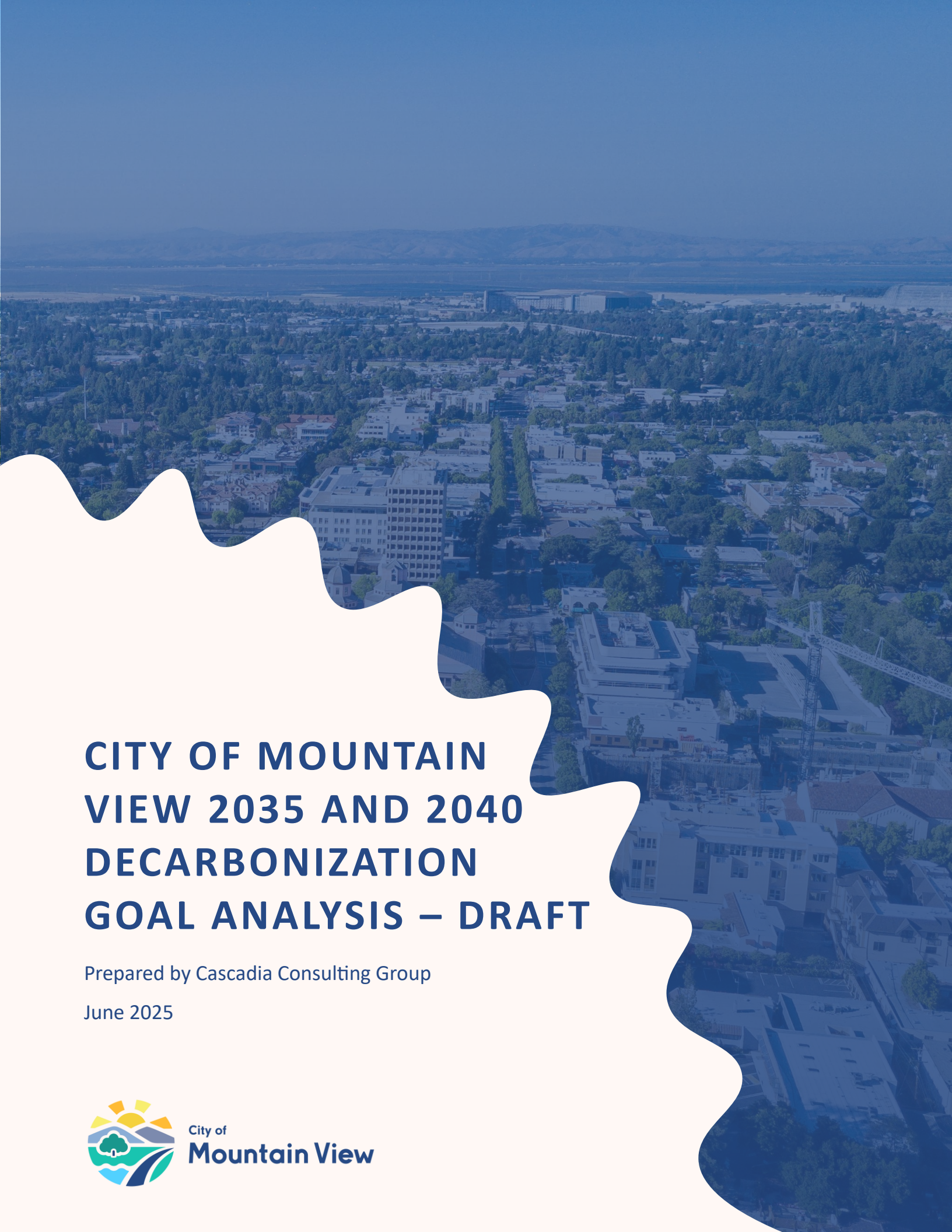


CITY OF MOUNTAIN VIEW 2035 AND 2040 DECARBONIZATION GOAL ANALYSIS – DRAFT

Prepared by Cascadia Consulting Group

June 2025

City of Mountain View

Analysis Overview

Cascadia is working on an analysis to support the City's decision-making process to adopt a 2035 or 2040 decarbonization goal, which includes forecasting future greenhouse gas (GHG) emissions. The analysis forecasts a business-as-usual scenario and an adjusted business-as-usual GHG emissions reduction scenario based on regional, state, and federal programs and policies. These forecasts can help the City understand its remaining emissions that will need to be addressed through local projects, programs, and policies. Key takeaways from the analysis include:

- **Business as usual (BAU) scenario**: Without federal, state, or local climate action, Mountain View's total GHG emissions are expected to increase due to projected changes in Mountain View's population and employment. Compared to 2022, GHG emissions are expected to **increase 60% by 2035**, **81% by 2040**, and **103% by 2045.**

- **Adjusted business as usual (ABAU) scenario**: When considering the anticipated impacts of current key federal, state, and regional policies, Mountain View's total GHG emissions are expected to **decrease 7% by 2035**, **47% by 2040**, and **85% by 2045**, compared to 2022 emissions.

- **Local impact scenario:** This part of the analysis will be completed in summer 2025 and will model 10 key local decarbonization actions to consider implementing in the next five years.

The analysis methodology, modeling assumptions, and specific GHG emissions reduction estimates are described below in *Analysis Details*. An exploration of potential decarbonization goals and remaining GHG emissions can be found in the *Decarbonization Goals* section.

Analysis Details

Forecast Growth Rates

The model used the projected changes in demographics in Table 1 to forecast Mountain View's future emissions (BAU scenario):

- The number of people who live in Mountain View (Population)
- The number of people who work in Mountain View (Employment)
- The number of people who live and/or work in Mountain View (Service Population)

Table 1. Projected changes in Mountain View's demographics.

	2022	2030	2035	2040	2045
Population (1)	84,199	115,133	131,987	149,598	167,208
Employment (1)	80,980	115,602	132,457	149,556	167,320
Service Population (2)	165,179	230,735	264,444	299,154	334,528
	Data Sources: 1. Provided by the City of Mountain View for 2020, 2022 and 2031; forecasted linearly for future years based on growth between 2020 and 2031. 2. Calculated sum of Mountain View's population and employees.				

Table 2 below indicates which growth factors were used for each emission source when forecasting Mountain View's emissions through 2045.

Table 2. Growth factors used for Mountain View's emission forecast.

Emission Source	Sector	Growth Factor
Electricity	Residential	Population
	Commercial	Employment
	Water	Population
Natural Gas	All	Service Population
On-Road Vehicles	-	Service Population
Off-Road Vehicles	-	Service Population
CalTrain	-	Service Population
Waste Generation	-	Service Population
Wastewater	-	Service Population

Future Emissions and Emissions Reductions

When accounting for the impact of modeled federal, state, and regional policies in the ABAU scenario, Mountain View's emissions are projected to decrease over the next few decades, compared to BAU emissions. However, these policies alone will not reduce the community's emissions to meet the City's currently adopted 2045 decarbonization goal or the more ambitious 2035 or 2040 carbon neutrality goal options.

Table 3 lays out the **projected emissions and emissions reductions under the BAU and ABAU scenarios**, along with the key assumptions used when modeling each policy in this emission forecast. The last row (highlighted in light orange) displays the total expected future emissions, after accounting for the impact of modeled policies and electric vehicle (EV) market trends, but without the impacts of the Clean Cars Act (EO-N-79-20). The total remaining emissions *with* the Clean Cars Act are also shown near the bottom of the table (for more information about why two totals are shown, see *Policy Compliance and Implementation*).

Table 3. Summary of emissions forecast estimates ($MTCO_2e$).[1]

Federal, State, and Regional GHG Reduction Actions	Key Assumptions in Model	2035	2040	2045
Business-as-usual (BAU) emissions – emissions forecast based on Mountain View's 2022 GHG emissions profile,[2] assuming no climate action (programs, policies, standards) at the local, state, or federal level.		**712,041**	**805,378**	**900,645**
Impact of EO-N-79-20 (Zero Emissions by 2035)	**Overview:** Sets a goal that 100% of in-state sales of new passenger vehicles and trucks are zero-emission vehicles, as well as 100% zero-emission drayage trucks, off-road vehicles, and equipment where feasible by 2035. Additionally, by 2045, 100% of medium- and heavy-duty trucks should be zero-emissions vehicles where feasible. **Key Assumptions:** • By 2035, 100% of passenger and light duty vehicles, and off-road equipment sales are zero emission. • By 2045, 100% of medium/heavy duty vehicle sales are zero emission.	(160,141)	(324,266)	(476,300)

[1] Values and percentages have been rounded to the nearest whole number.
[2] While the City will be using a rolling average approach for emissions reporting moving forward, 2022 was used as the forecasting year for this analysis because it was the most recent inventory data available at the time the analysis was conducted. Information on the rolling average approach can be found in the *2023 Community Greenhouse Gas Inventory Memorandum to the Council Sustainability Committee*: https://mountainview.legistar.com/LegislationDetail.aspx?ID=7353846&GUID=65AC5BD8-1CCF-4749-89D1-752ED52E9904&Options=&Search=.

Federal, State, and Regional GHG Reduction Actions	Key Assumptions in Model	2035	2040	2045
Impact of Bay Area Air Quality Management District (BAAQMD) Rules 9-4 and 9-6	**Overview:** As of 2023, the Bay Area Air Quality Management District (BAAQMD) amended Rules 9-4 and 9-6 to require that natural gas water heaters and furnaces, when replaced, be switched to zero-NOx alternatives like heat pumps beginning in 2027. **Key Assumptions:** • Water heaters and furnaces have an equipment lifecycle of 15 years. • The transition to new equipment begins in 2027, and therefore 100% of equipment will be upgraded to electric by 2042, based on the useful equipment life of 15 years.	(46,616)	(117,396)	(192,573)
Impact of EV market trends	**Overview:** Despite changes in federal and state policies mandating the sale of electric vehicles, it is expected that California's residents will continue to transition to EVs as they purchase new vehicles. **Key Assumptions:** • As of Q1 2025, the zero-emissions vehicle sales proportion for the state of California was 23%. • Studies estimate that by 2030, the zero-emissions vehicle sales proportion will rise to 32% for light duty vehicles. There is minimal research regarding heavy-duty electric vehicle sales proportions, so the model estimates that this metric reaches 10% by 2050.	(54,392)	(95,756)	(149,629)
Impact of SB100 (California Renewables Portfolio Standard)	**Overview:** The state's renewable portfolio standard establishes that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers by 2045. **Key Assumptions:** • All electric utilities will reach 100% zero-carbon emissions by 2045. This is modeled as a straight line from each utility's 2022 carbon intensity.	(33,507)	(59,476)	(90,728)
Impact of Low Carbon Fuel Standard	**Overview:** California's Low Carbon Fuel Standard requires reducing carbon intensity of transportation fuels 20% by 2030 through low-carbon and renewable alternatives. California (CA) was required to achieve a 10% reduction by 2020. Conventional jet fuel is excluded from the Low Carbon Fuel Standard. **Key Assumptions:** • CA achieved a 10% reduction by 2020, and the carbon intensity of fuels will continue to decrease linearly through 2030.	(53,772)	(60,829)	(68,022)

Federal, State, and Regional GHG Reduction Actions	Key Assumptions in Model	2035	2040	2045
Impact of SB1383 (Short-Lived Climate Pollutants)	**Overview:** SB 1383 regulations went into effect on January 1, 2022. The regulations aim to divert 50% of organic waste from landfills below 2014 levels by 2020 and 75% by 2025. **Key Assumptions:** • Additional 25% reduction of landfilled organic waste from 2014 levels by 2025, assuming this organic waste is diverted as compost instead. This is equivalent to an additional 50% reduction from 2022 levels, assuming that California achieved a 50% reduction by 2020, as mandated by SB1383.	(3,671)	(4,153)	(4,644)
Impact of California Green Building Standards Code (CALGreen 2019, 2022)	**Overview:** CALGreen is a mandatory green building code with additional voluntary provisions. It is Part 11 (of 12) of the California Building Standards Code, Title 24 of the California Code of Regulations. The 2019 standards were anticipated to reduce residential building energy use 50% and nonresidential energy use 30%. 2019 standards were effective Jan 1, 2020. **Key Assumptions:** • Assume 2022 as the baseline and assume new construction after 2022 is 50% more efficient for residential and 30% for non-residential energy use.	(2,000)	(1,971)	(1,729)
Emissions reduction impact of all ABAU policies		***(299,706)***	***(568,091)***	***(833,995)***
Percentage reduction from BAU emissions		***42%***	***71%***	***93%***
Adjusted business-as-usual (ABAU) emissions *with EO-N-79-20 (Clean Cars Act)* – Emissions that would need to be reduced by local action.		**412,335**	**237,287**	**66,650**
Percentage of BAU emissions the City of Mountain View would need to reduce through local action		**58%**	**29%**	**7%**
Adjusted business-as-usual (ABAU) emissions *without EO-N-79-20 (Clean Cars Act)* – Emissions that would need to be reduced by local action.		**572,476**	**561,553**	**542,950**
Percentage of BAU emissions the City of Mountain View would need to reduce through local action		**80%**	**70%**	**60%**

Policy Compliance and Implementation

It is important to note that the current legislative landscape for regional, state, and federal policies can change rapidly. For example, the Environmental Protection Agency (EPA) recently revoked California's waiver authorized under the Clean Air Act allowing the state to implement the 2035 Clean Cars Act (Advanced Clean Cars II). The 2035 Clean Cars Act would have required that all passenger vehicles sold

in California be electric by 2035. For this reason, Table 3 above shows remaining emissions both with and without the impact of this policy.

Due to the uncertainty of whether current modeled policies will be upheld and fully complied with, this model included adjustable values for "policy compliance." The user can adjust the percentage compliance for each individual policy included in the ABAU scenario. This function is intended to be used for Mountain View to look at different scenarios and better understand potential challenges the City might face in its decarbonization work. The emission reduction numbers in Table 3 above assume 100% compliance.

Table 4 below illustrates the importance of policy compliance in progress toward emissions reductions. The remaining emissions (that need to be addressed with local action) is significantly affected by the compliance levels of key policies identified and modeled in this analysis.

Table 4. Emissions under different policy compliance scenarios ($MTCO_2e$).

Scenario	2022	2035	2040	2045
Business-as-usual (BAU) – 0% compliance	444,016	712,041	805,378	900,645
Adjusted business-as-usual (ABAU) – 50% compliance	444,016	566,061	544,438	497,293
Adjusted business-as-usual (ABAU) – 100% compliance	444,016	412,335	237,287	66,650

Decarbonization Goals

A key objective of this analysis is to support the City with decisions and considerations to consider adopting a new decarbonization goal for 2035 or 2040. Figure 1 on the following page shows the remaining emissions to be addressed through local projects, policies, and programs to achieve a 2035 or 2040 carbon neutrality goal—after accounting for the expected emissions increases due to projected population and employment growth and the expected emissions reductions due to regional, state, and federal policy.

Exploring a 2035 or 2040 Decarbonization Goal

Mountain View is exploring the possibility of decarbonizing sooner than its currently adopted goal of carbon neutrality by 2045. Figure 1 shows the BAU and ABAU analysis results with decarbonization goals for 2035 and 2040, which include the following emissions reduction milestones:[3]

- **2035 carbon neutrality:**
  - **77%** by 2030
  - **100%** (representing carbon neutrality) by 2035

- **2040 carbon neutrality:**
  - **67%** by 2030
  - **83%** by 2035
  - **100%** (representing carbon neutrality) by 2040

The City Council's most recently adopted decarbonization goal is to reach carbon neutrality by 2045.[4] The 2045 purple-gray dotted line (identified in the legend) in Figure 1 visualizes this adopted carbon neutrality goal, which shows the following emissions reduction milestones:[5]

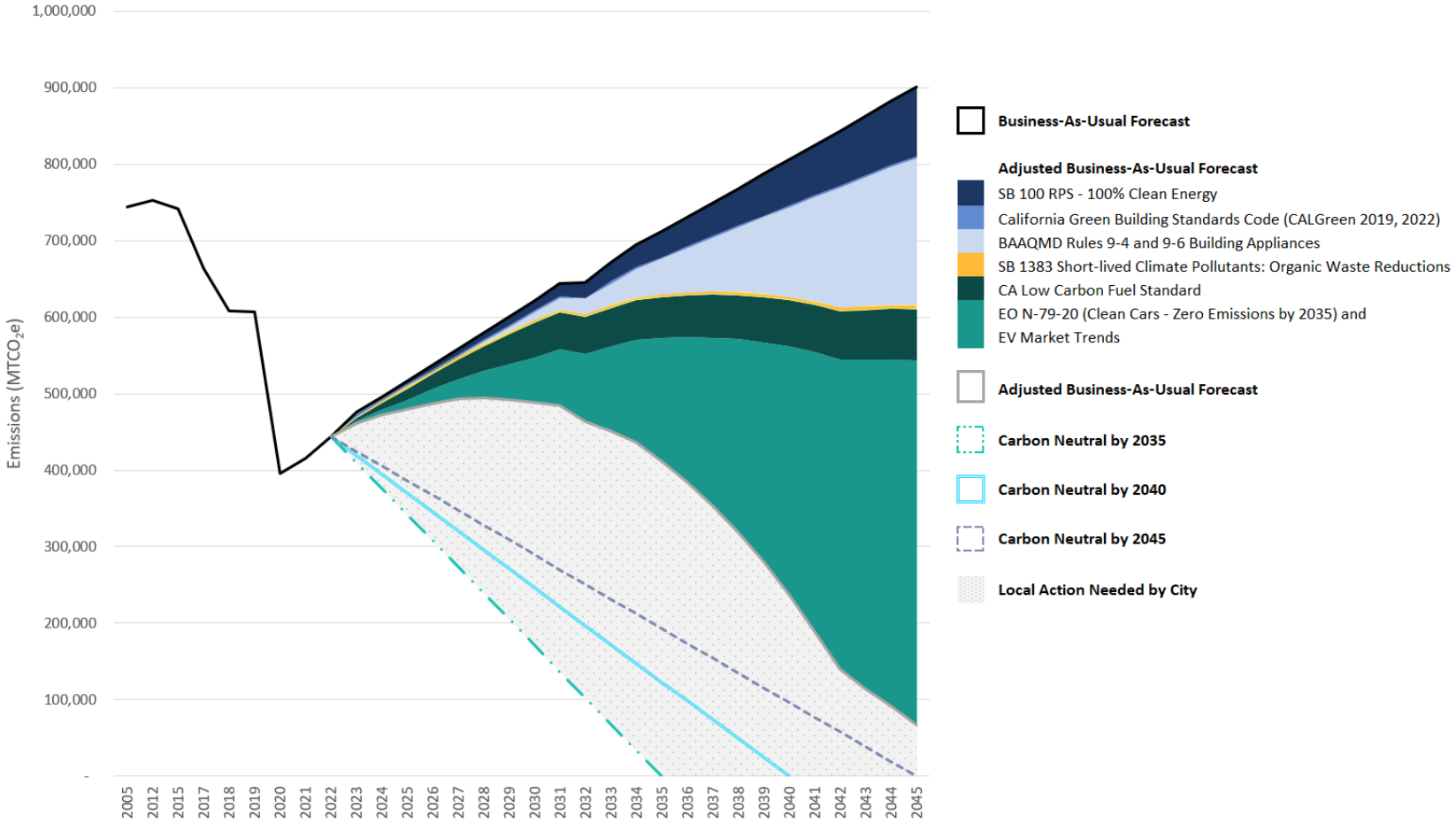
- **2045 carbon neutrality:**
  - **61%** by 2030
  - **74%** by 2035
  - **87%** by 2040
  - **100%** (representing carbon neutrality) by 2045

[3] Assuming linear emissions reductions from the City's 2022 GHG inventory to the carbon neutrality goal year, with emissions reduction targets compared to a 2005 baseline

[4] City Council Adopts Carbon Neutrality Goal | News | Collaborate Mountain View

[5] Assuming linear emissions reductions from the City's 2022 GHG inventory to the carbon neutrality goal year, with emissions reduction targets compared to a 2005 baseline

Figure 1. Mountain View's BAU and ABAU emissions forecast, including carbon neutrality goals by 2035, 2040, and 2045 ($MTCO_2e$).



Remaining Emissions

To show Mountain View's expected total future emissions in more detail, Figure 2 shows 2022 emissions alongside the remaining emissions the City would need to reduce locally, beyond regional, state, and federal climate policies and market trends.

The following are the top three projected emission sources for each future milestone year, with each source's contribution shown as a percentage of total anticipated emissions:

- **2035**: on-road vehicles (46%), natural gas (22%), and electricity (18%)
- **2040**: on-road vehicles (41%), electricity (22%), and natural gas (19%)
- **2045**: on-road vehicles (36%), off-road equipment (32%), and landfill (29%)

Figure 2. Mountain View's remaining emissions by source after accounting for the impact of key modeled policies.