle for achieving our sustainable transportation goals.

Tag	Action	What could this look like?
RCO-1	Explore meaningful ways to acknowledge residents who have no registered vehicles, including eligibility for households that reduce their number of cars.	<p>Examples:</p> <ul style="list-style-type: none"> ● Identify and address the barriers that prevent car-lite residents from going fully car-free. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Reduced car ownership leading to more walking, biking, and transit use, along with less parking competition and car traffic in Cambridge. <p>Considerations:</p> <ul style="list-style-type: none"> ● Include families that go from 2+ cars to only 1 car. ● Avoid providing additional benefits to people already financially able to own a car. ● Extend this program to homeowners, renters, college students, and un-housed individuals in Cambridge.

Electric Vehicles

Electric Vehicle (EV) actions reduce barriers to EV adoption by expanding accessible charging stations, considering electric pricing models, requiring EV-readiness in new developments, and providing supportive resources for Cambridge residents. Some community members emphasized that although EVs are a critical alternative to gas-powered vehicles, reducing reliance on cars in general is still an important goal for the city, considering all the other impacts of cars (e.g. use of space for driving and parking, traffic, safety, air quality and noise, etc.)

Tag	Action	What could this look like
EV-1	Increase availability of publicly accessible charging and fast charging for electric vehicle (EV) and micromobility devices (ex. e-bikes and e-scooters).	<p>Examples:</p> <ul style="list-style-type: none"> • Develop a strategy to increase public charging on private property, such as at large retail locations or gas stations. <p>Effects of this action:</p> <ul style="list-style-type: none"> • Expanded public access to electric vehicle charging through publicly owned, privately owned, curbside, and off-street options, with solar EV charging where possible. • 100 publicly owned chargers by 2027, and 475 Level 2 chargers and 25 DC fast chargers by 2050 in Cambridge. • Designation of certain parking spaces for EV chargers . • Continued use of sidewalk space for EV chargers (where sidewalks are 6 feet or wider). <p>Considerations:</p> <ul style="list-style-type: none"> • Ensure EV chargers are usable for people with mobility limitations, without restricting accessible parking to EVs only. • Develop a strategy to provide public charging stations in commercial areas for e-bikes, e-scooters, and other e-micromobility devices. • Weigh City policies and practices for granting residential parking spaces against the need to expand a publicly accessible EV charging network.

EV-2	Work with affordable housing sites to add EV charging stations and micromobility charging for site residents.	<p>Effects of this action:</p> <ul style="list-style-type: none"> ● Installation of four ADA-accessible Level 2 chargers at twenty locations (80 additional charging spots). ● Increased charging access for residents at affordable housing locations. ● Easier charging access for visitors to CHA residents with electric vehicles, e-bikes, or e-scooters. <p>Consideration:</p> <ul style="list-style-type: none"> ● Ensure that installing EV chargers does not increase the cost of housing. ● Pair with an EV carshare program to provide access to an EV without requiring ownership.
EV-3	Require new developments to install EV charging (Level 2 or DC fast charging) to serve 25% of total number of parking spaces and make the remaining 75% of spaces EV-ready.	<p>Examples:</p> <ul style="list-style-type: none"> ● Align Cambridge’s zoning requirements with Boston’s EV Readiness Policy for new developments (installing wiring for EV chargers in all future parking spaces). ● Require developers to provide sufficient electrical panel and transformer capacity to support future installation of chargers for all parking spaces. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● More buildings equipped with EV-charging and readiness for an all-electric vehicle future.
EV-4	Advocate that Eversource provide discounted EV charging rates at off-peak times.	<p>Examples:</p> <ul style="list-style-type: none"> ● Explore a pilot off-peak rate incentive for multi-family buildings to ensure access for renters and condo owners. ● Include micromobility charging in off-peak rate structures, where possible. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Lower-cost charging options to make EV ownership more feasible for low-income residents. <p>Consideration:</p> <ul style="list-style-type: none"> ● Collaborate with Electrify Cambridge and Climate Committee on this work.

<p>EV-5</p>	<p>Provide high degree of support to help residents access existing state and federal incentives and rebates for buying EVs, and learn more about using and charging EVs.</p>	<p>Examples:</p> <ul style="list-style-type: none"> ● Offer EV 101 workshops providing information on total cost of ownership, charging basics, and other sustainable mobility options. ● Work with partners such as the Green Energy Consumers Alliance, Electrify Cambridge, and the Climate Committee to advance this work and educate people about EVs. <p>Effects of this action:</p> <ul style="list-style-type: none"> ● Improved access to and awareness of incentives that reduce the cost of buying a new electric vehicle. ● Faster transition from gas vehicles to electric vehicles for Cambridge residents.
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Current Policies and Plans

Current policies and plans are under way to move the City closer to its climate and transportation goals. The ZETP actions are not trying to change existing planning efforts. Instead, they are meant to complement these policies and make the transition easier for people.

Cambridge Transportation Policies and Plans



**to increase sustainable mobility,
and reduce traffic congestion, and fight climate change**

In addition, there are numerous existing City programs whose goal is to make it easier, safer, more accessible, and more affordable for people to walk, bike, take transit, and shift to driving electric vehicles. Examples include:

- Bluebikes regional public bikeshare system
- Safe Routes to School program
- Bicycle education workshops for youth and seniors
- Transportation outreach and Information about sustainable transportation for City employees and community members
- Bicycle Committee, Transit Advisory Committee, Pedestrian Committee
- Bicycle access program
- Bike parking program
- Bus stop amenities program
- Traffic Calming Program
- School Wellness Policy
- Five Year Plan for Sidewalk & Street Reconstruction
- Private development infrastructure improvements and mitigation
- Public electric vehicle charging station program

State policies include:

- MassDOT Project Development and Design Guide
- MassDOT Healthy Transportation Policy Directive
- MassDOT Transportation Planning Greenhouse Gas Reduction
- MassDOT Beyond Mobility 2050 Transportation Plan

How Will We Measure our Progress Towards Zero Emissions?

To help us reach our goal of zero climate pollution from transportation by 2050, this Plan includes targets to track our progress. These are “SMART” goals, meaning they are:

- Specific: clear about what Cambridge wants to achieve.
- Measurable: Has an objective way to measure and evaluate success.
- Achievable: Is ambitious but attainable with the resources available.
- Relevant: The goal meaningfully contributes to larger City objectives.
- Timebound: There are timeframes and checkpoints (2030, 2040, 2050).

These goals will help the City track whether the Plan actions are successful, so we can change our approach if it’s not working. We chose these SMART goals because they measure progress on the Plan’s high-level priorities, the City’s overall goal to cut all transportation climate emissions, and the City’s goal to reduce driving alone in Cambridge.

We used a 2019 baseline to match our last greenhouse gas inventory. In cases where the baseline was a different year, we noted it below.

These targets follow a straight path from 2019 to 2050. We have reason to expect progress towards these targets will not be linear, but we don’t have better ways to estimate. In 5 years, we will review the targets and adjust as necessary.

Desired outcome: Transportation no longer causes any climate pollution.

SMART Goal 1: Reduce transportation emissions:

2019 Baseline	2030 Target	2040 Target	2050 Target
132,580 MTCO ₂	85,535 MTCO ₂	42,762 MTCO ₂	0 MTCO ₂

Data source: GHG community inventory (personal, commercial, and City fleet vehicles principally garaged in Cambridge: odometer x mpg; + transit).

Desired Outcome: More people choose walking, biking, and taking transit because it is a more accessible, safe, and enjoyable way to get around.

SMART Goal 2: Increase percent of all trips that start or end in Cambridge that are public transit+walking+biking+carpool:

2019 Baseline	2030 Target	2040 Target	2050 Target
67%	72%	76%	80%

Data source: Replica, using fall Thursday data. Replica uses big data from multiple sources to estimate how people are traveling to, from, and through Cambridge. Read about this product here: <https://www.replicahq.com/>.

Desired outcome: Fewer people drive alone to work.

SMART Goal 3: Reduce percent of people who drive alone to work for Cambridge residents and workers:

Population	2019 Baseline	2030 Target	2040 Target	2050 Target
Live in Cambridge	27%	24%	22%	20%
Work in Cambridge	41%	38%	34%	30%

Data source: US Census Bureau's American Community Survey 1-year data, <https://www.census.gov/programs-surveys/acs.html>

Desired outcome: More people take public transit because they have better access to high-quality transit options.

SMART Goal 4a: Increase the % of people who commute by public transit to work for Cambridge residents and workers:

Population	2019 Baseline	2030 Target	2040 Target	2050 Target
Live in Cambridge	29%	37%	43%	50%
Work in Cambridge	30%	37%	43%	50%

Data source: US Census Bureau's American Community Survey 1-year data, <https://www.census.gov/programs-surveys/acs.html>

SMART Goal 4b: Increase the % of people who are within 0.5 miles walking distance to an MBTA rapid transit station or a 0.25-mile walking distance to a high-frequency bus route stop:

Population	2019 Baseline	2030 Target	2040 Target	2050 Target
Live in Cambridge	58%	65%	70%	75%
Work in Cambridge	74%	80%	85%	90%

Data source: Envision indicator tracking. Cambridge CDD, Cambridge GIS; Population from 2010 and 2020 Census, plus Annual Housing Starts data from CDD; Number of workers from Census LEHD Origin-Destination Employment Statistics (LODES)

Desired outcome: People ride bikes more because it's easier and safer.

SMART Goal 5a: Increase the % of people who commute by bike to work for Cambridge residents and workers:

Population	2019 Baseline	2030 Target	2040 Target	2050 Target
Live in Cambridge	9%	15%	20%	25%
Work in Cambridge	6%	11%	16%	20%

Data source: US Census Bureau's American Community Survey 1-year data, <https://www.census.gov/programs-surveys/acs.html>

SMART Goal 5b: Increase the % of people who are within 0.125 miles walking distance to a Bluebikes bikeshare dock and 0.25 miles distance to an off-road pathway or separated bike lane:

Population	2019 Baseline	2030 Target	2040 Target	2050 Target
Live in Cambridge	16%	42%	66%	90%
Work in Cambridge	42%	59%	75%	90%

Data source: Envision indicator tracking. Population from 2010 and 2020 Census, plus Annual Housing Starts data from CDD; Number of workers from Census LEHD Origin-Destination Employment Statistics (LODES).

Desired outcome: More residents think that walking, biking/e-biking/scooting, or public transit is an excellent or good option for getting around Cambridge.

SMART Goal 6: Increase percent of residents in Annual Citywide survey who say that walking, biking/e-biking/scooting, or public transit is an excellent or good option for getting around:

Travel Option	2024 Baseline	2030 Target	2040 Target	2050 Target
Walking	83%	83%	84%	85%
Biking / e-biking / scooting	65%	70%	77%	85%
Public transit	54%	61%	73%	85%

Data source: Annual Citywide survey: <https://www.cambridgema.gov/-/media/Files/citymanag>

Desired outcome: People living in Cambridge have fewer cars.

SMART Goal 7: Reduce the number of resident parking permits issued:

2019 Baseline	2030 Target	2040 Target	2050 Target
38,745	35,673	33,176	30,854

Data source: Cambridge Resident Parking Permit Program

Desired outcome: More people switch from gas to electric cars.

SMART Goal 8a: Increase % of registered vehicles in Cambridge that are electric:

2020 Baseline	2030 Target	2040 Target	2050 Target
1%	15%	30%	50%

Data source: MassVehicleCensus by MADOT: <https://geodot-homepage-massdot.hub.arcgis.com/pages/massvehiclecensus#mvcdashboard>

SMART Goal 8b: Increase % of people within 0.25 miles of an EV charger:

Population	2019 Baseline	2030 Target	2040 Target	2050 Target
Live in Cambridge	11%	44%	72%	100%
Work in Cambridge	33%	58%	79%	100%

Data source: NREL Alternative Fueling Station data: <https://developer.nrel.gov/docs/transportation/alt-fuel-stations-v1/all/#fuel-station-record-fields>

How Will This Plan Move the City Into the Future?

This document lays the foundation for Cambridge to transition to a zero emissions transportation system by 2050. It provides actionable strategies to support increased mobility options, shift travel behavior, electrify transportation modes, and integrate land use planning with mobility goals.

We realize this plan will not be easy or straightforward. Many of these actions require new policies and infrastructure, which will require investment and ongoing maintenance. Given the complexity and interconnectedness of our transportation system and collective choices to affect each other and the public realm, we know these actions will also rely on changes in choices, habits, and behaviors of everyone traveling around the city. As these actions are implemented, some could lead to street changes that make it faster to take a bus or more comfortable to ride a bike, while at the same time creating shorter-term traffic congestion. Adjustment to new systems and habits can be challenging in the short term. In the longer term, these changes will result in reduced transportation emissions, mode shift, increased safety, and improvement in

the transportation experience generally in the city. These changes can also bring other benefits such as improved air quality, reduced traffic noise, increased access to and use of public space, including sidewalks and streets, and greater opportunities to build community. It will be important to ensure that these additional benefits are equitably distributed across the city.

Near-Term Priorities

To make the Zero Emission Transportation Plan a reality, the City has prioritized actions for near-term implementation and define project milestones. This prioritization process used criteria based on the City's goals, guidance from the Advisory Group, community feedback, and implementation constraints. Actions were prioritized using the following criteria:

- Greater impact on plan goals
- Easier to implement/within City control
- Requested often in community engagement
- Complements other actions already happening in Cambridge
- Lower cost

Using these criteria, the following actions are prioritized for near-term (i.e. one- to two-year) implementation:

- Improve community engagement - CE-1: Provide a high degree of City support to help residents navigate transportation changes, and access transportation options and discounts
- Improve bus service - BAS-1: Enable better bus frequency and reliability by installing bus priority projects on important routes (signal priority, queue jumps, or bus lanes).
- Improve bike mobility - WBM-3: Improve access to bikes through support for community groups and improvements to the Bluebikes system
- Expand electric vehicles - EV-1: Increase availability of publicly accessible charging and fast charging for electric vehicles (EV) and micromobility devices (ex. e-bikes and e-scooters)

This plan and the set of actions it contains will become a guiding framework for implementation in the short-, medium-, and long-term. This was a holistic process that focused on relationship building to set us up to be successful and build consensus around a set of actions that a broad range of community members would support. Making the plan a reality will require ongoing attention and investment by the City and stakeholders; adaptation when transportation tools, technologies, and opportunities change; prioritization, recognizing that not everything can be implemented at once; and continued listening, dialogue, and responsiveness to community members as needs and challenges shift over time.

Lessons Learned and Considerations for Future Processes

Process Lessons

One of the explicit goals of this Plan was to test new engagement processes and develop new tools for community-driven planning. Below are some reflections about this process:

Advisory Group

Compensation: Advisory Group members expressed that the compensation offered to them in recognition of their contribution to the process was meaningful for their participation, either individually or for their organizations to be able to allocate their time to the process.

Relationship-building: Taking time at the beginning of the process to make connections and build an environment where there was trust and openness to share ideas was critical to the success of the group.

Membership: The Advisory Group was intentionally composed of community members who were not transportation subject matter experts, but rather who brought lived experience and perspectives from their wide variety of communities. With time spent upfront sharing information about transportation planning and tools, we were successful in having a meaningful, specific—and at times, technical—discussion to guide the Plan.

Time commitment:

- It was important to set clear expectations about the amount of time members would need to spend on the process. Most members did not have time to review materials in between meetings, so meetings needed to be planned to review content and discuss.
- As the process was extended, some members' availability, jobs, and/or life circumstances changed, making it harder or not possible for them to continue to participate. Two-thirds of Advisory Group members participated in the entire planning process.

Community Engagement

Engage earlier: Initially, most of the effort for the Plan was focused on work with the Advisory Group. This was intended to allow the staff to follow the Advisory Group's priorities for how we developed the plan and how we engaged with the broader community. Though the first public engagement efforts occurred early enough in the process that questions were still very open-ended and the Plan was in early stages of taking shape, community members expressed that they would have liked to have been engaged still earlier, even if there were no specific proposals yet to which they could react.

Discussing community feedback with the Advisory Group: Bringing feedback heard in community engagement to the Advisory Group for discussion and integration into the Plan was an effective way to make sure all feedback was considered thoughtfully.

Participating with an open mind: One of the reasons the Advisory Group worked so well was because they participated in training with open minds. Educating residents by providing fact-based analyses about economic, health, and climate effects of a future with and without GHG emissions is critical.

Plan for accessibility needs to increase participation, especially from underserved, underheard, and historically excluded groups of people: Additional lead time, budget, and meeting design considerations need to be accounted for to make the process as accessible as possible. Our success in making these accessibility improvements also relied on collaboration with key partners in the City, including the Language Justice Division and the Community Engagement Team @ CDD:

- CART (communication access real-time translation) services at virtual and in person meetings
- Revisions of materials to ensure plain language
- Translation of outreach and key materials
- Interpretation services

Allow lots of time and space for one-on-one conversations: Tabling at community events allowed lots of individual conversations that could focus on what was important to community members to share. At public meetings, holding an open-house portion of the meeting with multiple staff available at different “stations” helped maximize the opportunity for deeper conversations.

Technical Lessons

Projecting how emissions will be reduced by the actions in this Plan is a complex task. These changes interact with each other and with many other influences, including market conditions, social and cultural dynamics, and politics. Longer-term projections, particularly, could change significantly in the coming years as technologies and other factors shift. Because the projected emissions reductions are estimates, they should not be over-relied on as exact calculations but should be treated as indicators of magnitude and inform decision making for the things the City can influence.

The Cambridge context makes estimating GHG emissions easier in some ways and harder in others. Cambridge benefits from having a lot of data coverage. Local, regional, and federal sources provide information on vehicle inventories, socioeconomic topics, travel patterns, and other useful information. However, Cambridge is unlike many of the communities that have been the basis of research and case studies. Cambridge has a smaller area, a smaller population, and higher density than many of the case studies. The city also has a higher share of work trips by transit than many examples used in research. Therefore, many of the assumptions and inputs used in emissions reduction estimates need to be adjusted or scaled based on professional judgment for the Cambridge context.

Conclusion

This plan takes a comprehensive approach to eliminating transportation emissions and improving people's mobility options. The actions range in cost, difficulty (technically, politically, etc.), and timeline to implement. An actionable implementation plan that identifies what is most important and feasible to do first is needed to build on this document. With limitations to funding and staff time, prioritization should focus on delivering the most benefit towards all the Plan's goals as soon as possible. At the same time, ongoing advocacy and engagement from the community will be needed to keep longer-term actions a priority.

There are also hurdles that need to be addressed to implement some of these actions. Regional alignment on transportation priorities and effective regional collaboration will be critical. In some cases, state action or legal changes will need to be addressed to support Cambridge's action (e.g. safety issues requiring state action for cars and trucks, sources of funds for subsidies, etc.)

Finally, the big shifts in transportation this Plan calls for will require coordination across City departments and with other planning efforts related to sustainability, land use, public safety, and equity.

What's Next: Cambridge Access and Mobility Plan

A critical next step in our climate and transportation planning is taking an integrated citywide approach to mobility planning. Beginning in 2025, the Department of Transportation (DOT) will create an all-mode Cambridge Access and Mobility Plan (CAMP).

Instead of creating or updating a separate bike plan, transit plan, and pedestrian plan, this will be a citywide transportation plan for traveling to, from, and within Cambridge by walking, bicycling, taking transit, riding micromobility, and driving. The CAMP will consider constraints and tradeoffs as we continue improving the ways we engage with and listen to community members.

The CAMP will conclude with a proposed five-year work plan for the Department of Transportation. Following the model of the Five-Year Plan for Sidewalk and Street Reconstruction, the DOT Work Plan will publicly and clearly communicate proposed next steps for mobility in Cambridge.

Acknowledgements

We would like to recognize and appreciate our Advisory Group members, whose wisdom, feedback, and reflections guided our entire process.

We are grateful to all community members who shared their experiences and insights during this process. Their feedback, suggestions, and critiques shaped the Zero Emission Transportation Plan and ensured it reflected a range of perspectives, ideas, and needs.

We extend our gratitude to our community partners who hosted presentations and discussions about the ZETP plan at their events, contributing significantly to the plan's development and community engagement goals.

We appreciate being able to participate as an Urban Sustainability Directors Network Nexus city. This process helped us, build long-term relationships with community partners, provide climate & transportation training for Advisory Group members, and provide professional development for CET Outreach workers.

We would like to acknowledge the following staff members for their assistance and expertise in preparing the Zero Emission Transportation Plan:

Community Development Department

Iram Farooq, Former Assistant City Manager

Allyson Allen

Juan Avendano

Jennifer Ballew

Tenzin Choephel

Nahid Chowdhury

Bronwyn Cooke

Chris Cotter

David Corbie

Charles Creagh

Bill Deignan

Maricela Escobar

Seth Federspiel

Drew Kane

Abebe Kelemework

Ahmad Khamis
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Ryan McKinnon
Nikhil Nadkarni
Catiana Jean Pierre
Brad Pillen
Melissa Quest-Mercadante
Andrew Reker
Jeffrey Roberts
Thomas O'Neill
Yu Ping Zeng
Yohana Reid Reyes
Pardis Saffari
Nick Schmidt
Cara Seiderman
Meghan Shaw
Annie Shawn
Scott Walker
Roshni Wadhwani
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José Wendel

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Parking, and Transportation Department)
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Chaimaa Medhat
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Adam Shulman
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Commission for Persons with Disabilities
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Department of Public Works
Jim Wilcox, Commissioner
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Irina Sidorenko

Language Justice Division
Crystal Rosa

Public Safety
Christine Elow, Police Commissioner
Kara Blue

Appendices

Appendix 1: Community Engagement Events

The process for developing the Plan involved extensive community outreach. In addition to the following events, City staff engaged in many 1-1 conversations with community members and coordinated with staff from various City departments, including Community Development; Traffic, Parking, and Transportation; Public Works; Police; and the Commission for Persons with Disabilities.

- 17 Advisory Group meetings
- 2 Joint Transportation Committee meetings (Pedestrian, Bicycle, and Transit Advisory Committees)
- 2 Spring 2024 Community Meetings – virtual and in-person
- 3 Climate Committee meetings
- 2 CET@CDD focus groups
- Islamic Society of Boston youth focus group
- Community Learning Center Conferencing
- Cambridge Commission for Persons with Disabilities Board meeting
- River Festival
- Cambridge Economic Opportunity Commission Staff Focus Group
- Fresh Pond Apartments Summer Party
- HRI Neighbor2Neighbor Cookout
- Alewife Transportation Management Association Meeting
- Central Square Advisory Committee
- Cambridge Youth Programs Activity
- Cambridge Housing Authority Coffee Chat
- BIPOC Business Advisory Group meeting
- Science Festival “In the Neighborhood” Lecture
- Science Festival Carnival
- Arts in the Park
- Neighborhood Association Focus Group
- Advocate Focus Group
- 2 Fall 2024 Community Meetings – virtual and in-person
- Harvard Square Advisory Committee
- City Council Health & Environment Committee Hearing