

## Appendix C

# Climate Action Plan Appendix



# Climate Action Plan Appendix

The Truckee Climate Action Plan (CAP) Appendix serves as a supplement to Chapter 9, Climate Action Plan Element, of the Truckee 2040 General Plan and is intended to help with the implementation of the greenhouse gas (GHG) emissions reductions achieved through the goals, policies, and actions identified in Chapter 9. The appendix identifies the quantified GHG emissions reductions along with assumptions and metrics associated with each CAP Element goal. The appendix also includes a CAP Monitoring Table (see Table C-14) and a list of funding strategies available to help implement the CAP goals, policies, and actions.

## Renewable Energy and Greenhouse Gas Reduction Goals

In 2017, the Town passed Resolution 2017-58, which established the goals of reducing community-wide emissions to 80 percent below baseline emissions (2008) by 2040, achieving 100 percent renewable electricity in municipal facilities by 2020, achieving 100 percent renewable electricity townwide by 2030, achieving 100 percent renewable energy townwide by 2050, and engaging in a transparent and robust community engagement process to help achieve the goals outlined in the resolution.

To understand what annual GHG emissions will look like in the future, the Town has modeled two emissions growth scenarios—a business-as-usual (BAU) scenario and a legislative-adjusted BAU (ABAU) scenario. These scenarios are both based on the population, employment, housing, nonresidential development, and vehicle miles traveled (VMT) projections of the General Plan (see Appendix B) for the target years 2030, 2040, 2045, and 2050. While the BAU forecast assumes that no state or federal legislative actions are implemented to reduce GHG emissions, the ABAU forecast accounts for the effects of existing state and federal legislation and regulations that are expected to impact future community-wide emissions in Truckee. The emissions forecasts allow the Town to assess the effectiveness of various GHG reduction efforts over time while also providing a snapshot of how annual emissions levels are anticipated to change under the two scenarios.

By modeling BAU and ABAU emissions out to target years, the Town can then understand what percentage of Truckee's future emissions reductions will be achieved by legislative actions and what percentage will need to be achieved through the CAP to achieve the Town's GHG reduction targets (see Table C-1).

**Table C-1: Truckee CAP Emissions Inventory, Forecasts, and GHG Reduction Targets**

CAP Emissions	Target Year					
	2008 (Baseline)	2016	2030	2040	2045	2050
Emissions Inventories and BAU Forecasts (MTCO <sub>2e</sub> )	230,349	228,334	263,715	286,903	298,660	311,210
Emissions Inventories and ABAU Forecast (MTCO <sub>2e</sub> )	230,349	153,269	155,038	148,640	133,222	136,729
Target Percent Reduction below 2008 Levels	NA	NA	40%	80%	100%	100%
Target Mass Emissions Level (MTCO <sub>2e</sub> )	NA	NA	138,209	46,070	0	0
Reductions Needed to Achieve Target (MTCO <sub>2e</sub> )	NA	NA	16,829	102,570	133,222	136,729

Notes: ABAU = legislative-adjusted business-as-usual; BAU = business-as-usual; CAP = Climate Action Plan; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent; NA = not applicable.  
 Source: Ascent 2022.

Table C-2 summarizes the quantified GHG emissions reductions for each CAP goal as well as the progress toward the Town’s GHG reduction targets. If implemented, the CAP will result in an annual emissions reduction of approximately 35,359 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) by 2030, significantly exceeding the Town’s GHG reduction target to reduce emissions by 16,829 MTCO<sub>2e</sub> by 2030 (i.e., a 40 percent reduction below 2008 levels). By 2040, the CAP will achieve an emissions reduction of 70,817 MTCO<sub>2e</sub>, which falls short of the Town’s target for 2040 of reducing emissions by 102,570 MTCO<sub>2e</sub> (i.e., an 80 percent reduction below 2008 levels). Similarly, the CAP will result in emissions reductions of 83,384 MTCO<sub>2e</sub> in 2045 and 88,990 MTCO<sub>2e</sub> in 2050, which fall short of the 2045 and 2050 targets by 49,838 MTCO<sub>2e</sub> and 47,739 MTCO<sub>2e</sub>, respectively. It is assumed that the CAP will be updated periodically so that new policies, technologies, programs, and legislation can be incorporated into the plan to achieve the remaining reductions needed to meet the 2040, 2045, and 2050 targets. The remainder of this document provides details on each of the CAP goals that will need to be implemented to realize the quantified emissions reductions, meet the Town’s 2030 target, and make progress toward the longer-term targets.

**Table C-2: CAP Goals– GHG Reduction Summary**

CAP Goal		GHG Reductions (MTCO <sub>2e</sub> )			
		2030	2040	2045	2050
GOAL CAP-1	Reduction in Vehicle Miles Traveled	1,087	1,372	1,678	2,064
GOAL CAP-2	Bicycle and Pedestrian Trips	869	1,472	1,746	2,050
GOAL CAP-3	Transit System	800	1,564	1,530	1,569
GOAL CAP-4	Low- and Zero-Emissions Vehicles	317	668	1,018	1,325
GOAL CAP-5	Land Use Patterns	240	219	209	209
GOAL CAP-6	Open Space and Carbon Sequestration	2,775	5,550	8,325	11,100
GOAL CAP-7a	Energy Efficiency in Existing Development (CAP-7.A Building Energy Retrofit Program)	15,864	36,997	29,790	29,790
GOAL CAP-7b	Energy Efficiency in Existing Development (CAP-7.B Renewable Energy Sources)	11,763	14,875	29,471	29,471

CAP Goal		GHG Reductions (MTCO <sub>2e</sub> )			
		2030	2040	2045	2050
GOAL CAP-7c	Energy Efficiency in Existing Development (CAP-7.G Water Conservation Education)	12	7	0	0
GOAL CAP-8	Energy Efficiency in New Development	465	5,740	6,649	8,416
GOAL CAP-9	Organic Waste	1,166	2,353	2,969	2,996
GOAL CAP-10	Overall Consumption	NA	NA	NA	NA
GOAL CAP-11	Implementation, Monitoring, and Reporting	NA	NA	NA	NA
<b>Total GHG Reductions from CAP Element (MTCO<sub>2e</sub>)</b>		<b>35,359</b>	<b>70,817</b>	<b>83,384</b>	<b>88,990</b>
<b>Reductions Needed to Achieve Targets (MTCO<sub>2e</sub>)</b>		<b>16,829</b>	<b>102,570</b>	<b>133,222</b>	<b>136,729</b>
<b>Remaining Gap to Achieve Target<sup>1</sup> (MTCO<sub>2e</sub>)</b>		<b>(18,529)</b>	<b>31,754</b>	<b>49,838</b>	<b>47,739</b>

Notes: Totals may not sum exactly due to independent rounding. CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent; NA = not applicable.

<sup>1</sup> Parentheses indicate target has been achieved with a surplus of emissions reductions.

Source: Ascent 2022.

## CAP Element Goals – GHG Reduction Quantification Metrics

The following sections include a summary table for each goal in the CAP Element. The summary tables show the quantified GHG emissions reductions that would be achieved in each target year (i.e., annual emissions) from implementation of each goal. Key assumptions used for emissions reduction quantifications (e.g., assumed percent increase in bicycle commuters for 1 percent increase in bike lane miles) are included in the summary tables and are described further in the Emissions Reduction Summary sections that follow. At least one CAP metric (e.g., new bike lane miles) is also included for each goal, which represents the primary input data used in reduction quantifications and gives the Town a mechanism to track implementation progress for each goal.

It is important to note that many of the calculations used to quantify GHG emissions reductions are complex, and the summary tables do not necessarily show all data points and variables (e.g., emissions factors, population data) used in calculations. Some of the goals overlap, so they are quantified using a tiered approach to avoid double-counting emissions reductions (i.e., the impact of one goal on an emissions source is accounted for within the quantification of another goal). Additionally, this tiered approach may not follow the numerical order of the CAP goals and actions. For example, Goal CAP-1 is quantified after and accounts for the impact of Goal CAP-3; therefore, while annual passenger VMT is the primary input data for both goals, the VMT input value used in Goal CAP-1 is slightly less than the value used in Goal CAP-3. Lastly, many of the calculations rely on variable emissions factors and various growth rates that change over time. For example, although Goal CAP-7c would reduce water use by the same rate from 2030 to 2050, emissions reductions decrease from 2030 to 2040 and are zero by 2045. This is the result of the steadily declining emissions intensity of grid electricity over time, which is anticipated to reach 100 percent carbon-free by 2045, pursuant to the Renewables Portfolio Standard under Senate Bill 100. Due to these complexities, summary tables should not be used to try to replicate GHG emissions reduction quantifications. The calculations for emissions reductions can be found in Attachment C.1.

## VMT Methodology

Consistent with recommendations from the California Air Resources Board, VMT data used for the purposes of this CAP were derived using the Regional Targets Advisory Committee (RTAC) origin-destination method established through SB 375. These VMT estimates are associated with trips that begin and/or end in the town. Total annual VMT estimates include 100 percent of vehicle trips that both originate from and end in the town (i.e., fully internal trips), 50 percent of trips that either end in or depart from the town (i.e., internal-external or external-internal trips), and zero percent of vehicle trips that are simply passing through the town boundaries (i.e., external-external, or “pass-through,” trips).

Total annual VMT comprises VMT from passenger vehicles (i.e., passenger cars and light-duty trucks) as well as commercial (i.e., medium- and heavy-duty) vehicles. The transportation-related CAP goals focus on passenger vehicle VMT only and do not apply to or impact commercial vehicle VMT. Further, some transportation goals only consider commute-related passenger VMT. As a result, GHG emissions reduction quantification assumptions and CAP metrics provided in the following sections may not be equal. For example, although Goal CAP-3 assumes a 6 percent reduction in annual *passenger* VMT in 2040 from increased transit use, implementation would result in a 5 percent reduction in *total* annual VMT. This is because commercial VMT accounts for a small proportion of total annual VMT, and commercial VMT remains unchanged and is not impacted by increased transit use.

## GOAL CAP-1: Reduction in Vehicle Miles Traveled

*Promote transportation innovation and transportation demand management programs to reduce vehicle miles traveled.*

**Table C-3: Summary for Goal CAP-1**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent reduction in townwide commute-related passenger VMT from suite of TDM measures	15%	20%	25%	30%
Total annual passenger VMT reduction <sup>1</sup>	3,652,782	5,075,511	6,584,815	8,228,325
Percent reduction of total annual VMT	4%	5%	6%	7%
<b>GHG emissions reductions (MTCO<sub>2</sub>e)</b>	<b>1,087</b>	<b>1,372</b>	<b>1,678</b>	<b>2,064</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent; TDM = transportation demand management; VMT = vehicle miles traveled.

<sup>1</sup> VMT data used for the purposes of this CAP were obtained from the LSC 2018 Land Use Model and were derived using the Regional Targets Advisory Committee (RTAC) origin-destination method established through SB 375. Note that this differs from the VMT modeling presented in Section 4.15, "Transportation and Circulation," of the 2040 General Plan and Downtown Truckee Plan Update Draft EIR, which is consistent with the Technical Advisory on Evaluating Transportation Impacts in CEQA released by the Governor's Office of Planning and Research in December 2018 and the Truckee VMT Guidelines Memo released in 2020.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-1 would be achieved through the implementation of the policies and supporting actions under this goal, which focus on reducing commute-related single-occupant vehicle trips and VMT from new and existing development in the town. This reduction will come from a transition to more sustainable commute behavior (e.g., transit, carpooling, micromobility, biking, walking) for Truckee residents and those who work in town but live elsewhere. The estimated reductions in VMT are calculated using an assumed percent reduction in commute-related passenger VMT from implementing a suite of TDM measures townwide, which is based on research provided by the California Air Pollution Control Officers Association's *Quantifying Greenhouse Gas Mitigation Measures*.

## GOAL CAP-2: Bicycle and Pedestrian Trips

*Increase bicycle and pedestrian trips to reduce dependence on vehicles and promote community health.*

**Table C-4: Summary for Goal CAP-2**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent increase in bicycle commuters for 1 percent increase in townwide street length with bike lanes	0.35%	0.35%	0.35%	0.35%
New Class I and II bike lanes (miles)	14.0	10.0	5.0	4.5
Total townwide lane miles with Class I and II bike lanes	59.5	69.5	74.5	79.0
Percent increase of townwide street length with Class I and II bike lanes	31%	53%	64%	74%
<b>GHG emissions reductions (MTCO<sub>2e</sub>)</b>	<b>869</b>	<b>1,472</b>	<b>1,746</b>	<b>2,050</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-2 would be achieved by increasing the amount of townwide Class I and II bike lanes and improving biking and pedestrian facilities throughout the town, as outlined in the Truckee Trails and Bikeways Master Plan, helping to shift transportation behavior and increase active transportation for local trips. Research has demonstrated that a 1 percent increase of street length with bike lanes is associated with a 0.35 percent increase in trips made by bicycle (CAPCOA 2010; CARB 2014; Marshall and Garrick 2010). The emissions reduction calculations for this goal are based on the percent increase of townwide streets with Class I and II bike lanes and assume that these new bicycle trips would replace trips otherwise made by passenger vehicles.

## GOAL CAP-3: Transit System

*Promote a safe, accessible, equitable, and efficient local and integrated regional transit system, including bus, van, shuttle, and rail, to encourage broad support and use of public transit and reduce dependence on single-occupant vehicles.*

**Table C-5: Summary for Goal CAP-3**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent reduction in townwide passenger VMT from comprehensive expansion of transit network	3%	6%	6%	6%
Total annual passenger VMT reduction <sup>1</sup>	2,689,825	5,785,157	6,004,390	6,252,526
Percent reduction of total annual VMT	3%	5%	5%	5%
<b>GHG emissions reductions (MTCO<sub>2e</sub>)</b>	<b>800</b>	<b>1,564</b>	<b>1,530</b>	<b>1,569</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent; VMT = vehicle miles traveled.

<sup>1</sup> VMT data used for the purposes of this CAP were obtained from the LSC 2018 Land Use Model and were derived using the Regional Targets Advisory Committee (RTAC) origin-destination method established through SB 375. Note that this differs from the VMT modeling presented in Section 4.15, "Transportation and Circulation," of the 2040 General Plan and Downtown Truckee Plan Update Draft EIR, which is consistent with the Technical Advisory on Evaluating Transportation Impacts in CEQA released by the Governor's Office of Planning and Research in December 2018 and the Truckee VMT Guidelines Memo released in 2020.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-3 would be achieved through improvements to the transit system (e.g., transit access improvements, reduced headways, increased service area), helping to change transportation behavior and replace vehicle trips with local and regional trips made using the transit system. This would result in an overall reduction in townwide VMT and associated GHG emissions. Research has demonstrated that comprehensive expansions to transit networks can result in a reduction of between 0.1 percent and 15 percent in a community's total annual VMT (Handy et al. 2013; CAPCOA 2021). The calculations for this goal conservatively assume a 3 percent decrease in townwide passenger VMT in 2030 and a 6 percent decrease in 2040, 2045, and 2050.

## GOAL CAP-4: Low- and Zero-Emissions Vehicles

*Increase low- and zero-emissions vehicle options to work toward a carbon-neutral transportation system.*

**Table C-6: Summary for Goal CAP-4**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed new public and nonresidential electric vehicle charging stations installed	50	100	150	200
Average charging hours per plug per day	3	3	3	3
<b>GHG emissions reductions (MTCO<sub>2e</sub>)</b>	<b>317</b>	<b>668</b>	<b>1,018</b>	<b>1,325</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-4 would be achieved through the increased adoption and use of electric vehicles (EVs). By increasing the prevalence of EV charging stations at public and nonresidential locations in Truckee, the Town can encourage the purchase and use of EVs by residents, workers, and visitors. The calculations for this goal assume there will be 50 new EV charging stations (two charging plugs per station) by 2030 at Town facilities and nonresidential land uses by 2030, 100 new charging stations by 2040, 150 new charging stations by 2045, and 200 new charging stations by 2050. The calculations assume an average of 3 hours of charging per day per charging plug.

## GOAL CAP-5: Land Use Patterns

*Reduce reliance on vehicles by encouraging higher-density housing near businesses and amenities (e.g., trails, community gathering spaces) that serve the daily needs of residents.*

**Table C-7: GHG Reduction Summary for Goal CAP-5**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent reduction in townwide passenger VMT	1%	1%	1%	1%
Total annual passenger VMT reduction <sup>1</sup>	808,058	811,359	820,196	832,537
Percent reduction of total annual VMT	1%	1%	1%	1%
<b>GHG emissions reductions (MTCO<sub>2e</sub>)</b>	<b>240</b>	<b>219</b>	<b>209</b>	<b>209</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent; VMT = vehicle miles traveled.

<sup>1</sup> VMT data used for the purposes of this CAP were obtained from the LSC 2018 Land Use Model and were derived using the Regional Targets Advisory Committee (RTAC) origin-destination method established through SB 375. Note that this differs from the VMT modeling presented in Section 4.15, "Transportation and Circulation," of the 2040 General Plan and Downtown Truckee Plan Update Draft EIR, which is consistent with the Technical Advisory on Evaluating Transportation Impacts in CEQA released by the Governor's Office of Planning and Research in December 2018 and the Truckee VMT Guidelines Memo released in 2020.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-5 would be achieved by improving and increasing sustainable land use patterns in Truckee, such as compact, pedestrian-oriented development with higher-density housing near services and employment centers. Focusing affordable housing near transit (Policy LU-2.4) and maintaining a healthy jobs-housing balance (Policy LU-2.5) would reduce single-occupant vehicle trips. Research has indicated that, on average, residents of affordable housing units use transit more and have lower rates of vehicle ownership, leading to overall reductions in VMT from new residential development compared to market-rate housing (CAPCOA 2010). Additionally, the Land Use Element promotes multifamily housing in mixed-use districts that would lead to reductions in VMT. This goal assumes a conservative passenger VMT reduction of 1 percent resulting from increased affordable and/or higher-density housing near transit and services (CAPCOA 2010; Mozingo 2021).

## GOAL CAP-6: Open Space and Carbon Sequestration

*Conserve open space and improve land carbon sequestration potential to enhance the resilience of natural spaces.*

**Table C-8: Summary for Goal CAP-6**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed total acres preserved	25	50	75	100
Assumed carbon sequestration per acre of forestland – trees (MTCO <sub>2e</sub> /acre)	111	111	111	111
<b>GHG emissions reductions (MTCO<sub>2e</sub>)</b>	<b>2,775</b>	<b>5,550</b>	<b>8,325</b>	<b>11,100</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent; MTCO<sub>2e</sub>/acre = metric tons of carbon dioxide equivalent per acre.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-6 would be achieved by preserving new acres of undeveloped land through permanent conservation easements or other conservation mechanisms, permanently preserving the carbon sequestration potential of the land. The calculations for this goal assume that new acres of open space preserved would otherwise, without the actions taken by the Town, be developed for other uses and the carbon sequestration potential would be lost. The calculations for this measure assume a carbon sequestration potential of 111 MTCO<sub>2e</sub> per acre for forestland trees (CAPCOA 2021).

## GOAL CAP-7: Energy Efficiency in Existing Development

*Increase energy efficiency in existing developments to reduce energy use in the built environment.*

The GHG reductions, assumptions, and CAP metrics for Goal CAP-7 are associated with three individual actions (i.e., CAP-7.A, CAP-7.B, and CAP-7.G) included under the larger goal. These actions are described in separate sections below.

### CAP-7.A: Building Energy Retrofit Program

Develop and implement a comprehensive building energy retrofit program to improve energy efficiency and increase electrification in existing buildings.

**Table C-9: Summary for CAP-7.A**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent reduction in existing residential energy use through retrofits	20%	50%	50%	50%
GHG emissions reductions – residential (MTCO <sub>2</sub> e)	12,280	27,257	22,868	22,868
Assumed percent reduction in existing nonresidential energy use through retrofits	15%	50%	50%	50%
GHG emissions reductions – nonresidential (MTCO <sub>2</sub> e)	3,585	9,740	6,922	6,922
<b>Total GHG emissions reductions (MTCO<sub>2</sub>e)</b>	<b>15,864</b>	<b>36,997</b>	<b>29,790</b>	<b>29,790</b>

Notes: Totals may not sum exactly due to independent rounding. CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from CAP-7.A under Goal CAP-7 would be achieved through a comprehensive energy efficiency and electrification retrofit program for existing buildings. This program would entail partnering with energy providers, regional agencies, and other stakeholders to increase energy efficiency in existing buildings through improvements such as insulation and lighting upgrades, as well as to increase electrification in existing buildings by replacing fossil fuel-powered heating systems and appliances with electric alternatives. The calculation for this action assumes that as the retrofitting and electrification of buildings in Truckee occurs, there would be substantial increases in energy efficiency and reductions in the use of natural gas, which will result in a subsequent reduction in associated GHG emissions. This action assumes a 20 percent reduction in existing residential energy use and a 15 percent reduction in existing nonresidential energy use by 2030, and a 50 percent reduction in all existing buildings by 2040, which reflects the findings of building energy efficiency and electrification research (CAPCOA 2021; Mozingo 2021).

### CAP-7.B: Renewable Natural Gas Supply

Support utility providers in achieving 100 percent renewable energy by increasing renewable energy sources, including renewable natural gas. Support regional efforts to develop renewable energy sources and supportive funding opportunities.

Table C-10: Summary for CAP-7.B

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent renewable natural gas provided to Truckee (i.e., percent reduction in GHG emissions intensity of natural gas)	25%	50%	100%	100%
<b>GHG emissions reductions (MTCO<sub>2</sub>e)</b>	<b>11,763</b>	<b>14,875</b>	<b>29,471</b>	<b>29,471</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from CAP-7.B under Goal CAP-7 would be achieved through increases in the percentage of renewable natural gas that is provided to town residents and businesses (i.e., a decrease in the GHG emissions intensity of natural gas). Increasing the supply of renewable natural gas to Truckee will require a collaborative effort from Southwest Gas, the Town, and a variety of local and regional stakeholders and partners. Ultimately, Southwest Gas will be responsible for increasing the proportion of its natural gas supply that is derived from renewable sources. This action assumes that the percentage of renewable natural gas in Truckee will be 25 percent in 2030 and steadily increase to 50 percent in 2040, which will reduce the GHG emissions associated with natural gas used in the town. This action assumes that all natural gas supplied to the town will be sourced from renewable resources by 2045.

### CAP-7.G: Water Conservation Education

Promote indoor and outdoor water conservation to reduce water and water-related energy use.

Table C-11: Summary for CAP-7.G

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent reduction in outdoor water use	20%	20%	20%	20%
Assumed participation rate	15%	15%	15%	15%
<b>GHG emissions reductions (MTCO<sub>2</sub>e)</b>	<b>12</b>	<b>7</b>	<b>0</b>	<b>0</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from CAP-7.G under Goal CAP-7 would be achieved through reductions in outdoor water use and, subsequently, a reduction in electricity use associated with the extraction, conveyance, and distribution of water. The calculations for this action assume a 20 percent reduction in outdoor water use through implementation of water-efficient irrigation systems and drought-tolerant landscaping. The calculation also assumes a 15 percent participation rate of outdoor water users.

## GOAL CAP-8: Energy Efficiency in New Development

*Promote and incentivize building electrification and energy efficiency in new development.*

**Table C-12: Summary for Goal CAP 8**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent reduction in new residential building energy – reach code	20%	NA	NA	NA
Assumed percent reduction in new residential buildings emissions – Net Zero Energy Standard	NA	100%	100%	100%
GHG emissions reductions – residential (MTCO <sub>2</sub> e)	366	4,503	5,068	6,419
Assumed percent reduction in new nonresidential building energy – reach code	15%	NA	NA	NA
Assumed percent reduction in nonresidential buildings emissions – Net Zero Energy Standard	NA	75%	100%	100%
GHG emissions reductions – nonresidential (MTCO <sub>2</sub> e)	98	1,237	1,580	1,997
<b>Total GHG emissions reductions (MTCO<sub>2</sub>e)</b>	<b>465</b>	<b>5,740</b>	<b>6,649</b>	<b>8,416</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent; NA = not applicable.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-8 would be achieved through the development and adoption of stringent building energy efficiency standards for new development. By 2025, the Town would adopt a reach code to require new development projects above a certain threshold (e.g., square footage) to comply with California Green Building Standards Code Tier 1 standards. For residential land uses, this would result in a 20 percent reduction in energy use compared to California’s Building Energy Efficiency Standards (California Code of Regulations, Title 24, Part 6, hereafter referred to as “Title 24”). For nonresidential land uses, the reach code would result in a 15 percent reduction in energy use compared to Title 24 standards. Following adoption of the reach code, the Town would adopt a Zero Net Energy (ZNE) Standard that would go into effect no later than 2030. The ZNE Standard would require all new residential development after 2030 to produce zero net emissions associated with building energy use and all new nonresidential development to achieve a 75 percent reduction in energy use and associated emissions compared to the Title 24 standards for nonresidential development in place in 2030.

## GOAL CAP-9: Organic Waste

*Reduce the amount of organic waste generated in Truckee.*

**Table C-13: Summary for Goal CAP 9**

Assumptions, CAP Metrics, and GHG Emissions Reductions	Target Year			
	2030	2040	2045	2050
Assumed percent reduction in organic waste disposed in landfills compared to 2016	30%	60%	75%	75%
<b>GHG emissions reductions (MTCO<sub>2e</sub>)</b>	<b>1,166</b>	<b>2,353</b>	<b>2,969</b>	<b>2,996</b>

Notes: CAP = Climate Action Plan; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent.

Source: Ascent 2022.

### Emissions Reduction Summary

The emissions reductions from Goal CAP-9 would be achieved through a reduction in the amount of organic waste sent to landfills and therefore a reduction in methane emissions generated from the decay of organic waste. The calculations for this goal assume a 30 percent decrease in organic waste disposed in landfills compared to 2016 by 2030, a 60 percent decrease by 2040, and a 75 percent decrease by 2045.

## GOAL CAP-10: Overall Consumption

*Minimize embedded carbon emissions and reduce overall consumption.*

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### **Emissions Reduction Summary**

While Goal CAP-10 would achieve emissions reductions, these reductions would be achieved from emissions generated by manufacturing, sources which are outside the Town's jurisdiction. Therefore, these emissions reductions are not calculated or accounted for in the CAP.

## GOAL CAP-11: CAP Implementation, Monitoring, and Reporting

*Implement CAP goals, policies, and actions through a comprehensive implementation, monitoring, and reporting program.*

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### **Emissions Reduction Summary**

Goal CAP-11 is focused on implementation of the previous ten goals in the CAP. Therefore, there are no direct emissions reductions associated with this goal.

# CAP Monitoring

The following is a summary of all the CAP metrics that have been identified for each of the goals. The table summarizes all of the CAP metrics in one location and will help the Town monitor progress toward achieving the CAP metric targets for the target years of 2030, 2040, 2045, and 2050. Importantly, multiple metrics are provided for some of the CAP goals; this will allow the Town to have different approaches for tracking progress.

**Table C-14: Summary of Metrics and Targets for CAP Goals**

CAP Goals	CAP Metrics	Metric Target by Target Years			
		2030	2040	2045	2050
GOAL CAP-1 Reduction in Vehicle Miles Traveled	Percent reduction of total annual VMT from suite of TDM measures	4%	5%	6%	7%
GOAL CAP-2 Bicycle and Pedestrian Trips	New Class I and II bike lanes (miles)	14.0	10.0	5.0	4.5
	Total townwide lane miles with Class I and II bike lanes	59.5	69.5	74.5	79.0
GOAL CAP-3 Transit System	Percent reduction of total annual VMT reduction from transit trips replacing vehicle trips	3%	5%	5%	5%
GOAL CAP-4 Low- and Zero-Emissions Vehicles	New public and nonresidential EV charging stations installed	50	100	150	200
	Average charging hours per plug per day	3	3	3	3
GOAL CAP-5 Land Use Patterns	Percent reduction of total annual VMT from sustainable land use patterns	1%	1%	1%	1%
GOAL CAP-6 Open Space and Carbon Sequestration	Total acres preserved	25	50	75	100
GOAL CAP-7a Energy Efficiency in Existing Development (CAP-7.A Building Energy Retrofit Program)	Percent reduction in existing residential energy use through retrofits	20%	50%	50%	50%
	Percent reduction in existing nonresidential energy use through retrofits	15%	50%	50%	50%
GOAL CAP-7b Energy Efficiency in Existing Development (CAP-7.B Renewable Energy Sources)	Percent renewable natural gas provided to Truckee	25%	50%	100%	100%
GOAL CAP-7c Energy Efficiency in Existing Development (CAP-7.G Water Conservation Education)	Percent reduction in outdoor water use achieved by action for 15 percent of water users	20%	20%	20%	20%
GOAL CAP-8 Energy Efficiency in New Development	Percent reduction in new residential buildings emissions	20%	100%	100%	100%
	Percent reduction in new nonresidential buildings emissions	15%	75%	100%	100%
GOAL CAP-9 Organic Waste	Percent reduction in organic waste disposed in landfills compared to 2016	30%	60%	75%	75%

Notes: CAP = Climate Action Plan; EV = electric vehicle; GHG = greenhouse gas; MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent; TDM = Transportation Demand Management; VMT = vehicle miles traveled.

Source: Ascent 2022.

# CAP Implementation Funding Sources

Comprehensive implementation of the CAP will require both funding from external sources, such as grants and private-public partnerships, and the allocation of Town resources to achieve GHG emissions reductions and meet the reduction targets. Provided below is a sample list of current funding sources and programs that could help support the implementation of the CAP. Funding sources are constantly changing; thus, the Town will need to evaluate individual funding needs and potential funding sources for each goal on a case-by-case basis. The Town may also need to take future actions to pursue competitive funding opportunities, such as grants, or develop new partnerships or agreements with other agencies that already offer funding through existing programs.

## Residential and Commercial Energy

- ▶ **California Energy Commission 1 Percent Interest Rate Loans:** The California Energy Commission offers 1 percent loans for local jurisdictions to conduct projects with proven energy savings at municipal facilities.
- ▶ **California Lending for Energy and Environmental Needs Center:** This funding source, a program of the California Infrastructure and Economic Development Bank, provides direct public financing to municipalities, universities, schools, and hospitals to help meet the state's goals for GHG reductions, water conservation, and environmental preservation.
- ▶ **GRID Alternatives:** GRID Alternatives is a nonprofit organization that provides no-cost solar installations to low-income residents and assists communities in developing multifamily and community-scale solar installations. The organization also conducts hands-on job training for volunteers interested in employment in the solar industry.

## Transportation and Land Use

- ▶ **Active Transportation Planning Program:** This California Department of Transportation (Caltrans) program provides competitive planning grants for jurisdictions working on planning projects to increase the proportion of trips accomplished by biking and walking and reduce community-wide VMT.
- ▶ **Transportation Planning Grant Program:** The Caltrans Transportation Planning Grant Program provides competitive planning grants to help local jurisdictions in a variety of transportation planning efforts, including developing and implementing regional transportation plans, addressing multimodal transportation deficiencies with a focus on transit, and supporting planning actions that advance climate adaptation efforts for local transportation systems.
- ▶ **California Clean Vehicle Rebate Project:** This California Air Resources Board program offers rebates of up to \$7,000 for the purchase or lease of a new, eligible zero-emissions or plug-in hybrid light-duty vehicle.
- ▶ **Affordable Housing and Sustainable Communities Program:** This program, administered by the California Department of Housing and Community Development, funds land use, housing, transportation, and land preservation projects that support infill and compact development and reduce GHG emissions. Funds are available in the form of loans and/or grants in two kinds of project areas: transit-oriented development project areas and integrated connectivity project areas.

- ▶ **Senate Bill 2 Planning Grant Program:** This program provides financial and technical assistance to local governments to update planning documents and zoning ordinances, including general plans, community plans, and specific plans, in order to streamline housing production; implement sustainable community strategies; and implement local coastal programs. The program does not use a competitive process to award funds. All localities that meet the eligibility requirements outlined in the grant application will be funded.
- ▶ **Strategic Growth Council Affordable Housing and Sustainable Communities Program:** This program makes it easier for Californians to drive less by making sure housing, jobs, and key destinations are accessible by walking, biking, and transit. Program funding can be used for affordable housing development, sustainable transportation infrastructure and related amenities that reduce VMT, and programs to encourage increases in active transportation modes.

## Solid Waste

- ▶ **CalRecycle Food Waste Prevention and Rescue Grant Program:** The purpose of this competitive grant program is to reduce overall GHG emissions by establishing new or expanding existing food waste prevention projects (i.e., source reduction or food rescue for people) in California to reduce the amount of food being disposed of in landfills.
- ▶ **CalRecycle Local Enforcement Agency Grant Program:** The California Department of Resources Recycling and Recovery (CalRecycle) administers a noncompetitive grant program to assist local enforcement agencies with their solid waste facilities permit and inspection program.

## General Funding and Staff Capacity

- ▶ **CivicSpark Program:** The CivicSpark Program supports sustainability-focused research, planning, and implementation projects throughout California by providing public agencies and other organizations with high-quality capacity building support and community engagement through volunteer engagement via highly motivated emerging sustainability AmeriCorps Fellows for 11 months.
- ▶ **California Climate Investments:** California Climate Investments is a statewide initiative that provides funds from the state's Cap-and-Trade Program for projects and programs that work to reduce GHGs in the state. Funds from California Climate Investments can be used to support a variety of projects, including affordable housing, renewable energy, public transportation, zero-emissions vehicles, environmental restoration, more sustainable agriculture, and recycling. Numerous state programs identified above are funded by California Climate Investments; however, the program continues to evolve and is updated by the state periodically to include new or modified programs.

The funding sources and programs listed above are subject to change. In addition to seeking support from the above-listed funding sources, the Town should continue to search for new funding sources through the state's Climate Change Funding Wizard website, which has the most up-to-date information on funding opportunities for projects for climate change mitigation and adaptation.

## References

- California Air Resources Board. 2014 (September). *Impacts of Bicycling Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions – Policy Brief*. Available: [https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts\\_of\\_Bicycling\\_Strategies\\_on\\_Passenger\\_Vehicle\\_Use\\_and\\_Greenhouse\\_Gas\\_Emissions\\_Policy\\_Brief.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Bicycling_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf). Accessed April 24, 2022.
- California Air Pollution Control District Officers Association. 2010. *Quantifying Greenhouse Gas Mitigation Measures*.
- . 2021 (May). *California Emissions Estimator Model: Appendix A – Calculation Details for CalEEMod*. Available: <http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-a2020-4-0.pdf?sfvrsn=6/>. Accessed June 1, 2020.
- CARB. See California Air Resources Board.
- CAPCOA. See California Air Pollution Control District Officers Association.
- Handy, S. et al. 2013. *Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions – Policy Brief and Technical Background Document*. California Air Resources Board.
- Marshall, W. E., and N. W. Garrick. 2010. "Effect of street network design on walking and biking." *Transportation Research Record*, 2198(1), 103–115.
- Mozingo, L. 2021 (January). *Zero-Carbon Buildings in California: A Feasibility Study*. Accessed April 24, 2022.

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