LOS ALTOS

Climate Action Plan

July 2013

City of Los Altos Climate Action Plan

Public Review Draft

July 2013

Prepared for:

City of Los Altos

1 N. San Antonio Road

Los Altos, CA 94022

Prepared by:

PMC

500 12th Street, Suite 250

Oakland, CA 94607

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List of Abbreviations

Abbreviation	Definition
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADC	alternative daily cover
BAAQMD	Bay Area Air Quality Management District
BMP	best management practices
BRT	bus rapid transit
BTP	City of Los Altos Bicycle Transportation Plan
C&D	construction and demolition
CalGreen	California Green Building Standards Code
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CPUC	California Public Utilities Commission
CSI	California Solar Initiative
EIR	environmental impact report
EPA	Environmental Protection Agency
EPS	expanded polystyrene
EV	electric vehicle
FTE	full-time equivalents
GBO	City of Los Altos Green Building Ordinance

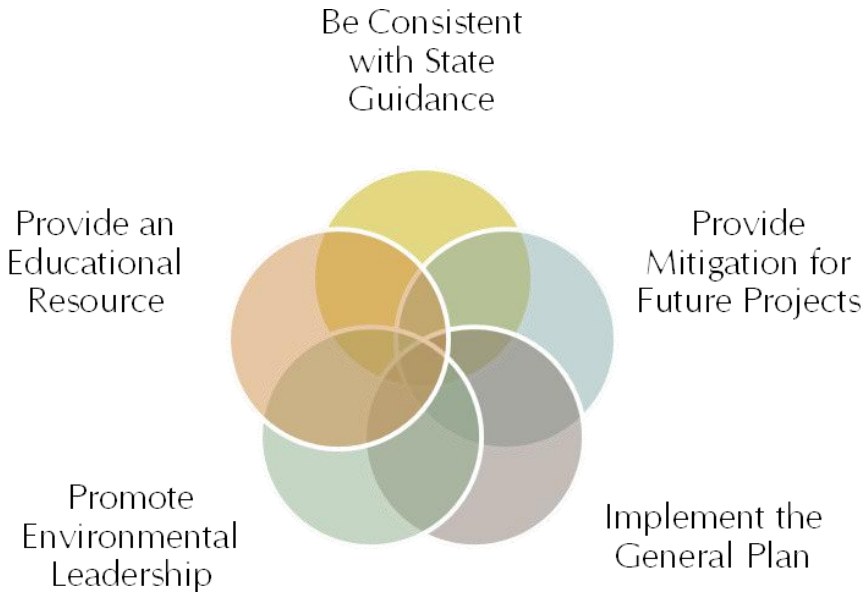
Abbreviation	Definition
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICLEI	Local Governments for Sustainability
IPCC	Intergovernmental Panel on Climate Change
kW	kilowatt
kWh	kilowatt-hour
LAMC	Los Altos Municipal Code
lbs	pounds
LGOP	Local Government Operations Protocol
MG	million gallons
MTC	Metropolitan Transportation Commission
$MTCO_2e$	metric tons of carbon dioxide equivalents
MTWS	Mission Trail Waste Systems, Inc.
MW	megawatt
N_2O	nitrous oxide
OPR	California Governor's Office of Planning and Research
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
PV	photovoltaic
RPS	Renewables Portfolio Standard
SB	Senate Bill
SCVWD	Santa Clara Valley Water District
SF_6	sulfur hexafluoride
SR2S or SRTS	Safe Routes to Schools
TDM	transportation demand management
UWMP	Urban Water Management Plan
VMT	vehicle miles traveled
VTA	Santa Clara Valley Transportation Authority
WRCOG	Western Riverside Council of Governments

Executive Summary

Call to Action

Chapter 1 identifies the motivating forces behind the Climate Action Plan (CAP) and provides a brief overview of climate change and the climate action planning process. As identified in **Figure ES-1**, motivating forces for the City of Los Altos to prepare a CAP include being consistent with state guidance, mitigating future projects, implementing the General Plan, promoting environmental leadership, and providing educational resources.

Figure ES-1: Los Altos Climate Action Plan Motivations



Measuring Emissions

Baseline greenhouse gas (GHG) emissions inventories and forecasts serve as the foundation of the CAP. **Chapter 2** identifies activities in the community and in municipal operations that create emissions, describes the extent to which each activity contributes to emissions totals, forecasts emissions to 2020 and 2035, and uses the forecast to set a GHG reduction target. The Los Altos community emitted approximately 182,830 metric tons of carbon dioxide equivalent emissions ($MTCO_2e$) in 2005. **Figure ES-2** reports 2005 baseline emissions for the community by sector. Of

the 182,830 $MTCO_2e$ emitted by the community, 1,870 $MTCO_2e$, or 1%, were emitted by government operations (**Figure ES-3)**.

Figure ES-2: 2005 Community Emissions by Sector

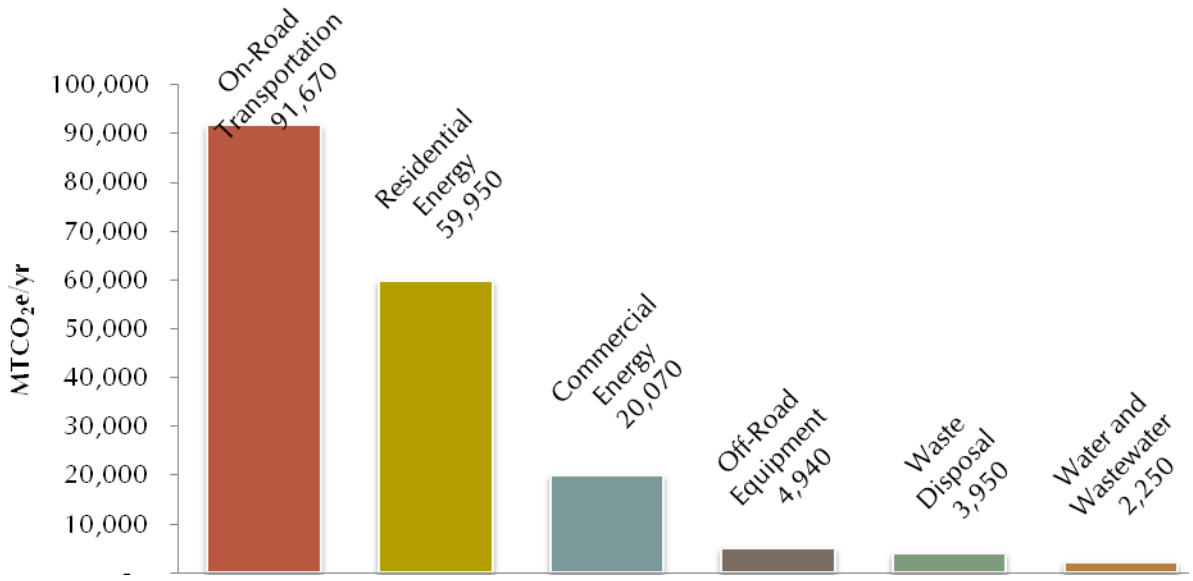
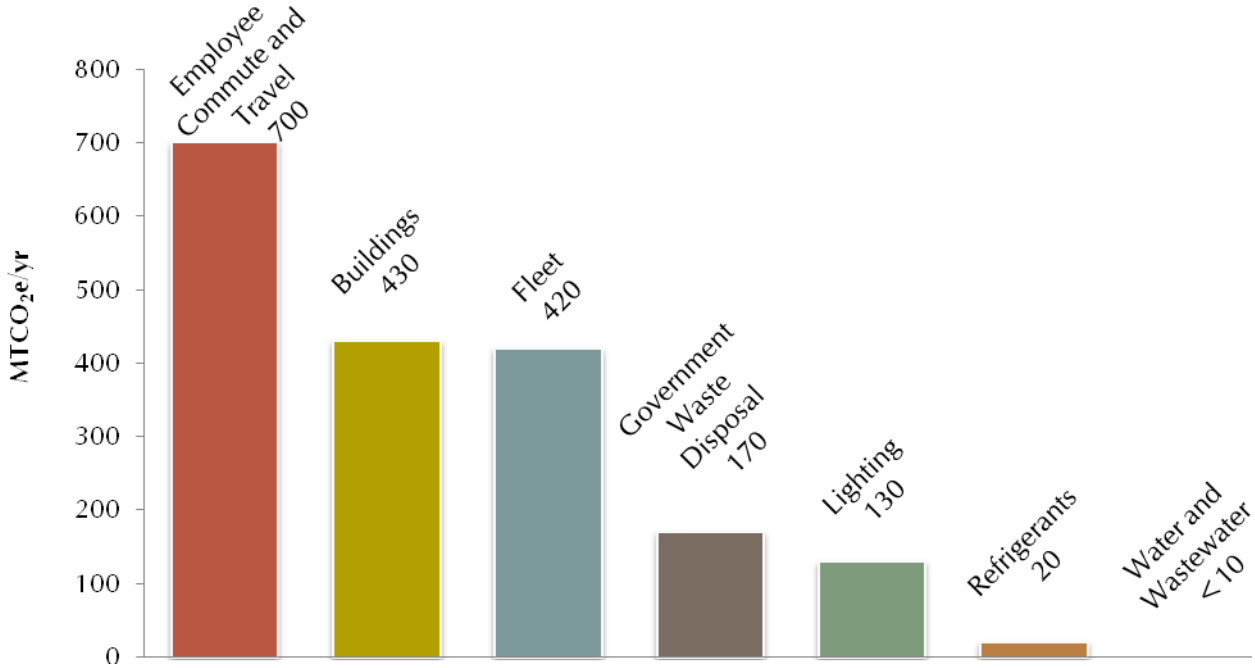
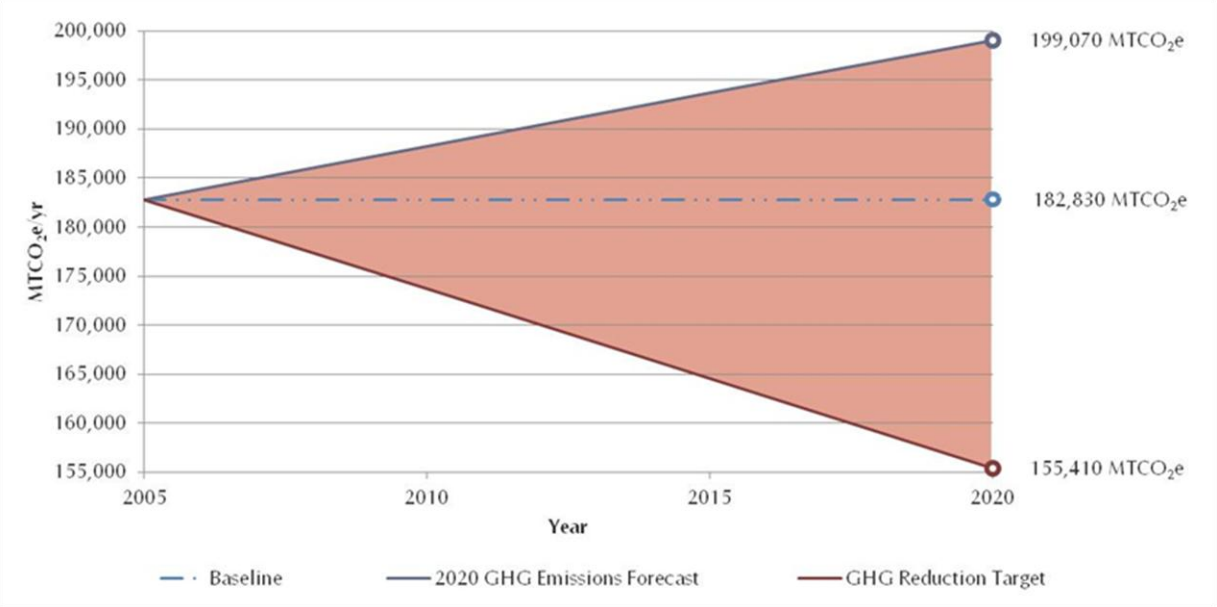


Figure ES-3: 2005 Government Operations Emissions by Sector



An emissions forecast estimates how emissions would grow over time if no action is taken at the federal, state, or local level to reduce them. An emissions forecast was prepared for Los Altos, assuming 2005 energy consumption, waste disposal, and energy efficiency rates remain constant. To forecast emissions, a set of indicators determines the extent to which growth may occur and resulting emissions may change. **Figure ES-4** identifies the estimated 2020 community emissions of 199,070 $MTCO_2e$ and illustrates the 2020 emissions target of 15% below baseline emissions, or 155,410 $MTCO_2e$.

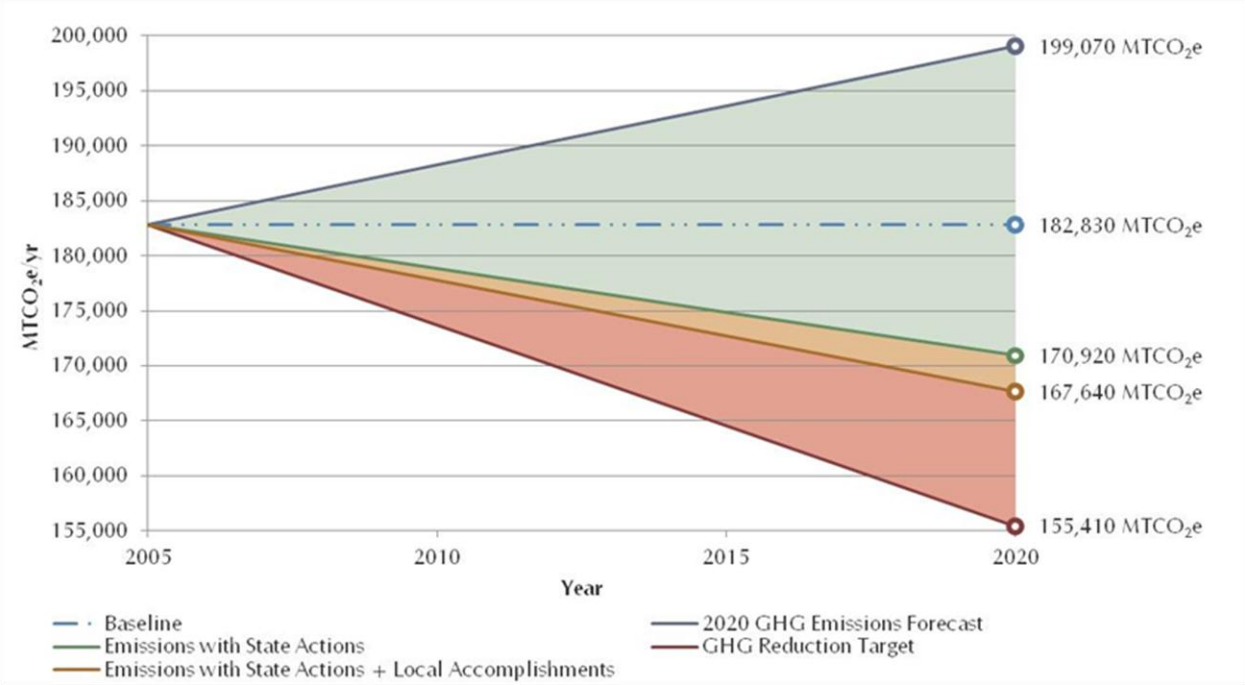
Figure ES-4: Community Emissions Forecast and Target



Evaluating Existing Accomplishments

The City and the State of California have proud track records of supporting environmental initiatives and reducing emissions. **Chapter 3** builds on the emissions inventories and forecasts, identifying activities and requirements implemented at the state and local levels since 2005 and their benefits to reducing local emissions. As identified in **Figure ES-5**, these activities and requirements have already set the City on a path toward achieving its GHG reduction goals. State activities will reduce emissions by 28,150 $MTCO_2e$, while local accomplishments will reduce emissions by an additional 3,280 $MTCO_2e$.

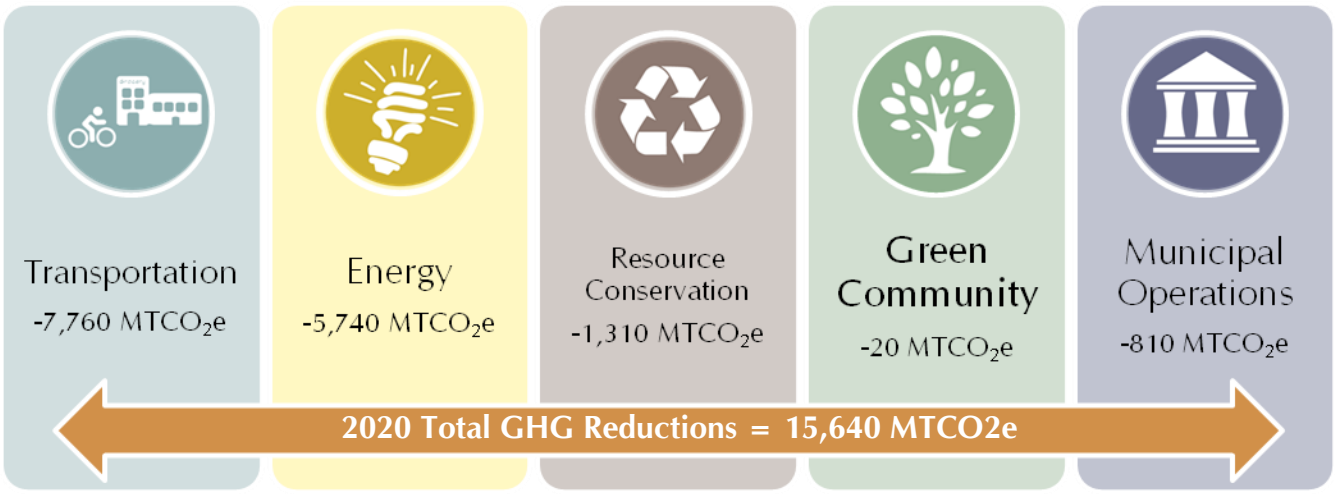
Figure ES-5: Emissions Forecast, State and Local Accomplishments



Strategy to Reduce Emissions

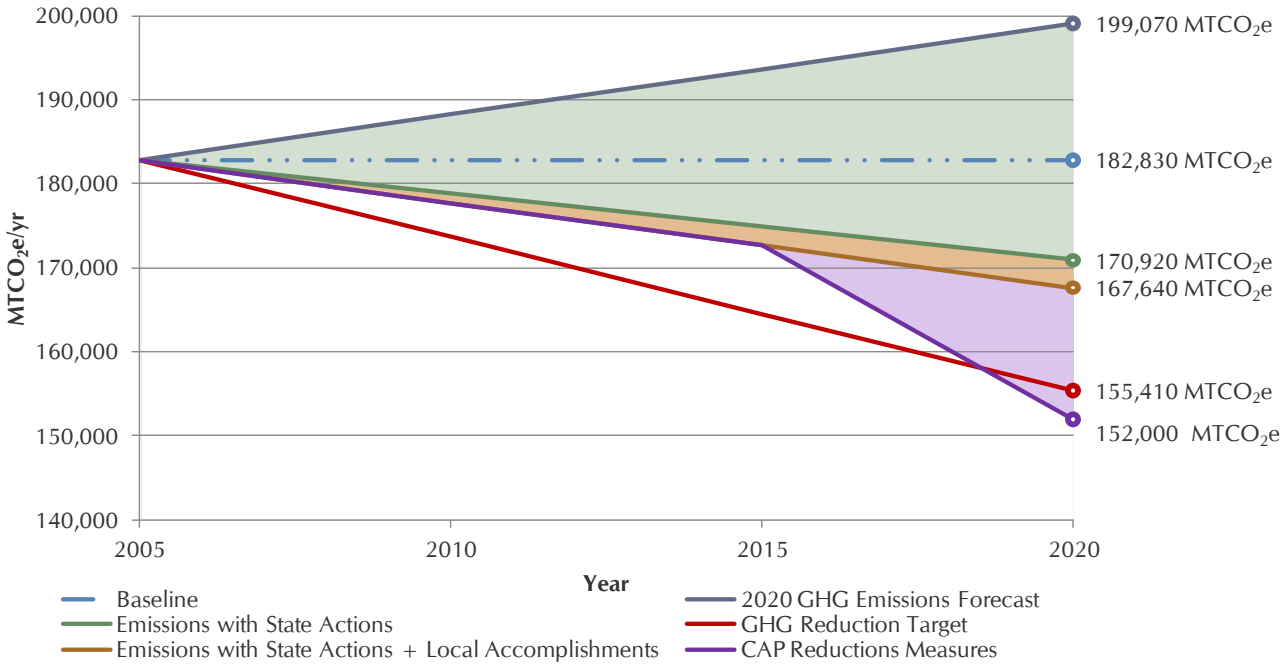
The reduction measures included in this plan are a diverse mix of incentives, education, and regulations applicable to both new and existing development. The measures are designed to reduce emissions from each source to avoid relying on any one strategy or sector to achieve the target. **Chapter 4** describes the process used to develop, refine, and quantify the emissions reduction goals, measures, and actions identified to achieve Los Altos' reduction targets. The measures included in the CAP are organized into five focus areas, which are identified in **Figure ES-6** with their associated GHG reductions.

Figure ES-6: GHG Emissions Reductions by Focus Area



Full implementation of the measures identified in this CAP would reduce 2020 emissions by 15,640 $MTCO_2e$, which would help the City achieve a 17% reduction in emissions by 2020 (see **Figure ES-7**).

Figure ES-7: 2020 Emissions Relative to Reduction Target



Achieving the Target

To ensure successful achievement of the City's reduction target, **Chapter 5** identifies implementation strategies and supporting actions. The chapter includes an implementation work plan, which details emissions reductions, lead departments, and community partners by measure. **Chapter 5** provides critical tools for monitoring the City's implementation progress.

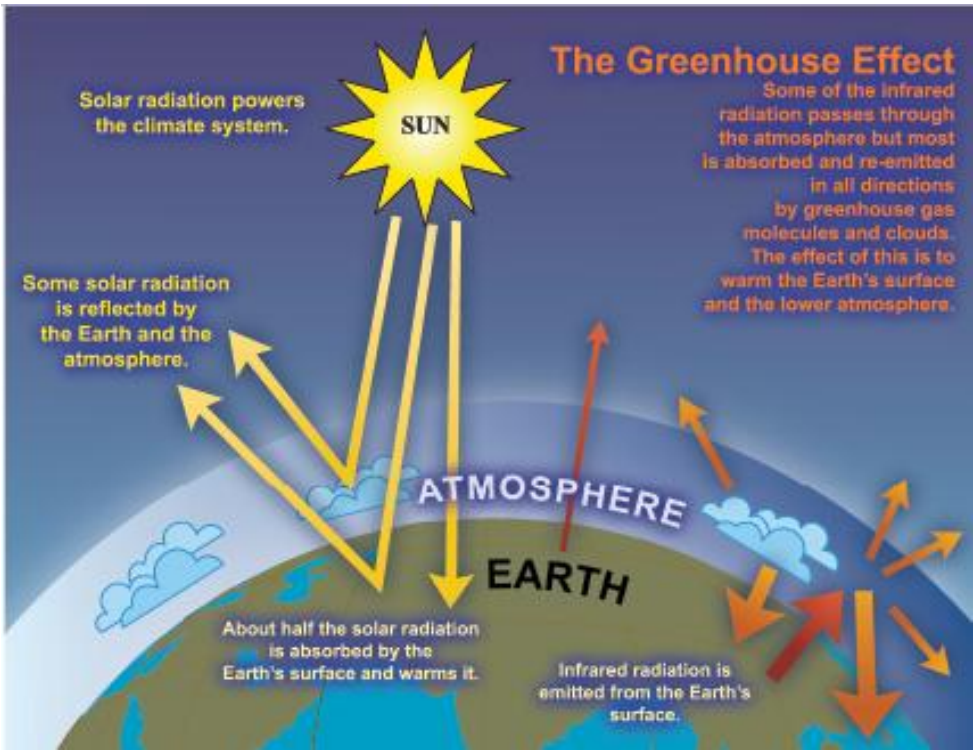
Chapter 1

Call to Action

Introduction

Scientific consensus holds that the world's population is releasing greenhouse gases (GHGs) faster than they can be absorbed by the earth's natural systems.[1] GHGs are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other economic activities. **Figure 1** illustrates how GHGs trap incoming solar radiation and infrared radiation from the earth's surface in the atmosphere. The continued release of GHGs at or above current rates will increase average temperatures around the globe and will alter our planet's climate with substantial long-term effects at the local, regional, and global scales.

Figure 1: The Greenhouse Effect



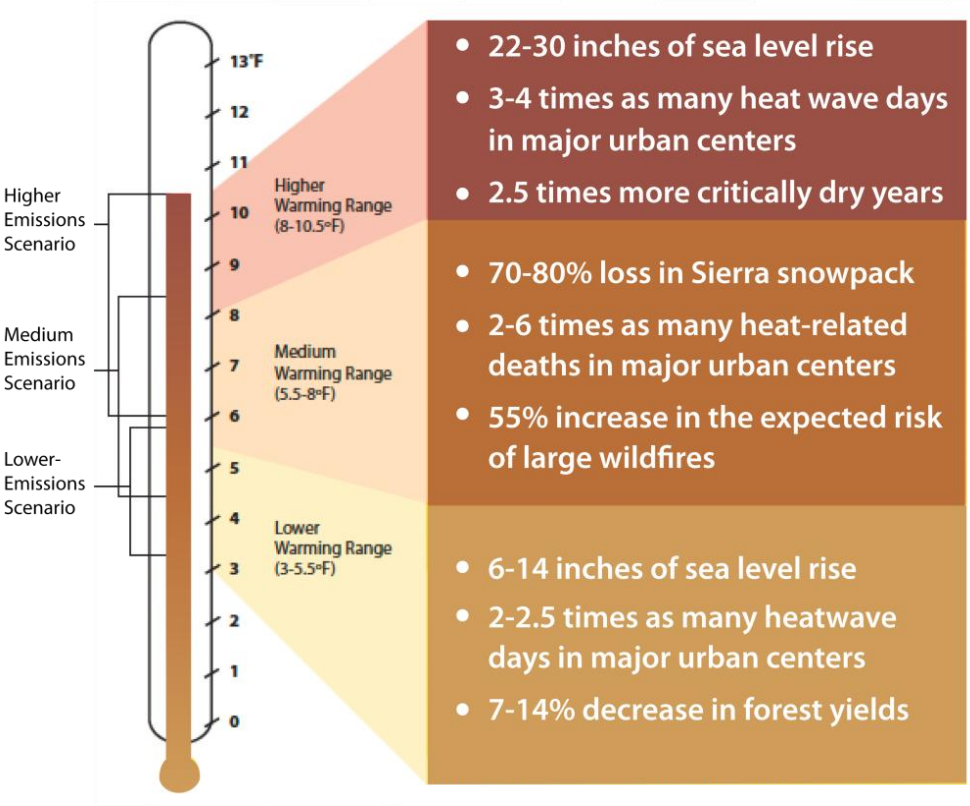
Source: Intergovernmental Panel on Climate Change 2007.

[1] For a full discussion explanation of the most current understanding of climate science, see the IPCC's Fourth Assessment Report.

The Time to Act Is Now

The Intergovernmental Panel on Climate Change (IPCC) asserts that the atmospheric carbon dioxide (CO_2) concentration must be at or below 350 parts per million to maintain an environment similar to the one humans have thrived in.[2] Atmospheric concentrations of CO_2 have not been near 350 parts per million since 1990, and surpassed the 400 parts per million mark in May 2013. **Figure 2** summarizes potential climate change effects in California. Without local action, continued GHG emissions at or above current rates will induce changes in the global climate system, posing greater risks to our state and community. Research suggests that California will experience hotter and drier conditions, reduced winter snow and increased winter rain, sea level rise, changes to the water cycle, and more extreme weather events. These conditions will affect economic, ecological, and social systems throughout California communities.

Figure 2: California Climate Change Long-Term Effects



Source: California Energy Commission 2006.

The City of Los Altos (City) and Los Altos residents value the environment and are committed to reducing GHG emissions (emissions). Although climate change is a global issue, local strategies can help minimize future climate change effects. The City has already taken steps to integrate and

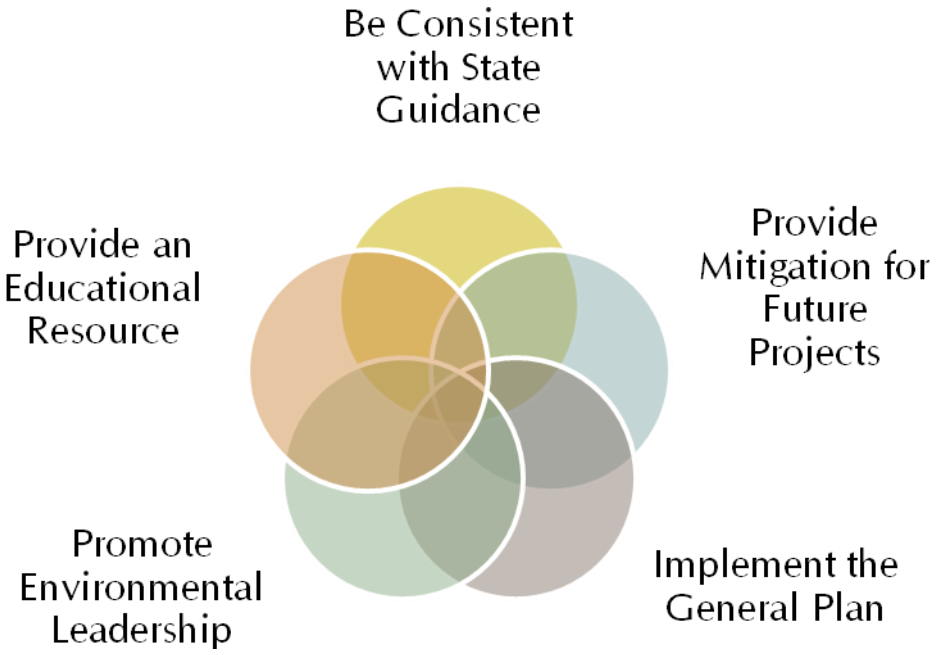
[2] Parts per million is the standard measurement used in air quality analysis to describe the amount of pollutants per million molecules of air.

implement sustainable practices through technological advancements, proactive community efforts, and developing and implementing long-term policies and programs. Recent community efforts to improve sustainability and reduce emissions include adopting a Bicycle Transportation Plan, the Green Building Ordinance, conserving water, and reducing waste sent to landfills. The effectiveness of these recent efforts to reduce emissions is discussed further in **Chapter 3**.

Climate Action Plan Motivations

In developing this Climate Action Plan (CAP), the City recognizes the compelling need for a locally based approach to reduce emissions within the community and from government operations. **Figure 3** identifies some of the City's motivations to prepare the CAP. With this plan, the City charts a comprehensive strategy to further reduce emissions in a manner consistent with state guidelines and regulations, and to afford cost-effective opportunities to existing and future residents, businesses, and development projects to contribute to a more sustainable community. At the same time, the CAP provides a framework for environmental leadership and an educational resource to the community.

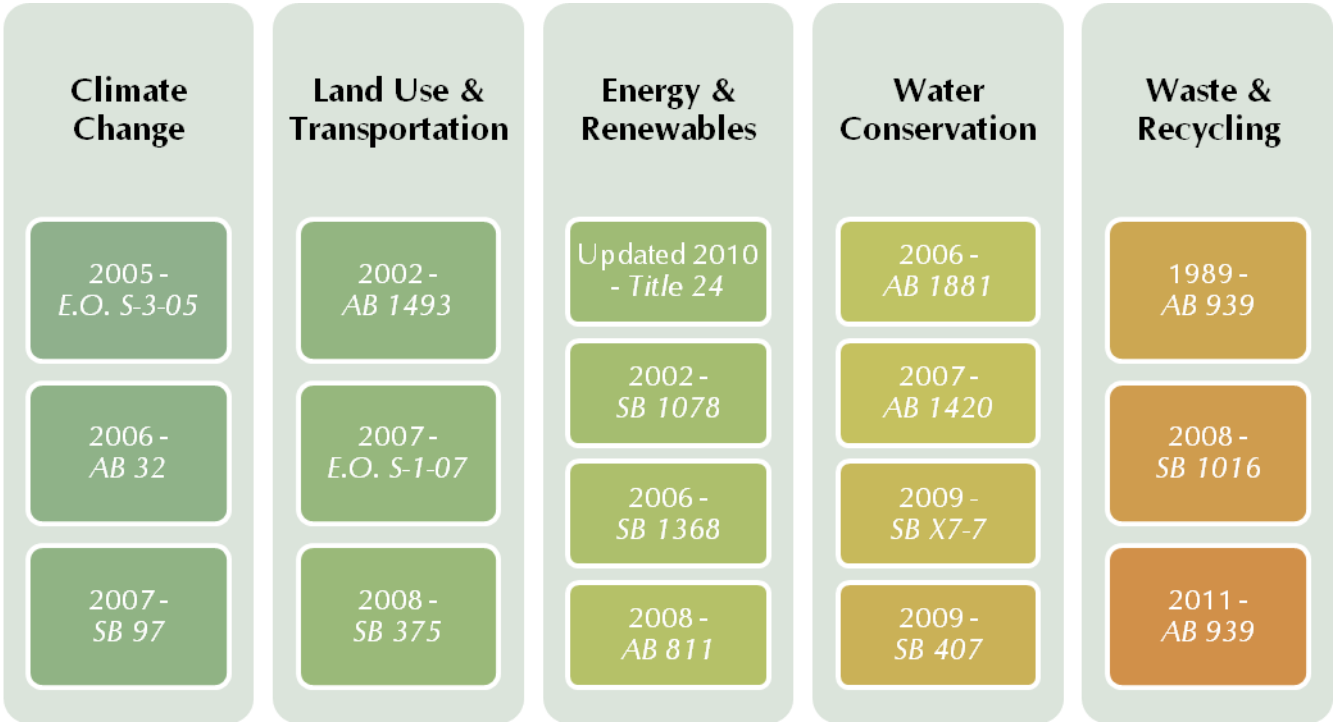
Figure 3: Los Altos Climate Action Plan Motivations



State Guidance and Legislation

State Assembly Bill (AB) 32 (2006), the Global Warming Solutions Act, directs public agencies in California to support the statewide goal of reducing GHG emissions to 1990 levels by 2020.[3] Preparing a CAP supports AB 32 at the local level. The CAP provides a policy framework for how Los Altos can do its part to reduce emissions. While compliance with AB 32 is not a requirement for local jurisdictions, demonstrating consistency with statewide reduction goals can help Los Altos to qualify for incentives such as grant funding. Efforts to address climate change, reduce consumption of resources, and improve energy efficiency led by state legislation or programs are described in **Figure 4.**

Figure 4: Regulatory Framework for Climate Change



Mitigating Future Projects

Developing a CAP can also provide streamlined environmental review for new projects subject to the California Environmental Quality Act (CEQA). Senate Bill (SB) 97 (2007) directed the Governor's Office of Planning and Research (OPR) to amend the State CEQA Guidelines to address GHG emissions. The CEQA Guidelines prepared by OPR were adopted in December 2009 and went into effect March 18, 2010. The updated guidelines include provisions for local governments to use adopted plans for the reduction of GHG emissions to address the cumulative impacts of individual future projects on GHG emissions (see State CEQA Guidelines Section 15183.5(b)(1)).

[3] In 1990, the atmospheric concentration of CO_2 was just over 350 parts per million, which was the basis for the State of California establishing a target to reduce GHG emissions to 1990 levels by 2020.

In response to the updated CEQA Guidelines, the Bay Area Air Quality Management District (BAAQMD) amended Section 4 of the BAAQMD Air Quality CEQA Guidelines, allowing a lead agency to prepare a Qualified GHG Reduction Strategy that reduces emissions to a level that is not cumulatively considerable. If the local agency then determines that a project is determined to be consistent with an adopted Qualified GHG Reduction Strategy, it can be presumed that the project will not have a significant greenhouse gas emissions impact under CEQA.

The Los Altos CAP and accompanying environmental documentation are consistent with the guidelines set forth by BAAQMD for a Qualified GHG Reduction Strategy (which parallel and elaborate upon criteria established in State CEQA Guidelines Section 15183.5(b)(1)), as presented in the chapters referenced below.

- Quantify emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area (see **Chapter 2**).
- Establish a level, based on substantial evidence, below which the contribution of emissions from activities covered by the plan would not be cumulatively considerable (see **Chapter 2**).
- Identify and analyze the emissions resulting from specific actions or categories of actions anticipated within the geographic area (see **Chapters 3** and **4**).
- Specify measures or a group of measures, including performance standards that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level (see **Chapter 4**).
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specific levels (see **Chapter 5**).
- Adopt the GHG Reduction Strategy in a public process following environmental review

Implementing the General Plan

The CAP is a stand-alone policy and action plan coordinated and consistent with the goals, policies, and objectives of the City of Los Altos General Plan. Similar to the General Plan, the City will implement the goals, measures, and actions identified in the CAP and monitor its progress over time. However, because the CAP is a stand-alone document, the City maintains the flexibility to adjust the CAP to account for new technologies, funding opportunities, and resources without the need for a General Plan Amendment. This approach ensures the CAP remains dynamic and can be updated to achieve the emissions reduction target.

Environmental Leadership

Recognizing the importance of addressing environmental issues, the City Council authorized the creation of an Environmental Commission in 2007 to study and provide recommendations to the City Council on issues that affect the natural and built environment in the city and the region. In 2011, the City Council authorized development of this CAP as a project in the capital improvement program. The Environmental Commission was given the task of working with City staff to develop the CAP and providing a forum for the public to learn about the project and offer input. The CAP was developed through collaboration between City staff, the Environmental

Commission, the City Council, and community stakeholders. The role of the Environmental Commission in this process included:

- Providing input at key points during plan development on appropriate reduction targets, reduction measures, and the level of ambition the plan should support;
- Identifying issues and emissions reduction opportunities;
- Evaluating feasibility of proposed reduction measures; and
- Providing a forum for community participation in the planning process.

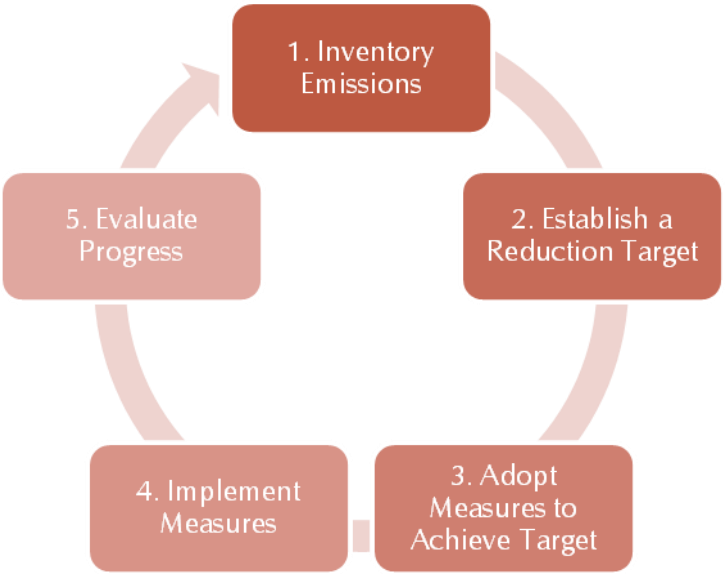
Educational Resource

Many great efforts have already been made and numerous policies have been adopted to make Los Altos more sustainable and reduce emissions in the community. Prior to the CAP, these practices and policies have existed in a variety of different documents such as the General Plan, Municipal Code, and Bicycle Transportation Plan. The CAP compiles all of these efforts and will serve as a go-to resource for best practices for the City and community to reduce individual and collective emissions.

Climate Action Planning Process

The City developed this CAP using the iterative five-step process described in **Figure 5**. This document fulfills steps one through three and provides a framework to complete steps four and five. Step five, evaluating progress, helps the City estimate the effectiveness of this CAP on an annual basis and determine if additional measures should be implemented.

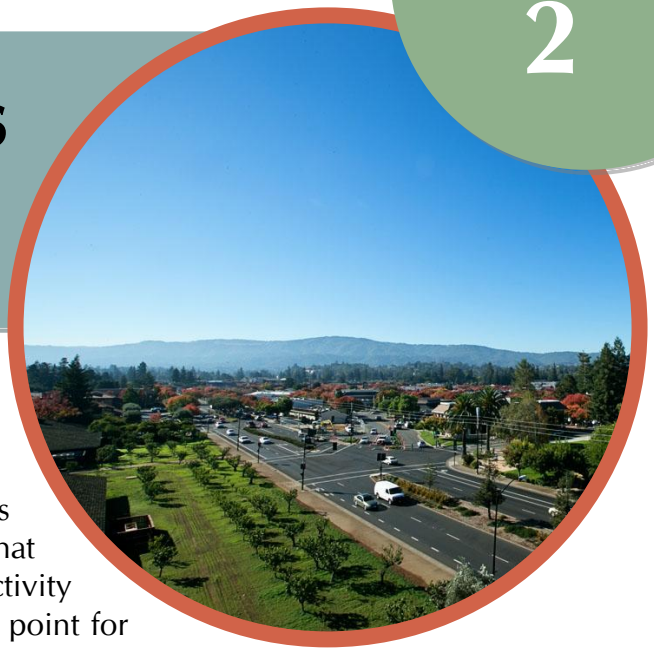
Figure 5: Five-Step Climate Action Planning Process



The remainder of this document elaborates on how the City has or will complete each of the steps in the climate action planning process and achieve the GHG reduction target while continuing to make Los Altos a great place to live and raise a family.

Chapter 2

Measuring Emissions



Emissions Inventory

This baseline GHG emissions inventory serves as the foundation of the CAP. The inventory identifies activities in the community and municipal operations that create emissions, describes the extent to which each activity contributes to emissions totals, and provides a starting point for forecasting future emissions and setting a reduction target.

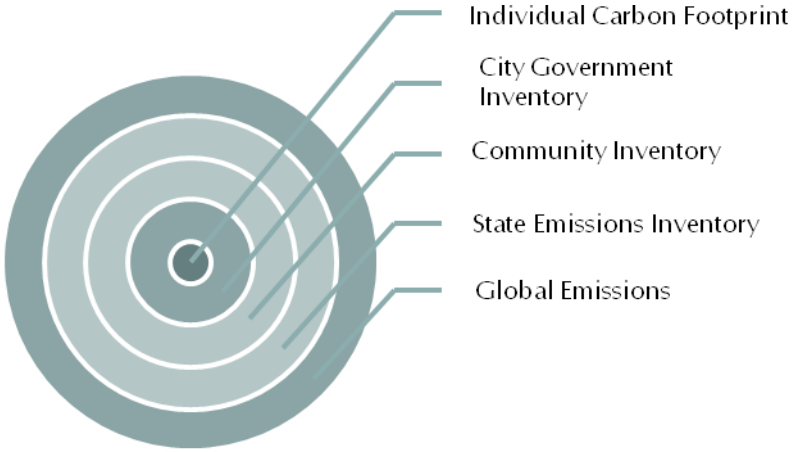
This inventory was prepared using protocols and best practices identified within the Local Government Operations Protocol, the ICLEI-Local Governments for Sustainability (ICLEI) Community-wide Protocol, and the BAAQMD GHG Plan Level Guidance. In preparing the inventory, the City selected a scale and time frame, identified sectors, collected activity data, calculated emissions, and confirmed and summarized results. The following sections describe key decisions made for each step in this process.

Scale and Time Frame

As shown in **Figure 6**, emissions inventories can range from an individual carbon footprint to an estimate of global emissions. Defining the scale helps identify appropriate methods and data sources to use in order to estimate emissions. Furthermore, a defined time frame allows for consistent comparison and measurement of activity data, with a calendar year being used most commonly.

Figure 6: Emissions Inventory Scales

For this CAP, the City considered emissions from community activities and City government operations for the 2005 calendar year. This year was selected based both on the availability of reliable data and to achieve consistency with the baseline year for the state inventory prepared by the California Air Resources Board (CARB) for the AB 32 Scoping Plan.

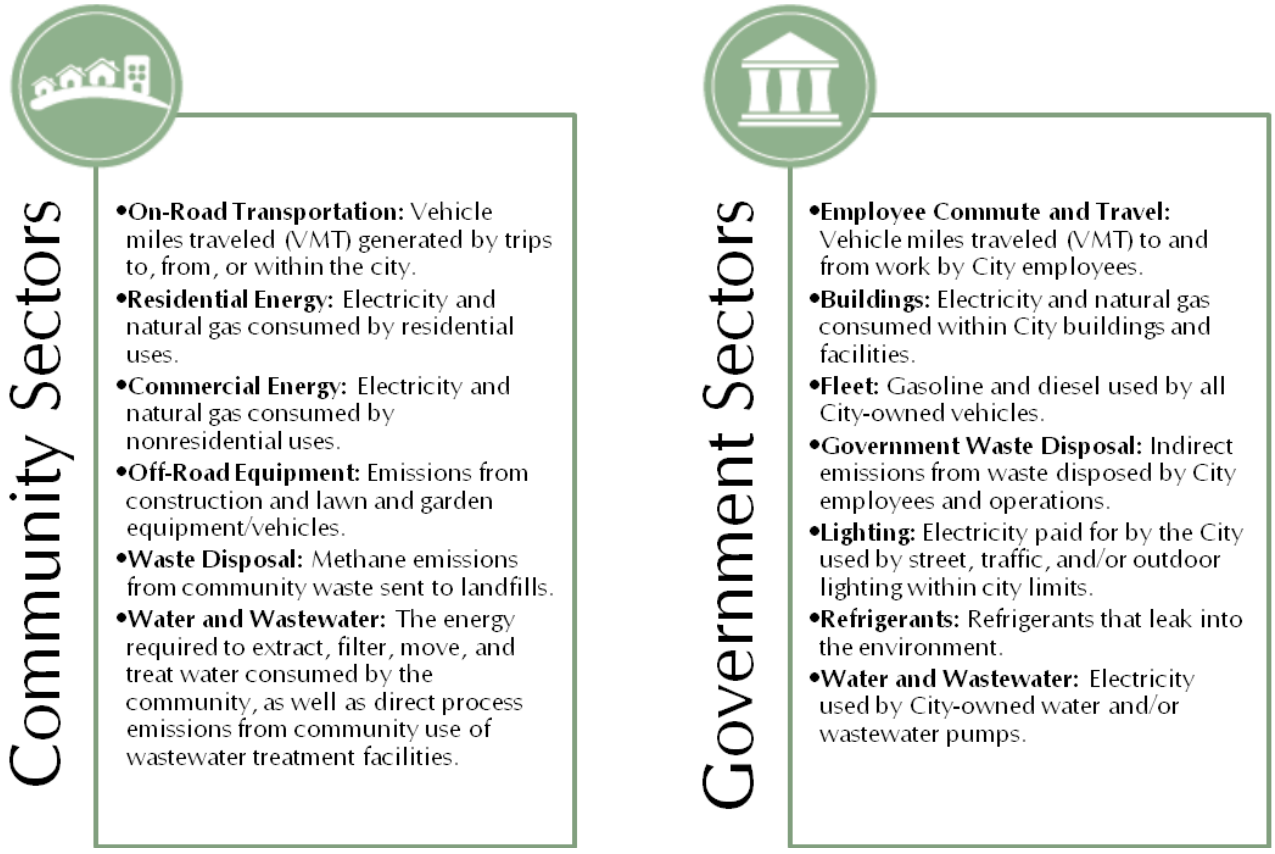


Identify Sectors

An emissions inventory is organized by sectors, or categories of economic activity, within the community or City government that create emissions. Some sectors also contain subsectors describing the source of emissions more specifically (e.g., "electricity" and "natural gas" are subsectors of residential energy use).

For this inventory, the Local Government Operations Protocol, BAAQMD, and City staff identified sectors to be included in the community and municipal inventories by defining key activities within the community or government operations in 2005. The inventory accounts for emissions sources identified in **Figure 7** for the 2005 calendar year.

Figure 7: Community and Government Operations Emissions Sectors



Collect Activity Data

Once key activities occurring in the community or City government operations are identified, data is obtained from utility providers, state agencies, and City staff to determine the extent to which each activity occurs annually. **Table 1** lists the activity data and data providers for community activities. **Table 2** lists activity data collected for City government operations.

Table 1: 2005 Community Activity Data and Sources

Sector	Subsector	Activity Data	Unit	Data Source
On-Road Transportation	Daily VMT	178,101,020	VMT	Caltrans HPMS
Residential Energy	Natural Gas	7,386,120	Therms	Pacific Gas & Electric
	Electricity	92,371,350	kWh	Pacific Gas & Electric
Commercial Energy	Natural Gas	1,392,590	Therms	Pacific Gas & Electric
	Electricity	56,594,700	kWh	Pacific Gas & Electric
Off-Road Equipment	Lawn and Garden	10,530	Households	California Air Resources Board OFFROAD Software
	Construction	70	New Housing Unit Building Permits	California Air Resources Board OFFROAD Software
Solid Waste	Municipal Solid Waste	21,230	Tons of Waste	CalRecycle Disposal Reporting System
	Alternative Daily Cover[4]	270	Tons of ADC	CalRecycle Disposal Reporting System
Water and Wastewater	Water Energy Use	2,280	MG water	California Water Service, SCVWD
	Wastewater Treatment Energy Use and Direct Process Emissions	950	MG water	California Water Service, City of Palo Alto

Table 2: 2005 Municipal Activity Data and Sources

Sector	Subsector	Activity Data	Unit	Data Source
Employee Travel	Employee Commute	1,280,645	VMT	City of Los Altos Employee Commute Survey
Buildings	Electricity	1,056,631	kWh	Pacific Gas & Electric
	Natural Gas	36,183	therms	Pacific Gas & Electric
Fleet	Gasoline	35,264	gallons	City of Los Altos, Maintenance Service Manager
	Diesel	8,168	gallons	City of Los Altos, Maintenance Service Manager
Government–Waste Disposal	Landfilled Waste	899	tons	City of Los Altos, Maintenance Service Manager
Lighting	PG&E-Owned	323,546	kWh	Pacific Gas & Electric

[4] *CalRecycle defines alternative daily cover (ADC) as cover material other than earthen material placed on the surface of the active face of a municipal solid waste landfill. ADC is intended to control vectors, fires, odors, blowing litter, and scavenging.*

Sector	Subsector	Activity Data	Unit	Data Source
	Streetlights			
	City-Owned streetlights	90,600	kWh	Pacific Gas & Electric
	Traffic Lights	35,631	kWh	Pacific Gas & Electric
	Other Public Lights	136,993	kWh	Pacific Gas & Electric
Refrigerants	R-410A	1	lbs	City of Los Altos, Maintenance Service Manager
	R-134A	34	lbs	City of Los Altos, Maintenance Service Manager
	R-12	1	lbs	City of Los Altos, Maintenance Service Manager
Water and Wastewater	Water Electricity	12,970	kWh	Pacific Gas & Electric data request
	Wastewater Electricity	1,447	kWh	Pacific Gas & Electric data request

Calculate Emissions

Each activity identified in **Tables 1** and **2** has a corresponding emissions factor that estimates the emissions generated per unit of activity. Emissions factors are typically reported on an annual basis for each type of GHG. Greenhouse gas emissions trap heat in the earth's atmosphere and include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Carbon dioxide equivalent (CO_2e) is the common unit used to equate the different GHGs and is calculated by converting each gas into an equivalent unit of CO_2 using its global warming potential. Each GHG has a different global warming potential as identified in **Figure 8**. CO_2e is commonly expressed in metric tons ($MTCO_2e$).

Figure 8: Global Warming Potentials

Confirm and Summarize Results

Following calculation of the GHG emissions for each activity and sector, the results of the inventory are compiled and summarized. Subsequent sections of this chapter present summarized results of the Los Altos emissions inventories prepared for community activities and municipal operations.

Baseline Community Emissions Inventory

The Los Altos community emitted approximately 182,830 $MTCO_2e$ in 2005. As shown in **Table 3** and **Figure 9**, the transportation sector was the largest source of emissions, producing approximately 91,670 $MTCO_2e$ in 2005. Emissions from the residential energy sector were the next largest contributor, generating approximately 59,950 $MTCO_2e$ in 2005. Emissions from commercial energy contributed 20,070 $MTCO_2e$ and the waste disposal sector contributed 3,950 $MTCO_2e$. Activities associated with water, wastewater, and off-road equipment sources such as construction generated the remaining emissions and contributed 7,190 $MTCO_2e$.

Figure 9: 2005 Community Emissions by Sector

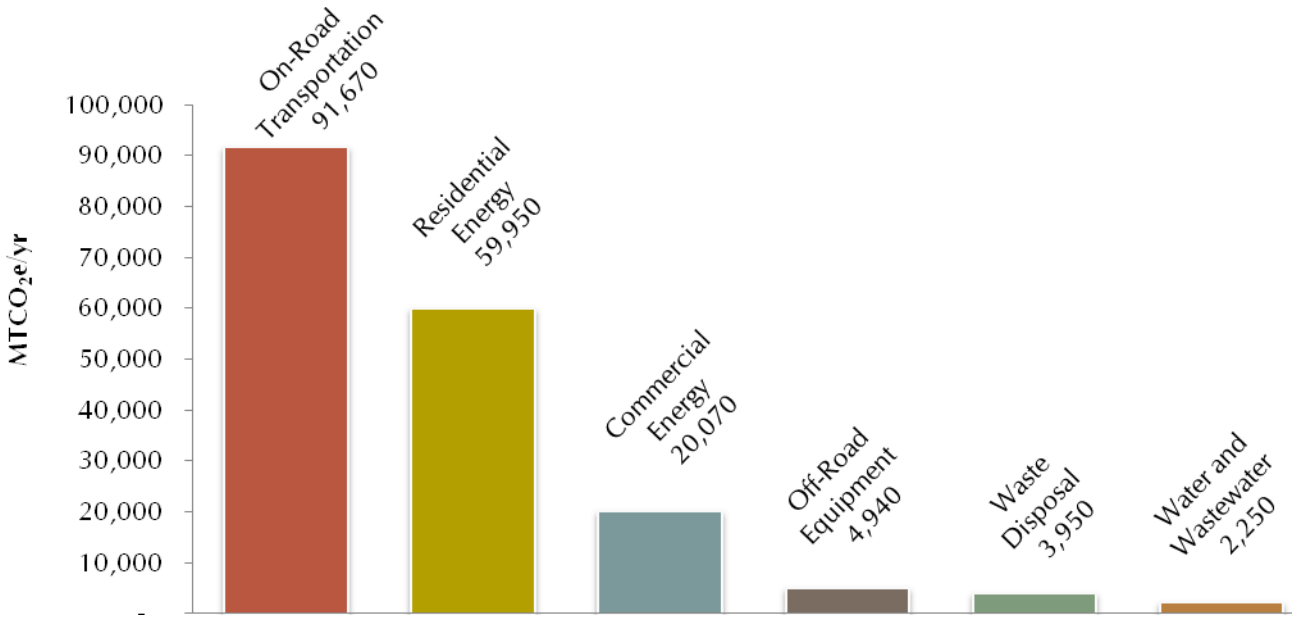


Table 3: 2005 Community Emissions by Sector

Sector	$MTCO_2e$/yr
Transportation	91,670
Residential Energy	59,950
Commercial Energy	20,070
Off-Road	4,940
Waste Disposal	3,950
Water and Wastewater	2,250
TOTAL	**182,830**

** Due to rounding, the total may not be the sum of component parts.*

Baseline Government Operations Emissions Inventory

Government operations in the City of Los Altos generated approximately 1,870 $MTCO_2e$ in 2005. **Table 4** and **Figure 10** display the results of the government operations inventory by sector. The employee commute and travel sector was the largest contributor to emissions, producing approximately 700 $MTCO_2e$ in 2005. The buildings and fleet sectors were the next largest contributors to government operations emissions, with 430 $MTCO_2e$ and 420 $MTCO_2e$, respectively. Emissions from government-generated waste constituted 170 $MTCO_2e$ of the total. Lighting, refrigerants, and water and wastewater, together contributing approximately 150 $MTCO_2e$ in 2005, made up the remaining emissions.

Figure 10: 2005 Government Operations Emissions

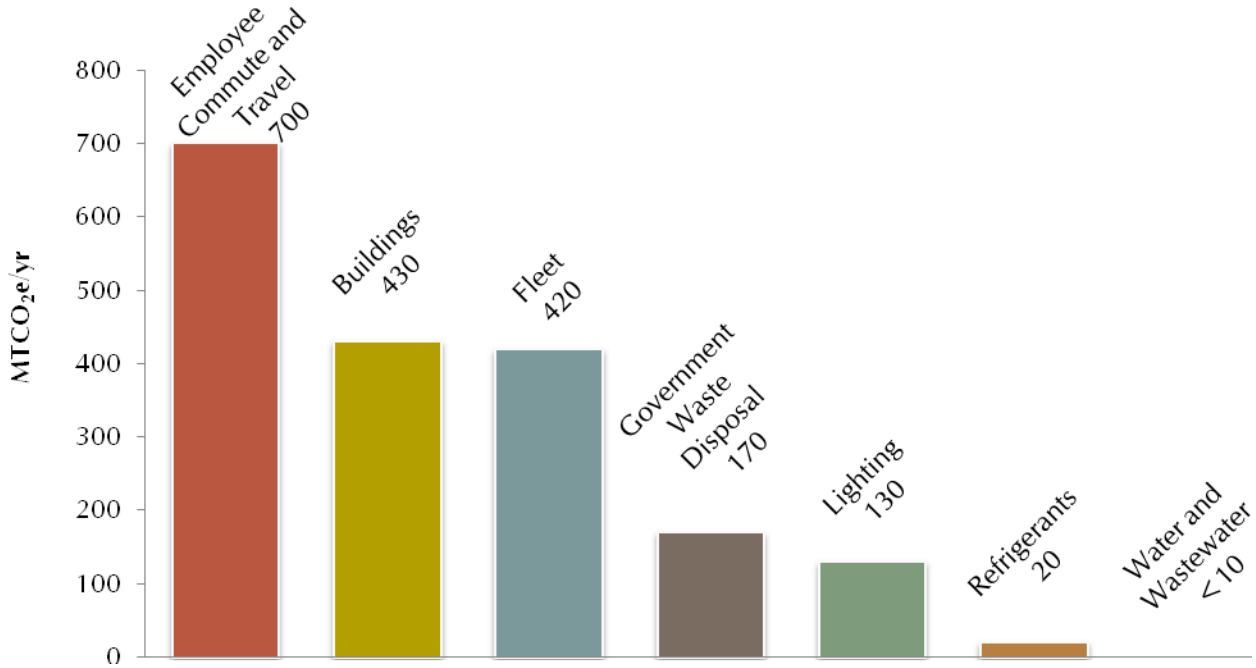


Table 4: 2005 Government Operations Emissions

Sector	$MTCO_2e/yr$
Employee Commute & Travel	700
Buildings	430
Fleet	420
Government Waste Disposal	170
Lighting	130
Refrigerants	20
Water and Wastewater	<10
Total	**1,870**
** Due to rounding, the total may not be the sum of component parts.*	

Emissions Forecast

An emissions forecast estimates how emissions would grow over time if no action is taken at the federal, state, or local level to reduce them. An emissions forecast was prepared for Los Altos, assuming 2005 energy consumption, waste disposal, and energy efficiency rates remain constant. The forecast addresses two target years: 2020 and 2035. The 2020 target year is consistent with AB 32 targets, while the 2035 target year is consistent with the SB 375 horizon.

To forecast emissions to 2020 and 2035, a set of indicators determines the extent to which growth may occur and resulting emissions may change. **Table 5** identifies the growth indicators, sectors, and sources used to forecast community and municipal operations emissions in Los Altos. Demographic information from the Association of Bay Area Governments (ABAG) 2009 Projections includes population, household, and employment forecasts for every five-year period.

Table 5: 2020 and 2035 Forecast Growth Indicators and Sources

Indicator	Emissions Sector	2005	2010	2020	2035	% Change
Service Population	Waste Disposal, Water and Wastewater	38,340	38,940	40,530	42,350	+10%
Households	Residential Energy,	10,530	10,670	11,030	11,610	+10%
Community Employees	Commercial Energy	10,440	10,540	11,130	11,950	+14%
Annual VMT (millions)	On-Road Transportation	178	191	204	213	+20%
Annual Residential Building Permits	Off-Road Equipment	70	60	40	40	-42%
Municipal Building Area (Square Feet)	Buildings	201,260	201,260	238,210	307,488	+53%
City Employees (Full-Time Equivalent)	Fleet, Lighting, Employee Commute, Government Waste Disposal, Refrigerants, Wastewater	120	120	130	140	+10%

Sources: ABAG 2009; City of Los Altos 2009; MTC 2011; US Census Bureau 2011.

Community Emissions Forecast

In order for this Climate Action Plan to qualify as a GHG reduction strategy, expected future emissions within the city must be estimated. The forecast estimates how emissions would grow over time without influence from state, regional, and local GHG reduction efforts and assumes 2005 energy consumption and vehicle travel rates per person or household remain the same.

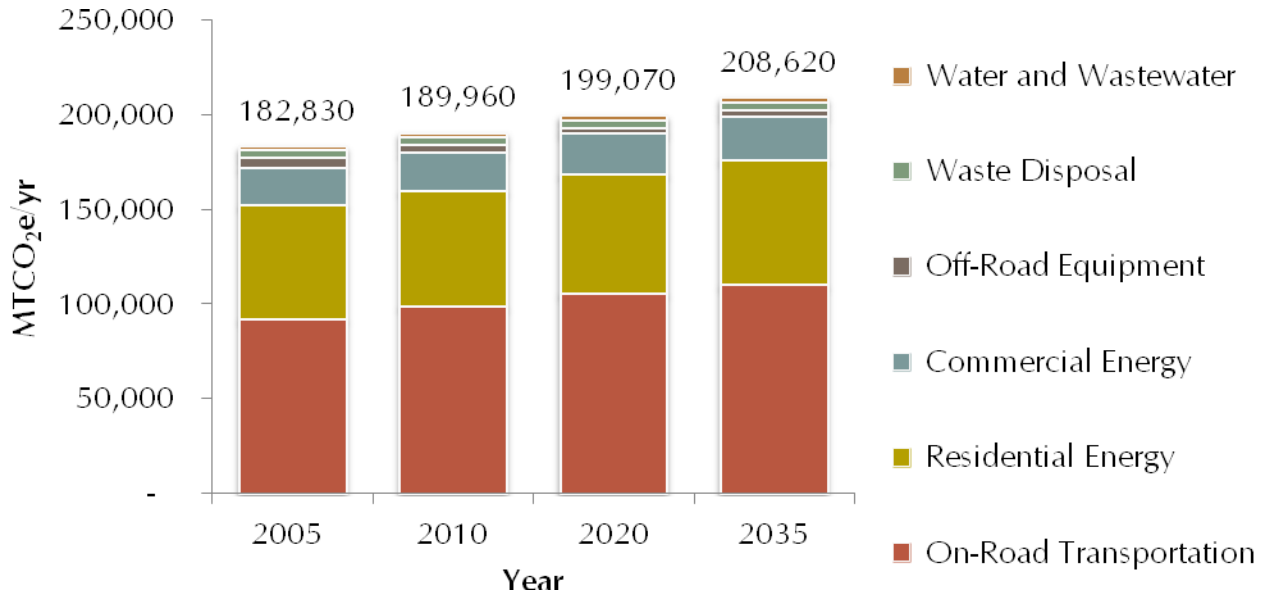
Under the anticipated growth scenario, community emissions are estimated to increase 9% above 2005 baseline levels by 2020 (199,070 $MTCO_2e$) and 14% above baseline levels by 2035 (208,620 $MTCO_2e$). **Table 6** and **Figure 11** summarize forecast emissions growth by community activity sector, assuming that no action is taken to reduce emissions. On-road transportation emissions are anticipated to increase by the largest amount (20% by 2035), while off-road equipment emissions are expected to decline by more than 37% by 2035. The projected decrease

in off-road equipment emissions is due to the decreasing rate of annual housing unit construction identified in **Table 5**.[5]

Table 6: 2005–2035Community Emissions Forecast

Sector	$MTCO_2e/yr$				% Change 2005–2035
	2005	2010	2020	2035	
On-Road Transportation	91,670	98,340	105,220	109,570	20%
Residential Energy	59,950	60,740	62,800	66,100	10%
Commercial Energy	20,070	20,260	21,400	22,970	14%
Off-Road Equipment	4,940	4,330	3,100	3,130	-37%
Waste Disposal	3,950	4,010	4,170	4,360	10%
Water and Wastewater	2,250	2,280	2,380	2,490	11%
Total	**182,830**	**189,960**	**199,070**	**208,620**	**14%**
Percentage Change from Baseline	**0%**	**4%**	**9%**	**14%**	

Figure 11: 2005–2035 Community Emissions Forecast



[5] *Off-road emissions are forecast using an annualized estimate of housing unit growth, which is derived from ABAG projections. The City has observed an increase in permits for housing units that are demolished and rebuilt. This activity may not be captured in the ABAG data, however the City does not yet have enough data or alternative method for projecting emissions from this activity. The City will continue to monitor this activity and may revise methods in future inventory and forecasts updates.*

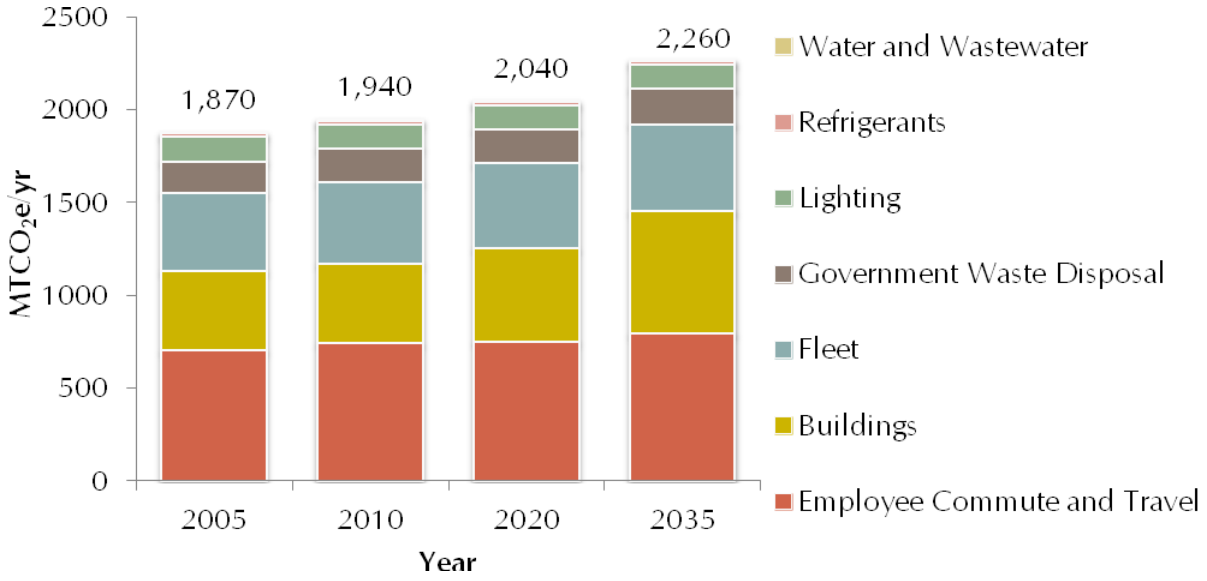
Government Operations Emissions Forecast

Assuming implementation of the Civic Center Master Plan or an alternative plan that provides facilities sized to meet the Master Plan's "Community Needs Assessment" and a modest increase in the number of City employees, government operations emissions are estimated to increase 9% above 2005 baseline levels by 2020 (2,040 $MTCO_2e$) and 21% above 2005 baseline levels by 2035 (2,260 $MTCO_2e$). **Table 7** and **Figure 12** summarize forecast emissions growth by government operations activity sector, assuming that no action is taken to reduce emissions. Building sector emissions are anticipated to increase 53% by 2035, consistent with anticipated increases in occupied City building space. Increased emissions from lighting, water and wastewater, and refrigerants are considered negligible due to their minor influence on baseline emissions.

Table 7: 2005–2035 Government Operations Emissions Forecast

Sector	$MTCO_2e$/yr				% Change
	2005	2010	2020	2035	2005–2035
Employee Commute and Travel	700	740	750	790	13%
Buildings	430	430	500	660	53%
Fleet	420	440	460	470	12%
Government Waste Disposal	170	180	180	190	12%
Lighting	130	130	130	130	0%
Refrigerants	20	20	20	20	0%
Water and Wastewater	<10	<10	<10	<10	0%
Total	**1,870**	**1,940**	**2,040**	**2,260**	**21%**
Percentage Change from Baseline		**4%**	**9%**	**21%**	

Figure 12: 2005–2035 Government Operations Emissions Forecast



Emissions Reduction Target

Once the inventory and forecast are complete, the next step in the climate action planning process is to evaluate emissions reduction target options and determine an appropriate level of emissions reductions by setting a reduction target. Many jurisdictions throughout California have adopted goals and targets to reduce emissions in a CAP or emissions reduction strategy typically motivated by the community's desire to develop comprehensive sustainability strategies and/or in response to AB 32, Executive Order S-3-05, and SB 375, Attorney General comment letters, the State CEQA Guidelines, and air district guidance.

Los Altos reviewed existing targets and emissions reduction actions taken by similar jurisdictions and considered various agency (CARB, California Attorney General's Office, and BAAQMD) recommendations to determine the appropriate emissions reduction target. On April 23, 2013, the Los Altos City Council adopted a provisional GHG reduction target of 15% below the 2005 baseline level by 2020 and directed staff to evaluate measures that could be included in this plan to exceed the reduction target. **Figure 13** demonstrates the gap to be closed by local CAP measures to reduce emissions from the 2020 forecast levels to 15% below baseline levels by 2020. As shown in **Table 8**, a 15% reduction below 2005 emissions would result in 2020 emissions levels of 155,410 $MTCO_2e$, or a reduction of 43,660 $MTCO_2e$ from 2020 levels.

Figure 13: Emissions Forecast and Target Gap

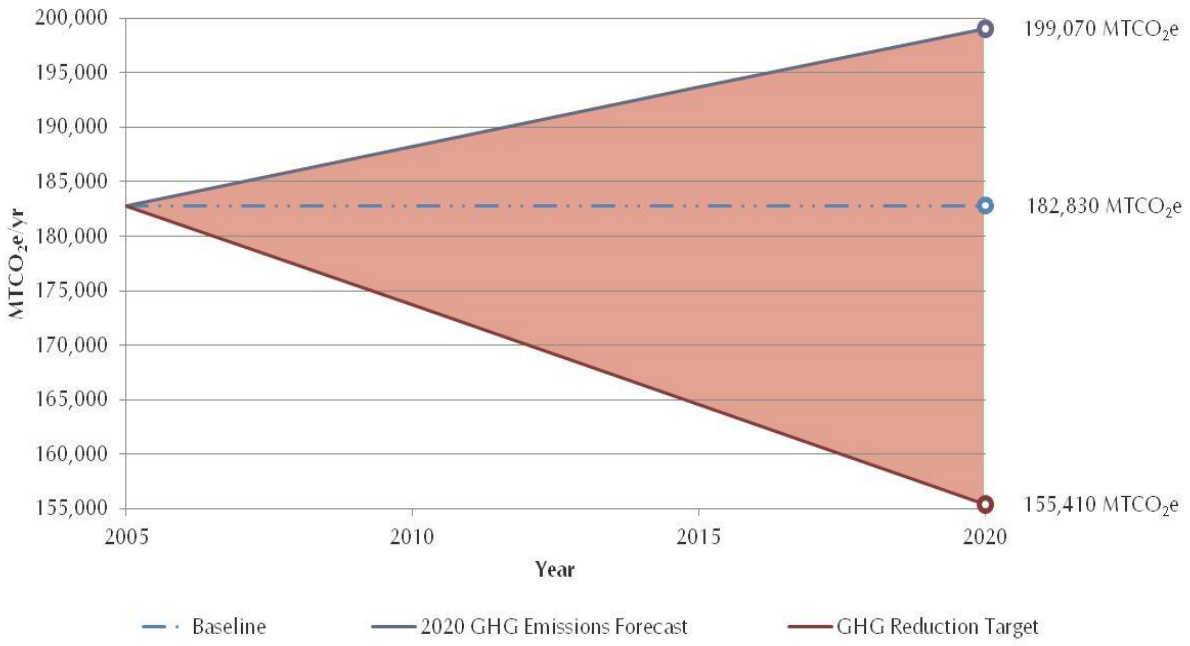


Table 8: Emissions Forecast and Target Gap

	2005	2010	2020
Emissions Forecast ($MTCO_2e$)	182,830	189,960	199,070
Percentage Below Baseline Year (2005) Target			15%
Emissions Target Goal ($MTCO_2e$)			155,410
Emissions Gap ($MTCO_2e$)			**43,660**

Chapter 3

Evaluating Existing Accomplishments

The City has a proud track record of supporting programs and initiatives that promote environmental sustainability at the local level. The State of California has also taken action in passing a full range of environmental initiatives that are actively reducing emissions on a statewide level. This chapter builds upon the emissions inventory and forecasts presented in **Chapter 2**, identifying activities and requirements implemented at the state and local levels since 2005 and their benefits to reducing local emissions. These activities and requirements have already set the City on a path to achieve its reduction goals.

State Programs and Requirements

Since the passage of AB 32, the State of California has enacted numerous regulations and programs to reduce GHG emissions. While these programs and requirements are enacted statewide, they affect vehicle emissions, the renewable energy content of electricity, energy efficiency in new buildings, and renewable energy systems at the local level. Key state programs and requirements that affect local emissions in Los Altos are described below and credited toward the 2020 emissions reduction target.

Quantified Accomplishments

Pavley Vehicle Standards

AB 1493 (Pavley, 2002): Pavley regulations require manufacturers of new passenger vehicles to reduce tailpipe GHG emissions from 2009 to 2020. The emissions benefits from implementation of the Pavley standards are quantified using the CARB EMFAC emissions model. These standards for more efficient vehicles would reduce emissions in Los Altos by 19,370 $MTCO_2e$.

California Renewables Portfolio Standard (RPS)

One of the most ambitious renewable energy standards in the country, RPS mandates that 33% of electricity delivered by investor-owned utilities in California, including Pacific Gas & Electric (PG&E), be generated by renewable sources like solar, wind, and geothermal by 2020. SB 1078 first codified the California RPS in 2002, requiring a 20% renewable electricity mix by 2010. SB X 1-2 further strengthened the RPS in April 2011, requiring a 33% renewable electricity mix by 2020. As of 2012, PG&E's renewable energy generation made up 19% of the electricity portfolio. In 2020, cleaner energy from RPS would reduce emissions in Los Altos by 6,120 $MTCO_2e$.

California Solar Initiative (CSI)

The CSI provides cash rebates for the installation of an electric solar panel system until 2016. Qualifying Los Altos residents must be a customer of PG&E. Through 2011, the CSI had assisted more than 425 homes and businesses in Los Altos to install electric solar panel systems. In 2020, renewable energy generated from homes and businesses that participate in the CSI would reduce emissions in Los Altos by 2,230 $MTCO_2e$.

Title 24, Energy Efficiency Standards

Title 24 of the California Code of Regulations is a statewide standard applied by local agencies through building permits. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings and for fire and life safety, energy conservation, green design, and accessibility in and around buildings. Part 6 (the California Energy Code) and Part 11 (the California Green Building Standards Code) include prescriptive and performance-based standards to reduce electricity and natural gas use in every new building constructed in California. The GHG reduction benefits of these standards to Los Altos include the net energy benefit of new Title 24 requirements that did not exist in the 2005 baseline year. As Title 24 standards are regularly updated, anticipated advances in energy efficiency requirements are included in GHG emissions reductions. In 2020, energy saved in new buildings resulting from Title 24 would reduce emissions in Los Altos by 430 $MTCO_2e$.

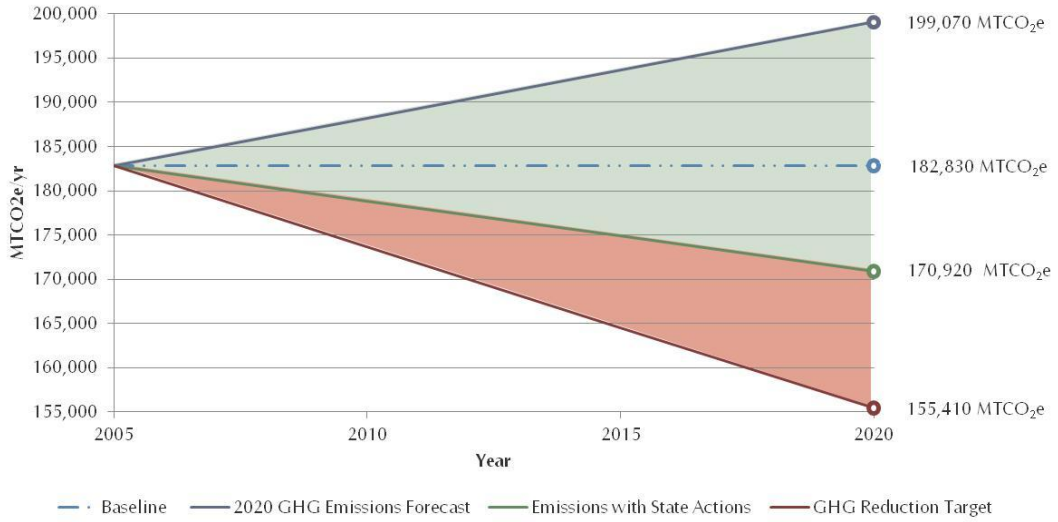
Local Benefit of State Programs and Requirements

As shown in **Table 9**, state programs and requirements would reduce emissions by approximately 28,150 $MTCO_2e$ per year in 2020. The majority of these reductions are due to the Pavley standards and the RPS. Title 24 reductions are inherently related to the amount of new development expected in the community. As Los Altos is not anticipating substantial growth prior to 2020, Title 24 benefits represent much smaller proportion of local reductions. Considering the 2020 emissions forecast of 9% above 2005 baseline emissions levels identified in **Chapter 2**, the local benefit of these state reductions would reduce 2020 emissions in Los Altos to about 7% below 2005 levels. **Figure 14** illustrates how state actions and requirements help the City progress toward achieving the 2020 emissions reduction target.

Table 9: 2020 Local Benefits of State Programs and Requirements Relative to 2005 Emissions Inventory

	2005 ($MTCO_2e$/yr)	2020 ($MTCO_2e$/yr)
Emissions Inventory or Forecast	182,830	199,070
Pavley Standards	–	-19,370
Renewables Portfolio Standard	–	-6,120
California Solar Initiative	–	-2,230
Title 24, Energy Efficiency Standards	–	-430
Total State Reductions	–	-28,150
Emissions with State Actions and Requirements	**182,830**	**170,920**
Percentage Change from 2005 Emissions Levels	**–**	**-7%**

Figure 14: Emissions Forecast, State Reductions, and Target Gap



Benefit of State Programs on Government Operations

State programs and requirements also affect government operations emissions, as shown in **Table 10**. Considering the 2020 emissions forecast of 9% above 2005 baseline emissions levels identified in **Chapter 2**, the local benefit of these state reduction measures would reduce 2020 government operations emissions in Los Altos to about 6% below 2005 levels. The majority of reductions come from the Pavley standards, which reduce emissions from employee commutes and the City's fleet, as newer, more fuel-efficient vehicles are purchased by the City and City staff.

Table 10: 2020 Local Benefits of State Programs and Requirements on Government Operations Relative to 2005 Emissions Inventory

	2005 ($MTCO_2e$/yr)	2020 ($MTCO_2e$/yr)
Emissions Inventory or Forecast	1,870	2,040
Pavley Standards	–	-220
Renewables Portfolio Standard	–	-60
Title 24, Energy Efficiency Standards	–	≤10
Total State Reductions	–	-280
Emissions with State Actions and Requirements	**–**	**1,760**
Percentage Change from 2005 Emissions Levels	**–**	**-6%**

Los Altos Accomplishments

Los Altos is also doing its part to implement policies and programs that conserve resources and reduce emissions. This section highlights specific actions taken by the City since 2005 to reduce emissions through 2011 and quantifies additional reductions that will result from continued

implementation of those actions through 2020. When combined with reductions from state programs, reductions from local accomplishments further reduce emissions in Los Altos.

Local accomplishments initiated or completed since 2005 that the City can count toward the reduction target include the 2010 Solid Waste Hauling Franchise Agreement, the Green Building Ordinance (adopted in 2007 and revised in 2010), water conservation efforts, and bicycle infrastructure improvements. Although Los Altos has reduced emissions through other local accomplishments since 2005, this section describes local accomplishments that can be quantified using existing, generally accepted methods.

Quantified Accomplishments

Green Building Ordinance

Recognizing the many energy and resource conservation benefits of green building practices, the Los Altos City Council adopted a mandatory Green Building Ordinance (2007 GBO) in October 2007. The City was one of the first municipalities in the state to adopt a mandatory GBO and amended the 2007 GBO (2010 GBO) in November 2010, establishing the following standards.

New Construction

All new buildings must comply with 2010 CalGreen requirements, with amendments.

- Must comply with CalGreen Tier I requirements (15% above 2008 Title 24).
- A minimum 4 kW (kilowatt) photovoltaic (PV) system may be installed in lieu of meeting the 15% above Title 24 requirement. If a building is less than 2,000 sf, the system may be smaller.

Existing Buildings

For existing buildings, GBO requirements apply to remodels and additions that modify 50% or more of the existing building floor area, excluding basements. By including existing buildings, the number of projects subject to the GBO was substantially increased.

- Existing single-family and multi-family residential
  - Achieve a minimum 50 points on the GreenPoint rating system from Build It Green.
  - A minimum 4 kW photovoltaic (PV) system may be installed in lieu of meeting the 15% above Title 24 requirement. If a building is less than 2,000 sf, the system may be smaller.
- Existing commercial, mixed-use, and public and community facilities
  - Must be 15% more efficient than Title 24.

Solar Option

Adopted in 2007, and modified in 2010, the City's Green Building Ordinance provides two paths for compliance:

- *Meet CalGreen Tier I requirements, which require projects to exceed Title 24 requirements by a minimum of 15%.*
- *Meet Title 24, requirements for energy efficiency and install a minimum 4 kW photovoltaic system.*

- A minimum 4 kW photovoltaic (PV) system may be installed in lieu of exceeding Title 24 requirements. If a building is less than 2,000 square feet, the system may be smaller.

In 2020, the reduced energy use throughout the community resulting from implementation of the 2010 GBO would reduce emissions in Los Altos by 700 $MTCO_2e$. Additional reductions anticipated from modifications to the GBO proposed by the CAP are described in **Chapter 4**.

Bicycle Infrastructure

Approximately 2.2 miles of new bikeways have been constructed in Los Altos since 2005. Reductions from new bicycle infrastructure are estimated using the bikeway inventory in the 2012 Bicycle Transportation Plan (BTP). The 2012 BTP anticipates an increase of 1,981 additional daily bicycle trips as a result of adding 23 miles of bikeways in the city.

To estimate the benefit of increased bikeway mileage in the community, the change in ridership from baseline to buildout is divided by total bikeway miles to determine the ridership increase per mile. This estimate is then applied to the 2.2 miles of new bikeways. In 2020, reduced vehicle miles traveled (VMT) attributed to construction of the additional 2.2 miles of bikeway constructed since 2005 would reduce emissions in Los Altos by 40 $MTCO_2e$. Additional reductions anticipated from construction of new bikeways identified in the BTP are described in **Chapter 4**.

Solid Waste Hauling Franchise Agreement

In 2010, the City signed a new franchise agreement with Mission Trail Waste Systems, Inc. (MTWS) for solid waste collection services. As a condition of the agreement, the City required MTWS to increase the diversion rate to:

- 62% by December 31, 2011
- 69% by December 31, 2012
- 78% by December 31, 2013

In 2005, the solid waste diversion rate in Los Altos was 52%, with a reported diversion rate of 71% by the end of 2011. These increased diversion rates correlate with a 35% decrease in landfilled waste from 2005 to 2011. In 2020, reduced waste resulting from implementation of the waste franchise agreement would reduce emissions in Los Altos by 2,320 $MTCO_2e$.

Water Conservation

In 2005, 2,280 million gallons of water were consumed in Los Altos. Indirect emissions from water result from the electricity used to supply, convey, treat, and distribute water to land uses throughout the community. In 2005, water delivery in Los Altos required approximately 7,065,080 kilowatt-hours (kWh) of electricity. Cal Water data presented by the Los Altos Environmental Commission reported an approximately 17% decrease in water consumption from 2005 to 2011. This 17% reduction in water use is directly correlated with the energy savings from water pumping, resulting in 1,228,732 kWh savings, or a reduction of 220 $MTCO_2e$ in 2020.

Existing Accomplishments Summary

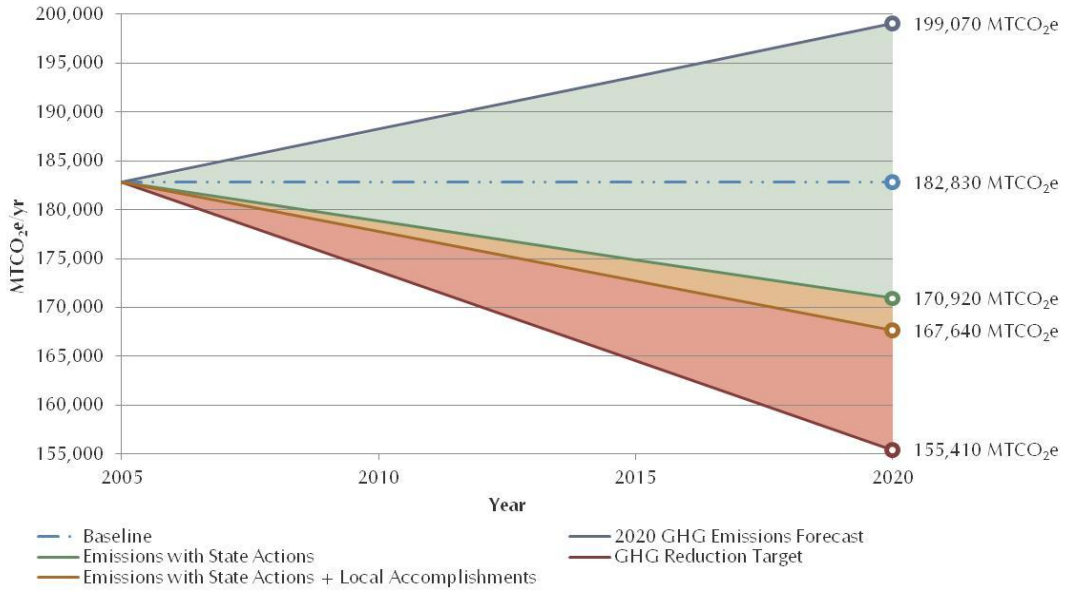
In total, state and local accomplishments have reduced 2011 emissions to 3% below baseline 2005 levels and are expected to reduce 2020 emissions to 8% below baseline levels. **Table 11** summarizes emissions reductions from local accomplishments for 2011 and 2020.

Table 11: Accomplishments and Progress Toward Reduction Target

Activities and Accomplishments	Emissions Reductions ($MTCO_2e$/yr)		
	2005	2011	2020
Emissions with State Actions and Requirements	182,830	178,860	170,920
Green Building Ordinance	--	-330	-700
Bicycle Infrastructure Improvements	--	-50	-40
Solid Waste Hauling Franchise Agreement	--	-1,480	-2,320
Water Conservation	--	-270	-220
Total Reductions	--	-2,130	-3,280
Emissions with State Actions and Local Accomplishments	182,830	176,730	167,640
Percentage Change from 2005	--	-3%	-8%
Emissions Reduction Target (%)	--	--	-15%
Target Emissions Level ($MTCO_2e$)	**--**	**--**	**155,410**
Remaining Reductions Needed to Achieve Target ($MTCO_2e$)	**--**	**--**	**-12,230**

Assessing the benefits of state and local accomplishments gives the City credit for work done to date and helps the community better understand the anticipated GHG emissions from the activities of residents, employees, businesses, and government. As listed in **Table 11** and illustrated in **Figure 15**, taking reductions from local and state actions into account, the Los Altos community needs to reduce emissions by an additional 12,230 $MTCO_2e$ by 2020 to achieve the emissions target of 155,410 $MTCO_2e$ (equivalent to 15% below 2005 baseline levels).

Figure 15: Emissions Forecast, State and Local Accomplishments



Chapter 4

Strategy to Reduce Emissions

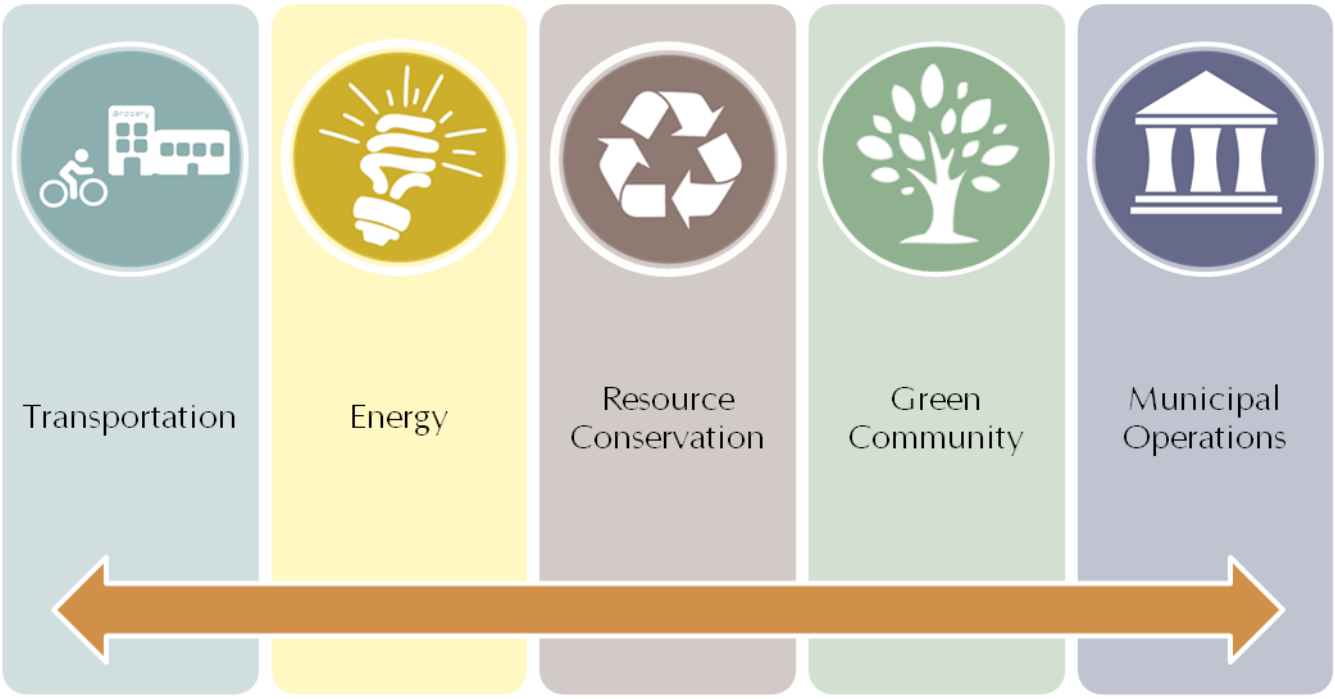
Purpose and Structure

The reduction measures included in this plan are a diverse mix of incentives, education, and regulations applicable to both new and existing development. The measures are designed to reduce emissions from each source to avoid relying on any one strategy or sector to achieve the reduction target. This chapter describes the process used to develop, refine, and quantify the emissions reduction goals, measures, and actions identified to achieve Los Altos' reduction target.

Focus Areas

The CAP addresses five focus areas: Transportation, Energy, Resource Conservation, Green Community, and Municipal Operations (**Figure 16**). Similar to emissions sectors described in previous chapters, these focus areas group goals, measures, and actions into similar categories.

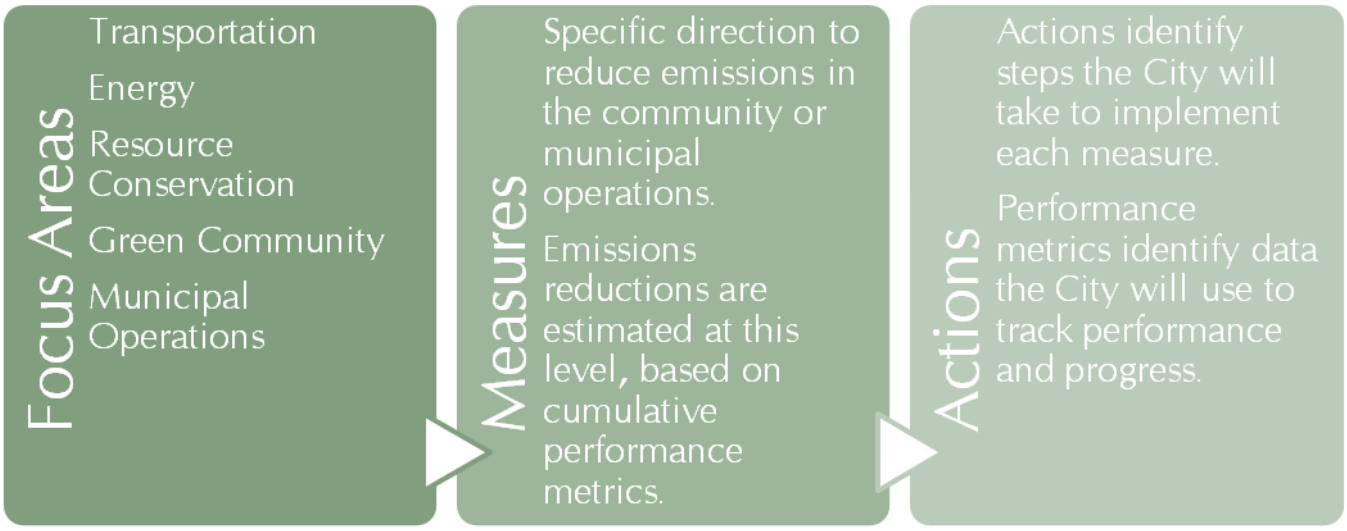
Figure 16: Climate Action Plan Focus Areas



Goals, Measures, and Actions

Goals outline the general purpose or objective for each focus area. *Measures* address specific topics within each focus area at a greater level of detail than goals (e.g., alternative transportation strategies, energy efficiency programs). Emissions reductions are estimated at the measure level by calculating the cumulative effect of actions using performance metrics. *Actions* identify steps the City will take to implement each measure (e.g., developing or adopting an ordinance, amending the Zoning Code, establishing partnerships with other organizations). **Figure 17** summarizes these components of emissions reduction measures.

Figure 17: Focus Areas, Measures, and Actions



BMP

Best Management Practices

CAP measures address emissions from all sources in Los Altos and balance programs applicable to new and existing development.

New projects that are consistent with the CAP may not need to conduct additional GHG emissions analysis as part of the CEQA environmental review process. Projects can demonstrate consistency with the CAP by implementing a number of project-level best management practices (BMPs) identified throughout this plan. BMPs follow a similar structure to proposed measures, and any measure that includes a BMP is identified using the symbol shown above. Discussion of the BMPs and their applicability to new development projects is provided in Appendix B.

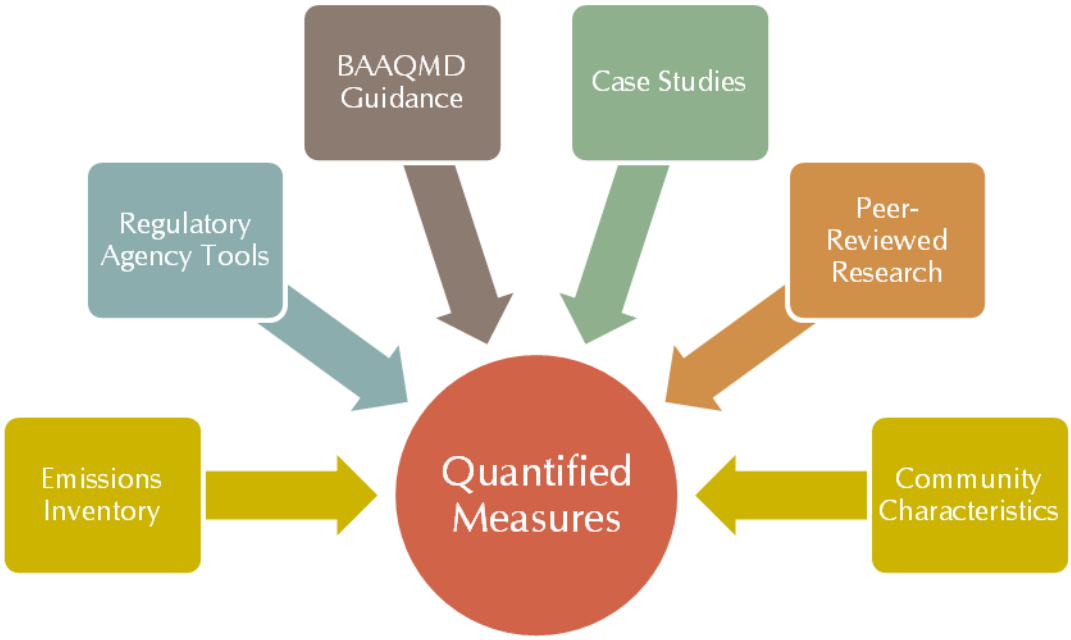
Quantification Methods

Emissions reduction estimates are identified for each measure for the year 2020. The emissions reduction benefit of each measure is determined by changes in operation, activity, or efficiency. In general, three types of reductions are provided by the CAP:

1) Avoided emissions (e.g., walk instead of drive)
2) Greater efficiency (e.g., drive an electric vehicle)
3) Sequestration (e.g., increase carbon storage by planting trees)

Figure 18 summarizes information used to estimate emissions reductions. The 2005 baseline inventory and 2020 forecast serve as the foundation for quantifying reduction measures. Activity data from the inventory (e.g., VMT and kWh of electricity) are used with performance metrics to calculate the emissions reduction potential of each measure. This approach ensures that emissions reductions relate to baseline and future activities in the community.

Figure 18: Emissions Quantification Sources and Tools



Where possible, emissions reduction estimates are based on tools and reports provided by government agencies such as the US Environmental Protection Agency (EPA), California EPA, California Energy Commission (CEC), CARB, California Air Pollution Control Officers Association (CAPCOA), and BAAQMD. If accurate reduction estimates are not available using these tools, a case study with comparable characteristics may be used. Finally, for more long-range reduction measures that lack actual on-the-ground testing or analysis, current scholarly and peer-reviewed research is combined with knowledge of existing City practices to create a defensible estimate of future emissions reductions.

Emissions Reduction Strategy Results

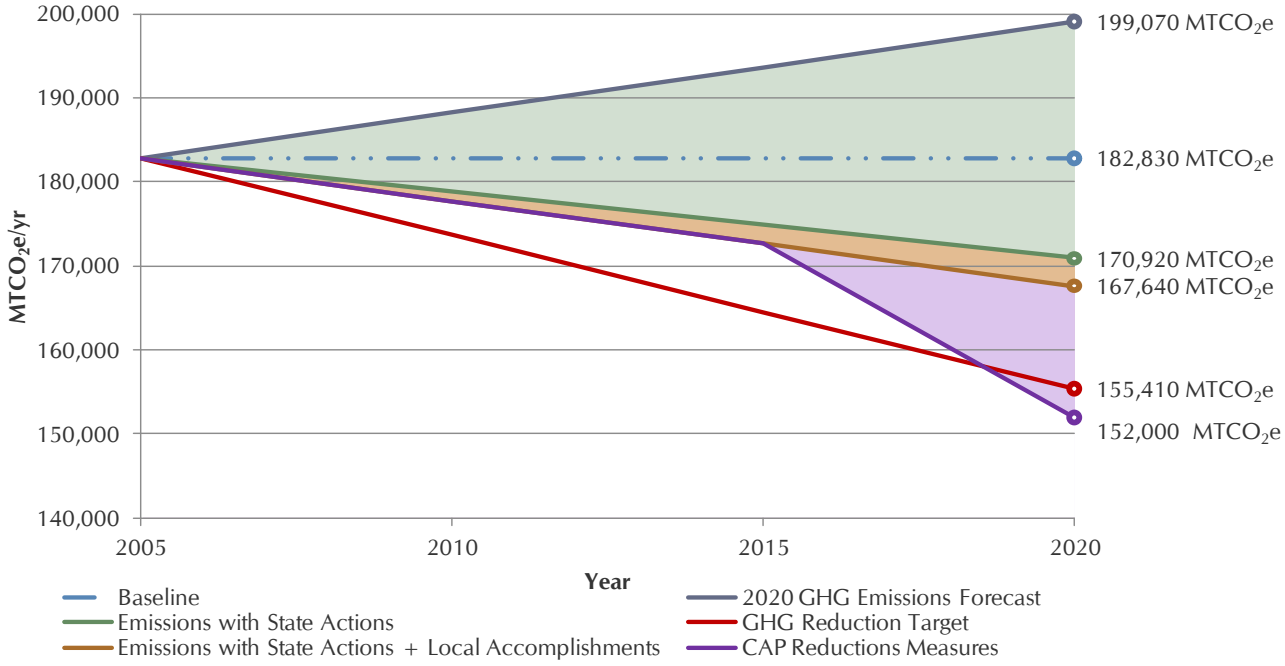
The reduction measures included in this CAP identify policies and programs that can be implemented to reduce emissions and achieve the reduction target by 2020. Most emissions reductions come from the Transportation and Energy focus areas, which correspond to the largest sources of emissions in Los Altos. Anticipated emissions reductions in 2020 are summarized by focus area in **Table 12**.

Table 12: Anticipated 2020 Emissions Reductions

Focus Area	2020 Emissions Reductions ($MTCO_2e$)	Focus Area Percentage of Total Reductions
Transportation	-7,760	50%
Energy	-5,740	37%
Resource Conservation	-1,310	8%
Green Community	-20	<1%
Municipal Operations	-810	5%
Total	**-15,640**	**100%**

Complete implementation of CAP measures would allow the community to reduce emissions by 17% below 2005 levels by 2020. **Figure 19** illustrates anticipated progress toward achieving and exceeding the reduction target by 2020 with implementation of the CAP.

Figure 19: 2020 Emissions Relative to Reduction Target



Measure Evaluation

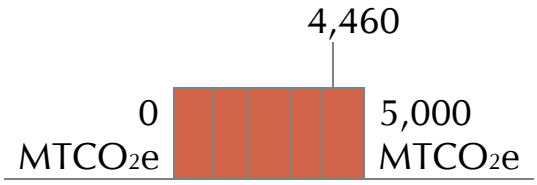
Many methods are used by jurisdictions to reduce GHG emissions. While Los Altos has considered best practices in other similar or nearby communities, the use of a measure by another community does not necessarily mean that it is practical or appropriate for Los Altos. Therefore, a series of questions were considered when evaluating each reduction measure:

1) Could this be a measure that is effective within the Los Altos community?
2) Will the proposed measure contribute to improving the quality of life in Los Altos in other ways beyond reducing emissions?
3) Is this a measure that would be the best use of the City's time and resources?
4) Who will potentially benefit and who will potentially be burdened by the measure?

Community acceptance is a critical component of CAP implementation. Looking beyond the numbers and focusing on the practicality and benefits of the new measures lay the groundwork for wider support and help ensure that the CAP is successful in making Los Altos a great place to live and raise a family. Therefore, the following criteria are considered for each measure, with the first two criteria addressed in this chapter, and the remaining criteria addressed in **Chapter 5**.

1. Effectiveness

The primary goal of the CAP is to identify and quantify the GHG emissions reduction benefit of each measure to achieve the target. The emissions reduction effectiveness of each measure is presented on a scale similar to the one presented below.



2. Community Benefits

Looking beyond emissions reductions, many measures also support improving the quality of life for residents and businesses in Los Altos. Additional community benefits are identified for each measure as follows.

Improves Public Health | Reduces Household Energy Costs | Promotes Economic Vitality | Fosters Community Leadership | Supports Schools and Youth | Increases Community Connectivity | Protects Natural Resources | Enhances Neighborhood Character

3. Time and Resources

An estimate of the likely expense and staff time that may be necessary to implement the CAP has been prepared to help determine if the measure is the best use of City resources. Three cost ranges have been identified, as described below, and are presented by action in **Chapter 5.**

Range	Description	Staff Hours
$ Low	Minimal staff effort and no consultant assistance would be needed to complete analytical work, coordinate stakeholder/public outreach, or implement the program.	<80
$$ Medium	Significant staff effort, some consultant assistance, or supplemental funding for operations or capital projects would be needed to complete analytical work, coordinate stakeholder/public outreach, or implement the program.	80–500
$$$ High	Major staff effort, consultant assistance, or supplemental funding for operations or capital projects would be needed to complete analytical work, coordinate stakeholder/public outreach, or implement the program.	500+

4. Accountability

As outlined below, all City departments would play a role in implementing the CAP, but Planning, Building, and Engineering would be responsible for the largest share of the new policies and programs. Additional City staff time and resources will be required to implement the reduction measures, but the scope is manageable and could be accomplished without hiring additional staff. City staff, leadership, community partners, and other partner agencies that may be involved in implementation are identified for each measure in **Chapter 5**. Potential leaders and partners include the following:

✓	**City Departments**	✓	**City Leadership**	✓	**Community Partners**[6]	✓	**Partner Agencies**
✓	Administration	✓	Environmental Commission	✓	Green Town Los Altos	✓	Los Altos Unified School District
✓	Building	✓	Planning and Transportation Commission	✓	Los Altos Chamber of Commerce	✓	Santa Clara VTA
✓	Planning	✓	City Council	✓	Los Altos Village Association	✓	Santa Clara Valley Water District
✓	Engineering	✓	Bicycle and Pedestrian Advisory Committee	✓	Rotary Club of Los Altos	✓	Mission Trails Waste Systems
✓	Economic Development					✓	California Water Service Company
✓	Recreation						
✓	Maintenance Services						

[6] *This list is a set of example organizations and is not an exclusive list. Other organizations could also partner with the City to implement the CAP.*

Reduction Measures

Focus Area 1: Transportation

Goal: Provide safe and convenient alternatives to driving.

Bike lanes along San Antonio Road contribute to bicyclist safety.

Reducing GHG emissions from vehicle trips can be accomplished by providing safe and convenient alternatives to driving single-occupant vehicles and by ensuring that infrastructure is in place to support more efficient travel patterns. The measures and actions identified in this focus area will reduce or eliminate vehicle trips by increasing the number of bicycle, walking, or transit trips that residents and visitors can reasonably make by implementing the Bicycle Transportation Plan (BTP), developing and implementing a pedestrian master plan, and improving access to transit. While some vehicle trips will remain necessary because of distance, timing, sequence, or other factors, Los Altos can support efforts by residents and visitors to use efficient vehicles by developing an infrastructure network that supports alternative and fuel-efficient vehicles.

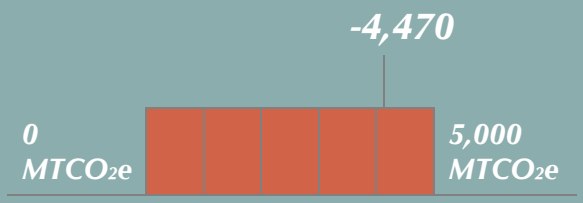
1.1 Improve Non-Motorized Transportation

Given Los Altos' relatively flat terrain, small geographic area, proximity to transit, and strategically located commercial nodes, there is great potential to reduce VMT by investing in non-motorized transportation infrastructure. The City is strategically planning for non-motorized transportation throughout the community by adopting an updated BTP in 2012 and beginning work on a pedestrian master plan. This measure focuses on moving beyond planning for these facilities and programs by prioritizing construction of new links in Los Altos' pedestrian and cycling networks to reduce VMT, create a healthier community, and provide safer routes to school.

Los Altos has a vibrant bicycling community.

Measure 1.1 Evaluation

Effectiveness



Community Benefits

Actions to support Measure 1.1:

A. Construct all bikeways and implement all programs identified in the 2012 BTP by 2020.

B. Develop and fully implement a pedestrian master plan with specific focus on local vehicle trip reduction by 2020.

C. Support a rotating car-free day program at local schools and as part of other local events to raise awareness about school commute alternatives.

D. Continue to pursue and implement Safe Routes to School projects.

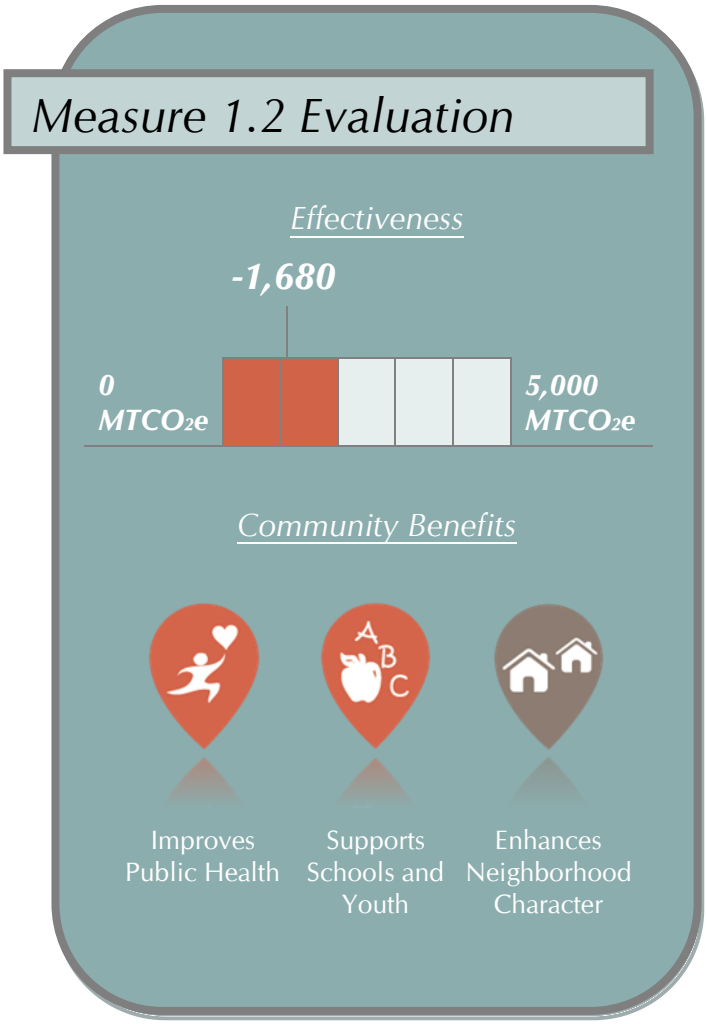
E. Continue to implement the City's Complete Streets policy and traffic calming plans and projects.

F. Support a local bike-share program.

1.2 Expand Transit and Commute Options

BMP

According to the US Census Bureau's Center for Economic Studies, most Los Altos residents do not work within the city and most of those employed in Los Altos do not live within the city. The thousands of workers that both leave and enter Los Altos for work create a large VMT footprint that could be reduced through better transit connections between Los Altos and regional transit systems and by ensuring employers in Los Altos offer commute options or incentives to their employees. Most of the city is located within 5 miles of the San Antonio Caltrain station, the San Antonio/Showers Transit Center, and the planned El Camino Real Bus Rapid Transit (BRT) lines.



Actions to support Measure 1.2:

A. Work with the Santa Clara Valley Transit Authority (VTA) to seek opportunities to expand local service to improve connectivity to regional transit options.

B. Require new nonresidential development greater than 10,000 square feet or anticipated to include businesses with more than 50 employees to reduce VMT through transportation demand management (TDM) programs.[7]

C. Encourage partnerships to develop and implement school bus programs that reduce school-related commutes.[8]

[7] *This TDM program requirement is consistent with the forthcoming Metropolitan Transportation Commission (MTC) and BAAQMD joint TDM requirement ordinance, which is consistent with SB 1339 (2012).*

[8] *This action could also include support of a flexible vehicle use program that provides transit options to seniors during the school day.*

1.3 Provide Alternative-Fuel Vehicle Infrastructure

EV charging stations located in a Downtown public parking plaza

BMP

Many Los Altos residents are early adopters of new technologies, including alternative fuel or electric vehicles. Availability of alternative fuel infrastructure, including charging or fueling stations, and requirements ensuring that new development is equipped to provide such infrastructure in the future would substantially increase the likelihood of electric vehicle (EV) adoption, reducing local GHG emissions and other harmful pollutants associated with gasoline and other fuel use. Offering publicly accessible EV charging stations provides an additional benefit of attracting through-traffic to the city's public or commercial parking lots and establishments.

Actions to support Measure 1.3:

A. Install EV charging stations in public parking lots.

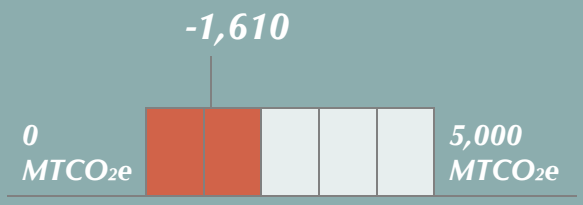
B. Encourage alternative-fuel vehicle charging stations in existing private development.[9]

C. Amend the GBO to include EV pre-wiring requirements and encourage EV charging installations in residential development.[10]

D. Amend the GBO to require EV charging stations in nonresidential projects greater than 10,000 square feet.

Measure 1.3 Evaluation

Effectiveness



Community Benefits

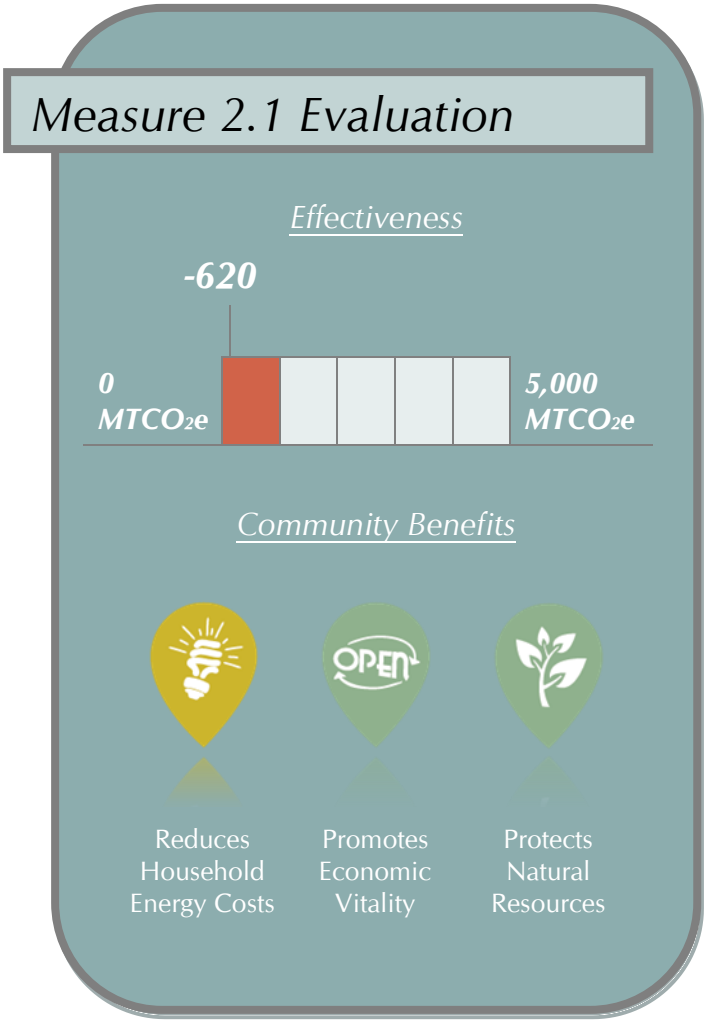
[9] *This action is consistent with the State's commitment to build alternative-fuel infrastructure over the next 20 years.*

[10] *EV pre-wiring is a relatively low upfront cost that lowers the barrier of entry to EV ownership.*

Focus Area 2: Energy

Goal: Maximize energy efficiency and leverage opportunities to generate energy from renewable resources.

Los Altos has many homes with higher than average energy use due to building size, age, and the prevalence of pools and hot tubs in the community. Compared to the average California household, residences in Los Altos use 30% more electricity per year (8,630 kWh in Los Altos, compared to 6,740 kWh statewide). Consistent with the CEC's preferred loading order, the measures and actions identified in this focus area first provide opportunities to conserve energy and maximize energy efficiency, and then identify opportunities for residents and businesses to utilize renewable energy sources.



2.1 Promote Energy Conservation

By providing residents and businesses with tailored information regarding the most effective energy conservation strategies for their homes and businesses similar to those in Los Altos, the City can help reduce energy consumption, GHG emissions, and monthly utility costs.

Actions to support Measure 2.1:

A. Provide outreach and educational materials for energy conservation and renewable energy programs targeted at outdoor amenities (e.g., lighting, swimming pools, hot tubs).

B. Provide outreach and education to support existing programs that conserve energy in large homes.[11]

[11] *For example, the High Energy Homes Program (http://www.acterra.org/programs/index.html). The City can help conserve energy, lower energy bills, and support the local economy by advertising this program, which provides detailed energy use information to homeowners.*

2.2 Increase Energy Efficiency

Residential and nonresidential buildings in the city depend on electricity and natural gas for lighting, heating, cooling, and running appliances. This measure identifies actions to increase energy efficiency in Los Altos.

The Packard Foundation headquarters is a net-zero building.

Actions to support Measure 2.2:

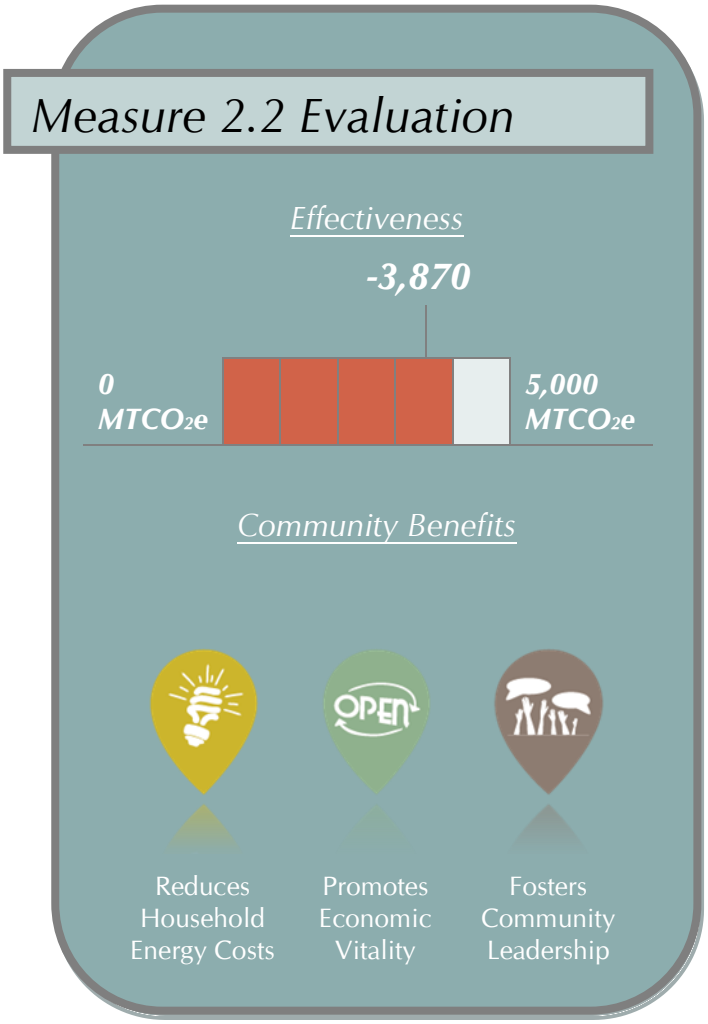
A. Ensure city residents are eligible to participate in and actively promote and support energy efficiency financing for residential and commercial properties.[12]

B. Continue to encourage the installation of energy-efficient indoor and outdoor appliances and equipment (e.g., pool pumps).

C. Develop energy efficiency outreach and education programs for renter-occupied households.

D. Develop an energy self-audit checklist and work with community partners to distribute to prospective property owners and other interested parties and to provide technical assistance.

E. Adopt net-zero electricity building standards for new residential and nonresidential construction.



[12] *The State offers a number of programs, such as California FIRST and Energy Upgrade California, and the Western Riverside Council of Governments' (WRCOG) HERO financing program is now available to residential and commercial properties statewide. Once the City executes a resolution to join the program, city residents and businesses can join these programs, gaining access to financing or subsidies for energy efficiency upgrades.*

2.3 Increase Renewable Energy

More than 400 Los Altos residents have already installed solar on their homes.

Many Los Altos households and businesses have installed solar PV panels. This measure aims to help residents and businesses install 5,000 kW of additional PV installations by 2020. The City will achieve this target by facilitating funding through regional partnerships and power purchase agreements. The City will also connect residents to utility and state rebate programs through education and outreach.

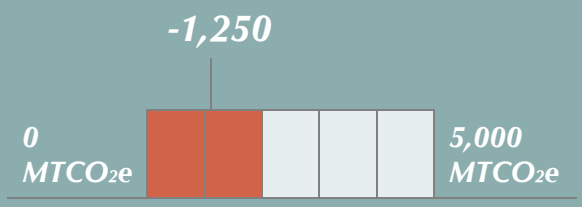
Action to support Measure 2.3:

A. Participate in regional partnerships and power purchase agreements to provide reduced-cost PV systems to residents and businesses.

B. Create and distribute outreach materials connecting residents and building owners to state, PG&E, and other rebate programs.

Measure 2.3 Evaluation

Effectiveness



Community Benefits

Reduces Household Energy Costs

Promotes Economic Vitality

Fosters Community Leadership

Focus Area 3: Resource Conservation

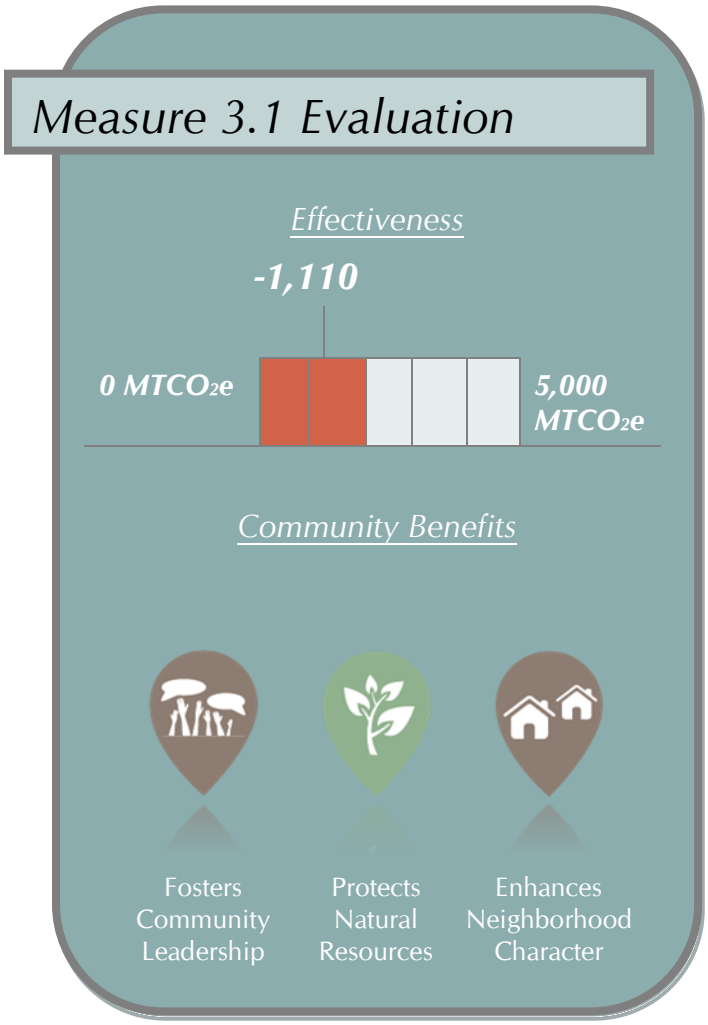
Goal: Eliminate unnecessary resource consumption.

While waste disposal, water use, and fuel use to operate equipment are all essential activities in the community, consuming and/or disposing natural resources also generates community GHG emissions. The effects of these activities can be reduced through technological advances and public information efforts reminding the community to consume responsibly. The following measures and actions identify the City's role in reducing the amount of resources consumed from waste disposal, water, and equipment use.

3.1 Reduce and Divert Waste

BMP

Los Altos has a strong record of reducing and diverting waste and has already realized substantial emissions reductions in this sector. Since 2005, Los Altos has achieved a 38% reduction in the amount of waste sent to local landfills, due in large part to recent changes to the franchise agreements with MTWS. This measure directs the City to continue advancing waste diversion by maintaining and expanding existing diversion programs, by banning polystyrene and plastic bags, and by encouraging use of reusable containers and bags.



Actions to support Measure 3.1:

A. Maintain and expand food waste diversion programs.

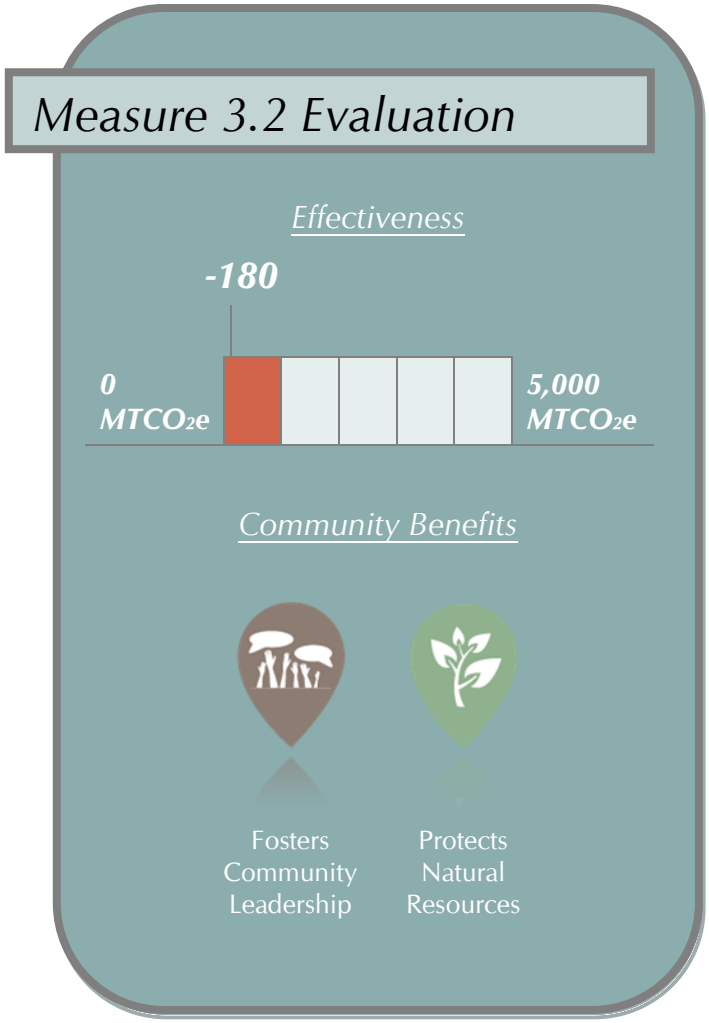
B. Adopt a plastic bag ban and encourage the use of reusable bags.

C. Continue to encourage recycling and reuse of building materials.

D. Adopt and enforce an expanded polystyrene (EPS) ban.

3.2 Conserve Water

The City's water provider, California Water Service Company, and water resources manager, Santa Clara Valley Water District, are required by state law to reduce per capita water use 20% below the baseline year identified in their Urban Water Management Plans (UWMPs) by 2020. This measure directs the City to assist the water providers, when necessary and appropriate, to implement strategies identified in their UWMPs. For this measure, the City's efforts will be supportive of the water providers. The water providers' efforts will be monitored and credited toward the City's reduction target.



Actions to support Measure 3.2:

A. Continue to support implementation of the 2010 UWMP through enforcement of the Water Efficient Landscape Ordinance (LAMC 12.36) and distribution of greywater/ rainwater harvesting guides.[13]

Efficient landscapes utilize rainwater for irrigation.

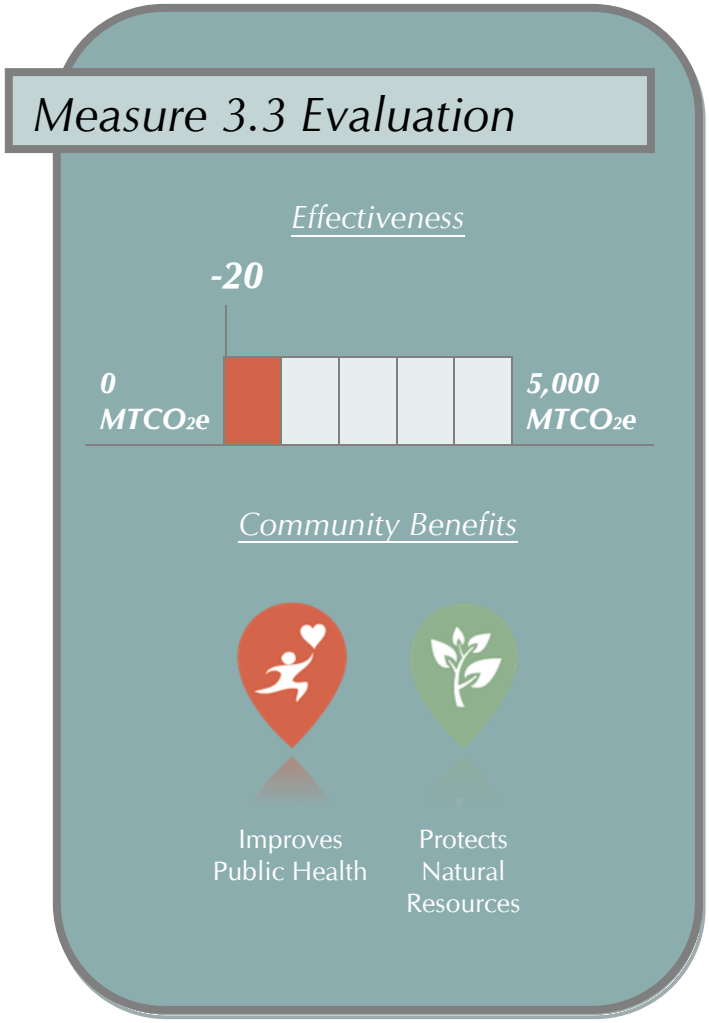
[13] *This document can provide guidance to interested residents on opportunities to decrease the amount of potable water used for landscaping.*

3.3 Use Carbon-Efficient Construction Equipment

Construction equipment emissions were responsible for approximately 2% of baseline community-wide emissions. BAAQMD has identified a number of best practices to reduce emissions from construction equipment, including limiting idling times and using alternatively fueled equipment. This measure directs the City to implement these best practices through education and outreach during the entitlement and permitting processes for new projects.

Action to support Measure 3.3:

A. Encourage compliance with BAAQMD construction equipment best practices through outreach and education.



Focus Area 4: Green Community

Goal: Value and support community projects that conserve natural resources and contribute to increased quality of life in Los Altos.

Many projects in Los Altos contribute to an improved quality of life by providing economic, social, and environmental benefits for the community. These projects also indirectly reduce GHG emissions. While the measures and actions listed below identify only minor direct emissions reductions, they support the reduced energy or fuel consumption goals underlying numerous other CAP measures.

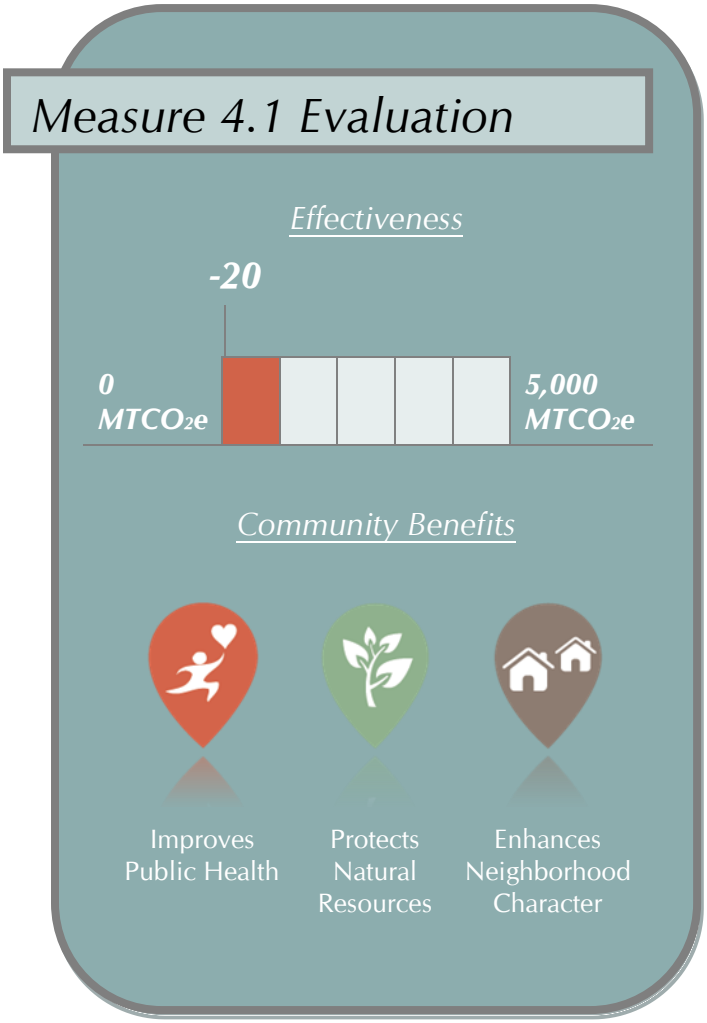
4.1 Sustain a Green Infrastructure System and Sequester Carbon

Trees and other green infrastructure are critical resources that increase and maintain quality of life in Los Altos. Green infrastructure reduces the urban heat island effect and sequesters carbon. This measure directs the City to continue to increase green infrastructure, encourage tree planting, and properly maintain existing trees through outreach, education, and existing events.

Actions to support Measure 4.1:

A. Continue to manage stormwater runoff with green infrastructure such as bioswales and other Low-Impact Development strategies.

B. Increase the number of shade trees planted in the community.



Focus Area 5: Municipal Operations

Goal: Demonstrate civic leadership by reducing emissions from City facilities and operations.

While City activities represent a small part of overall emissions in the community, the Municipal Operations focus area is the City's opportunity to lead by example. Emissions reduction measures may also reduce the cost of City operations by decreasing energy, fuel, and other material consumption at City facilities.

5.1 Operate Efficient Government Facilities

BMP

Buildings and lighting at City facilities generated 30% of total municipal emissions in 2005. This measure directs the City to invest in energy efficiency improvements at facilities that will remain in operation for the foreseeable future and to build new facilities to be as efficient as possible.

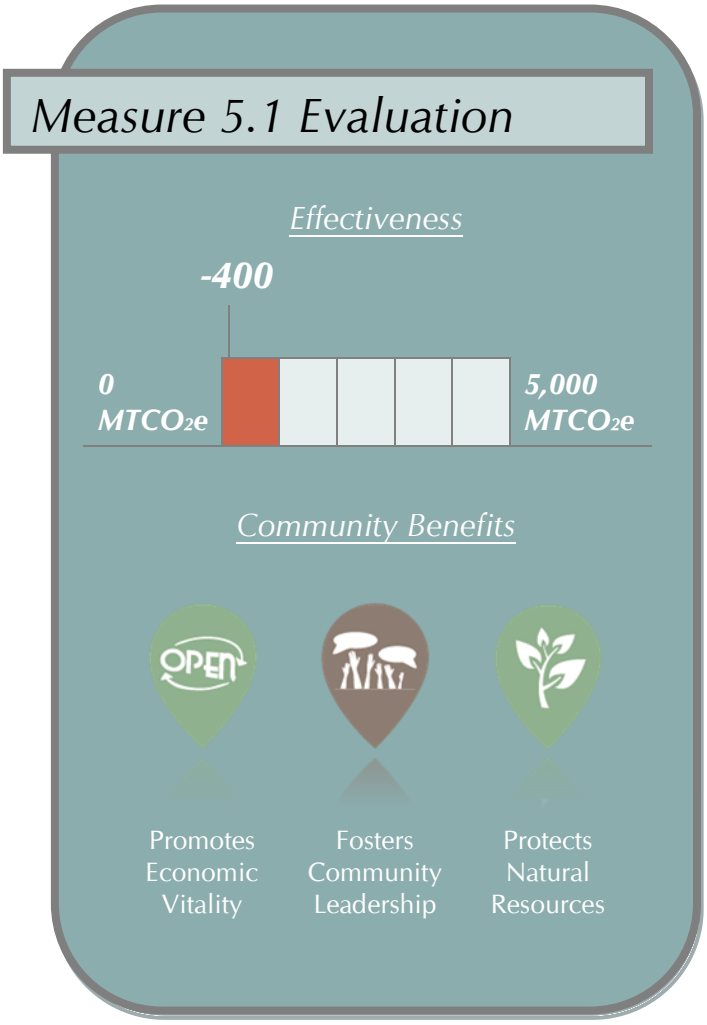
Actions to support Measure 5.1:

A. Audit appropriate City facilities and conduct comprehensive energy efficiency upgrades, including installing energy-efficient lighting, appliances, and heating, ventilation, and air conditioning systems.

B. Install 1 megawatt (MW) of renewable energy (e.g., PV panels) on City facilities.

C. Continue upgrading street and park lighting to light-emitting diode (LED) lights, as appropriate.

D. Develop and maintain a digital record-keeping system.



5.2 Reduce City Vehicle Fuel Consumption

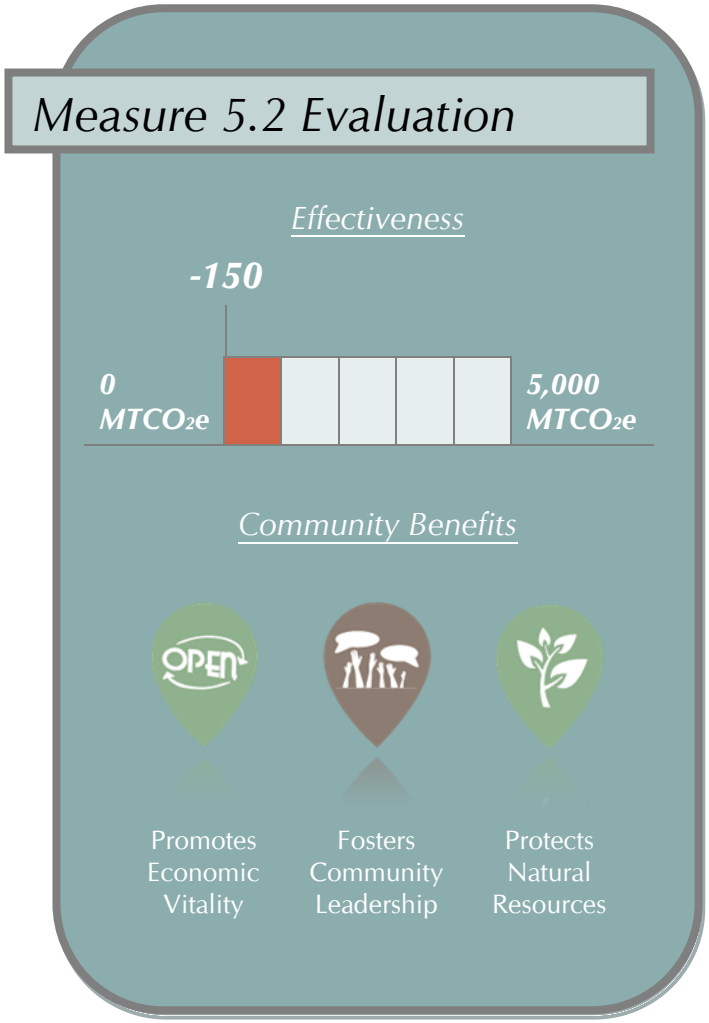
Fuel used by the City vehicle fleet accounted for approximately 20% of 2005 municipal operations emissions. This measure identifies opportunities for the city to maximize fuel efficiency through proper maintenance and operation of the fleet, fostering employee use of non-motorized transportation options, and increasing the number of alternatively fueled or fuel efficient vehicle that comprise the City's fleet.

Actions to support Measure 5.2:

A. Continue to maintain fleet efficiency through proper maintenance, and identify additional opportunities to increase fuel efficiency.

B. Encourage City employees to use non-motorized transportation, such as walking or bicycling, when conducting off-site City business (e.g., for trips up to a quarter or a half mile).[14]

Purchase fuel-efficient, hybrid, or alternative-fuel vehicles when replacing City fleet vehicles.[15]



[14] *Walking or cycling, when appropriate, could reduce fleet VMT and have positive employee health benefits.*

[15] *The City will consider up to a maximum 25% premium or five-year payback period compared to conventional vehicles.*

5.3 Support Sustainable Employee Travel

Employee commute and travel was the largest contributor to 2005 municipal operations emissions (37% of total emissions). This measure identifies opportunities to reduce commute and travel emissions.

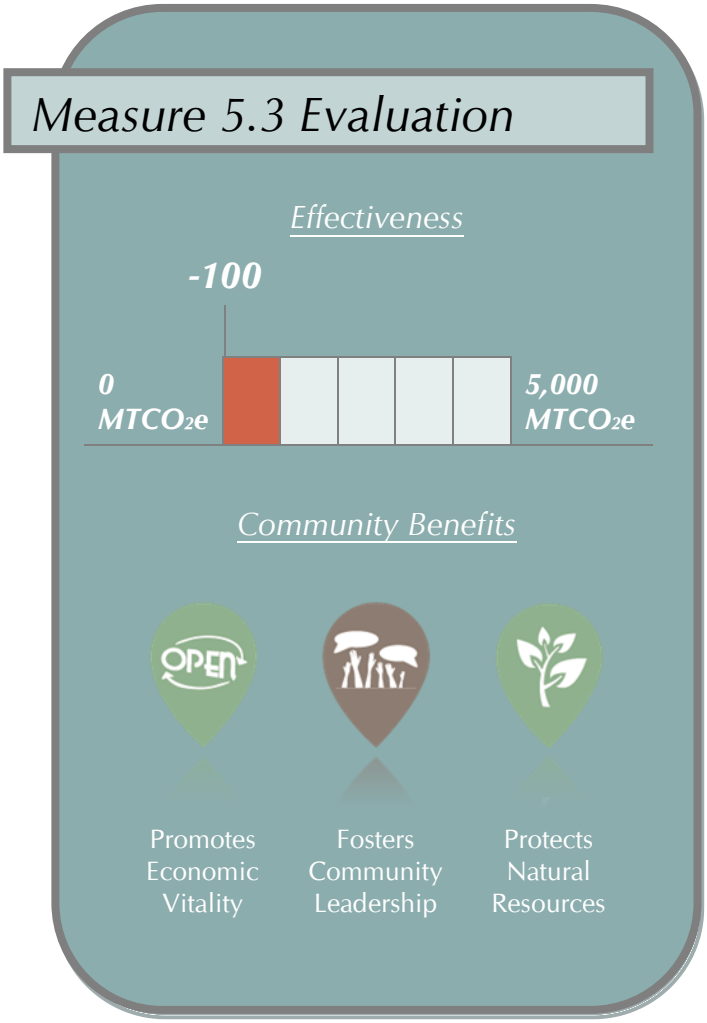
Actions to support Measure 5.3:

A. Provide information to City staff about commute alternatives to single-occupant vehicles, including materials that identify available transit and alternative transportation routes.

B. Establish alternative work schedule or telecommuting options for City staff to reduce daily commute trips.

C. Create a staff carpooling program.

D. Evaluate flexible employee schedules that allow for reduced commute miles traveled while maintaining City hours of operation.



5.4 Purchase Responsibly

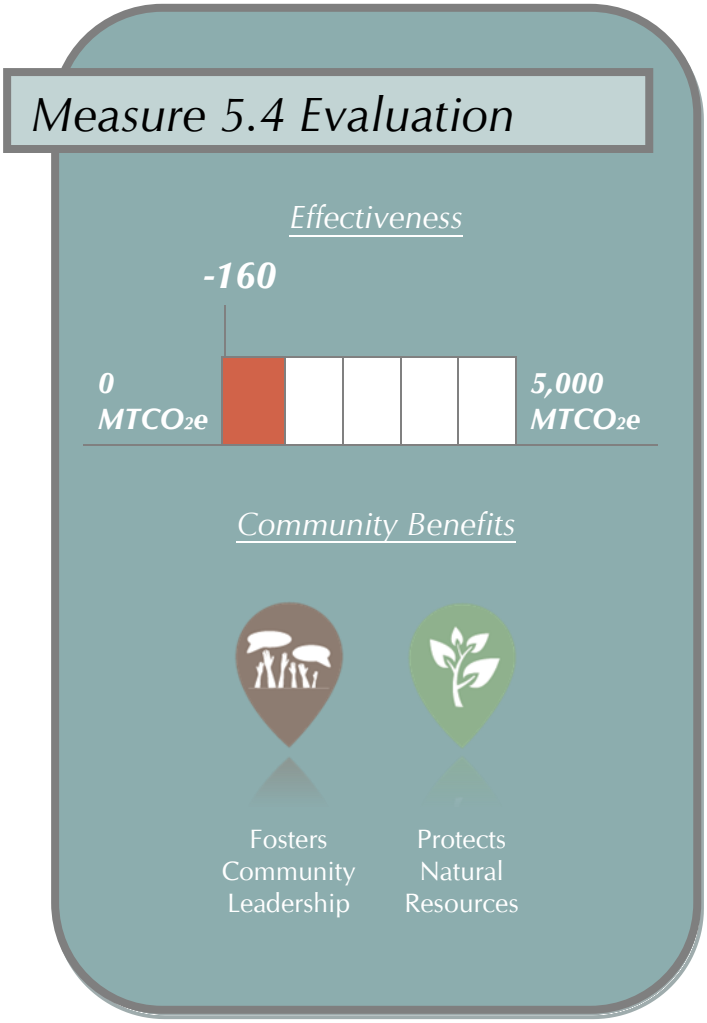
This measure directs the City to incorporate environmentally responsible purchasing into its everyday practices. The environmentally preferable purchasing policy would be wide-ranging and could include such things as commitments to buy recycled paper or to buy low-emissions vehicles, when appropriate. The measure also directs the City to participate in regional group purchase programs as they are developed. Regional group purchase programs use combined purchasing power to obtain energy-efficient and renewable energy equipment at discounted prices.

Actions to support Measure 5.4:

A. Develop an environmentally preferable purchasing policy.

B. Participate in appropriate regional group purchase programs as they are developed.

C. Adopt a zero-waste policy for City facilities and City-sponsored events.



Chapter 5

Achieving the Target

Monitoring and Updating This Plan

To ensure the success of this CAP, the City will integrate the goals and strategies of this plan into other local and regional plans, and implement the programs and activities identified. As the City moves forward with updating other regulatory and planning documents, such as the General Plan, Zoning Code, or building regulations, staff will ensure that these documents support and are consistent with the CAP.

Implementing the CAP will require City leadership to execute these measures and report progress. Execution of many of these measures will be dependent upon the allocation of staff time and resources, and the budget prioritization. This plan identifies a responsible department and offers time frames and relative costs associated with each measure. Staff will monitor implementation progress using an implementation and monitoring tool on an annual basis and will report to the Environmental Commission and City Council on annual progress. As part of annual progress reports, staff will evaluate the effectiveness of each measure to ensure that anticipated emissions reductions are occurring. In the event that reductions do not occur as expected, the City can modify and add measures to the CAP to ensure the target is achieved. The following programs are designed to ensure City success in implementing the CAP.

Implementation Program 1: Annually monitor and report progress toward achieving the reduction target.

Actions to support Implementation Program 1:

A. Identify key staff responsible for annual reporting and monitoring.

B. Use the monitoring and reporting tool to assist with annual reports.

C. Prepare an annual progress report for review and consideration by the Environmental Commission and City Council.

Implementation Program 2: Update the baseline emissions inventory and Climate Action Plan every five years.

Actions to support Implementation Program 2:

A. Prepare a 2010 emissions inventory no later than 2015.

B. Update the CAP no later than 2017 to incorporate new technology, programs, and policies that reduce emissions.

C. Update and amend the CAP, as necessary, should the City find that specific measures are not achieving intended emissions reductions.

Implementation Program 3: Continue to develop collaborative partnerships with agencies and community groups that support CAP implementation.

Action to support Implementation Program 3:

A. Continue formal membership and participate in local and regional organizations that provide tools and support for energy efficiency, energy conservation, GHG emissions reductions, adaptation, education, and implementation of this plan.

Implementation Program 4: Secure necessary funding to implement the CAP.

Actions to support Implementation Program 4:

A. Identify funding sources and levels for measures as part of annual reporting.

B. Include emissions reduction measures in department budgets, the capital improvement program, and other plans as appropriate.

C. Pursue local, regional, state, and federal grants to support implementation.

Tracking Success

Implementation and Monitoring Tool

To support effective monitoring and implementation of the CAP, an Excel-based monitoring tool has been developed. The implementation and tracking program developed as a part of the CAP identifies the lead department and funding needs for implementation. It also allows the City to track progress in reducing emissions, VMT, waste generation, and energy use over time using readily available data sources.

The tool is an interactive spreadsheet used to collect data, track GHG emissions, and assess the effectiveness of CAP measures. It enables the City to sort measures based on timing, responsible department, and level of success, progress, or completion.

Development Compliance Checklist

A compliance checklist is included with this CAP to assist Planning staff and project applicants to determine whether a project is consistent with the CAP. Measures included in the CAP that are applicable to new development projects are noted in **Chapter 4** of the document with the BMP logo. Specific actions and applicability of each BMP are further described in **Appendix B.**

Work Plan

The work plan in **Table 13** contains information to support staff and community implementation of the measures and actions and to effectively integrate them into budgets, the capital improvement program, and other programs and projects. Three cost ranges have been identified, as described below.

Range	Description	Staff Hours
$ Low	Minimal staff effort and no consultant assistance would be needed to complete analytical work, coordinate stakeholder/public outreach, or implement the program.	<80
$$ Medium	Significant staff effort, some consultant assistance, or supplemental funding for operations or capital projects would be needed to complete analytical work, coordinate stakeholder/public outreach, or implement the program.	80–500
$$$ High	Major staff effort, consultant assistance, or supplemental funding for operations or capital projects would be needed to complete analytical work, coordinate stakeholder/public outreach, or implement the program.	500+

Table 13: Implementation Work Plan

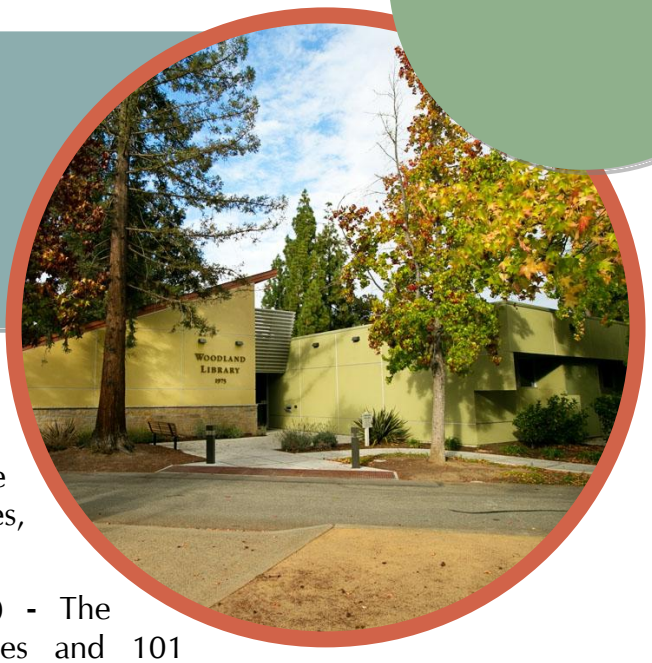
Measure Language	2020 Reductions ($MTCO_2e$)	Time & Resources	Lead Department	Community Partnership Opportunity
1.1 Improve Non-Motorized Transportation				
A. Construct all bikeways and implement all programs identified in the 2012 Bicycle Transportation Plan by 2020.	-2,580	$$$ (~$2.2 million)	Engineering	
B. Develop and fully implement a pedestrian master plan with specific focus on local vehicle trip reduction by 2020	-860	$$$	Engineering	
C. Support a rotating car-free day program at local schools and as part of other local events to raise awareness about school commute alternatives.	-10	$	Recreation/ Economic Development	
D. Continue to pursue and implement Safe Routes to School projects.	-130	$$	Engineering	Yes
E. Continue to implement the City's Complete Streets policy and traffic calming plans and projects.	-860	$$	Engineering	
F. Support a local bike-share program.	-30	$–$$	Economic Development	Yes
1.2 Expand Transit and Commute Options				
A. Work with the Santa Clara Valley Transit Authority (VTA) to seek opportunities to expand local service to improve connectivity to regional transit options.	-1,050	Budgeted	Engineering/ Planning	
B. Require new nonresidential development greater than 10,000 square feet or anticipated to include businesses with more than 50 employees to reduce VMT through transit demand management (TDM) programs.	-80	$	Planning	Yes
C. Encourage partnerships to develop and implement school bus programs that reduce school-related commutes	-550	$$$	Planning	Yes
1.3 Provide Alternative-Fuel Vehicle Infrastructure				
A. Install EV charging stations in public parking lots.	-40	$$	Engineering/ Planning	Yes
B. Encourage alternative-fuel vehicle charging stations in existing private development.	-1,100	$	Planning	Yes
C. Amend the Green Building Ordinance to include EV pre-wiring requirements and encourage EV charging installations in residential development.	-330	$	Planning/Building	
D. Amend the Green Building Ordinance to require EV charging stations in nonresidential projects greater than 10,000 square feet.	-140	$	Planning/Building	
2.1 Promote Energy Conservation				
A. Provide outreach and educational materials for energy conservation and renewable energy programs targeted at outdoor amenities (e.g., lighting, swimming pools, hot tubs).	-530	$	Planning/Building	Yes
B. Provide outreach and education to support existing programs that conserve energy in large homes.	-90	$	Planning/Building	Yes

Measure Language	2020 Reductions ($MTCO_2e$)	Time & Resources	Lead Department	Community Partnership Opportunity
2.2 Increase Energy Efficiency				
A. Ensure city residents are eligible to participate in and actively promote and support energy efficiency financing for residential and commercial properties.	-2,410	$$	Planning/Building	Yes
B. Continue to encourage the installation of energy-efficient indoor and outdoor appliances and equipment (e.g., pool pumps).	-750	$	Planning/Building	
C. Develop energy efficiency outreach and education programs for renter-occupied households.	-20	$	Planning	Yes
D. Develop an energy self-audit checklist and work with community partners to distribute to prospective property owners and other interested parties and to provide technical assistance.	-180	$	Planning	Yes
E. Adopt net-zero electricity building standards for new residential and nonresidential construction.	-510	$	Planning/Building	
2.3 Increase Renewable Energy				
A. Participate in regional partnerships and power purchase agreements to provide reduced-cost PV systems to residents and businesses.	-1,250[16]	$-$$	Executive/Planning	Yes
B. Create and distribute outreach materials connecting residents and building owners to state, PG&E, and other rebate programs.			Planning/Building	Yes
3.1 Reduce and Divert Waste				
A. Maintain and expand food waste diversion programs.	-950	$$	Engineering/ Economic Development	Yes
B. Adopt a plastic bag ban and encourage the use of reusable bags.	Supportive	Budgeted	Engineering/ Economic Development	Yes
C. Continue to encourage recycling and reuse of building materials.	-160	Budgeted	Engineering/ Building	Yes
D. Adopt and enforce an expanded polystyrene (EPS) ban.	Supportive	$$	Engineering/ Economic Development	Yes
3.2 Conserve Water				
A. Continue to support implementation of the 2010 UWMP through enforcement of the Water Efficient Landscape Ordinance (LAMC 12.36) and distribution of greywater/rainwater harvesting guides.	-180	Budgeted	Planning	Yes
3.3 Use Carbon-Efficient Construction Equipment				
A. Encourage compliance with BAAQMD construction equipment best practices through outreach and education.	-20	$	Planning/ Building	

[16] *This reduction is the combined effectiveness of actions 2.3A and 2.3 B to achieve the 5,000 kW target.*

Measure Language	2020 Reductions ($MTCO_2e$)	Time & Resources	Lead Department	Community Partnership Opportunity
4.1 Sustain a Green Infrastructure System and Sequester Carbon				
A. Continue to manage stormwater runoff with green infrastructure such as bioswales and other Low-Impact Development strategies.	Supportive	$$	Engineering	
B. Increase the number of shade trees planted in the community.	-20	$	Planning/ Maintenance	Yes
5.1 Operate Efficient Government Facilities				
A. Audit appropriate City facilities and conduct comprehensive energy efficiency upgrades, including installing energy-efficient lighting, appliances, and heating, ventilation, and air conditioning systems.	-120	$–$$$	Engineering/ Maintenance	
B. Install 1 megawatt (MW) of renewable energy (e.g., PV panels) on City facilities.	-250	$$$	Executive	
C. Continue upgrading street and park lighting to light-emitting diode (LED) lights, as appropriate.	-30	$$	Engineering/ Maintenance	
D. Develop and maintain a digital record-keeping system.	Supportive	$	All Dept.	
5.2 Reduce City Vehicle Fuel Consumption				
A. Continue to maintain fleet efficiency through proper maintenance, and identify additional opportunities to increase fuel efficiency.	-20	Budgeted	Maintenance	
B. Encourage City employees to use non-motorized transportation, such as walking or bicycling, when conducting off-site City business (e.g., for trips up to a quarter or a half mile).	-40	$	Human Resources	
C. Purchase fuel efficient, hybrid, or alternative-fuel vehicles when replacing City fleet vehicles.	-90	$$	Executive	
5.3 Support Sustainable Employee Travel				
A. Provide information to City staff about commute alternatives to single-occupant vehicles, including materials that identify available transit and alternative transportation routes.	-10	$	Human Resources	
B. Establish alternative work schedule or telecommuting options for City staff to reduce daily commute trips.	-20	$	Executive/ Department Heads	
C. Create a staff carpooling program.	-10	$	Human Resources	
D. Evaluate flexible employee schedules that allow for reduced commute miles traveled while maintaining City hours of operation	-60	$	Human Resources/ Department Heads	
5.4 Purchase Responsibly				
A. Develop an environmentally preferable purchasing policy.	Supportive	$	Executive	
B. Participate in appropriate regional group purchase programs as they are developed.	Supportive	$	Executive	
C. Adopt a zero-waste policy for City facilities and City-sponsored events.	-160	$$	Executive	

Glossary



- **Alternative Daily Cover (ADC) -** Cover material other than earthen material placed on the surface of the active face of a municipal solid waste landfill. ADC is intended to control vectors, fires, odors, blowing litter, and scavenging.
- **Association of Bay Area Governments (ABAG) -** The regional planning agency for the nine counties and 101 incorporated cities in the San Francisco Bay Area.
- **Build It Green -** A nonprofit assisting local governments, contractors, and homeowners with the integration of green building principles into their projects. Build It Green provides rating systems for both single-family and multi-family projects that cover the areas of energy, indoor air quality, resource conservation, and water conservation.
- **California Environmental Quality Act (CEQA) -** A state law requiring state and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse environmental impact, an environmental impact report (EIR) must be prepared and certified as to its adequacy before action can be taken on the proposed project. General plans require the preparation of a program EIR.
- **California Green Building Standards Code (CalGreen) -** The 2010 California Green Building Standards Code, commonly referred to as the CalGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Buildings Standards Commission and the Department of Housing and Community Development. The CalGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CalGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics.
- **California Solar Initiative (CSI) -** Allows the California Public Utilities Commission (CPUC) to provide incentives to install solar technology on existing residential, commercial, nonprofit, and governmental buildings if they are customers of the state's investor-owned utilities.
- **Carbon Dioxide Equivalent (CO_2e) -** A metric measure used to compare the emissions from various greenhouse gases based on their global warming potential (GWP).The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.
- **Clean Car Fuel Standards (AB 1493, Pavley) -** Signed into law in 2002 and commonly referred to as Pavley standards. Requires carmakers to reduce GHG emissions from new passenger cars

and light trucks beginning in 2011. CARB anticipates that the Pavley standards will reduce emissions from new California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.

- **Community Benefits -** An additional benefit occurring from the implementation of an emissions reduction measure that is not directly related to reducing GHG emissions.
- **Complete Streets -** Complete Streets policies ensure that transportation planners and engineers consistently design and operate the entire roadway with all potential users in mind. This includes bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities. In 2007, the State of California adopted AB 1358, which directs the legislative body of a city or county, upon revision of the circulation element of its general plan, to identify how the jurisdiction will provide for the routine accommodation of all users
- **Construction and Demolition Waste (C&D) -** C&D materials consist of the waste generated during the construction, demolition, or renovation of buildings, roads, and other construction projects. C&D materials may include heavy, bulky materials such as concrete, glass, wood, and metal, among other materials.
- **Cool Roof -** A roof with high solar reflectivity is considered a cool roof. Cool roofs reduce heat transfer into the indoors and can reduce indoor energy demand.
- **Energy Conservation -** Reducing energy, by turning off lights and heating when not in use.
- **Energy Efficiency -** Doing the same or more work with less energy, such as replacing incandescent light bulbs with compact fluorescent light bulbs or buying an Energy Star appliance to use less energy for the same or greater output.
- **Global Warming Potential (GWP) -** An index used to translate the level of emissions of various gases into a common measure in order to compare the relative potency of different gases without directly calculating the changes in atmospheric concentrations. GHGs are expressed in terms of carbon dioxide equivalent. GWPs are expressed in terms relative to carbon dioxide, which has a global warming potential of one.
- **Greenhouse Gas or Greenhouse Gases (GHG) -** Gases which cause heat to be trapped in the atmosphere, warming the earth. GHGs are necessary to keep the earth warm, but increasing concentrations of these gases are implicated in global climate change. GHGs include all of the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The majority of GHGs come from natural sources, although human activity is also a major contributor.
- **Green Waste -** Refers to lawn, garden, or park plant trimmings and materials and can be used in home-composts or picked up curbside by municipal waste haulers.
- **Greywater -** See Recycled Water.
- **Mixed Use -** Properties on which various uses such as office, commercial, institutional, and residential are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design. A single site may include contiguous properties.

- **Ordinance -** A law or regulation set forth and adopted by a governmental authority, usually a city or county.
- **Recycled Water -** Treatment of wastewater to a quality suitable for non-potable uses such as landscape irrigation; not intended for human consumption.
- **Reduction Measure -** A goal, strategy, program, or set of actions that target and reduce a specific source of GHG emissions.
- **Renewable Energy -** Energy from sources that regenerate and are less damaging to the environment, such as solar, wind, biomass, and small-scale hydroelectric power.
- **Renewables Portfolio Standard (RPS) -** A regulation requiring utility companies in California to increase the production of renewable energy from solar, wind, or biomass, or from geothermal sources.
- **Safe Routes to School (SR2S or SRTS) -** A national movement aimed at providing safe environments to encourage walking and bicycling surrounding local schools through engineering, enforcement, education, encouragement, and evaluation. Safe Routes to School programs are typically funded through federal, state, and local grants. SR2S is the California program; SRTS is the national program.
- **Sustainability -** Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.
- **Vehicle Miles Traveled (VMT) -** A key measure of overall street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve regional air quality goals.
- **Water Conservation -** Reducing water use, such as turning off taps, shortening shower times, and cutting back on outdoor irrigation.
- **Water Efficiency -** Replacing older technologies and practices in order to accomplish the same results with less water; for example, by replacing toilets with new low-water-using models and by installing “smart controllers” in irrigated areas.

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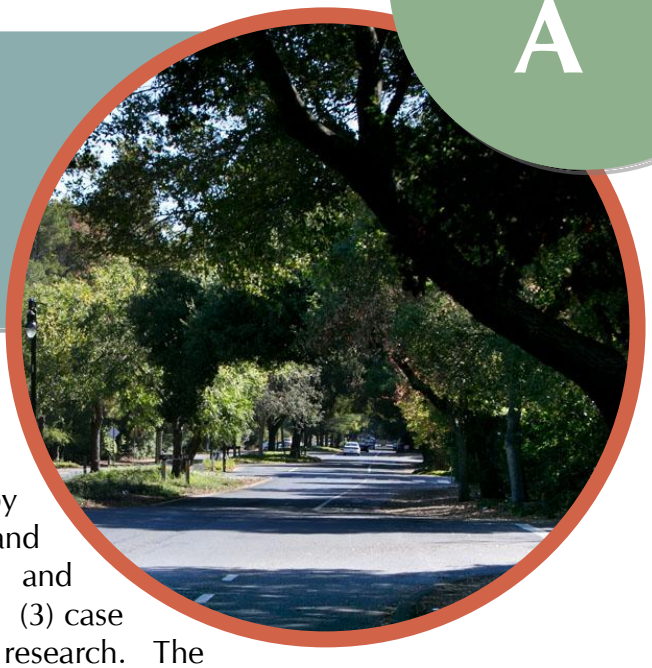
Appendix

A

Methods and Assumptions



This technical appendix provides a summary of the data sources, assumptions, and performance metrics used in this Climate Action Plan to estimate GHG reductions. The sources and metrics are organized by measure and rely on four primary types of data and research: (1) the City's GHG emissions inventory and forecast, (2) government agency tools and reports, (3) case studies in similar jurisdictions, and (4) scholarly research. The approach to quantification is consistent with the guidance provided by BAAQMD for development of a Qualified GHG Reduction Strategy.

This appendix includes the estimated GHG reductions associated with state activities and requirements, local accomplishments, and CAP reduction measures. It also provides assumptions and sources used to calculate each GHG reduction.

State Activities and Requirements

Assembly Bill 1493 (Pavley)

GHG Quantification Assumptions:

CARB anticipates that the Pavley standards will reduce GHG emissions from new California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.

The Pavley rules establish GHG emission standards for two different groups of passenger vehicles: (1) passenger cars and light-duty trucks with test weights under 3,751 pounds loaded vehicle weight (LDT1); and (2) light-duty trucks with test weights between 3,751 pounds loaded vehicle weight and 8,500 pounds gross vehicle weight (LDT2). Medium-duty passenger vehicles (LDT3) between 8,500 and 10,000 pounds gross vehicle weight are included with manufacturers' LDT2 vehicles when determining compliance with California's GHG standards. For the purposes of this analysis, only vehicles up to 8,500 pounds were considered, since most LDT3 vehicles are commercial and therefore do not fall under the scope of the Pavley rules.

GHG reductions from the Pavley standard were calculated using EMFAC 2011 data for Los Altos. EMFAC 2011 data includes the breakdown of vehicles by vehicle class and emissions factors per mile for each vehicle class. The impact that the Pavley standard will have on passenger vehicles in the city follows the methods included in the EMFAC outputs for Santa Clara County provided by CARB. Emissions reductions per model year and vehicle class are applied to the city's

transportation emissions and would result in an 18% decrease in transportation-related GHG emissions by 2020.

Total GHG Reductions:	2020
Emissions Reduced ($MTCO_2e$)	-19,370

GHG Quantification Sources:

California Air Resources Board. 2010. Clean Car Standards – Pavley, Assembly Bill 1493. http://www.arb.ca.gov/cc/ccms/ccms.htm.

———. 2010. Pavley I and Low Carbon Fuel Standard Postprocessor Version 1.0. http://www.arb.ca.gov/cc/sb375/tools/postprocessor.htm.

———. 2011. Emissions Factor 2011 Model Software. http://www.arb.ca.gov/msei/modeling.htm.

Renewables Portfolio Standard

GHG Quantification Assumptions:

California's RPS mandates that utility providers procure 33% of their energy from renewable sources by 2020. PG&E provides electricity in Los Altos, and approximately 11.7% of the utility's electricity came from qualified renewable sources in 2005. While PG&E has made significant strides to reach the 33% goal by 2020, the California Public Utilities Commission (CPUC) has indicated that energy providers are not likely to meet this target due to transmission and permitting issues that have proven to be significant barriers to the development of renewable energy. Considering these barriers, the calculation included in this plan relies on a more realistic scenario modeled by the CPUC in their June 2009 RPS Implementation Analysis Report, stating that PG&E's renewable energy portfolio would reach 28% in 2020. This implementation analysis shows that by 2020, PG&E would be providing customers in Los Altos an additional 16.3% of their electricity from renewable sources compared to baseline 2005 conditions.

Total GHG Reductions:	2020
Emissions Reduced ($MTCO_2e$)	-6,120

GHG Quantification Sources:

California Public Utilities Commission. 2009. 33% Renewable Portfolios Standard Implementation Analysis Report. http://www.cpuc.ca.gov/NR/rdonlyres/1865C207-FEB5-43CF-99EB-A212B78467F6/0/ 33PercentRPSImplementationAnalysisInterimReport.pdf.

———. 2011. California Renewable Portfolio Standard. Sacramento. http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm.

California Solar Initiative

GHG Quantification Assumptions:

The CPUC provides complete solar installation data for each jurisdiction in California since 2006. GHG reductions related to the California Solar Initiative are incorporated within this CAP by identifying the total kilowatts (kW) installed in Los Altos since the start of the program and

estimating the annual kilowatt-hour (kWh) output of the solar installations. This calculation also estimates the rate at which residents and businesses will continue to install solar equipment through 2016, the anticipated end year of the program. By 2020, it is estimated that Los Altos residents and businesses will have installed 8,203 kW of renewable energy systems that will produce 11.9 million kWh annually.

Total Measure GHG Reductions:	2020
Emissions Reduced ($MTCO_2e$)	-2,230

GHG Quantification Sources:

California Energy Commission and California Public Utilities Commission. 2010. About the California Solar Initiative. http://www.gosolarcalifornia.org/about/csi.php.

———. 2011. California Solar Initiative: California Solar Statistics – Geographical Statistics. http://www.californiasolarstatistics.ca.gov/reports/locale_stats/.

California Building Code, Title 24

GHG Quantification Assumptions:

Title 24 of the California Code of Regulations provides building standards regulating how each new home and business is built in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings, and for fire and life safety, energy conservation, green design, and accessibility in and around buildings. The 2010 triennial edition of Title 24 applies to all occupancies that applied for a building permit on or after January 1, 2011, and remains in effect until the effective date of the 2013 triennial edition. This CAP focuses on two sections of Title 24: Part 6, the California Energy Code; and Part 11, the California Green Building Standards Code, or CalGreen. These two sections require direct electricity, natural gas, and water savings for every new home or business built in California. Title 24 is a statewide standard applied at the local level by local agencies through project review.

The GHG emissions forecast incorporates the net energy benefit of new Title 24 requirements that did not exist in the baseline year. These estimates are based on CEC studies that compare each new update of Title 24 to its former version. The AB 32 Scoping Plan calls for ongoing updates to Title 24 that will yield regular increases in the mandatory energy and water savings for new construction. As such, the GHG emissions forecast also includes a conservative estimate of the energy reductions resulting from future updates of Title 24 based on historic growth. Past updates to Title 24 have resulted in equal, if not higher, increases in efficiency. The energy reductions quantified in the forecast from Part 6 Energy Code updates are based on the assumption that the updates to the code would yield regular decreases in the maximum allowable amount of energy used from new construction. The energy effects of 2008 Title 24 Standards for nonresidential alterations are modeled. Future updates to Title 24 standards for nonresidential alterations are not taken into consideration for lack of data and certainty.

Total Measure GHG Reductions:	2020
Emissions Reduced ($MTCO_2e$)	-430

GHG Quantification Sources:

California Energy Commission. 2007. Impact Analysis: 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings.

———. 2010. 2009 California Residential Appliance Saturation Study. Sacramento. http://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-ES.PDF.

Local Accomplishments

Green Building Ordinance

In anticipation of the new CalGreen Standards, and in support of its application to the CEC for more advanced local standards, the City considered the potential energy savings resulting from adopting and implementing voluntary Tier 1 standards across a range of prototypical building types. Emissions reductions attributable to the 2007 and 2010 Green Building Ordinances are estimated using the identified savings and a combination of City building permit data and Association of Bay Area Governments (ABAG) projections. Estimated GBO reductions are identified by anticipated future development type. In 2020, the reduced energy use throughout the community resulting from implementation of the 2010 GBO would reduce emissions in Los Altos by 700 $MTCO_2e$.

GHG Quantification Assumptions:

	2011	2020
Average kWh Saving per Home/Multi-Family Unit	-320	-404
Average Therm Saving per Home/Multi-Family Unit	-105	-116
Participating Homes and Multi-Family Units (cumulative)	210	492
Average kWh Saving per Retail Building	-27,677	-27,677
Average Therm Saving per Retail Building	-480	-480
Participating Retail Buildings (cumulative)	37	76
Average kWh Saving per Office Building	-2,472	-2,472
Average Therm Saving per Office Building	-667	-667
Participating Office Buildings (cumulative)	14	30

Total Measure Activity and GHG Reductions	2011	2020
Electricity Savings (kWh)	-1,127,856	-2,416,560
Natural Gas Savings (therms)	-13,793	-53,202
Emissions Reduction ($MTCO_2e$)	-330	-700

GHG Quantification Sources:

City of Los Altos. 2012. Building Permit Records. Provided November 3, 2012.

Dahl, Zachary. 2012. Green Building Ordinance Projects. Personal communication. October 26.

Energy Design Group. 2009. "Application for: City of Los Altos Locally Adopted Energy Standards" www.energy.ca.gov/.../2008standards/.../losaltos/2010-05-05_Los_Altos_Study.pdf .

Bicycle Infrastructure

To estimate the benefit of increased bikeway mileage in the community, the change in ridership from baseline to buildout is divided by total bikeway miles to determine the ridership increase per mile. This estimate is then applied to the 2.2 miles of new bikeways. Since school trips and commute trips have different average distances, the anticipated increase in trips per mile by type of cyclist is also an important consideration. The additional 2.2 miles of bikeway have likely reduced GHG emissions by 50 $MTCO_2e$. Although VMT reductions would increase as a result of population growth through 2020, emissions reductions are likely to decrease over time due to improved vehicle emissions standards. In 2020, reduced VMT attributable to construction of the additional 2.2 miles of bikeway constructed since 2005 would reduce emissions in Los Altos by 40 $MTCO_2e$.

GHG Quantification Assumptions:

	2011	2020
School VMT Reduced per New Mile of Bikeway (not part of a comprehensive network)	-6,197	-6,243
Other Commute VMT Reduced per New Mile of Bikeway (not part of a comprehensive network)	-38,739	-39,030
Miles on New Bikeway (cumulative)	2	2

Total Measure Activity and GHG Reductions:	2011	2020
VMT Reduced	-98,859	-99,600
Emissions Reduced ($MTCO_2e$)	-50	-40

GHG Quantification Sources:

City of Los Altos. 2011. City of Los Altos Bicycle Transportation Plan. Retrieved November 15, 2012. http://www.ci.los-altos.ca.us/committees-commissions/bpac/pdf/2012%20Los%20Altos%20Bicycle%20Transportation%20Plan.pdf.

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Solid Waste Hauling Franchise Agreement

Emissions from solid waste occur as garbage decomposes in a landfill and emits methane.[17] The amount of methane that enters the atmosphere can vary based in part on landfill efficiency, waste composition, and the amount of landfilled waste. A diversion rate describes the percentage of

[17] *For more information, see Chapter 2.*

waste that gets recycled rather than landfilled. In 2005, Los Altos' solid waste diversion rate was 52%. In 2010, the City signed a new franchise agreement with Mission Trail Waste Systems, Inc. (MTWS) for solid waste collection services. As a condition of the agreement, the City required MTWS to increase the diversion rate to:

- 62% by December 31, 2011
- 69% by December 31, 2012
- 78% by December 31, 2013

Estimated emissions reductions that occurred in 2011 are based on the 71% diversion rate and those that would occur in 2020 if the City achieves and maintains a 78% diversion rate. Reductions are calculated by comparing the estimated tonnage of waste that would be landfilled under a 52% diversion rate scenario and under a 78% diversion rate scenario. In 2020, reduced waste in landfills resulting from implementation of the solid waste hauling franchise agreement would reduce emissions in Los Altos by 2,320 $MTCO_2e$.

GHG Quantification Assumptions:

	2011	2020
Diversion Rate (compared to baseline rate of 52%)	71%	78%

Total Measure Activity and GHG Reductions:	2011	2020
Waste Reduced (tons)	-8,047	-12,655
Emissions Reduced ($MTCO_2e$)	-1,480	-2,320

GHG Quantification Sources:

CalRecycle. 2012. Disposal Reporting System. http://www.calrecycle.ca.gov/LGCentral/Reports/DRS/Destination/JurDspFa.aspx.

City of Los Altos. 2010. Solid Waste Hauling Franchise Agreement.

Water Conservation

In 2005, 2,280 million gallons of water were consumed in Los Altos. Indirect emissions from water result from the electricity used to supply, convey, treat, and distribute water to land uses throughout the community. In 2005, water delivery in Los Altos required approximately 7,065,080 kWh of electricity.

Emissions from water-related electricity are forecast from 2005 to 2020 assuming that water consumption would grow at the same rate as the service population. The forecast estimates that if water consumption actually grew at the same rate as the service population between 2005 and 2011, 7,204,940 kWh would have been used to deliver water in 2011. However, Cal Water data presented by the Los Altos Environmental Commission reported an approximately 17% decrease in water consumption from 2005 to 2011. This 17% reduction rate is applied to the 2011 kWh forecast, resulting in 1,228,732 kWh savings, which equates to about 280 $MTCO_2e$. Since no single factor is attributable to the decline, these reductions are held steady to 2020. Although kWh reductions increase through 2020, this steady reduction would yield less emissions reductions

over time due to the expected decrease in carbon intensity of electricity as more renewable energy resources are provided. In 2020, reduced water use anticipated throughout the community would reduce emissions in Los Altos by 220 $MTCO_2e$.

GHG Quantification Assumptions:

	2011	2020
Water Use Reduction	-17%	-17%

Total Measure Activity and GHG Reductions:	2011	2020
Electricity Savings (kWh)	-1,228,732	-1,273,704
Emissions Reduced ($MTCO_2e$)	-280	-220

GHG Quantification Sources:

Eyre, Jon. 2012. "Proposed water dashboard for the Los Altos Environmental Commission Website."

Climate Action Plan Reduction Measures

Focus Area 1: Transportation

1.1 Improve Non-Motorized Transportation

Actions:

A. Construct all bikeways and implement all programs identified in the 2012 BTP by 2020.
B. Develop and fully implement a pedestrian master plan with specific focus on local vehicle trip reduction by 2020.
C. Support a rotating car-free day program at local schools and as part of other local events to raise awareness about school commute alternatives.
D. Continue to pursue and implement Safe Routes to School projects.
E. Continue to implement the City's Complete Streets policy and traffic calming plans and projects.
F. Support a local bike-share program.

GHG Quantification Assumptions:

		2020
1.1 A	VMT Reduction Rate	-3%
	Percentage of BTP Implemented	100%
	Target Mode Share	10%
	Target Bicycle Commuters	3,600
	VMT Reduced	-6,132,640
	Emissions Reduced ($MTCO_2e$)	-2,580
1.1 B	VMT Reduction Rate	-1%
	Percentage of Pedestrian Master Plan Implemented	100%

		2020
	VMT Reduced	-2,044,210
	Emissions Reduced ($MTCO_2e$)	-860
1.1 C	Participation Days	2
	Percentage of Elementary and Junior High Schools	100%
	VMT Reduced	-13,650
	Emissions Reduced ($MTCO_2e$)	-10
1.1 D	New School Bicycle Commuters	1,112
	Percentage of BTP Implemented	100%
	VMT Reduced	-290,230
	Emissions Reduced ($MTCO_2e$)	-130
1.1 E	VMT Reduction Rate	-1%
	VMT Reduced	-2,044,210
	Emissions Reduced ($MTCO_2e$)	-860
1.1 F	VMT Reduction Rate	-0.03%
	VMT Reduced	-61,330
	Emissions Reduced ($MTCO_2e$)	-30

Total Measure Activity and GHG Reductions:	2020
VMT Reduced	-10,572,620
Emissions Reduced ($MTCO_2e$)	-4,470

GHG Quantification Sources:

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

City of Los Altos. 2011. City of Los Altos Bicycle Transportation Plan. Retrieved November 15, 2012. http://www.ci.los-altos.ca.us/committees-commissions/bpac/pdf/2012%20Los%20Altos%20Bicycle%20Transportation%20Plan.pdf.

US Department of Transportation. Transportation and Global Climate Change: A Review and Analysis of the Literature. http://www.fhwa.dot.gov/environment/glob_c5.pdf.

1.2 Expand Transit and Commute Options

Actions:

A. Work with the Santa Clara Valley Transit Authority (VTA) to seek opportunities to expand local service to improve connectivity to regional transit options.
B. Require new nonresidential development greater than 10,000 square feet or anticipated to include businesses with more than 50 employees to reduce VMT through transportation demand management (TDM) programs.
C. Encourage partnerships to develop and implement school bus programs that reduce school-related commutes.

GHG Quantification Assumptions:

		2020
1.2 A	Percentage Reduction in VMT	-1%
	VMT Reduced	-2,504,535
	Emissions Reduced ($MTCO_2e$)	-1,050
1.2 B	Annual VMT Reduction per Employee	-378
	Participating Employees	500
	VMT Reduced	-189,000
	Emissions Reduced ($MTCO_2e$)	-80
1.2 C	VMT Reduced per School Bus Rider	-540
	School Bus Ridership	2,422
	VMT Reduced	-1,307,810
	Emissions Reduced ($MTCO_2e$)	-550

Total Measure Activity and GHG Reductions:	2020
VMT Reduced	-4,001,345
Emissions Reduced ($MTCO_2e$)	-1,680

GHG Quantification Sources:

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

City of Los Altos. 2011. City of Los Altos Bicycle Transportation Plan. Retrieved November 15, 2012. http://www.ci.los-altos.ca.us/committees-commissions/bpac/pdf/2012%20Los%20Altos%20Bicycle%20Transportation%20Plan.pdf.

MTC. 2005. Regional Commute Profile.

1.3 Provide Alternative-Fuel Vehicle Infrastructure

Actions:

A. Install EV charging stations in public parking lots.
B. Encourage alternative-fuel vehicle charging stations in existing private development.

C. Amend the GBO to include EV pre-wiring requirements and encourage EV charging installations in residential development.
D. Amend the GBO to require EV charging stations in nonresidential projects greater than 10,000 square feet.

GHG Quantification Assumptions:

		2020
1.3 A	VMT per Public Charging Space	4,704
	Number of Chargers	25
	VMT Reduced	-117,600
	Emissions Reduced ($MTCO_2e$)	-40
1.3 B	Annual VMT per Passenger Vehicle/Residential Charger	11,642
	New Residential Charging Stations (2005–2012)	260
	VMT Reduced	-3,026,837
	Emissions Reduced ($MTCO_2e$)	-1,100
1.3 C	New Households with EV Pre-Wiring by 2020	220
	New EV Vehicles	77
	VMT Reduced	-896,410
	Emissions Reduced	-330
1.3 D	VMT per Public Charging Space	4,704
	Number of Chargers	79
	VMT Reduced	-371,591
	Emissions Reduced ($MTCO_2e$)	-140

Total Measure Activity and GHG Reductions:	2020
VMT Reduced	-4,412,438
Emissions Reduced ($MTCO_2e$)	-1,610

GHG Quantification Sources:

California Air Resources Board. 2011. EMFAC2011. http://www.arb.ca.gov/msei/modeling.htm.

California Energy Commission. 2002. Demonstration of Neighborhood Electric Vehicles. http://www.energy.ca.gov/reports/2002-08-28_600-02-020F.PDF.

ICLEI USA. 2010. Climate and Air Pollution Planning Assistant (CAPPA) 1.5.

Idaho National Laboratory. 2011. Comparing Energy Costs per Mile for Electric and Gasoline-Fueled Vehicles.

Focus Area 2: Energy

2.1 Promote Energy Conservation

Actions:

A. Provide outreach and educational materials for energy conservation and renewable energy programs targeted at outdoor amenities (e.g., lighting, swimming pools, hot tubs).
B. Provide outreach and education to support existing programs that conserve energy in large homes.

GHG Quantification Assumptions:

		2020
2.1 A	Energy Reduced per Household	-3%
	Participating Households	3,640
	Electricity Reduced (kWh)	-877,755
	Natural Gas Reduced (therms)	-71,588
	Emissions Reduced ($MTCO_2e$)	-530
2.1 B	Electricity Reduced per Household (kWh)	-6%
	Participating Households	1,000
	Electricity Reduced (kWh)	-517,680
	Emissions Reduced ($MTCO_2e$)	-90

Total Measure Activity and GHG Reductions:	2020
Electricity Reduced (kWh)	-1,407,935
Natural Gas Reduced (therms)	-72,588
Emissions Reduced ($MTCO_2e$)	-620

GHG Quantification Sources:

Bonneville Power Administration. 2011. Residential Behavior Based Energy Efficiency Program Profiles 2011. http://www.bpa.gov/Energy/n/pdf/BBEE_Res_Profiles_Dec_2011.pdf.

Energy Upgrade California. 2012. Basic Upgrade Packages. https://energyupgradeca.org/county/santa_clara/about_basic.

PG&E. 2012. City of Los Altos Energy Planning Report.

2.2 Increase Energy Efficiency

Actions:

A. Ensure city residents are eligible to participate in and actively promote and support energy efficiency financing for residential and commercial properties.
B. Continue to encourage the installation of energy-efficient indoor and outdoor appliances and equipment (e.g., pool pumps).
C. Develop energy efficiency outreach and education programs for renter-occupied households.
E. Develop an energy self-audit checklist and work with community partners to distribute to prospective property owners and other interested parties and to provide technical assistance.

F. Adopt net-zero electricity building standards for new residential and nonresidential construction.

GHG Quantification Assumptions:

		2020
2.2 A	Energy Reduced per Household	from -5% to -15% depending on type of audit
	Participating Households	1,790
	Electricity Reduced (kWh)	-4,777,987
	Natural Gas Reduced (therms)	-297,602
	Emissions Reduced ($MTCO_2e$)	-2,410
2.2 B	Energy Savings per Participant	from -5% to -30% depending on appliance type
	Participating Households (appliances)	1,600
	Participating Households (pool pumps)	2,000
	Participating Businesses	683
	Electricity Reduced (kWh)	-3,635,136
	Natural Gas Reduced (therms)	-22,727
	Emissions Reduced ($MTCO_2e$)	-750
2.2 C	Energy Reduced per Household	-2.5%
	Participating Renter-Occupied Households	340
	Electricity Reduced (kWh)	-42,636
	Natural Gas Reduced (therms)	-2,244
	Emissions Reduced ($MTCO_2e$)	-20
2.2 D	Energy Reduced per Household	-3%
	Sold Homes (50% of cumulative total through 2020)	1,090
	Electricity Reduced (kWh)	-282,653
	Natural Gas Reduced (therms)	-23,980
	Emissions Reduced ($MTCO_2e$)	-180
2.2 E	New Net-Zero Electricity (2014–2020) (kWh)	2,956,215
	Participation	100%
	Electricity Reduced (kWh)	-2,956,215
	Emissions Reduced ($MTCO_2e$)	-510

Total Measure Activity and GHG Reductions:	2020
Electricity Reduced (kWh)	-11,411,974
Natural Gas Reduced (therms)	-322,572
Emissions Reduced ($MTCO_2e$)	-3,870

GHG Quantification Sources:

Bonneville Power Administration. 2011. Residential Behavior Based Energy Efficiency Program Profiles 2011. http://www.bpa.gov/Energy/n/pdf/BBEE_Res_Profiles_Dec_2011.pdf.

California First. 2012. https://californiafirst.org/overview.

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf\.

Energy Upgrade California. 2012. Advanced Upgrade Packages. https://energyupgradeca.org/county/santa_clara/about_basic.

———. 2012. Basic Upgrade Packages. https://energyupgradeca.org/county/santa_clara/about_basic.

Itron, Inc. 2007. California Commercial End-use Survey – Results Page. http://capabilities.itron.com/CeusWeb/Chart.aspx

PG&E. 2007. Draft Report: Residential Swimming Pools. http://www.energy.ca.gov/title24/2008standards/prerulemaking/documents/2007-02-26-27_workshop/supporting/PGE-DRAFT_REPORT_RESIDENTIAL_SWIMMING_POOL.PDF.

———. 2012. City of Los Altos Energy Planning Report.

2.3 Increase Renewable Energy

Action:

A. Participate in regional partnerships and power purchase agreements to provide reduced-cost PV systems to residents and businesses.

B. Create and distribute outreach materials connecting residents and building owners to state, PG&E, and other rebate programs.

GHG Quantification Assumptions:

		2020
2.3 A&B	New kW (Residential Solar PV Systems)	2,000
	New kW (Nonresidential Solar PV Systems)	3,000
	Electricity Reduced (kWh)	-7,250,000
	Emissions Reduced ($MTCO_2e$)	-1,250

Total Measure Activity and GHG Reductions:	2020
Electricity Reduced (kWh)	-7,250,000
Emissions Reduced ($MTCO_2e$)	-1,250

GHG Quantification Sources:

California Solar Statistics. 2012. Download Current CSI Data. http://www.californiasolarstatistics.ca.gov/current_data_files.

Focus Area 3: Resource Conservation

3.1 Reduce and Divert Waste

Actions:

A. Maintain and expand food waste diversion programs.
B. Adopt a plastic bag ban and encourage the use of reusable bags.
C. Continue to encourage recycling and reuse of building materials.
D. Adopt and enforce an expanded polystyrene (EPS) ban.

GHG Quantification Assumptions:

		2020
3.1 A	Participating Households	6,620
	Tons of Food Waste Reduced	-866
	Tons of $MTCO_2e$ Offset per Ton of Waste Composted	0.54
	Emissions Reduced ($MTCO_2e$)	-470
	Participation	All Restaurants
	Tons of Food Waste Reduced	-940
	Emissions Reduced ($MTCO_2e$)	-950
3.1 B	Indicator	Supportive
	Participation	Supportive
	Activity Reduced	Supportive
	Emissions Reduced ($MTCO_2e$)	Supportive
3.1 C	C&D Ordinance Diversion Rate	75%
	Tons of C&D Reduced	816
	$MTCO_2e$ Reduced per Ton of C&D Offset	0.198
	Emissions Reduced ($MTCO_2e$)	-160
3.1 D	Indicator	Supportive
	Participation	Supportive
	Activity Reduced	Supportive
	Emissions Reduced ($MTCO_2e$)	Supportive

Total Measure Activity and GHG Reductions:	2020
Waste Reduced (Tons)	1,750
Emissions Reduced ($MTCO_2e$)	-1,110

GHG Quantification Sources:

California Air Resources Board. 2010. Method for Estimating Greenhouse Gas Emission Reductions From Compost. (http://www.arb.ca.gov/cc/protocols/localgov/pubs/compost_method.pdf)

California Integrated Waste Management Board. 2006. Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion.

CalRecycle. 1999. Solid Waste Characterization Database http://www.calrecycle.ca.gov/WasteChar/rescomp.asp?J=429&SortBy=Disposal.CalRecycle report.

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

3.2 Conserve Water

Actions:

A. Continue to support implementation of the 2010 UWMP through enforcement of the Water Efficient Landscape Ordinance (LAMC 12.36) and distribution of greywater/rainwater harvesting guides.

GHG Quantification Assumptions:

		2020
3.2 A	Gallons per Capita per Day Reduced	-31
	Water Consumption Reduced (gallons)	-335,887,435
	Emissions Reduced ($MTCO_2e$)	-180

Total Measure Activity and GHG Reductions:	2020
Water Consumption Reduced (Gallons)	-335,887,435
Emissions Reduced ($MTCO_2e$)	-180

GHG Quantification Sources:

California Water Service Company. 2011. 2010 Urban Water Management Plan – Los Altos Suburban District. https://www.calwater.com/your_district/uwmp/las/2010_Urban_Water_Management_Plan_(LAS).pdf.

Santa Clara Valley Water District. 2011. 2010 Urban Water Management Plan. http://www.valleywater.org/WorkArea/DownloadAsset.aspx?id=6172.

3.3 Use Carbon-Efficient Construction Equipment

Action:

A. Encourage compliance with BAAQMD construction equipment best practices through outreach and education.

GHG Quantification Assumptions:

		2020
3.3 A	Percentage of Projects Using 20% Alternatively Fueled Construction Equipment	50%
	Emissions Reduced ($MTCO_2e$)	-20

Total Measure Activity and GHG Reductions:	2020
Emissions Reduction ($MTCO_2e$)	-20

GHG Quantification Sources:

BAAQMD. 2012. CEQA Guidelines. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en.

California Air Resources Board. 2009. Intensity Lookup Table for Diesel and Fuels that Substitute Diesel. http://www.arb.ca.gov/fuels/lcfs/121409lcfs_lutables.pdf.

Focus Area 4: Green Community

4.1 Sustain a Green Infrastructure System and Sequester Carbon

Actions:

A. Continue to manage stormwater runoff with green infrastructure such as bioswales and other Low-Impact Development strategies.
B. Increase the number of shade trees planted in the community.

GHG Quantification Assumptions:

		2020
4.1 A	Indicator	Supportive
	Participation	Supportive
	Activity Reduced	Supportive
	Emissions Reduced ($MTCO_2e$)	Supportive
4.1 B	Cooling Electricity Reduction (residential shade trees)	-4%
	Number of Planted Trees	1,570
	Electricity Reduced (kWh)	-34,353
	Emissions Reduced ($MTCO_2e$)	-20

Total Measure Activity and GHG Reductions:	2020
Electricity Reduced (kWh)	-34,353
Emissions Reduced ($MTCO_2e$)	-20

GHG Quantification Sources:

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

KEMA, Inc. 2010. 2009 California Residential Appliance Saturation Study, Volume 2: Results. CEC-200-2010-004.http://www.energy.ca.gov/appliances/rass/.

Focus Area 5: Municipal Operations

5.1 Operate Efficient Government Facilities

Actions:

A. Audit appropriate City facilities and conduct comprehensive energy efficiency upgrades, including installing energy-efficient lighting, appliances, and heating, ventilation, and air conditioning systems.
B. Install 1 megawatt (MW) of renewable energy (e.g., PV panels) on City facilities.
C. Continue upgrading street and park lighting to light-emitting diode (LED) lights, as appropriate.
D. Develop and maintain a digital record-keeping system.

GHG Quantification Assumptions:

		2020
5.1 A	Electricity and Natural Gas Reduced	-30%
	Electricity Reduced (kWh)	-338,597
	Natural Gas Reduced (therms)	-11,548
	Emissions Reduced ($MTCO_2e$)	-120
5.1 B	Solar PV System Size (MWh)	1
	Electricity Reduced (kWh)	-1,450,000
	Emissions Reduced ($MTCO_2e$)	-250
5.1 C	LED Lighting Reduction	from -16% to -90% depending on type of lighting
	Percentage of Public Lighting Replaced	100%
	Electricity Reduced (kWh)	-166,654
	Emissions Reduced ($MTCO_2e$)	-30
5.1 D	Indicator	Supportive
	Participation	Supportive
	Activity Reduced	Supportive
	Emissions Reduced ($MTCO_2e$)	Supportive

Total Measure Activity and GHG Reductions:	2020
Electricity Reduced (kWh)	-1,955,250
Natural Gas Reduced (Therms)	-11,548
Emissions Reduced ($MTCO_2e$)	-400

GHG Quantification Sources:

Target reductions set by the City.

5.2 Reduce City Vehicle Fuel Consumption

Actions:

A. Continue to maintain fleet efficiency through proper maintenance, and identify additional opportunities to increase fuel efficiency.

B. Encourage City employees to use non-motorized transportation, such as walking or bicycling, when conducting off-site City business (e.g. for trips up to a quarter or a half mile).
C. Purchase fuel-efficient, hybrid, or alternative-fuel vehicles when replacing City fleet vehicles.

GHG Quantification Assumptions:

		2020
5.2 A	Gasoline Saved (gallons)	-1,898
	Diesel Saved (gallons)	-440
	Emissions Reduced ($MTCO_2e$)	-20
5.2 B	Gasoline Saved (gallons)	-3,796
	Diesel Saved (gallons)	-879
	Emissions Reduced ($MTCO_2e$)	-40
5.2 C	Gasoline Saved (gallons)	-9,491
	Diesel Saved (gallons)	-2,198
	Emissions Reduced ($MTCO_2e$)	-90

Total Measure Activity and GHG Reductions:	2020
Gasoline Saved (Gallons)	-15,186
Diesel Saved (Gallons)	-10,112
Emissions Reduced ($MTCO_2e$)	-150

GHG Quantification Sources:

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

EPA. 2012. Fuel Efficient Vehicles and Alternative Fuels Smart Choice Guide. http://www.epa.gov/region9/climatechange/transportation/driving.html.

5.3 Support Sustainable Employee Travel

Actions:

A. Provide information to City staff about commute alternatives to single-occupant vehicles, including materials that identify available transit and alternative transportation routes.
B. Establish alternative work schedule or telecommuting options for City staff to reduce daily commute trips.
C. Create a staff carpooling program.
D. Evaluate flexible employee schedules that allow for reduced commute miles traveled while maintaining City hours of operation.

GHG Quantification Assumptions:

		2020
5.3 A	VMT Reduction Rate	-2%
	Participation (City employees)	50%
	VMT Reduced	-27,575
	Emissions Reduced ($MTCO_2e$)	-10
5.3 B	VMT Reduction Rate	-4%
	Participation (City employees)	15%
	VMT Reduced	-55,149
	Emissions Reduced ($MTCO_2e$)	-20
5.3 C	VMT Reduction Rate	-2%
	Participation (City employees)	25%
	VMT Reduced	-24,128
	Emissions Reduced ($MTCO_2e$)	-10
5.3 D	VMT Reduction Rate	-10%
	Participation (City employees)	All nonessential employees
	VMT Reduced	-137,873
	Emissions Reduced ($MTCO_2e$)	-60

Total Measure Activity and GHG Reductions:	2020
VMT Reduced	-244,725
Emissions Reduced ($MTCO_2e$)	-100

GHG Quantification Sources:

CAPCOA. 2010. Quantifying Greenhouse Gas Mitigation Measures. http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

5.4 Purchase Responsibly

Actions:

A. Develop an environmentally preferable purchasing policy.
B. Participate in appropriate regional group purchase programs as they are developed.
C. Adopt a zero-waste policy for City facilities and City-sponsored events.

GHG Quantification Assumptions:

		2020
5.4 A	Indicator	Supportive
	Participation	Supportive
	Activity Reduced	Supportive
	Emissions Reduced ($MTCO_2e$)	Supportive
5.4 B	Indicator	Supportive
	Participation	Supportive
	Activity Reduced	Supportive
	Emissions Reduced ($MTCO_2e$)	Supportive
5.4 C	Waste Generated (tons)	968
	Percentage Waste Reduction	-90%
	Waste Diverted (tons)	-871
	Emissions Reduced ($MTCO_2e$)	-160

Total Measure Activity and GHG Reductions:	2020
Waste Diverted (Tons)	-871
Emissions Reduced ($MTCO_2e$)	-160

GHG Quantification Sources:

CalRecycle. 2012. Disposal Reporting System. http://www.calrecycle.ca.gov/LGCentral/Reports/DRS/Destination/JurDspFa.aspx.

City of Los Altos. 2010. Solid Waste Hauling Franchise Agreement.

Appendix

B

Compliance Checklist

Demonstrating Consistency with the Climate Action Plan

Los Altos' CAP measures address emissions from all sources in the community and balance programs that are applicable to both new and existing development. Proposed projects subject to CEQA must evaluate and analyze potential environmental impacts, including GHG emissions impacts. A lead agency can determine that a proposed project's GHG emissions impact is less than significant by demonstrating that the project is consistent with a Qualified GHG Reduction Strategy, or alternatively must estimate GHG emissions to be generated from the proposed project and determine whether or not it meets established thresholds of significance (see State CEQA Guidelines Section 15183.5 and BAAQMD CEQA Air Quality Guidelines, Section 4). As established in **Chapter 1**, the City of Los Altos has determined that this CAP is consistent with BAAQMD guidelines for a Qualified GHG Reduction Strategy.

The City will use the checklist of BMPs provided on the following page to provide a clear and consistent method of determining if proposed projects are consistent with the CAP. To be considered consistent with the CAP, a proposed project must be consistent with the Los Altos General Plan, must be anticipated within the GHG emissions forecasts identified in **Chapter 2** of the CAP, and must incorporate all BMPs identified in the checklist applicable to the project type based on proposed land use, size, location, and other factors.

A copy of the checklist should be included in CEQA documents (e.g., initial studies, EIRs) prepared for proposed projects seeking to use the streamlining provisions established in State CEQA Guidelines Section 15183.5 to demonstrate less than significant GHG emissions impacts.

Climate Action Plan Best Management Practice Checklist

	Best Management Practice Required	Applicable to	Describe Project Compliance
1.1	**Improve Non-Motorized Transportation**		
☐	Provide end-of-trip facilities to encourage alternative transportation, including showers, lockers, and bicycle racks.	Nonresidential projects greater than 10,000 square feet	
☐	Connect to and include non-motorized infrastructure on-site.	Nonresidential projects greater than 10,000 square feet	
1.2	**Expand Transit and Commute Options**		
☐	Develop a program to reduce employee VMT.	Nonresidential projects greater than 10,000 square feet (or expected to have more than 50 employees)	
1.3	**Provide Alternative-Fuel Vehicle Infrastructure**		
☐	Comply with parking standards for EV pre-wiring and charging stations.	New and substantially remodeled residential units Nonresidential projects greater than 10,000 square feet	
2.2	**Increase Energy Efficiency**		
☐	Comply with the Green Building Ordinance.	All new construction and remodels greater than 50%	
☐	Install higher-efficiency appliances.	All new construction and remodels greater than 50%	
☐	Install high-efficiency outdoor lights.	All new construction and remodels greater than 50%	
☐	Obtain third-party HVAC commissioning.	All new nonresidential construction and remodels greater than 50%	
3.1	**Reduce and Divert Waste**		
☐	Develop and implement a Construction & Demolition (C&D) waste plan.	All demolition or new construction projects	
3.2	**Conserve Water**		
☐	Reduce turf area and increase native plant landscaping.	All new construction	
3.3	**Use Carbon-Efficient Construction Equipment**		
☐	Implement applicable BAAQMD construction equipment best practices.	All new construction	
4.1	**Sustain a Green Infrastructure System and Sequester Carbon**		
☐	Create or restore vegetated common space.	Residential or nonresidential projects greater than 10,000 square feet	

	Best Management Practice Required	Applicable to	Describe Project Compliance
☐	Establish a carbon sequestration project or similar off-site mitigation strategy.	Residential or nonresidential projects greater than 10,000 square feet	
☐	Plant at least one well-placed shade tree per dwelling unit.	New residential construction	
5.1	**Operate Efficient Government Facilities**		
☐	Incorporate the use of high-albedo or porous pavement treatments into City projects to reduce the urban heat island effect.	All City-funded or sponsored construction projects	