



CITY OF MONTEREY PARK **CLIMATE ACTION PLAN**

Revised Public Draft January 2012

PAGE INTENTIONALLY LEFT BLANK

Table of Contents



1	INTRODUCTION	5
2	UNDERSTANDING THE CLIMATE ACTION PLAN	9
3	MONTEREY PARK TODAY, TOMORROW, AND BEYOND	15
4	GHG REDUCTION STRATEGIES	21
	Federal and State Legislation.....	24
	Building Efficiency	25
	Increase Renewable Energy Generation.....	28
	Land Use	30
	Transportation.....	33
	Water Conservation and Waste Reduction.....	37
5	IMPLEMENTATION AND MONITORING	43
6	CONCLUSION	49
7	REFERENCES	51
A	EMISSIONS INVENTORY METHODOLOGY	53
B	MONTEREY PARK GREENHOUSE GAS REDUCTIONS	56



INTRODUCTION

With diverse international backgrounds and ties to communities around the world, the citizens of Monterey Park think globally about environmental, economic, and social issues.

The City of Monterey Park (City) has a diverse community with a proud cultural heritage. Considered the first suburban majority Asian-American city in the U.S. (Asian Week 1996), the City has the largest population of people of Chinese descent of any city in the U.S. In 2010, more than 66% of the population was Asian, predominantly Chinese and Taiwanese. There is also a large Hispanic and Latino population, comprising 27% of residents, with white (non-Hispanic, non-Asian) and other races/ethnicities making up the remaining 7% (SCAG 2011). With diverse international backgrounds and ties to communities around the world, the citizens of Monterey Park think globally about environmental, economic, and social issues.

The City faces major challenges in its efforts to reduce greenhouse gas (GHG) emissions and mitigate climate change, which will require it to draw on the solutions and experiences of communities across California, the U.S., and abroad. To meet these challenges, the City assessed its GHG emissions and created a Climate Action Plan (CAP) to decrease them. The City will use this CAP to carry out activities that minimize emissions across households, businesses, and municipal government operations.

Vision

The City's motto, "Pride in the Past, Faith in the Future," emphasizes the blend of valuing the City's unique cultural history with the conviction that the citizens of Monterey Park will shape a future that reflects the community's values and goals. In 2005, the City formed the Monterey Park Environmental Commission to develop and implement policies and increase public awareness of environmental programs. In the same year, the City Council adopted the "Green Activities Resolution" to support "green" activities to help achieve environmental sustainability. The City's development of a CAP is the next step on the path to sustainability.





Monterey Park envisions a sustainable future where the City and its citizens collaborate to reduce GHG emissions and support the City's goals of enriching lives and fulfilling the cultural, economic, and educational ambitions of residents.

Purpose

The primary purpose of the CAP is to set forth a comprehensive strategy to address GHG emissions related to land use patterns, transportation, building design, energy use, water demand, and waste generation. The CAP outlines a road map to reduce GHGs and promote economic growth based on clean technology and sustainable practices. There are several reasons why Monterey Park is proposing a CAP:

- To adopt locally relevant measures to meet regulatory obligations established by federal, state, and regional agencies;
- To establish cost-effective energy efficiency and conservation practices;
- To increase energy independence by investing in clean, renewable energy sources; and
- To promote healthy lifestyles by facilitating opportunities for walking and biking.



Process

The City's approach to sustainability and emissions reduction is similar to the climate change planning process being followed by more than 50 other California jurisdictions. This process is as follows:

- Complete a baseline emissions inventory and project future emissions;
- Establish a community-wide reduction target (for 2020 and 2035);
- Prepare a CAP that identifies strategies, actions, and measures to meet the reduction targets;
- Evaluate the environmental impacts of the proposed strategies pursuant to the California Environmental Quality Act (CEQA);
- Adopt the CAP; and
- Monitor the effectiveness of reduction measures and the CAP to changing conditions.





UNDERSTANDING THE CLIMATE ACTION PLAN

2

A CAP is a city's road map to reducing community GHG emissions associated with existing and future actions and activities.

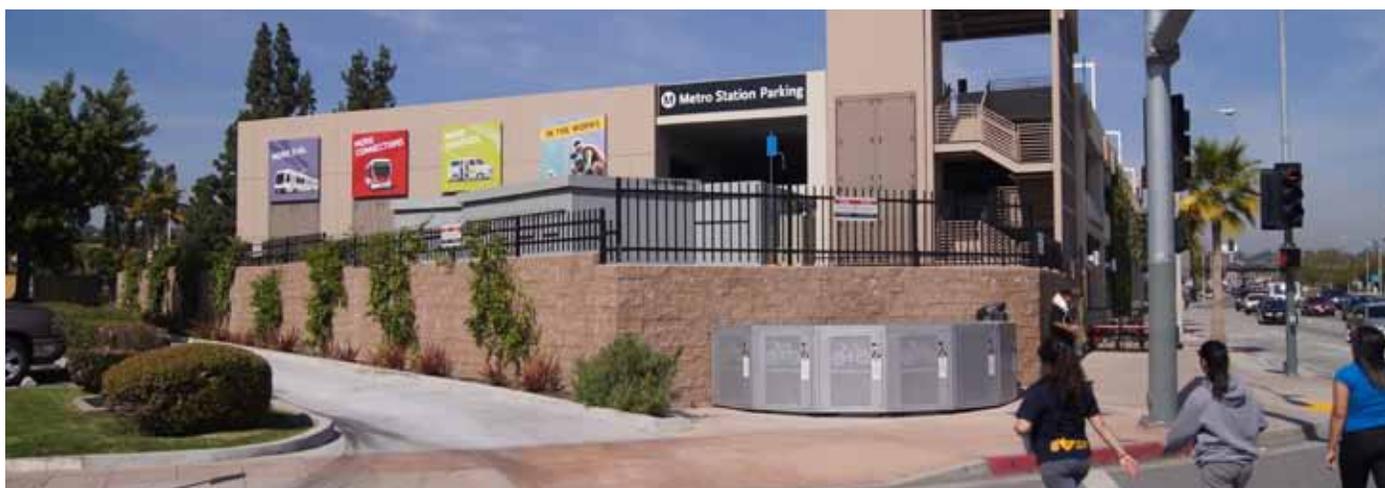
A CAP is the first step in a city's development of a long-range, comprehensive plan to move from business-as-usual growth and current development practices to a more sustainable model of growth and development. Action at the local level is important because local jurisdictions hold a unique and influential position in the day-to-day activities of local residents and businesses. This allows local jurisdictions to design and implement a wide range of strategies that help to combat climate change locally, which is supported and informed by larger federal, regional, and state efforts.

This CAP is the City's first climate planning document and was designed to support California's climate change objectives and emissions-reduction goals by achieving a "fair share" reduction in GHG emissions, which is required state-wide. These requirements are rooted in the California Global Warming Solutions Act, or Assembly Bill (AB) 32, which seeks to reduce state GHG emissions to 1990 levels by 2020. The State Attorney General's Office has stated that community-wide GHG reduction targets should align with an emissions trajectory that

reflects California's aggressive near-term, interim (1990 levels by 2020), and long-term (80% below 1990 levels by 2050) GHG emissions limits set forth in AB 32 and Executive Order (EO) S-3-05 (see section "GHG Emissions Accounting at State and Federal Level" for information on these policies).

Therefore, this CAP accomplishes the following:

- Evaluates current GHG emissions and forecasts "business-as-usual" emissions;
- Establishes a policy to reduce the City's GHG emissions to 15% below baseline 2009 levels by 2020, and sets an aspirational goal of achieving GHG emissions 49% below baseline 2009 levels by 2035;
- Develops reduction strategies that include building energy, transportation, land use, and consumption and solid waste; and
- Maintains consistency with CEQA.





Why Is it Important to Address Climate Change?

The impacts of climate change are a critical consideration for the City because they will challenge the City's ability to ensure and enhance community and economic health over the long term. Public awareness of climate change's impacts was elevated during 2010 and 2011 because of several record-setting climate and weather events, including 2010 being the warmest year on record (WMO 2011). In addition, research indicates that the average temperature on Earth's surface will likely increase by 2 to 11.5 degrees Fahrenheit (°F) by the end of this century, relative to 1980–1990 (IPCC 2007), and the western U.S. is heating up more rapidly than any other U.S. region (CEC 2009).

The challenges posed by climate change extend beyond environmental impacts. Because the environment, the economy, and public health are often intertwined, changes in temperature and precipitation will have impacts across these areas. For Monterey Park, the local impacts of climate change will include reduced air quality; diminished water supplies; higher seasonal temperatures; risks to local ecosystems, including those that supply the City with water; and increased energy costs.

More frequent extreme hot days could also disproportionately affect low-income households, the very young, and the very old. While Monterey Park has a similar ratio of very young residents to the larger region (Los Angeles

County), older residents make up a much higher proportion of the population compared to the rest of the region. In Los Angeles County, only 10% of residents are older than 65 years, but in Monterey Park, nearly 20% of the population is older than 65 (SCAG 2011). Impacts of extreme hot days on these sensitive groups may include higher rates of heat-induced mortality due to a lack of air conditioning in the home or the inability to pay for higher utility costs to

For Monterey Park, the local impacts of climate change will include reduced air quality; diminished water supplies; higher seasonal temperatures; risks to local ecosystems, including those that supply the City with water; and increased energy costs.

cool their homes, less access to transportation to community cooling centers and other cooler locations, and less access to health care to treat heat-induced conditions. In addition to public health concerns, increasing energy costs are a concern to all community members, although for households in the lowest income bracket, the proportion of income spent on electricity is twice that of those in the highest income grouping (Morello-Frosch et al. 2010).

As with many communities, particularly in Southern California, development in Monterey Park has progressed with different priorities over the years. One example of this can be seen in the buildings: those developed in the 40s and 50s are pedestrian-friendly, compared to those built in the 80s and 90s, which aligned more with the passenger vehicle mode of personal transportation. The sector with the greatest proportion of GHG emissions in Monterey Park is transportation (Figure 3.1); therefore, emission-reduction strategies for this sector will not only need to reduce emissions, but also provide for the mobility needs of residents. Increased cost for fuel limits not only residents' ability to get to work, school, and shops, but also the economic growth of the City as more income must be set aside for transportation costs.

This CAP focuses GHG-reducing efforts to areas that will have the greatest environmental benefit, have the least financial cost (or greatest savings), and preserve the character of the community.

Increased cost for fuel limits not only residents' ability to get to work, school, and shops, but also the economic growth of the City, as more income must be set aside for transportation.



Who Else Is Taking Action?

Although addressing global issue, city governments are uniquely positioned to guide communities in ways that can help their citizens make educated choices that are paramount to mitigating climate change. Monterey Park will draw on the solutions and experiences of communities across California, the U.S., and abroad to reduce GHG emissions and play its part in mitigating global climate change. World-class cities across the U.S. are also taking action against climate change to protect and preserve their residents, environments, and economies, including San Francisco, Los Angeles, Chicago, New York, and Miami.

Monterey Park is a member of an assembly of city governments in the region that are strategically positioned to take rapid, meaningful action to reduce GHG emissions. This group, the San Gabriel Valley Council of Governments (SGVCOG), is composed of 31 member cities, two County Supervisorial Districts, and the San Gabriel Water District that work to achieve goals that require cooperation across jurisdictions. Through a regional effort lead by the SGVCOG and funded by a grant from Southern California Edison (SCE), many of the member cities are currently in the process of developing a regional framework and individual energy efficient chapters of city climate action plans, which will help establish the region as leader in this area. This effort will focus on municipal energy usage and provide jurisdictions the ability to work together to take action and reduce energy consumption and GHG emissions. In addition, the Los Angeles Regional Collaborative (LARC) for Climate Action and Sustainability is currently developing a Climate Action and Sustainability Plan that will integrate city-level CAPs, including the Monterey Park CAP, into a unified set of Los Angeles County action-oriented strategies, model ordinances, and measurable objectives.¹ (LARC 2012)

¹In 2011, LARC released its first annual report, which highlights the achievements to date and upcoming milestones toward completion of the Plan, called the "Blueprint for Our Metropolis".

How Does the Climate Action Plan Relate to Other City Plans?

Monterey Park’s CAP was designed to advance the Monterey Park General Plan’s mission to enhance quality of life and economic well-being in the community. The CAP advances this mission by addressing the themes present in the General Plan and the complementary actions taken by the City, including the use of mixed-use development and implementation of “green” building requirements.

In the hierarchy of City planning documents, the CAP is located below the General Plan—a document that identifies community vision and goals, and articulates policies and programs—but above a specific plan—a document that describes site-specific building and design strategies, such as a conditional use permit. This provides the CAP the ability to include specific and detailed policies while also providing flexibility for effective implementation.

To further connect the CAP with the General Plan, the City is currently developing two new General Plan elements: the Sustainable Community and the Healthy Community Elements. These elements would promote more sustainable growth within the City, including aligning housing, transportation, and land use. The CAP includes related policies and action steps to enable the City to achieve critical goals such as reduced automobile dependence, reduced GHG emissions, and conservation of energy and water.



PAGE INTENTIONALLY LEFT BLANK



The City set an emissions target of 15% below 2009 levels by 2020 and 49% below 2009 levels by 2035.

As described in the introduction, the CAP process begins with a GHG emissions inventory. A GHG emissions inventory creates an account of the GHGs emitted from various sources for a specific period of time. For this CAP, the City created an inventory for emissions from activities in the community and local government operations, which is a subset of the community inventory. Each inventory is further broken down into emissions sectors, which are defined as a distinct subset of a market, society, industry, or economy whose components share similar characteristics. The emission sectors that were used for this inventory are energy consumption, including electricity and natural gas use; transportation; solid waste; water and wastewater treatment; and non-road fuel consumption, such as emergency generators and lawn equipment.

Both the community and local government operations inventories focus on the three GHGs most relevant to local government policy-making: carbon dioxide, methane, and nitrous oxide. Because the different gases all have a different ability to affect the atmosphere, it is necessary to convert emissions of gases other than carbon dioxide to units of carbon dioxide equivalent (CO₂e), which allows GHGs to be compared on a common basis (Table 3.1).

After establishing emissions for local government operations and community activities based on 2009 baseline emissions, the City created a forecast of GHG emissions under a business-as-usual scenario to understand how emissions would increase in the City without implementation of the CAP or other GHG-reducing measures such as statewide legislation that requires lower-carbon fuel and increased proportion of renewable-electricity generation. Next, an emissions target was established for future years. The target is the amount of GHG emissions the City hopes to achieve through the CAP and is based on guidance at the state level. The City set an emissions target of 15% below 2009 levels by 2020 and 49% below 2009 levels by 2035.

Table 3.1 // Global Warming Potential of Greenhouse Gases

GHG	Symbol	Global Warming Potential ¹
Carbon Dioxide	CO ₂	1
Methane	CH ₄	21
Nitrous Oxide	N ₂ O	310

¹IPCC 1996

2009 Baseline Greenhouse Gas Inventory

The baseline inventory, conducted for emissions in 2009, is an important component of the CAP because it will allow the City to understand total emissions and emissions by sector for community activities and local government operations. By better understanding emissions by sector, the City can more effectively focus emissions-reduction strategies to achieve the greatest benefit.

The inventory process involved collecting data from various City departments, private entities such as electricity and natural gas providers, and other government agencies that provide services within the community. Data collection included activities specific to municipal operations (e.g., building energy uses, vehicle fuel usage, and mileage) and community-wide activities (e.g., total tons of solid waste collected) that occurred in 2009. Community-wide activities spanned all land uses located within the legal boundaries of the City.

The inventory process does not end with data collection. Data can be in miles traveled, gallons of fuel burned, kilowatt-hours (kwh) or BTU of energy consumed, or tons of waste disposed. These data must be converted into GHG-equivalencies by applying an emission factor, which accounts for the GHG intensity of an activity and allows various data types to be evaluated together. Most commonly, and in this CAP, data are converted into metric tons of carbon dioxide equivalents, or MTCO₂e, as described on page 15.

Emissions factors recommended by the California Air Resources Board (ARB), the California Climate Action Registry, and the United Nations' Intergovernmental Panel on Climate Change (IPCC) were used to estimate CO₂e emissions for municipal operations and community-wide activities (ARB 2010; IPCC 2006). Emission factors are continually being refined and improved to reflect better measurement technology and research. GHG emission quantification is also being improved through better accounting of emissions and quantification methodology. For additional information on the GHG inventory methodology used in this report, please refer to Appendix A.

The baseline community inventory in Monterey Park showed that, excluding emissions from the OII Landfill, approximately 418,398 MT CO₂e were emitted in 2009. Of this, transportation-related emissions accounted for about 63% of emissions and energy consumption represented approximately 31% (Figure 3.1). The energy

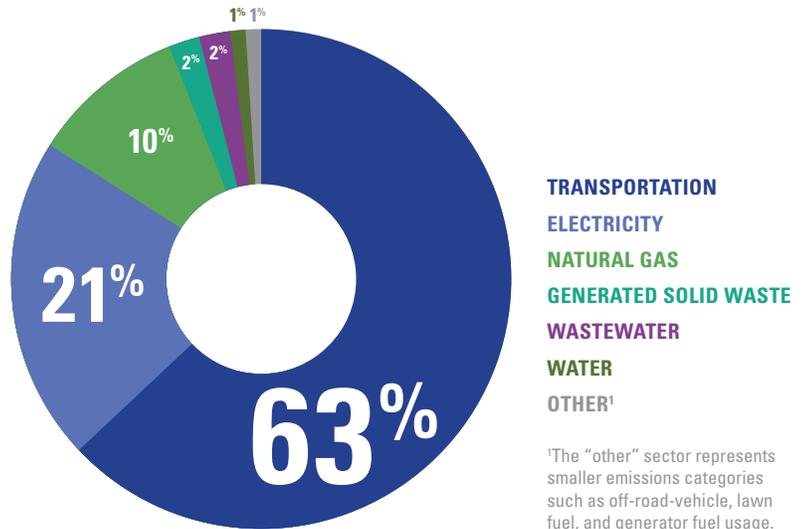
The baseline inventory conducted for emissions in 2009 is an important component of the CAP because it will allow the City to understand total emissions and emissions by sector for community activities and local government operations.

consumption sector includes the use of electricity and natural gas in residential, commercial, and industrial land uses within the boundaries of the City. Although emissions associated with electricity production are likely to occur in a different jurisdiction, consumers are considered accountable for the generation of those emissions. These are considered indirect emissions, whereas direct emissions are generated at the site of end-use activity (e.g., natural gas combustion for heating or cooling). Both direct and indirect emissions are included in a GHG emissions inventory.

A significant component of the community GHG emissions inventory is the OII Landfill (Operating Industries, Inc.), which accounts for approximately 25% of total community emissions. The OII Landfill is a Superfund site, which is a hazardous waste site that the Environmental Protection Agency (EPA) has authority to manage and clean up. Because the site is under federal jurisdiction and the City has little recourse to mitigate emissions from this facility, the emissions from the OII Landfill are not included in the emissions that the City can feasibly reduce.

Figure 3.1 // Communitywide Emissions by Sector in 2009

Sector	MT CO ₂ e	Percentage of Total Emissions (including Oil Landfill)	Percentage of Total Emissions (under City control)
Transportation	264,922	48%	63%
Energy			0%
Electricity	87,951	16%	21%
Natural Gas	43,635	8%	10%
Solid Waste			0%
Oil Landfill	138,724	25%	--
Generated Solid Waste	7,147	1%	2%
Wastewater	8,291	1%	2%
Water	3,946	1%	1%
Other	2,505	0%	1%
Total	557,122	557,122	418,398

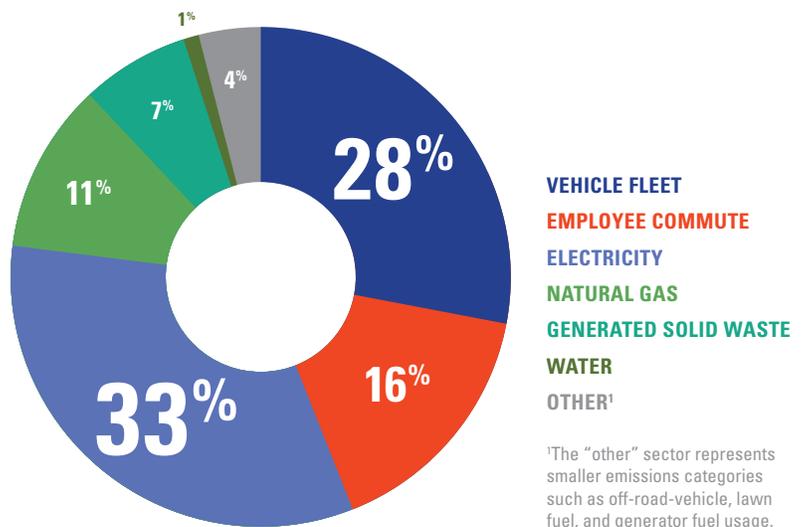


The baseline inventory for municipal operations in 2009 found that approximately 5,600 MT CO₂e were generated from local government operations, which is less than 2% of emissions from community activities. For local government operations, transportation- and energy-

related emissions each accounted for 44% of total municipal emissions. Transportation-related emissions include those from the City's vehicle fleet and employee commute (see Figure 3.2).

Figure 3.2 // Municipal Emissions by Sector in 2009

Sector	MT CO ₂ e	Percentage of Total Emissions
Transportation		
Vehicle Fleet	1,535	28%
Employee Commute	894	16%
Energy		
Electricity	1,862	33%
Natural Gas	610	11%
Solid Waste		
Landfills	0	0%
Generated	397	7%
Water	56	1%
Other	219	4%
Total	5,573	100%



2020 and 2035 Business-as-Usual Forecast

The business-as-usual (BAU) emissions forecast represents emissions levels in the forecast years of 2020 and 2035. BAU forecasts show what emissions levels would be in 2020 and 2035 without interventions that reduce emissions. The BAU forecast utilizes forecasts provided by Southern California Association of Government (SCAG) to predict population, economic activity, and land use changes within the City; this does not include possible emission-reduction plans taken by other regional partners or at the state level. As with the emissions inventories, there are separate forecasts for community activities and local government operations. BAU forecasts are useful tools because they allow cities to prioritize emission-reduction strategies.

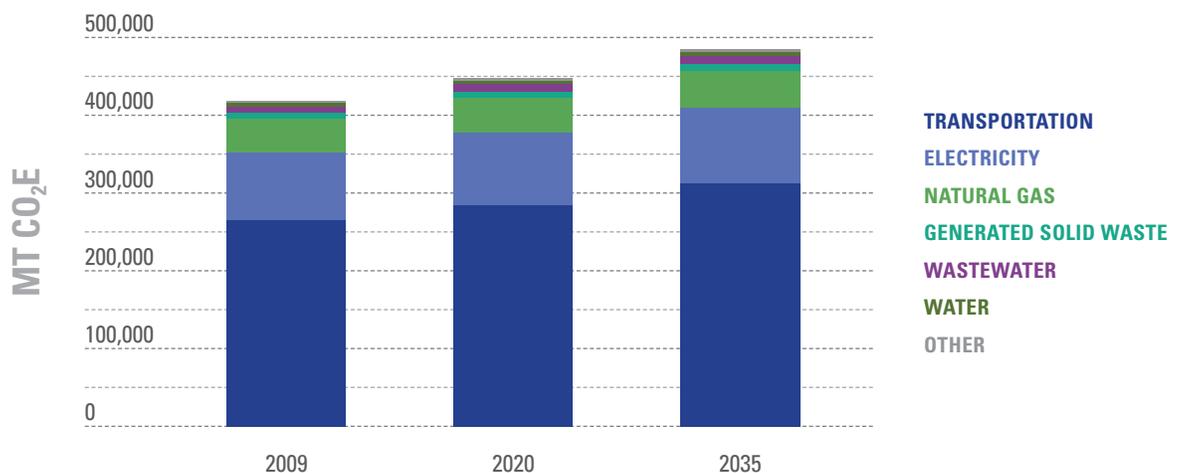
The BAU forecast for community activities in Monterey Park shows an average growth rate of 0.67% until 2020 and 0.47% until 2035. This means that 447,600 MT CO₂e and 484,600 MT CO₂e will be emitted in 2020 and 2035, respectively (not accounting for the OII Landfill, as described above). See Figure 3.3 for forecast emissions by sector.

GHG Emissions Accounting at State and Federal Levels

In 2006, the Global Warming Solutions Act (AB 32) was enacted that mandated California to reduce state-wide GHG emissions to 1990 levels by 2020. As a result, ARB developed state-wide GHG inventories for historical, present, and future years to determine the relative contribution of different activities to GHG emissions in California. ARB also developed the Climate Change Scoping Plan, which outlines the strategies the state will implement to meet the 2020 target, including adopting policies, strengthening existing efficiency programs, and developing a cap-and-trade program with the Western Climate Initiative.

The Climate Change Scoping Plan emphasizes local governments as essential partners for achieving the state-wide goal, and recommends that local governments reduce emissions to 15% below baseline levels by 2020. For local governments, general plan updates and CAPs provide opportunities to achieve GHG emissions reductions that may be harder to reach through project-by-project review. Through adoption of a CAP that meets the requirements described in CEQA guidelines Section 15183.5, future projects may benefit from streamlined CEQA review of GHG impacts.

Figure 3.3 // Communitywide Emissions Forecast by Sector



Emissions Targets

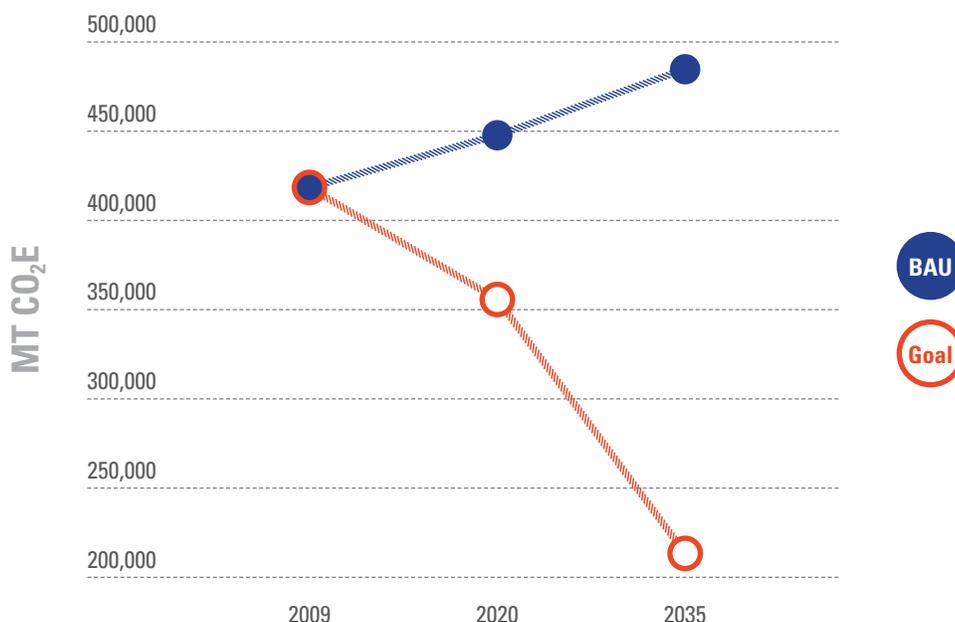
The City believes that action at all levels will be necessary to reduce GHG emissions, and is committed to doing its part. Therefore, the City has committed to achieve a community-wide GHG emissions reduction of 15% below baseline levels by 2020 (see Figure 3.4). **Through adoption of a CAP meeting the requirements described in CEQA guidelines Section 15183.5, future projects may benefit from streamlined CEQA review of GHG impacts.** This goal is consistent with guidance from the California ARB and contributes toward the state’s 2020 goals under AB 32.

For Monterey Park’s 2035 goal of 49% reduction from 2009 emissions levels, the City would need to reduce emissions by nearly 271,200 MT of CO₂e per year.

This goal is consistent with the recommendations of the State Attorney General’s Office and with the trajectory of the state’s long-term emissions-reduction goals, as stated in EO S-3-05. The City can achieve a 23% reduction by 2020 with the measures described in this CAP. While this will not put the City on a straight-line path toward the goals set in EO S-3-05, it will serve as a solid foundation that can be built on in intervening years. Meeting GHG reduction goals beyond 2020 will require even greater participation in existing measures, inclu-

sion of additional measures, guidance from state and federal authorities, additional state and federal regulations, improved technology, and infrastructure changes. As described in Plan Evolution in Chapter 5, the CAP will be revisited periodically to reflect any changes in emissions projections or reduction potential, and the City will leverage additional or new resources and incentives to further work toward this ambitious target. Monitoring the progress of the CAP will also be essential to understand which actions are being fulfilled and which are not. A full GHG emissions inventory will be necessary to assess City-wide progress, but progress indicators may be monitored yearly to track the success of specific actions.

Figure 3.4 // GHG Emissions Business-As-Usual (BAU) and Goals for 2020 and 2035





777 DOWNTOWN

Metro Rapid

M

DELLER
BUSINESS CENTER

GHG REDUCTION STRATEGIES

Implementing the five major reduction strategies presented in this CAP can assist the City in achieving its community-wide reduction target (see Table 4.1). These five strategies were developed based on the detailed sector-specific analysis performed as part of the GHG emissions inventory, and each strategy has targeted emissions reductions that relate back to those sectors. Increasing the energy efficiency of buildings; the amount of renewable-energy generation; and the number of residents who walk, bike, carpool, and use public transit can improve the quality of life of residents for generations to come. Many of the CAP’s strategies capitalize on existing programs that are either funded or supported by state or regional agencies and other organizations. By demonstrating leadership through marketing, outreach, and promotional programming, the City can serve as a local information source, which will allow residents to understand and take advantage of existing programs that can accomplish a large portion of the actions described in the strategy. The City has committed to implementing the CAP and attaining its goals; therefore, it will be important to track the progress of each quantified measure and update them as needed.

Table 4.1 // Emissions Baseline and Target (in MT CO₂e)

2009 Baseline Emissions:	418,398
2020 Business-As-Usual Emissions :	447,639
2020 Emission Reductions:	-100,118
Target 2020 Emissions:	347,521 (17% reduction)

GHG reduction strategies were developed by (a) evaluating existing community conditions; (b) identifying emissions-reduction opportunities within the community; (c) reviewing best practices from other jurisdictions and organizations; and (d) incorporating state and regional laws, guidelines, and recommendations. After considering a wide range of potential actions and measures, a final set of strategies was recommended based on the following criteria:

- What is the cost of implementation to the City and what private costs and savings can be achieved? (See Table 4.2.)
- Is it technically feasible to implement the measure and what level of community support is there for the measure?
- Does the measure create additional community co-benefits (e.g., quality of life, public health)?

Table 4.2 // Economic Analysis: Cost and Savings

COST TO PRIVATE PARTIES (RESIDENTS, BUSINESSES, ETC.)	
Very Low:	\$0 to \$100
Low:	\$101 to \$250
Medium:	\$251 to \$500
High:	More than \$500
PRIVATE SAVINGS	
Very Low:	\$0 to \$100
Low:	\$101 to \$250
Medium:	\$251 to \$500
High:	More than \$500
COST TO CITY	
Very Low:	\$0 to \$10,000
Low:	\$10,001 to \$50,000
Medium:	\$50,000 to \$100,000
High:	More than \$100,000

Table 4.3 // Summary Table of Greenhouse Gas Reduction Measures

Category and Measure Number		Measure	2020 Reductions in MT CO ₂ e/Year	Scaled Measure Performance (% Reduction in GHG Emissions)
Energy	E1	Efficiency Requirements for New Development	811	0.8%
	E2	Building Retrofits	3,590	3.6%
	E3	Appliance Upgrade	1,846	1.8%
	E4	Smart Meters	413	0.4%
	R1	Solar Water Heating (Residential and Commercial)	1,997	2.0%
	R2	Alternative Energy Systems (Residential and Commercial)	2,493	2.5%
Land Use	LU1	Mixed-Use Development	1,424	1.4%
	LU2	Service Nodes	1,424	1.4%
Transportation	T1	Increase Transit Use	5,696	5.7%
	T2	Increase Walking and Biking	7,121	7.1%
	T3	Transportation Demand Management (TDM)	4,273	4.3%
Water	W1	Conserving Water	1,073	1.1%
Total City Action*			32,160	32.1%
State and Federal	SF1	Pavley I – Passenger Auto and Light Truck Fuel Efficiency	33,931	33.9%
	SF2	Low Carbon Fuel Standard (Gasoline and Diesel)	17,616	17.6%
	SF3	Renewable Portfolio Standard (33% Renewable by 2020)	16,410	16.4%
Total State and Federal Action*			67,957	67.9%
Total Reductions* (City, State, and Federal Actions)			100,118	100%
Percent Reduction Below 2009 Baseline			17%	

*Measures may not add to total due to independent rounding.

Each strategy recommends measures and actions that translate the CAP's vision into tangible action. Actions define the specific steps that City staff and decision-makers will take to implement the CAP and achieve the reduction targets. GHG reductions resulting from implementation of each strategy (i.e., measures and actions) were quantified based on the anticipated degree of implementation or community participation. Values presented in the "2020 Reductions" column of Table 4.3 identify the estimated annual emissions reductions anticipated by 2020. Additional details are provided in Appendix B.

Each measure and action has an anticipated degree of implementation, taking into account economic, social, and political feasibility. The "Type of Action" section in the following measure tables, which start on page 26, denote whether each action will:

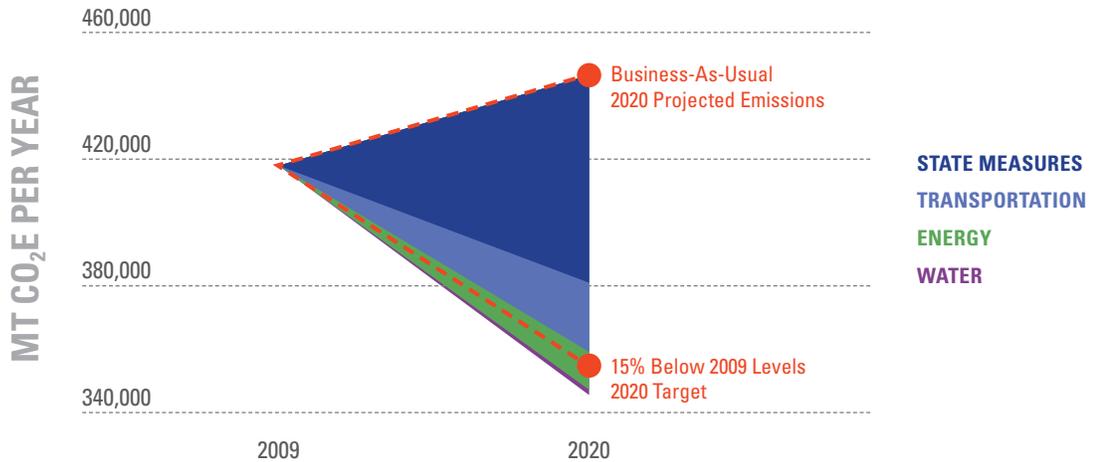
- require staff time and leadership,
- require creating additional programs, or
- necessitate purchasing/installing technology.

This information can serve as a guide for City staff, residents, businesses, and other interested parties to illustrate the investment required for each GHG reduction measure and action.

As described in the following sections on GHG emissions reductions, a responsible department is identified for each action and measure. In many cases, state, regional, or local partners are also identified. To accomplish the GHG reductions outlined in the CAP, the City will need broad-based participation and support from the community and government employees.



Figure 4.1 // GHG Emissions—Business-As-Usual (BAU) and Goals for 2020



Federal and State Legislation

To fulfill its part in implementing AB 32, the state legislature has taken action to reduce GHG emissions to 1990 levels by 2020 (Figure 4.1). The following legislation has been enacted to achieve GHG reductions at a state level, which will also affect emissions generated at the local level. The emission reductions realized at the City-wide level resulting from state legislation is discussed below. As federal and other state regulations are enacted to lower GHG emissions, the City may evaluate its effectiveness to reduce City-wide GHG emissions in the future.

Assembly Bill 1493 (Pavley I)

When signed in 2002, AB 1493 sought to establish higher fuel-efficiency standards for noncommercial, personal motor vehicles (passenger cars and light-duty trucks) in California (higher than in any other state). Prior to being implemented, the U.S. Department of Transportation (DOT) and EPA established GHG emission and fuel economy standards for model year 2012–2016 light-duty cars and trucks. In fall 2010, California accepted compliance with these federal GHG standards. Implementation of the new fuel efficiency standards should reduce City-wide on-road mobile-source GHG emissions by approximately 33,930 MT CO₂e per year in 2020. Additionally, federal authorities and major car manufacturers agreed to further improve the average fuel efficiency of passenger cars and light trucks to more than 50 miles per gallon (mpg) by 2025. Because there is no definitive legis-

lation about this recent development, it was not included in any of the quantifications of emissions reductions in the CAP. However, if carried out, it will represent another significant and long-term emissions-reduction strategy.

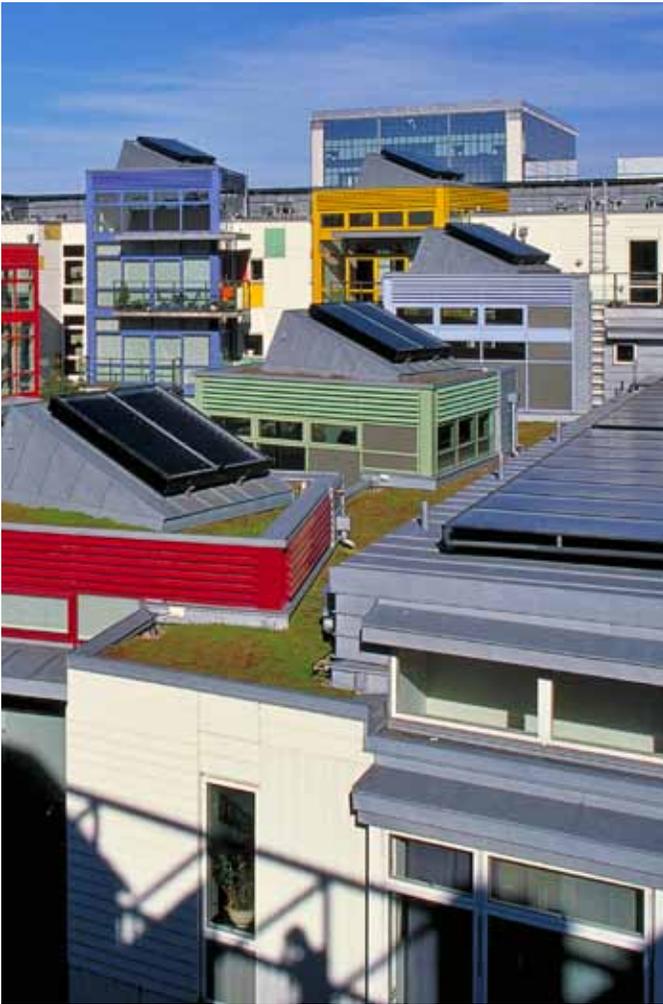
Executive Order S-1-07 (Low Carbon Fuel Standard)

EO S-01-07 establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10% by 2020. It is expected that implementation of the standard will reduce City-wide on-road mobile-source GHG emissions by approximately 17,620 MT CO₂e per year in 2020.

Renewable Portfolio Standard

Senate Bill (SB) 1078, SB 107, and SB X1-2 established increasingly stringent Renewable Portfolio Standard (RPS) requirements for California’s investor-owned utilities, such as SCE. RPS eligible energy sources include wind, solar, geothermal, biomass, and small-scale hydro. SB 1078 required investor owned utilities to provide at least 20% of their electricity from renewable resources by 2020. SB 107 accelerated the timeframe to take effect in 2010. SB X1-2 increased the RPS to 33% by 2020. Implementation of this measure is expected to reduce the City’s electricity-related GHG emissions by approximately 16,410 MT CO₂e per year in 2020.

BUILDING EFFICIENCY



Investing in energy efficiency is a prudent decision for residents and businesses. Increasing a building's long-term performance can achieve lower operating costs, improve occupants' comfort, hedge against utility price increases, improve air quality, and ultimately boost property values. Given that energy used to cool, heat, and power homes and business makes up 24% (Figure 3.1) of total community GHG emissions, the City focused many of its actions on building efficiency to help achieve its emissions-reduction goals. Each of these actions and quantified measures (designated as E1 through E4) will help the City achieve the targeted GHG emission reductions by 2020 and 2035.

E1. Efficiency Requirements for New Development

The newest edition of Title 24, Section 6, California's Building Code, is intended to increase the energy efficiency of retrofits, renovations, and new construction. **The City, in coordination with the California Building Standards Commission and the California Energy Commission, will adopt energy efficiency regulations for new construction projects to meet Tier I energy efficiency standards** (contained in Section 503.1.2 of the 2008 California Green Building Code [CGBC]). Tier I requires a building's energy performance to exceed Title 24 standards by 15% for new residential and non-residential development. **This is called the performance path.** Developers can meet this energy efficiency requirement by implementing measures from a list of City-approved improvements that include improvements to the building envelope, such as air sealing, new windows or improved roofing, and adding energy-efficient appliances, energy monitoring tools, and renewable energy systems. Because some of the measures that are eligible under the **performance path** are also mentioned as separate emission-reduction measures in this CAP, there is the possibility for double-counting emissions reductions. For example, if a developer adds a solar system to comply with the energy efficiency requirements for new development, or E1, all of the emission reductions will be quantified under E1. To ensure that the City does not over estimate emission reductions, all measures that are taken as part of E1 will be accounted for under E1. While this will make monitoring emissions-reduction measures a little more

complicated, it will not take away any of the effectiveness of the measure and will, in fact, spur development in local green infrastructure. Because of the long operational life of new and renovated buildings, this measure will provide long-term energy and GHG emission savings.

GHG Reduction Potential

Residential Development: 574 MT CO₂e
Commercial Development: 237 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department and SCE, California Energy Commission (CEC)

Performance Indicator

Number of new residential and commercial units built with higher standards than those set by Title 24

Type of Action

Require staff time and leadership

Potential Funding Sources

Partnerships with organizations (SCE Local Government Partnership), American Recovery and Reinvestment Act (ARRA), Energy Efficiency and Conservation Block Grant (EECBG), self-financing, City funds (development fees)

Cost to City

None

Private Cost

High, one time

Private Savings

High, recurring

E2. Building Retrofits

31% (Figure 3.1) of total GHG emissions in Monterey Park are a result of energy used for commercial and residential buildings. Having affordable energy to heat and cool buildings, turn on lights, wash clothes, cook food, run computers, and support the daily functions of home, work, and commerce is essential to a functioning city. Since the vast majority of buildings in Monterey Park were built before 2002, there is tremendous potential to increase the overall energy efficiency of buildings in the

City with a range of energy efficiency upgrades.

Because increasing building energy efficiency can significantly reduce GHG emissions, there are a range of state and federal incentives to help promote implementation of these upgrades. Energy Upgrade California, a state-wide program to help homeowners retrofit and renovate homes with more energy-efficient appliances, heating/cooling systems, and other improvements, lowers the cost barrier by offering rebates based on how energy efficient the properties become. Basic retrofits are generally done as part of a “package” of options, such as sealing leaks in air conditioning/heating systems, installing insulation in the walls and ceilings, and upgrading appliances to those that meet Energy Star certification requirements. Residents who want to achieve more energy savings can participate in more advanced energy upgrades such as heating, ventilation, and air conditioning (HVAC) replacements, window upgrades, water heater upgrades, and “cool roof” installations. Businesses can gain long-term savings from upgrading ceiling and duct insulation and implementing an Energy Management System (EMS) retrofit. According to the Database for Energy Efficient Resources (DEER) model, an EMS is an energy efficiency package for commercial buildings that includes a reset or calibration of chilled and hot water systems, addition of heating and cooling timeclocks, reduced nighttime lighting levels, converting to light-colored roofs, or simply using more efficient lighting fixtures and bulbs.

The City can help residents and businesses save money and reduce GHG emissions by promoting and supporting existing programs. By working with partners such as the San Gabriel Valley Council of Governments, and Southern California Edison, **the City can focus programming in neighborhoods where these upgrades are most needed and maximize participation in the Los Angeles County Energy Upgrade California Program.** The City is also considering making energy efficiency retrofits a condition of sale, which would greatly increase the level of GHG reductions achievable. If adopted, the monitoring tool would capture the additional reductions through City inspections, and future revisions of the CAP will reflect the changed status (voluntary to mandatory) of this measure.

GHG Reduction Potential

Residential: 1,528 MT CO₂e
Commercial: 2,062 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department, SCE, the Energy Coalition, San Gabriel Valley Council of Governments (COG), Los Angeles County

Performance Indicator

Number of homes and businesses participating in energy efficiency retrofit programs

Type of Action

Require staff time and leadership and necessitate community purchasing/installing technology

Potential Funding Sources

State and federal grants, public/private partnerships

Cost to City

None

Private Cost

Medium to high, one time

Private Savings

Low-High, Recurring

E3. Appliance Upgrades

According to the federal EPA, devices that have an Energy Star certification, such as office equipment, home appliances, and lights, generally use 20% to 30% less energy than those simply following federal standards (EPA 2009). By promoting Energy-Star-rated home and business appliances, the City can help to reduce GHG emissions related to the use of older, less efficient appliances. This measure assumes refrigerators, dishwashers, clothes washers/dryers, and light bulbs would be upgraded to Energy-Star-rated appliances. Upgrades to other Energy Star appliances, such as air conditioning units, computers, and photocopiers, would augment the estimated reductions. New residential development standards (E1) include the option to meet energy efficiency requirements through building envelope retrofits, energy-efficient appliances, and other actions. To avoid double counting, appliance upgrades related

to meeting E1 will not be counted toward the goal of E3. **The City will partner with SCE, the Southern California Gas Company (SoCal Gas), and the Metropolitan Water District (MWD), and provide additional outreach to the community to increase awareness** about rebate and incentive programs, the efficiencies that may be gained from Energy-Star-rated appliances, and the cost savings associated with Energy Star appliances.

GHG Reduction Potential

Existing Residential: 1,050 MT CO₂e
New Residential: 796 MT CO₂e

Responsible Party & Implementation Partners

City Planning Division/City Building Division, SCE, SoCal Gas, MWD

Performance Indicator

Number of energy-efficient appliance rebates provided

Type of Action

Require staff time and leadership and necessitate purchasing/installing technology

Potential Funding Sources

Partnerships with organizations (SCE/local government partnership)

Cost to City

None

Private Cost

High, one time

Private Savings

Medium, recurring

INCREASE RENEWABLE ENERGY GENERATION

E4. Smart Meters

Emerging energy management systems, or Smart Meters, are currently being installed by SCE to improve how electricity consumption is managed. These Smart Meters will eventually provide utility customers with access to detailed, instantaneous energy use and cost information, new pricing programs based on peak-energy demand, and the ability to program home appliances and devices to respond to energy use preferences based on cost, comfort, and convenience. **The City will perform outreach with SCE, other jurisdictions, and organizations to accelerate “Smart Grid” integration in the community.** The true value of the Smart Meter program will be fully realized when community residents and businesses begin making more informed energy-use decisions based on the two-way communication enabled by Smart Meters. For example, Smart Meters will allow homeowners to run their washing machines when there is abundant energy on the grid, and therefore the energy is at its lowest price. Customers will have access to their daily energy usage through www.SCE.com, which will help increase awareness and reduce energy consumption and costs.

GHG Reduction Potential

Existing Residential: 355 MT CO₂e
New Residential: 58 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department and SCE

Performance Indicator

Number of people enrolled in SCE Smart Meter monitoring program

Type of Action

Require creating additional programs

Potential Funding Sources

Partnerships with organizations
(SCE/local government partnership)

Cost to City

None

Private Cost

Medium, one time

Private Savings

Very low, recurring

Green building and net-zero energy practices are creating a new framework for how people use energy in homes and businesses. Net-zero refers to the idea that buildings can be constructed to consume zero energy and produce zero energy emissions annually. This is accomplished through three key methods: reducing the building’s overall energy demand by using energy-efficient appliances; creating an energy-efficient building envelop with properly sealed doors, windows, and ducts; and installing renewable energy technologies such as solar water heaters and solar panels (see Strategies R1 and R2). The result is a building that can function autonomously from the energy grid.

R1. Solar Water Heater

Solar hot water systems are a simple, reliable, and cost-effective method for harnessing the sun’s energy to provide hot water. Solar collectors, usually placed on the roof, absorb the sun’s energy to heat water that is stored in a water tank. According to the California Solar Initiative (CSI), a state-wide effort to promote solar systems through outreach, education, and incentives, solar hot water systems can lower energy bills by meeting 50% to 80% of hot water needs. The California Solar Water Heating and Efficiency Act of 2007 (AB 1470) created a 10-year program aimed at installing solar water heaters in homes and businesses. AB 1470 was designed to lower the initial costs of purchasing a system, which averages \$3,000 to \$6,000. **Although solar water heater upgrades require an up-front investment from the resident or business owner, there is a range of financing and rebate options available to offset these initial costs.** This measure and quantification of reductions is separate from any renewable energy installations that are completed as part of meeting the requirements for new residential energy efficiency standards and will be monitored separately to avoid double counting.

GHG Reduction Potential

Residential: 1,884 MT CO₂e
Commercial: 113 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department and SCE (CSI program administrators)

Performance Indicator

Number of new systems installed (by square feet and kilowatts [kW] or therms saved)

Type of Action

Necessitate purchasing/installing technology

Potential Funding Sources

Public finance (Clean Renewable Energy Bonds [CREBs]), partnerships with private companies, Power Purchase Agreements (PPAs), Energy Performance Contracts with energy service provider (ESP), partnerships with organizations

Cost to City

None

Private Cost

High, one time

Private Savings

Medium, Recurring

R2. Solar Photovoltaic Systems

Solar photovoltaic (PV) systems generate electrical power by converting solar radiation into direct-current electricity using semiconductors. PV systems can be retrofitted into existing buildings, usually by mounting them onto an existing roof structure or walls. According to the National Renewable Energy Laboratory's Open PV Project (openpv.nrel.gov), Monterey Park currently has 22 solar PV installations, with a total capacity of approximately 0.12 megawatt (MW). **The City will promote PV installations to provide 5% of residential electricity and 2% of commercial electricity energy use from solar PV generation by 2020.** This measure and quantification of reductions are separate from renewable energy installations that are part of the requirements for new residential energy efficiency standards and will be monitored separately to avoid double counting.

CEC created the California Energy Efficiency Strategic Plan, which was updated in 2011 and sets a goal of zero net energy in new residential homes by 2020 (CEC 2011). While this is not yet a requirement, integrating net-zero design principles into new buildings will become increasingly important. **The City will provide targeted outreach to developers and builders about renewable energy incentives and energy efficiency programs offered by the CSI, CEC, U.S. Department of Energy, and energy utilities when they apply for permits, and will encourage them to participate.**

GHG Reduction Potential

Residential: 1,448 MT CO₂e
Commercial: 1,045 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department and SCE, CSI program administrators

Performance Indicator

Annual kWh produced

Type of Action

Necessitate purchasing/installing technology

Potential Funding Sources

Partnerships with private companies (PPAs) and other organizations, SCE/local government partnership, public finance (CREBs)

Cost to City

None

Private Cost

High, one time

Private Savings

Medium, recurring

LAND USE

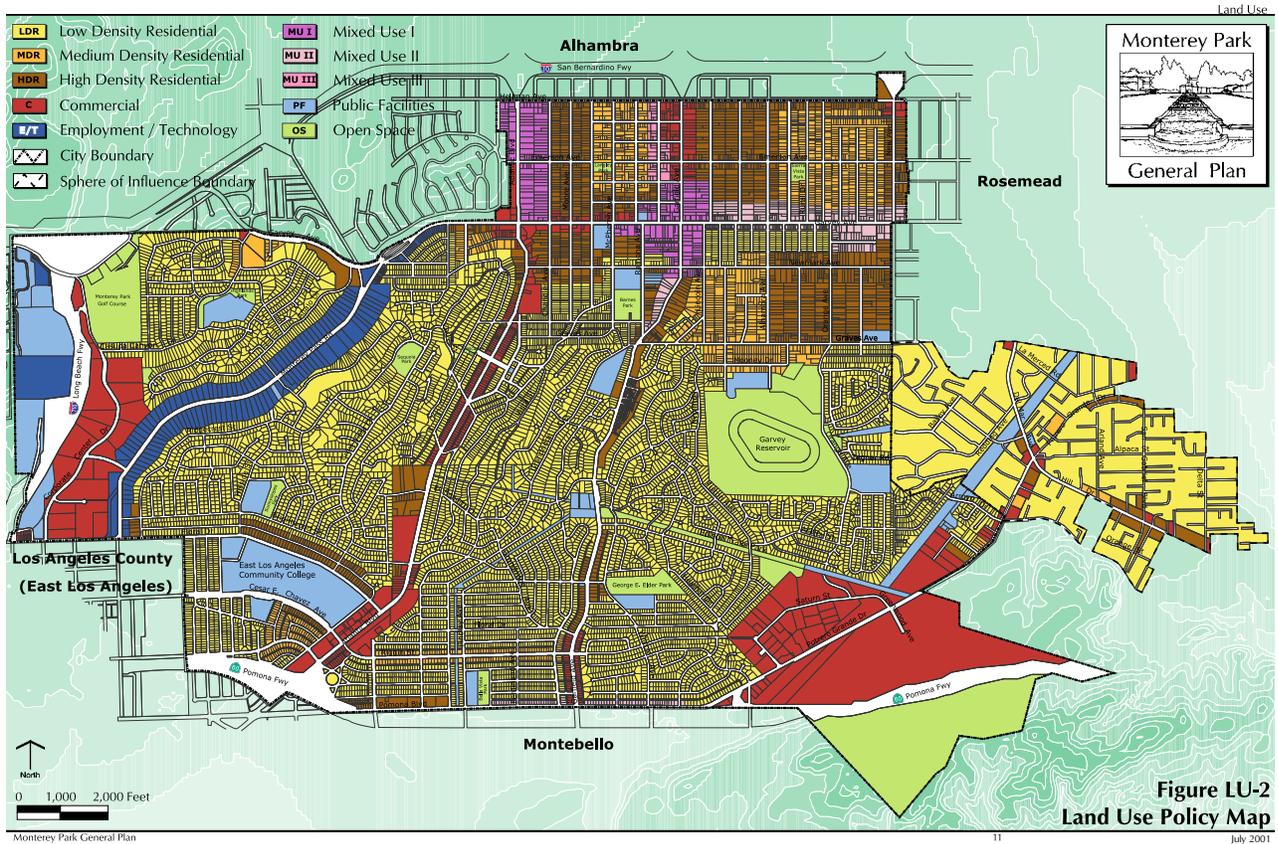


Land use patterns can affect the modes of transportation used to move within a city. Where there are many services and amenities near residential areas or employment centers, the opportunity to walk, bike, or use public transit increases. As shops, eateries, housing, and employment centers are spread farther apart, single-occupant vehicle trips become more attractive and convenient. Because residential neighborhoods, shops, services, and employment centers are often separated from each other by considerable distances in Monterey Park (see Figure 4.2), there are high levels of automobile use and emissions. While Monterey Park is largely built out and has been developed with many low-density regions, there are opportunities for the City to encourage infill and redevelopment that would facilitate the use of the Spirit and Montebello bus systems and Metro and Metrolink services, and to improve walkability and bikeability. For new construction, the City can focus development in areas that are currently served by transit and encourage mixed-use buildings. The density of development, mix of uses, proximity to transit, street design, and other factors influence how far residents and employees travel to meet their daily needs, and whether they choose to walk, bike, use public transit, or drive. By encouraging mixed uses and more development around transit, the following measures (LU 1 and LU 2) can yield 2,850 MT CO₂e per year of reductions by 2020.

LU1. Mixed-Use Development

Increasing the availability, effectiveness, and use of transit could result in a 0.5% reduction in overall vehicle miles travelled (VMT) in the City by 2020. Through the General Plan, the City allows mixed-use, high-density, and transit-oriented development in specified locations; however, the City is largely built out, which means there is limited opportunity to develop new communities. To meet the 0.5% VMT reduction target, **the City will create additional incentives to build and actively facilitate new mixed-use development near existing and planned transit corridors.** With a combination of existing commercial center retrofits and mixed-use infill development, the City can increase residents' access to goods and services, and transportation options to reach those amenities, thereby reducing the need for automobile trips.

Figure 4.2 // Land Use Areas from Monterey Park General Plan



This map shows the various land use designations throughout the City.

GHG Reduction Potential

1,424 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department and SCE (CSI program administrators)

Performance Indicator

Additional service population (residents and employees) in locations near transit

Type of Action

Require staff time and leadership

Potential Funding Sources

State and regional grants (Caltrans Planning Grants); partnerships with organizations

Cost to City

Very low, recurring

Private Cost

None

Private Savings

Low, recurring

LU2. Service Nodes

Through changes proposed under the new Zoning Ordinance, the City will provide more opportunities for walking, biking, and short-distance vehicular trips by promoting service nodes, which are employment centers with eating establishments, coffee shops, day care, dry cleaners, and other services in proximity. To reduce VMT by 0.5% by 2020, **the City will revise the zoning code to allow for commercial and retail services in employment centers.**

GHG Reduction Potential

1,424 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department

Performance Indicator

Number of new service nodes in existing and future employment areas

Type of Action

Require staff time and leadership

Potential Funding Sources

State and regional grants (California Department of Transportation [Caltrans] Planning Grants), partnerships with organizations

Cost to City

Very low, recurring

Private Cost

None

Private Savings

Low, recurring

TRANSPORTATION



The transportation of goods and people generates approximately 63% of Monterey Park's GHG emissions (264,920 MT CO₂e in 2009). Within the City, the majority of commute, shopping, and recreational trips are done in private automobiles. State-mandated increases in fuel efficiency and reductions in the carbon content of vehicle fuels will help reduce these emissions considerably. However, to reach the City's GHG reduction target, additional local action is necessary. The City aims to increase resident and employee use of alternative travel modes such as public transit, carpooling, bicycling, and walking by investing in transit service and infrastructure improvements. The City developed five actions (within elements T1 through T3) to help achieve the City's emissions-reduction goals (see Table 4.3). For each action below, the reduction in GHG emissions is based on reductions in VMT.

T1. Increase Transit Use

While Monterey Park is a suburban community, there is good access to transit inside and outside of the City. The City created two actions that are designed to increase the use of transit within the City.

T1.1. Lower Cost of Riding Transit

The Spirit Bus is a City-operated low-cost local bus. With extremely low fares, this is an economic alternative to in-City driving. The City currently provides discounts to older adults on the purchase of transit passes, which are accepted locally and by regional transit providers. Pending funding availability, **the City will expand the program to provide either discounts to other resident groups, such as students, or increase the subsidy in order to lower the barrier to transit ridership.** Given the potential for increased ridership, City-wide VMT could be reduced 1% by 2020.

GHG Reduction Potential

2,848 MT CO₂e

Responsible Party & Implementation Partners

Community Development Department

Performance Indicator

Number of additional transit passes provided

T2. Increase Walking and Biking

Walking or biking instead of driving reduces GHG emissions, increases personal fitness, and adds to the sense of community as more people interact on sidewalks and bike paths. A number of actions can facilitate walking and biking, as identified below. Another action that would benefit the emission reduction strategy is the creation and adoption of a Master Bike Plan; this would provide the City with a clear path to incorporating existing bike paths and identifying where new infrastructure is most needed.

T2.1. Expand Pedestrian Network and Increase Bicycle Parking

In 2004, the City adopted the Pedestrian Linkages Plan to identify how to make bicycling and walking integral modes of transportation in the downtown core. By widening sidewalks, installing street furniture (e.g., benches, bike racks), and making crosswalks safer, the City can encourage residents, employees, and visitors to walk or ride their bikes. Based on direction from the General Plan, the Pedestrian Linkages Plan, and the Economic Development Plan for the downtown area, **the City will focus on implementation of traffic-calming projects and other necessary pedestrian amenities and safety improvements** to enable walking as an attractive travel mode. The City will also prioritize locations for Americans with Disabilities Act (ADA) improvements, including installation of curb ramps, closing sidewalk gaps, and removing sidewalk obstructions. In addition, **the City will identify opportunities to install bicycle parking in public spaces or to modify existing parking requirements for bicycles, with the aim of increasing the supply of bicycle parking.** These actions have the potential to reduce VMT in the City by 1.5% by 2020.

GHG Reduction Potential

4,273 MT CO₂e

Responsible Party & Implementation Partners

City Planning Department

Performance Indicator

Miles of new, widened, or enhanced sidewalk and number of additional bike racks

Type of Action

Require staff time and leadership and necessitate purchasing/installing technology

Potential Funding Sources

State and regional grants (Caltrans Planning Grants), partnerships with organizations

Cost to City

High, one time

Private Cost

Low, one time

Private Savings

Low, recurring

T2.2. Provide End-Of-Trip Facilities

Previous research has indicated that providing end-of-trip facilities such as showers, bike lockers, and/or changing rooms encourages bicycle and pedestrian travel, since this gives non-automotive commuters the opportunity to clean up and change before going to work or school. **The City will work with local employers to facilitate the expansion or provision of these facilities.** As part of the outreach, the City will spotlight the facilities offered to its own employees, which includes bike racks at City Hall, and changing rooms, lockers, and showers for most employees. Research has shown that VMT can be reduced by 2% to 5% through end-of-trip facilities. With 50% of the travel within the City associated with commuting, this action can achieve 1% VMT reduction by 2020.

GHG Reduction Potential

2,848 MT CO₂e

Responsible Party & Implementation Partners

City Planning Department and local businesses

Performance Indicator

Number of local employers with end-of-trip facilities

Type of Action

Require staff time and leadership and necessitate purchasing/installing technology

Potential Funding Sources
State and regional grants (Caltrans Planning Grants), partnerships with organizations
Cost to City
Low, one time
Private Cost
High, one time
Private Savings
Low, recurring

Potential Funding Sources
State and regional grants (Caltrans Planning Grants), partnerships with organizations
Cost to City
Low, recurring
Private Cost
None
Private Savings
Low, recurring

T3. Transportation Demand Management

Transportation demand management (TDM) is a series of strategies that aim to reduce single-occupancy automobile trips. These strategies frequently target commute trips associated with employment within a community. Under this program, private companies with less than 250 employees would be encouraged, but not required, to implement a TDM program for their employees, which can include incentivizing using public transit or implementing a rideshare program. **The City will designate a TDM Coordinator who will promote these programs at local businesses, showcase the current municipal program as an example, and encourage additional TDM at existing and future businesses.** With up to 3% of commute-related VMT reduction possible, this would equate to a 1.5% City-wide reduction in VMT by 2020.

GHG Reduction Potential
4,273 MT CO ₂ e
Responsible Party & Implementation Partners
City Planning Department and San Gabriel Valley of Governments
Performance Indicator
Number of employees participating in TDM program
Type of Action
Require staff time and leadership

WATER CONSERVATION AND WASTE REDUCTION

Less than 5% of the Monterey Park community-wide emissions are related to water use and solid waste; however, water and landfill space require conservation to ensure that future generations have healthy water and disposal areas.

Water-related GHG emissions are primarily caused by energy used to pump, transport, heat, cool, and treat water and wastewater. **In Monterey Park, 95% of the water is locally derived from wells, reducing the energy costs often associated with water transport in Southern California.** This unique resource is one that the City is dedicated to conserving, especially as non-local water supplies in California are expected to decrease.

Waste-related GHG emissions result from product consumption and disposal, and from pre-consumer commercial and industrial processes. Waste disposal creates emissions when organic waste (e.g., food scraps, yard clippings, paper, and wood) is buried in landfills and anaerobic digestion takes place, emitting methane, a potent GHG, as a by-product of the process.

The City has developed two main strategies—conserving water and reducing waste—to help achieve the City’s emissions-reduction goals. Each of these strategies (W1 and W2) is broken down into several actions and quantified measures that show how the City will achieve the targeted GHG emission reductions by 2020.

W1. Conserving Water

The City, in partnership with the San Gabriel Valley Water District, will continue to develop pilot or demonstration projects related to water conservation. The objective of these projects is two-fold: to save water at each location, and to provide teaching examples of technology, materials, and procedures that save water. San Gabriel Valley recently granted the City’s water district \$50,000 to re-irrigate planters in front of City Hall with water-efficient equipment such as low-flow sprinkler heads and nozzles, and weather-based “smart” water controllers. The planters were re-vegetated to include more water-efficient plant species. In addition, the City installed water-efficient equipment that has weather-based “smart” water controllers at Garvey Park. **The City will**

continue to work with the San Gabriel Valley Water District to complete re-irrigation and re-vegetation of medians throughout the City with water-efficient irrigation equipment and native vegetation, and to expand the California native plant palette concept to other City facilities and large, private employers.

The City is currently updating its Urban Water Management Plan (UWMP) to identify management tools and options to maximize water conservation, increase water recycling, and minimize the need to import water from other regions. The UWMP identifies actions that can reduce potable water demand, minimize wastewater generation, and explore viable alternative sources of water. **The City will implement programs and actions in the UWMP with the goal of reducing water consumption by 20% per capita by 2020** (in compliance with SB 7X and the 2010/2011 UWMP).

Most water agencies within the County of Los Angeles provide rebates and incentives for water conservation devices and technologies for commercial properties. **The City will work with MWD to increase participation in these programs and raise awareness of water conservation practices.** By reducing per capita water usage, there is the potential to decrease emissions by 1,073 MT CO₂e by 2020.

GHG Reduction Potential

1,073 MT CO₂e

Responsible Party & Implementation Partners

City Water Division and MWD

Performance Indicator

Percent reduction in urban water demand (below 2005 baseline)

Type of Action

Require staff time and leadership and necessitate purchasing/ installing technology

Potential Funding Sources

Partnerships with organizations, City funds

Cost to City

None

Private Cost

Medium, one time

Private Savings

Low, Recurring

Type of Action

Require creating additional programs

Potential Funding Sources

Partnerships with organizations, City funds

Cost to City

Very low, recurring

Private Cost

None

Private Savings

Very low, recurring

W2. Reducing Waste

Personal choices regarding products, packaging, and consumption determine contributions to the community waste stream. Lowering overall consumption and buying more sustainable, recyclable, and/or durable products with minimal packaging can reduce both waste generation and GHG emissions. The City contracts with Athens Services for all of its waste removal services. Before taking the City's waste to a landfill for final disposal, the City requires Athens to process the waste through a sorting center called a Materials Recovery Facility (MRF) for the removal of recyclables. This program allows the City to meet the 50% landfill diversion mandate required by state law while providing a service to residents and businesses.

In addition to the MRF program, the City has additional waste diversion and recycling programs, ranging from backyard composting/smart gardening workshops to participation in county-wide Household Hazardous Waste collection events. **The City will conduct a variety of outreach programs to increase participation in waste reduction, recycling, and composting programs.** Because this policy has already been adopted and incorporated into the City's standard operating procedure, any GHG emission reductions are not able to be claimed in the CAP. However, because of the potential for GHG emission reductions, this measure is included as a supporting measure.

GHG Reduction Potential

Not quantified, as 50% target is already a City policy

Responsible Party & Implementation Partners

City Department of Public Works, Engineering Division

Performance Indicator

Percent reduction in solid waste sent to landfill

2035 Reductions

Monterey Park acknowledges EO S-03-05, which sets a GHG emission reduction goal of 80% below 1990 levels by 2050. While this is not a binding mandate, the City is committed to creating a healthy, energy-efficient, and sustainable future for its residents, businesses, and visitors. Because of that, the City underwent a feasibility analysis to determine the amount of emissions reductions that would be achievable with existing state regulations, technology, and aggressive local goals. To be on track to meet the state’s 2050 goal, at the City level, the City determined that emissions reductions of 49% below 2009 levels would be necessary in 2035. Assuming aggressive, but feasible, goals, the City may achieve 162,983 MT CO₂e of emissions reductions in 2035; this would represent an annual reduction of 22% by 2035 (Figure 4.4). Table 4.4 shows the actions, assumptions, and reduction potential by action.

Meeting GHG reduction goals beyond 2020 will require even greater participation in existing measures, inclusion of additional measures, guidance from state and federal authorities, additional state and federal regulations, improved technology, and infrastructure changes. As described in Plan Evaluation and Evolution (on page 45), the CAP will be revisited periodically to reflect any changes in emissions projections or reduction potential, and the City will leverage additional or new resources and incentives to further work toward this ambitious target. Monitoring the progress of the CAP will be essential to understand which actions are being fulfilled and which are not. A full GHG emissions inventory will be necessary to assess City-wide progress, but progress indicators may be monitored yearly to track the success of specific actions. The following chapter, Implementation and Monitoring, discusses this next step in the process of reducing GHG emissions.

Figure 4.4 // GHG Emissions—Business-As-Usual (BAU) and Goals for 2035

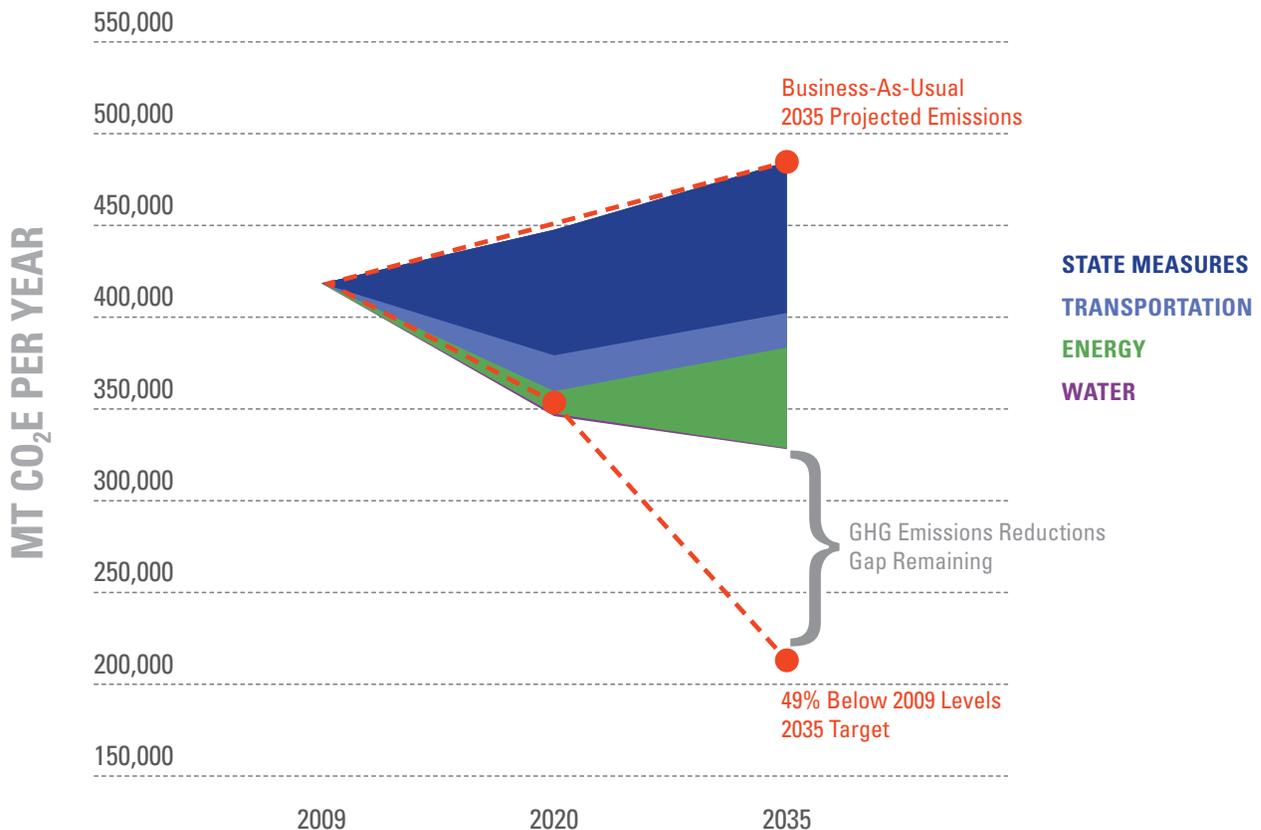


Table 4.4 // 2035 Greenhouse Gas Reduction Measures and Assumptions

Category and Measure Number	Measure	2035 Reductions MT CO ₂ e/Year	Assumptions		
			Participation Rate	Reduction Potential	
Energy	E1	Efficiency Requirements for New Development	1,165	100%	15%
	E2	Building Retrofits	29,486	85% of pre-2002 residential units and 80% of pre-2002 commercial units	10%
	E3	Appliance Upgrade	7,910	100% of new residential units and 85% of pre-2002 units	15%
	E4	Smart Meters	1,892	50% of existing units	5% for existing units and 6% for new units
	R1	Solar Water Heating (Residential and Commercial)	5,657	25% of existing residential and 52% of existing commercial units	70% in residential units and 57% in commercial units
	R2	Alternative Energy Systems (Residential and Commercial)	6,409		10% of residential electricity from renewables and install 1,000,000 square feet on commercial property
Land Use	LU1	Mixed-Use Development	1,563	0.5% VMT reduction	
	LU2	Service Nodes	1,563	0.5% VMT reduction	
Transportation	T1	Increase Transit Use	6,253	2% VMT reduction	
	T2	Increase Walking and Biking	7,816	2.5% VMT reduction	
	T3	Transportation Demand Management (TDM)	4,690	1.5% VMT reduction	
Water	W1	Conserving Water	345	Use assumptions from 2020	
Total City Action*			74,749		
State and Federal	SF1	Pavley I – Passenger Auto and Light Truck Fuel Efficiency	60,110	Regulatory	
	SF2	Low Carbon Fuel Standard (Gasoline and Diesel)	15,920	Regulatory	
	SF3	Renewable Portfolio Standard (33% Renewable by 2020)	9,078	Regulatory	
Total State and Federal Action*			85,108		
Total Reductions* (City, State, and Federal Actions)			159,857		
Percent Reduction Below 2009 Baseline			22%		

*Measures may not add to total due to independent rounding.

PAGE INTENTIONALLY LEFT BLANK

**WELCOME
DOWNTOWN
MONTEREY PARK**

C&K Fashion
SALES



The CAP is a planning document and does not itself create any GHG reductions. Rather, it provides a guide for the City to use in future projects and policies. An important component in ensuring the goals of the CAP is to monitor progress of the measures outlined in this document. Each strategy described in the CAP has specific performance indicators, including assumptions about participation rates and efficiencies, which allow staff to monitor implementation progress and evaluate if any changes will need to be made.

Through a combination of programming, partnerships, and investments, City staff will implement the CAP. Timing for implementation of these programs will vary based on funding availability. Through public outreach and education, the City will increase participation rates in regional and state-wide programs. In addition, the CAP will be used to streamline environmental analysis under the California Environmental Quality Act (CEQA).

The City recognizes that reducing GHG emissions is a critical challenge requiring global efforts. The City will use the CAP to implement the measures described through the following:

- **Measure Implementation and Monitoring:** City staff will implement CAP measures and their related actions, and track progress indicators and other guidance.
- **Plan Evaluation and Evolution:** The CAP will be evaluated, updated, and amended over time to ensure that it remains effective and current.
- **Relationship to CEQA:** The relationship between the CAP and CEQA will be evaluated for projects, and criteria will be established for City staff to use when determining if a proposed project is consistent with the CAP.

Measure Implementation and Monitoring

Ensuring that the measures translate from policy language into on-the-ground results is critical to success of the CAP. To facilitate this, Chapter 4 contains measures with specific actions that the City will carry out. The individual measure tables also identify responsible departments for each action, and provide progress indicators that enable City staff, City Council, and the public to track measure implementation and monitor overall CAP progress. Short-range progress indicators are especially important, as they provide the opportunity to check how measures are performing mid-course, so City leaders know if and where any changes need to be made.

As part of implementation reporting, the City will create annual progress reports of performance indicators and conduct regular GHG emissions inventories to demonstrate progress toward the GHG reduction goals. To assist the Climate Leader/Committee in providing the annual progress reports, a monitoring tool was created to assess key components of the CAP. This tool will provide a “dashboard” view of all progress being made on all emission-reduction strategies, plus tabular and graphic outputs for use in reports and grant applications. Having an annual monitoring tool is useful because it provides the City with a quick and low-cost method to track progress of specific strategies and actions, guide decisions about funding and implementing future projects, and measure progress toward the overall City GHG emission goals in years without full inventories. This will help keep the City focused on the goal and make the best use of resources to do so.

Upon adoption of the CAP, the City departments identified in Chapter 4 will become responsible for implementing assigned actions. Key staff in each department will facilitate and oversee action implementation. They will also keep track of performance metrics and report them back to the Climate Leader/Committee. To assess the status of City efforts, CAP implementation meetings will occur every 3 to 6 months. Some actions will require inter-departmental or inter-agency cooperation, and appropriate partnerships will need to be established.



Funding Strategy

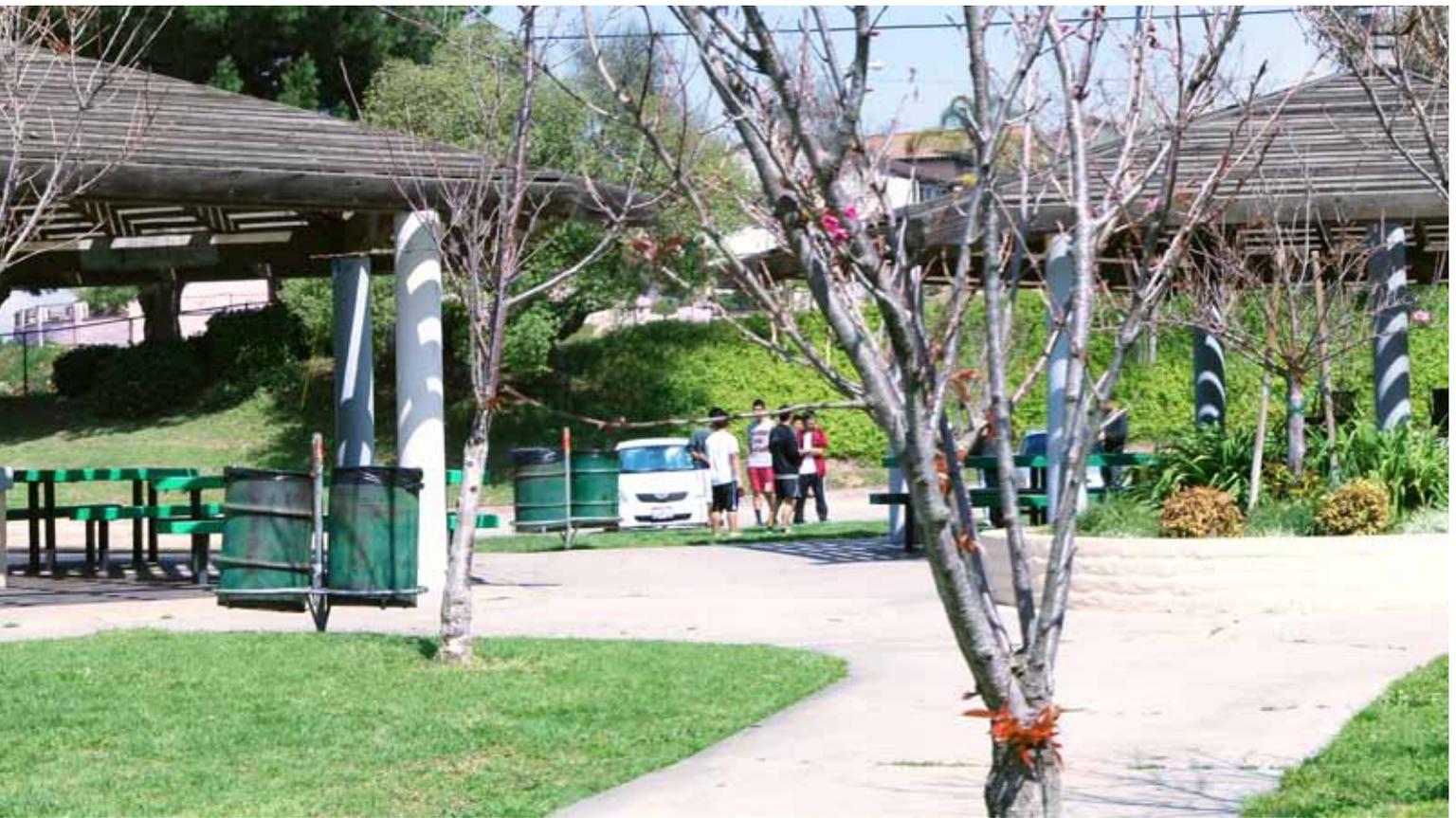
The CAP will require funding from the City, regional government agencies, and the state and federal government for capital projects, incentives, outreach/education, and new regulations. To decrease costs and improve the CAP's efficiency, actions should be pursued concurrently whenever possible. For example, the City should pursue land use and transportation-related actions together during the zoning code amendments or the development of specific plans. The City could also look to address water- and waste-related measures with the related utilities and agencies. Inter-agency collaboration will be paramount to the success of the CAP.

Where available, potential funding sources have been identified in the measure information tables. This includes federal, state, and regional grants that are available to assist with funding. Another source of funding is a local government partnership with the investor-owned utility, SCE. Through this partnership, the City can fund many of the energy-related emission-reduction measures. While more limited, private funding and partnerships are also available. A specific example of this is Power Purchase Agreements to install solar panels. Additionally, Monterey Park will partner with nearby cities and jurisdictions to administer joint programs, when feasible. The Los Angeles Regional

Climate Action and Sustainability Project (LARC 2011), currently underway, identified partnering with private organizations as a key funding strategy for CAP's in the region and has the potential to identify more regional resources for funding with the completion of the regional CAP. Finally, many of the measures and actions have the potential to be self-financing, if properly designed and implemented. It is also important to note that the spectrum of public and private funding options for the measures outlined in this CAP is ever-evolving, and while the viable funding options included in this CAP are current, they could eventually become out of date as political or economic realities change. This can mean that funding sources listed in this CAP might disappear or be diminished in the future, but it can also mean that new funding sources are created that are not included in this CAP. For example, if national or state legislation is enacted that cleared the way for Property Assessed Clean Energy (PACE) funding, that would be a viable finance tool to fund emission-reductions measures; however, because of the political uncertainty around this, it was not included in this CAP.

Plan Evaluation and Evolution

The CAP represents the City's best attempt to create an organized, community-wide response to the threat of climate change at the time of preparation. City staff



will need to evaluate the CAP's performance over time and be ready to alter or amend it if it is not achieving the reduction goals.

As a working document, this CAP is meant to provide a platform for the City to build strategies to meet its emissions-reductions targets. To achieve the City target, the CAP needs to be regularly updated over time with input from City staff, and regular emissions inventories need to be performed to verify the impact of mitigation measures. Key variables in the projected scenarios, such as growth and mitigation potential, will change with City growth and development, zoning changes, technological advances, and state and local mandates.

Plan Evaluation

Two types of performance evaluations are needed: evaluation of the CAP as a whole and evaluation of the individual component measures. Community-wide GHG emission inventories will provide the best indication of CAP effectiveness for the City as a whole, although it will be important to reconcile actual growth in the City versus the growth projected when the CAP was developed. Conducting these inventories will enable direct comparison to the 2009 baseline inventory and will demonstrate the CAP's ability to achieve the adopted reduction targets. The City will coordinate regular community-wide

inventories to assess the level of GHG-reduction goal attainment.

While community-wide inventories provide information about overall GHG reductions, it is also important to understand the effectiveness of each measure. Using the monitoring tool to evaluate the emissions-reduction capacity of individual measures will improve the ability of staff and decision makers to manage and implement the CAP. The City can promote successful measures and reevaluate or replace under-performing ones. Evaluating measure performance will require data on actual community participation rates and measurement of GHG reduction capacity.

The Community Development Department staff will create a more formal evaluation report of the measure and incorporate it into the community-wide inventory. This update will summarize the progress toward meeting the GHG reduction goals, and describe the following:

- Estimated annual GHG reductions in 2020
- Achievement of progress indicators
- Implementation costs
- Participation rates (where applicable)

- Remaining barriers to implementation
- Cost savings and payback (when feasible)
- Community co-benefits

Plan Evolution

The field of climate change science and climate mitigation is rapidly developing, and it is likely that, before the City's first reduction target year (2020), new information about climate change and risk will emerge, new innovative GHG-reduction technologies and strategies will be developed, new financing options will be created, and state and federal legislation will change. This influx of new information and technology, in conjunction with the results of community-wide and project-specific monitoring, is likely to require the CAP to evolve to most effectively meet the City's GHG-reduction goal. These changes can range from minor revisions of measures to more drastic actions such as removing unworkable or ineffective measures or adding new measures based on recent developments. To ensure an effective and efficient CAP, the City must be prepared to adapt and evolve the CAP over time.

California Environmental Quality Act

Environmental Review of the CAP

CEQA requires the City to identify the significant environmental impacts of its discretionary actions and to avoid or mitigate those impacts.

The overall purpose of the CAP is to reduce the impact that the community will have on global climate change and, therefore, reduce impacts on the environment. However, as with any proposal involving activities relating to development, implementation of the CAP could potentially result in adverse impacts on the physical environment. Therefore, an environmental review document was prepared by the City pursuant to CEQA to evaluate whether there are any potential adverse environmental impacts of implementing certain reduction measures under the CAP. Completing an environmental

review and adopting the CAP will allow future projects in the City to streamline their GHG analysis.

CEQA for Future Projects

CEQA Guidelines Section 15183.5 allows jurisdictions to analyze and mitigate the significant effects of GHGs at a programmatic level by adopting a plan for the reduction of GHG emissions. The CAP was developed to serve as the City's qualified GHG-reduction plan and programmatic tiering document for the purposes of CEQA for analysis of impacts of GHG emissions and climate change. The City determined that the reduction target under the CAP will result in GHG emissions from activities covered by the CAP that are less than cumulatively considerable under CEQA. The substantial evidence to support this determination is set forth in the CAP, documents referenced in the CAP, and other parts of the record relating to the adoption of the CAP. Because the CAP will undergo CEQA environmental review and be publicly adopted by City Council, and because it is intended to reduce GHG emissions and climate change impacts in the City to a less-than-cumulatively-considerable level, it may be relied upon to address the cumulative impacts for future projects that are consistent with the CAP. Later, as individual projects are proposed, project specific environmental documents may tier from and/or incorporate by reference that programmatic review in their cumulative impacts analysis.

Public Participation

Many of the GHG-reduction measures rely on City actions to spur further actions from community members. Because of this, the residents and businesses of Monterey Park are key partners in the successful implementation of the CAP. During the process of developing the CAP, City staff and consultants created an informal public participation plan that identifies methods to inform community members and stakeholders about the need and purpose of the CAP and to build support for CAP adoption and long-term implementation. The public participation plan details options for a multi-faceted approach to publicity, stakeholder involvement, and programming options.

City residents played an important role in the formulation of this Climate Action Plan and are vital to its success. The City provided multiple resources for community input, including an online meeting; a community workshop; and resources on the web for viewing presentations, the Draft CAP, and providing comments. The input received from the community helped to shape the final draft CAP, making it all the more meaningful to its citizens. As new programs and resources become available, the City will continue outreach efforts to engage the community in the implementation of the CAP programs.





This CAP represents the City's commitment to addressing climate change by reducing GHG emissions within Monterey Park.

Through implementation of the CAP, the City and community members will be doing their part to mitigate climate change. The City will also benefit directly from GHG emission-reduction measures, with outcomes such as increased public health and economic development. Public health benefits include reduced pollution of air and water, and reduced potential disruptions to the climate system, which protects people from extreme weather events.

The impacts of global climate change are a critical consideration because they will challenge the City's ability to ensure and enhance community and economic health. Strategies developed to mitigate and be prepared for climate change can bring benefits to the City, its residents, and businesses, as follows:

- **Decreasing costs for energy consumers:** Investing in renewable energy and energy-efficient products and processes can assist individuals, households, and businesses by reducing energy demand and providing long-term savings for operation and maintenance budgets. In Monterey Park, this means that residents and businesses can save money on energy by becoming more efficient and by producing their own energy from renewable sources.
- **Stimulating economic development:** Investing in local infrastructure and buildings stimulates the local economy by providing new opportunities for skilled and trade laborers and other professional service providers. In addition, these new opportunities spur the development of innovative skills, services, and products by local firms that can then be used in other communities that are investing in green infrastructure and building practices. There are also more traditional economic sectors that will see a boost from implementation of emission-reduction measures, such as retailers that sell Energy Star appliances or local transit providers who will benefit from increased ridership.
- **Improving public health by improving air quality:** GHGs have been declared pollutants by the U.S. EPA. Through GHG emission reduction, emissions of other air pollutants may also decrease, such as reducing exhaust from tailpipes, which is a significant concern to Monterey Park because it is surrounded by three freeways. These other air pollutants, such as carbon monoxide, sulfur dioxide, and particulate matter, are often associated with negative health impacts, such as infant mortality, developmental delays, asthma, and other respiratory illnesses.
- **Increasing energy security and independence:** Measures that reduce emissions of GHGs also decrease demand for imported energy from unstable sources, and especially target carbon-intensive fuels such as oil. These measures include smart development, alternative transportation, and efficient building design and construction practices. By reducing the need for carbon-intensive fuels, residents of Monterey Park will be less subject to volatile price changes.
- **Creating more resilient natural systems:** Strengthening natural systems can decrease the severity and frequency of events such as flooding, wildfires, and extremely hot conditions. Because GHGs generated in Monterey Park affect ecosystems regionally and globally, the City can positively impact natural systems that will benefit the entire Los Angeles region, such as improving water and air quality.



Creating a Sustainable Future through Individual Action

City actions alone cannot achieve Monterey Parks’ emission-reduction target. Community involvement will be critical to successful implementation of the CAP. Although the government of Monterey Park is taking action to address climate change, community action is critical to achieving emissions-reduction goals that support physical well-being and economic vitality. By building on the framework set out in this CAP, the citizens of Monterey Park have the tools they need to build a sustainable and healthy community.

Individuals are part of the solution if they decide to walk, bike, or take public transit as an alternative to driving; buy energy-efficient appliances; insulate their homes; or replace incandescent light bulbs with compact fluorescent light (CFL) or light-emitting diode (LED) lights.

Each action taken by an individual resident, business owner, or employee can have a positive cumulative impact and will help the City meet its GHG reduction target. Affecting a large-scale change can seem daunting, but breaking it down into a three-step process (Figure 6.1) illustrates how many smaller actions can create larger positive change.

Figure 6.1 // Three Steps to Climate Action



REFERENCES



- Asian Week. 1996. The Chinese Beverly Hills. Available at <http://asianweek.com/052496/LittleTaipei.html>. Accessed August 2011.
- California Air Resources Board (ARB). 2010. Available at <http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm>.
- California Energy Commission (CEC). 2009. Chapter 2.1, The Future is Now: An Update on Climate Change Science Impacts and Response Options for California. Public Interest Energy Research Program, California Energy Commission. May 2009.
- California Energy Commission (CEC). 2011. Available at www.energy.ca.gov/ab758/documents/CAEnergyEfficiencyStrategicPlan_Jan2011.pdf.
- Environmental Protection Agency (EPA). 2009. Available at http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html.
- International Panel on Climate Change (IPCC). 1996. Climate Change: The Physical Science Basis. Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning [eds.]).
- International Panel on Climate Change (IPCC). 2006. IPCC 2006: Guidelines for National Greenhouse Gas Inventories Volume 5, Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol5.html>.
- International Panel on Climate Change (IPCC). 2007. IPCC 2007: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning [eds.]).
- Los Angeles Regional Collaborative for Climate Action and Sustainability (LARC). 2012. Available at <http://www.environment.ucla.edu/larc/programs/>.
- Morello-Frosch, R., M. Pastor, J. Sadd, and S. Shonkoff. 2010. The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap. Available at http://dornsife.usc.edu/pere/documents/The_Climate_Gap_Full_Report_FINAL.pdf.
- Southern California Association of Governments (SCAG). 2011. Profile of the City of Monterey Park. Available at <http://www.scag.ca.gov/resources/profiles.htm>. Accessed August 2011.
- U.S. Environmental Protection Agency Waste Reduction Model (WARM). 2010. Available at http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html.
- World Meteorological Organization (WMO). 2011. 2010 Equals Record for World's Warmest Year. Press Release No. 906, Available at http://www.wmo.int/pages/mediacentre/press_releases/pr_906_en.html. Accessed August 2011.



EMISSIONS INVENTORY METHODOLOGY



AECOM developed a greenhouse gas (GHG) emissions inventory (inventory) for community and municipal GHG emission sources for the 2009 baseline year for the City of Monterey Park (City).

Baseline Year

Reporting GHG inventories on a calendar year basis is considered standard internationally; the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, the European Union Emission Trading System (EU ETS), the Climate Registry, the California Climate Action Registry (CCAR), and the state's mandatory reporting regulation under Assembly Bill (AB) 32 all require GHG inventories to be tracked and reported on a calendar-year basis. Community and municipal inventories for the City were prepared for the year 2009.

Inventory Approach

The municipal inventory for Monterey Park was prepared using the Local Government Operations Protocol (LGOP), which was developed by the California Air Resources Board (ARB), CCAR, and the International Council for Local Environmental Initiatives – Local Governments for Sustainability (ICLEI) in collaboration with the Climate Registry (ARB 2010). The LGOP is designed to provide a standardized set of guidelines to assist local governments in quantifying and reporting GHG emissions associated with government operations. The LGOP strongly encourages local governments to use “operational control” when defining their organizational boundary. The LGOP states that operational control most accurately represents the emission sources that local governments can influence. Operational control is also the consolidation approach required under AB 32's mandatory reporting program, and is consistent with the requirements of many other types of environmental and air quality reporting. This inventory was prepared using the operational control approach.

Currently, there is no standard community emissions protocol; however, many documents have been developed to guide creation of community inventories. Specific sources and methodologies are outlined in each of the sectors discussed below. The boundary for defining community emissions is generally the physical

geographic boundary of the community. The community inventory, then, includes governmental, residential, industrial, and commercial activities. While the geographic definition of a community's boundary works well for stationary sources, mobile-source emissions are more challenging, and the methodology used for mobile-source emissions is detailed below.

Methodology

City staff and AECOM collected data from various sources, including City departments, public utilities, and private entities, that provide services within the community. Data collection activities were specific to City/municipal operations (e.g., building energy uses, vehicle fuel usage and mileage) and community-wide activities (e.g., total tons of solid waste collected) that occurred in 2009.

AECOM used emissions factors recommended by the CCAR and the Intergovernmental Panel on Climate Change (IPCC) to estimate carbon dioxide equivalent (CO₂e) emissions for municipal operations and community-wide activities. Emission factors are continually being refined and improved to reflect better measurement technology and research.

Energy Consumption Electricity and Natural Gas

The energy consumption sector includes the use of electricity and natural gas (subsectors) in residential, commercial, and industrial land uses within the legal boundaries of the City. Although emissions associated with electricity production are likely to occur in a different jurisdiction, consumers are considered accountable for the generation of those emissions. Electricity-related GHG emissions are considered indirect emissions. Indirect emissions are those that are generated as a result of activities occurring within the jurisdiction, but occur in different geographic areas. For example, a resident may consume electricity within the City, but the electricity may be generated in a different region. Direct emissions occur from activities that directly generate the emissions (e.g., natural gas combustion for heating or cooling).

Southern California Edison (SCE) provided electricity consumption data in kilowatt-hours per year (kWh/yr) and Southern California Gas Company provided natural gas consumption data in therms per year (therms/yr). These two entities provide all electricity and natural gas to Monterey Park.

Electricity-related GHG emissions were quantified using an SCE-specific emissions factor for carbon dioxide (CO₂) emissions from the Climate Registry for 2007, and emission factors for methane (CH₄) and nitrous oxide (N₂O) were obtained from the CCAR protocol, which provided a state-wide average. Emissions factors for CO₂, CH₄, and N₂O for natural gas were obtained from the CCAR protocol.

Transportation

The transportation sector includes the operation of on-road vehicles. Emissions from mobile combustion can be estimated based on vehicle fuel use and miles traveled data. CO₂ emissions, which account for the majority of emissions from mobile sources, are directly related to the quantity of fuel combusted and, thus, can be calculated using fuel consumption data. CH₄ and N₂O emissions depend more on the emissions-control technologies employed in the vehicle and the distance traveled. Calculating emissions of CH₄ and N₂O requires data on vehicle characteristics (which takes into account emissions-control technologies) and vehicle miles traveled (VMT).

Community-wide VMT and City employee commute data were provided by the traffic consultant Fehr & Peers. Details on the methodology used can be found in the Fehr & Peers memorandum, Southern California Association of Governments (SCAG) Travel Model Data for Monterey Park & VMT Forecasts/Estimates (Updated), dated March 1, 2011. The City provided total fuel consumption for the year 2009 and VMT data for the City vehicle fleet for fiscal year 2008/2009.

Emissions factors for the transportation sector were obtained using ARB's vehicle emissions model, EMFAC2007. EMFAC2007 is a mobile-source emissions model for California that provides vehicle emissions

factors by county and vehicle class. For the emissions inventory, Los Angeles County emissions factors were used. Pursuant to U.S. Environmental Protection Agency (EPA) guidance, CO₂e emissions were calculated by dividing CO₂ emissions by 0.95, which accounts for other GHGs such as N₂O, CH₄, and other high global warming potential (GWP) gases.

Solid Waste

The solid waste sector includes emissions associated with collecting, processing, and disposing of solid waste. Fugitive CH₄ emissions are released from solid waste facilities such as landfills that accept organic waste. Emissions generated from solid waste disposal is primarily CO₂, which occurs under aerobic conditions, and CH₄, which is generated under anaerobic conditions.

Community- and government-generated solid waste data were provided by the City. City and community waste is handled by several operators—Athens Services, Peck Road, and Nu Way—that recycle, recover, or dispose of the waste. Puente Hills is the primary landfill for waste disposal. The City currently owns three closed landfills: Cogen, Ramona, and Security. The landfills closed operation prior to stringent reporting requirements, and, therefore, data was available for estimating emissions only from Cogen Landfill. However, emissions from decay from closed landfills occurs exponentially over time, and, due to the closure dates (pre-1960 for all landfills) and acreage (30 acres or fewer), it is unlikely that emissions are significant from these sources. Within the City boundaries, there is an EPA Superfund landfill site, OII (Operating Industries, Inc.), and emissions data from this site were provided by Corey Bertelsen of New Cure.

GHG emissions associated with solid waste collected from the community and government services were estimated using EPA's Waste Reduction Model (WARM 2009) and waste stream information obtained from CalRecycle.ca.gov. Emissions from Cogen and OII Landfills were estimated using the IPCC protocol, which estimates the emissions based on the amount of landfill gas collected (as in the case of OII) or the annual refuse acceptance rate (for Cogen).

Wastewater

The wastewater sector includes emissions from wastewater treatment processes such as wastewater collection, septic system management, primary and secondary treatment, solids handling, and effluent discharge.

Wastewater treatment processes can encompass different sources of GHG emissions. The primary GHG emissions from wastewater treatment facilities are CH₄ and N₂O created by septic systems and centralized wastewater treatment operations.

City wastewater is treated by the Joint Water Pollution Control Plant (JWPCP) of the Los Angeles County Sanitation Districts. Data were provided by the Los Angeles County Sanitation Districts for 2009. JWPCP does not directly monitor wastewater generated by the City; therefore, the amount of wastewater attributable to the City was estimated using average flow summaries, industrial waste permit flow data, and population estimates. GHG emissions associated with wastewater treatment were calculated using the IPCC methodology for centralized, aerobic wastewater treatment plants (IPCC 2006).

Water Consumption

The water sector includes emissions from energy associated with water treatment, distribution, and conveyance of water to the City. Water for the City is provided by four sources. The City's water department supplies 95% of the water to the community and is derived from local (well) sources. Data were provided for 2009 by the City. San Gabriel Water Company (SGWC) supplies approximately 1.4% of the City's water, and water consumption data for 2009 were provided by SGWC. The other two suppliers of the City's water, California Water Company and Golden State Water, were unable to provide water consumption data; therefore, the remaining 3.4% of the City's water consumption was estimated.

The California Energy Commission (CEC) published water-energy intensity studies that estimate the energy required for conveyance, treatment, and distribution of water. Many communities of Southern California import their water from remote locations via the Colorado River and Northern California pipelines. The conveyance

and distribution of water from these remote locations involves high electricity demand. Although 5% of the City's water is derived from non-well sources, the local source of water from the City's water department does not require long-distance conveyance, which makes the energy demand lower.

In addition, all water provided by the water districts is treated to be potable, but water used by consumers in outdoor activities, such as landscape irrigation, is not subject to wastewater treatment; therefore, energy demand associated with wastewater treatment is not included in outdoor water consumption estimates.

Other Sources

"Other sources" includes emissions associated with construction, light commercial, industrial, lawn and gardening, and off-road vehicles. Data for community activities were estimated using OFFROAD2007, which provides county-level emissions for off-road equipment. The City provided gasoline and diesel consumption data for 2009.

ARB's OFFROAD2007 model was used to quantify GHG emissions associated with community sources. OFFROAD2007 is an off-road mobile-source emissions model for California that provides emissions by county for equipment such as construction, light commercial, industrial, lawn and garden, and recreational vehicles. Indicators specific to the City were used to allocate county-wide emissions. Statistics from the U.S. Census Bureau and U.S. Department of Housing and Urban Development on households, retail jobs, and manufacturing jobs for construction, lawn and garden, light commercial, and industrial off-road equipment allocation were used. GHG emissions associated with the City's sources were estimated using CO₂ emissions factors for gasoline and diesel from EMFAC2007, and adjusted to reflect emissions due to CH₄ and N₂O, similar to the methodology described for transportation.

MONTEREY PARK GREENHOUSE GAS REDUCTIONS



This appendix summarizes the assumptions and parameters used to calculate the greenhouse gas (GHG) emission reduction performance of recommended Climate Action Plan (CAP) measures for which a quantified reduction has been calculated. Emissions-reduction measures are discussed and organized by the emissions sectors that they would affect. Supporting measures that do not have an associated quantification calculation are not included in this section. For all measures, quantification is expressed as metric tons of carbon dioxide equivalent (MT CO₂e) emissions avoided per year, by 2020. Values are rounded to the nearest 10 metric tons. See Table 8.1 for a summary of all measures.

Table B.1 // Summary Table of Greenhouse Gas Reduction Measures

Category and Measure Number		Measure	2020 Reductions in MT CO ₂ e/Year	Scaled Measure Performance (% Reduction in GHG Emissions)
Energy	E1	Efficiency Requirements for New Development	811	0.8%
	E2	Building Retrofits	3,590	3.6%
	E3	Appliance Upgrade	1,846	1.8%
	E4	Smart Meters	413	0.4%
	R1	Solar Water Heating (Residential and Commercial)	1,997	2.0%
	R2	Alternative Energy Systems (Residential and Commercial)	2,493	2.5%
Land Use	LU1	Mixed-Use Development	1,424	1.4%
	LU2	Service Nodes	1,424	1.4%
Transportation	T1	Increase Transit Use	5,696	5.7%
	T2	Increase Walking and Biking	7,121	7.1%
	T3	Transportation Demand Management (TDM)	4,273	4.3%
Water	W1	Conserving Water	1,073	1.1%
Total City Action*			32,160	32.1%
State and Federal	SF1	Pavley I – Passenger Auto and Light Truck Fuel Efficiency	33,931	33.9%
	SF2	Low Carbon Fuel Standard (Gasoline and Diesel)	17,616	17.6%
	SF3	Renewable Portfolio Standard (33% Renewable by 2020)	16,410	16.4%
Total State and Federal Action*			67,957	67.9%
Total Reductions* (City, State, and Federal Actions)			100,118	100%
Percent Reduction Below 2009 Baseline			17%	

*Measures may not add to total due to independent rounding.

ENERGY

E1. Efficiency Requirements for New Development

Adopt energy efficiency standards that are 15% higher than 2008 Title 24 standards.

This measure focuses on the energy efficiency of new development and re-development that will occur in Monterey Park. Using SCAG growth forecasts for Monterey Park, it was assumed that there would be 2,600 new units built by 2020. By requiring developers and builders to exceed the state Title 24 mandate for energy efficiency by 15%, the City will reduce the annual energy consumption of those buildings for their operational life. Because this measure is a planned to be codified, it is assumed that the participation rate will be 100%.

Participation Rate

100%

Efficiency

15% above Title 24 standards

GHG Reduction (MT CO₂e/year)

Residential: 574

Commercial: 237

Scaled Measure Performance (% reduction in GHG emissions)

Residential: 0.6%

Commercial: 0.2%

Source

AECOM

E2. Building Retrofits

Perform energy efficiency retrofits in 10% of existing residential and commercial buildings.

Because of the age of the building stock in the City of Monterey Park (City) and the significant energy savings potential of increasing the efficiency of older homes and commercial buildings, only buildings built before 2002 were included in the GHG reduction calculations. City-specific building information for residential housing vintage was

obtained from the U.S. Census Bureau; commercial building information was obtained from the Southern California Association of Governments (SCAG). This data showed that of pre-2002 residential buildings in the City, 84% were built before 1978, 13% were built between 1978 and 1992, and the remaining 3% were built between 1992 and 2002. There was no building year data for commercial buildings, so they were assumed to align with the age of residential buildings. To quantify energy savings from improving the energy efficiency of existing buildings, it was assumed that 10% of residential and commercial buildings will undergo a basic energy efficiency improvement, which includes insulation, duct sealing, and air conditioning refrigerant recharge. The specific energy savings of each project will change for each home based on the age, type, and condition of the building.

Participation Rate (pre-2002 buildings)

Residential: 10%

Commercial: 10%

Efficiency

Savings vary per residential type and building vintage

GHG Reduction (MT CO₂e/year)

Residential: 1,528

Commercial: 370

Scaled Measure Performance (% reduction in GHG emissions)

Residential: 1.5%

Commercial: 0.4%

Sources

Database for Energy Efficient Resources (DEER). 2005. ITRON. Available at http://www.deeresources.com/index.php?option=com_content&view=category&layout=blog&id=36&Itemid=53.

E2. Building Retrofits (Commercial Lighting)

Improve efficiency of lighting in commercial buildings by 10%.

This measure assumes that 10% of commercial units built before 2002 will increase the energy efficiency of their lighting by 10%.

Participation Rate

10%

Efficiency

10%

GHG Reduction (MT CO₂e/year)

1,692

Scaled Measure Performance (% reduction in GHG emissions)

1.7%

E3. Appliance Upgrade

Replace existing appliances with Energy Star qualified appliances in 10% of existing homes and 95% of new homes.

This measure assumes that 10% of homeowners will replace older appliances such as refrigerators, dishwashers, clothes washers/dryers, and light bulbs with newer energy-efficient models. It assumes that by 2020 each house will replace 40 incandescent light bulbs with 40 compact florescent light (CFL) bulbs and one of all other appliance types with a newer energy-efficient model. Combined, these improvements will save 2,420 kilowatt hours (kWh) annually.

Because of the large portion of new appliances that meet Energy Star requirements, and that they make up a large market share of new appliances bought, combined with the City's increased energy efficiency requirements for new construction, it is assumed that 60% to 95% of new buildings will install energy-efficient appliances. The growth forecast provided by SCAG of 2,600 new units by 2020 was used for the GHG reductions from this measure.

Participation Rate

Existing homes: 10%

New homes: 95%

Efficiency – Average energy savings of new appliances

Refrigerator: 120 kWh

Dishwasher: 480 kWh

Clothes washer: 540 kWh

Light bulbs: 1,280 kWh

GHG Reduction (MT CO₂e/year)

Existing: 1,050

New: 796

Scaled Measure Performance (percent reduction in GHG emissions)

Existing: 1%

New: 0.8%

Source

CAPCOA. 2010. Report, Quantifying Greenhouse Gas Mitigation, August.

E4. Smart Grid

Help City residents conserve energy by using the enhanced features of their new Smart Meters.

While all residential units in Monterey Park will have Smart Meters installed, this measure assumed that with more detailed and relevant information about their electrical consumption, 10% of existing residential and commercial energy users will use the enhanced online features provided by their Smart Meters to reduce their electricity consumption by 5%. And, 25% of new residential and commercial energy users will be able to further integrate this new technology into their homes and businesses and reduce their electricity consumption by 6%.

Participation Rate

Existing buildings: 10%

New buildings: 25%

Efficiency (percent of reductions in electrical usage)

Existing buildings: 5%

New buildings: 6%

GHG Reduction (MT CO₂e/year)

Existing buildings: 355

New buildings: 58

Scaled Measure Performance (percent reduction in GHG emissions)

Existing buildings: 0.4%
New buildings: 0.1%

Source

Baer, Walter S., Brent Fulton, and Sergej Mahnovski. 2004. Estimating the Benefits of the GridWise Initiative, Phase I Report. TR-160-PNNL, May. Prepared for the Pacific Northwest National Laboratory, p. 25.

R1. Solar Water Heating (Residential and Commercial)

Install solar hot water heating systems on 10% of residential units and 5% commercial units

This measure assumes that 5% of commercial water heaters will be converted to solar water heaters. Looking at the commercial sector in more detail, this translates to 60% of colleges/schools and 10% of retail, office, and all other commercial users converting to solar hot water heating. To quantify GHG reductions from this measure, it was assumed that by using solar hot water heating, commercial users could reduce their energy consumption for heating water by 57%. For the residential sector, it was assumed that 10% of users would convert to solar hot water heating, but, because solar hot water heaters better fit the energy use patterns of residential users, they would be able to reduce their energy consumption for water heating by 70%.

Participation Rate (homes with solar water heating)

Residential: 10%
Commercial: 5%

Efficiency (percent of reductions in energy usage)

Residential: 70%
Commercial: 57%

GHG Reduction (MT CO₂e/year)

Residential: 1,884
Commercial: 113

Scaled Measure Performance (percent reduction in GHG emissions)

Residential: 1.9%
Commercial: 0.1%

Source

AECOM SSIMe Building Energy Analysis

R2. Alternative Energy Systems (Residential and Commercial)

Install solar systems to account for 5% of residential electricity use and 2% of commercial electricity use.

To calculate emission reductions from electrical savings, it was assumed that 350,000 square feet of solar panels would be installed on existing homes and 250,000 square feet would be installed on commercial facilities. Then a bottom-up calculation was performed assuming a system efficiency of 10 watts per square foot (SolarEstimate 2010) and solar irradiance of 18 kilowatt-hours per square foot per year based on climate zone. The Southern California Edison (SCE) emission factor was multiplied by solar irradiance to calculate the reduction potential of the proposed solar systems in units of pounds of CO₂e per square foot of solar panel per year. This reduction potential was then multiplied by the assumed 600,000 square feet of panel area (350,000 commercial and 250,000 residential) to calculate total emission reductions.

These assumptions were used to calculate the total kilowatt-hours generated from implementation of the measure. This was then evaluated against the total electricity demand of the community to evaluate how much energy would be offset. The GHG reduction potential of this measure was calculated using the same 2009 SCE specific electricity consumption emission factor used to calculate the City's GHG emissions associated with electricity consumption.

Participation Rate (square feet of installed solar panels)

Commercial: 250,000
Residential: 350,000

Efficiency (percent electricity from renewable)

Residential: 5%
Commercial: 2%

GHG Reduction (MT CO₂e/year)

Residential: 1,448
Commercial: 1,045

Scaled Measure Performance (percent reduction in GHG emissions)

Residential: 1.4%
Commercial: 1%

Source

Solar Estimate. 2010. Available at <http://www.solar-estimate.org/?page=solar-calculator>.

LAND USE

Land use and transportation measures were evaluated by Fehr & Peers for their effect on transportation patterns in the City and the associated GHG reductions.

LU1. Mixed-Use Development

Encourage high-density and mixed-use development near transit

This measure aims to reduce the amount of miles that community members must drive to get their daily tasks done. Incentivizing new development and re-development to provide mixed-use space near transit will allow a larger portion of the population to use transit instead of their cars. Because this measure will only affect the location and uses of new development and re-development, growth forecasts were based on the SCAG Regional Travel Demand Model. That model predicts that the growth in population will be approximately 25% from existing levels, and growth in employment will be approximately 10%. Therefore, it was assumed that this GHG emission reduction would apply to no more than 15% of the future increase in vehicle miles traveled (VMT) based on a weighted average of the residential and employment increase. Using those assumptions a 1% VMT reduction was estimated, but, because of potential overlapping emission reductions with other GHG reduction measures such as the goal of promoting service nodes at existing

employment areas, this number was conservatively rounded down to 0.5 City-wide VMT reductions.

Participation Rate (percent of new VMT that will be affected by measure)

15%

Efficiency (percent VMT reductions)

0.5%

GHG Reduction (MT CO₂e/year)

1,424

Scaled Measure Performance (percent reduction in GHG emissions)

1.4%

Sources

Criterion Planner/Engineers and Fehr & Peers Associates. 2001. Index 4D Method. A Quick-Response Method of Estimating Travel Impacts from Land-Use Changes. Technical Memorandum prepared for U.S. EPA, October.

Ewing, R., and R. Cervero. 2010. Travel and the Built Environment - A Meta-Analysis. Journal of the American Planning Association. Table 4.

Nelson\Nygaard. 2005. Crediting Low-Traffic Developments p.12. Available at <http://www.montgomeryplanning.org/transportation/documents/TripGenerationAnalysisUsingURBEMIS.pdf>.

Song, Y., and G. Knaap 2004. Measuring the Effects of Mixed Land Uses on Housing Values. Regional Science and Urban Economics (34)663–680 (p. 669). Available at http://urban.csuohio.edu/~sugie/papers/RSUE/RSUE2005_Measuring%20the%20effects%20of%20mixed%20land%20use.pdf.

LU2. Service Nodes

Incentivize commercial and shopping opportunities near major office locations

Similar to the previous emission reduction measure, this will only affect new development in the City. Based on the SCAG Regional Travel Demand Model, it was assumed that the growth in population will be approxi-

mately 25% from existing levels, and growth in employment will be approximately 10%. Therefore, this GHG emission reduction would apply to no more than 15% of the future increase in VMT based on a weighted average of the residential and employment increase.

Participation Rate (percent of new VMT that will be affected by measure)
15%
Efficiency (percent VMT reductions)
0.5%
GHG Reduction (MT CO₂e/year)
1,424
Scaled Measure Performance (percent reduction in GHG emissions)
1.4%
Sources

Ewing, R., and R. Cervero. 2010. Travel and the Built Environment - A Meta-Analysis. Journal of the American Planning Association. Table 4.

Nelson\Nygaard. 2005. Crediting Low-Traffic Developments p.12. Available at <http://www.montgomeryplanning.org/transportation/documents/TripGenerationAnalysisUsingURBEMIS.pdf>.

Song, Y., and G. Knaap 2004. Measuring the Effects of Mixed Land Uses on Housing Values. Regional Science and Urban Economics (34)663–680 (p. 669). Available at http://urban.csuohio.edu/~sugie/papers/RSUE/RSUE2005_Measuring%20the%20effects%20of%20mixed%20land%20use.pdf.

TRANSPORTATION

T1.1 Lower Cost of Riding Transit

Increase the percentage of people who use transit as a transportation mode

To quantify GHG emission reductions from implementation of this measure, it was assumed that the City would expand its program of providing lower cost transit passes to residents, workers, and City employees. Studies have

demonstrated that the effectiveness of this strategy is generally 1% to 5% in cities similar to Monterey Park. Because this strategy would involve a limited expansion of an existing City program, it was assumed that a limited level of participation would reduce the effectiveness of this strategy to 1%.

Participation Rate (percent increase in subsidized transit pass program)
20%
Efficiency (percent VMT reductions)
1%
GHG Reduction (MT CO₂e/year)
2,848
Scaled Measure Performance (% reduction in GHG emissions)
2.8%
Sources

Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen. 2008. Growing Cooler – The Evidence on Urban Development and Climate Change. Urban Land Institute.

Transit Cooperative Research Program. 1997. TCRP 27 – Building Transit Ridership: An Exploration of Transit’s Market Share and the Public Policies That Influence It. p.47–48.

T1.2 Promote Use of Transit Network

Increase the percentage of people who use transit as a transportation mode

Under this strategy, the City would create an outreach and education program that encourages use of the Spirit Bus and other existing transit options. The estimated benefits of this strategy are derived from estimates of transit service improvement, which range from 1% to 8%. As this strategy would involve a promotional campaign, it was assumed that a limited range of effectiveness would be achieved, and VMT would be reduced by 1%.

Participation Rate (percent increase in transit ridership)
20%

Efficiency (percent VMT reductions)
1%
GHG Reduction (MT CO ₂ e/year)
2,848
Scaled Measure Performance (percent reduction in GHG emissions)
2.8%
Sources

Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen. 2008. Growing Cooler – The Evidence on Urban Development and Climate Change. Urban Land Institute.

Transit Cooperative Research Program. 1997. TCRP 27 – Building Transit Ridership: An Exploration of Transit’s Market Share and the Public Policies That Influence It. p.47–48.

T2.1. Expand Pedestrian Network and Increase Bicycle Parking

Increase the percentage of people who walk as a transportation mode

This measure would include the widening or enhancing of any existing sidewalks, the completion of any gaps in the sidewalk network, and the extensions of any existing sidewalks to provide access to desired areas of the City. It should be noted that the General Plan already makes reference to the expansion of sidewalks within designated areas of the City. Additionally, the City already has a Pedestrian Linkage Plan completed in 2004, which will serve as a potential source for various pedestrian improvements; this plan could be expanded beyond the downtown core.

Studies have indicated that pedestrian network improvements yield a 1% to 2% reduction in VMT, based on the scale of the proposed improvements. As these improvements are limited in scale to various areas of the City, a conservative 1% VMT reduction was assumed.

Participation Rate (number of miles of new sidewalks)

2

Efficiency (percent VMT reductions)
1%
GHG Reduction (MT CO ₂ e/year)
2,848
Scaled Measure Performance (percent reduction in GHG emissions)
2.8%
Sources

1,000 Friends of Oregon. 1997. Making the Connections: A Summary of the LUTRAQ Project. p. 16. Available at http://www.onethousandfriendsoforegon.org/resources/lut_vol7.html.

Center for Clean Air Policy (CCAP). Transportation Emission Guidebook. Available at http://www.ccap.org/safe/guidebook/guide_complete.html.

Nelson\Nygaard. 2010. City of Santa Monica Land Use and Circulation Element EIR Report, Appendix – Santa Monica Luce Trip Reduction Impacts Analysis. p.401. Available at <http://www.shapethefuture2025.net/>.

Sacramento Metropolitan Air Quality Management District (SMAQMD). Recommended Guidance for Land Use Emission Reductions. p. 11. Available at <http://www.airquality.org/ceqa/GuidanceLUEmissionReductions.pdf>.

T2.1. Expand Pedestrian Network and Increase Bicycle Parking

Require new developments to have a designated number of bike parking on-site

To facilitate bicycle travel, this measure will require bicycle parking for public and private uses. This strategy would identify additional opportunities to place bicycle parking in public areas or to modify existing parking requirements for bicycles, with the aim of increasing the supply of parking. As with previous land-use strategies, this is limited to the selected new developments within the City that are larger than an identified threshold in terms of building size, number of employees, or other applicable criteria.

Participation Rate (number of buildings that will require new bicycle parking)
100 bicycle parking racks (800 total bicycle parking spaces)
Efficiency (percent VMT reductions)
0.5%
GHG Reduction (MT CO₂e/year)
1,424
Scaled Measure Performance (percent reduction in GHG emissions)
1.4%
Sources

1,000 Friends of Oregon. 1997. Making the Connections: A Summary of the LUTRAQ Project. p. 16. Available at http://www.onethousandfriendsoforegon.org/resources/lut_vol7.html.

Cambridge Systematics. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Technical Appendices. Prepared for the Urban Land Institute. Available at <http://www.movingcooler.info/Library/>.

Center for Clean Air Policy (CCAP) Transportation Emission Guidebook. Available at http://www.ccap.org/safe/guidebook/guide_complete.html.

T2.2. Provide End-Of-Trip Facilities

Increase the percentage of people who bike and walk as a transportation mode

The City currently has a Transportation Demand Management (TDM) policy that requires employers with buildings that are larger than 25,000 square feet to provide facilities for employees who bike or walk to work. This emission-reduction strategy could involve the potential modification of the TDM ordinance to expand the facilities provided by employers. Research has indicated that these facilities have a benefit of reducing commute trips by 2% to 5%. As commute trips are only 25% of total VMT, the potential effectiveness of the strategy was discounted by 75%, which results in a maximum effectiveness of only 1%.

Participation Rate (number of additional units with end-of-trip facilities)
50 additional units
Efficiency (percent VMT reductions)
1%
GHG Reduction (MT CO₂e/year)
2,848
Scaled Measure Performance (percent reduction in GHG emissions)
2.8%
Sources

Center for Clean Air Policy (CCAP). 2005. Transportation Emission Guidebook. Available at http://www.ccap.org/safe/guidebook/guide_complete.html.

Pucher, J., J. Dill, and S. Handy. 2010. Infrastructure, Programs, and Policies to Increase Bicycling: An International Review. February. Table 2, p. S111. Available at http://policy.rutgers.edu/faculty/pucher/Pucher_Dill_Handy10.pdf.

TIAX Results of 2005 Literature Search Conducted by TIAX on behalf of SMAQMD.

Victoria Transportation Policy Institute (VTPI). 2010. TDM Encyclopedia. Last updated January 25, 2010. Available at <http://www.vtpi.org/tdm/tdm9.htm>. Accessed March 4, 2010.

VTPI citing: Ewing, Reid. 1993. TDM, Growth Management, and the Other Four Out of Five Trips. Transportation Quarterly, Vol. 47, No. 3, Summer 1993, pp. 343–366.

T3. Transportation Demand Management (TDM)

Increase the number of employers that allow and offer amenities to encourage alternate commuting strategies that reduce VMT for employee commutes

To quantify the GHG emission reductions from this measure, it was assumed that the City's actions would include promotional campaigns and a potentially designated TDM Coordinator to showcase the current municipal program as an example. This strategy could be used to improve the effectiveness of the existing TDM ordinance. Empirical studies have shown that these

voluntary TDM programs can have a maximum effectiveness of 3%. These TMD reductions only apply to trips related to employment. VMT reductions were calculated based on the contribution that employee trips make to overall City-wide travel. Based on estimates from Fehr & Peers, it was assumed that only half of the City's VMT is attributable to employee travel. Therefore, the potential effectiveness of this strategy was discounted by 50% to 1.5% as a maximum potential effectiveness.

Participation Rate (percent of employers using TDM)
50%
Efficiency (percent VMT reductions)
1.5%
GHG Reduction (MT CO₂e/year)
4,273
Scaled Measure Performance (percent reduction in GHG emissions)
4.3%
Sources

Herzog, Erik, Stacey Bricka, Lucie Audette, and Jeffra Rockwell. 2006. Do Employee Commuter Benefits Reduce Vehicle Emissions and Fuel Consumption? Results of Fall 2004 Survey of Best Workplaces for Commuters. Transportation Research Record 1956, 34–41, Table 8.

Pratt, Dick. Personal Communication Regarding the Draft of TCRP 95 Traveler Response to Transportation System Changes – Chapter 19 Employer and Institutional TDM Strategies.

Transportation Demand Management Institute of the Association for Commuter Transportation. 1997. TDM Case Studies and Commuter Testimonials. Prepared for the U.S. EPA. p. 25–28. Available at <http://www.epa.gov/OMS/stateresources/rellinks/docs/tmccases.pdf>.

WATER

W1. Conserving Water

Reduce per capita water consumption by 20%.

This measure evaluates the energy and emissions

savings that will come from achieving the 20% reduction in per capita water usage goal of the Water Conservation Act of 2009 (Senate Bill [SB] 7X). Because this is a state-mandated goal for all water districts, it is assumed that there will be a 100% participation rate.

Participation Rate
100%
Efficiency – Reduction in Per Capita Water Usage
20%
GHG Reduction (MT CO₂e/year)
1,073
Scaled Measure Performance (% reduction in GHG emissions)
1.1%
Sources

Modeled by AECOM. Energy associated with water obtained from Navigant Consulting, Inc. 2006. Refining Estimates of Water Related Energy Use in California. California Energy Commission, PIER Industrial/Agricultural/Water End Use Energy Efficiency Program. CEC 500 2006 118.

STATE AND FEDERAL

SF1: Pavley I – Passenger Auto and Light Truck Fuel Efficiency

Assembly Bill (AB) 1493, California's mobile-source GHG emissions regulations for passenger vehicles, was signed into law in 2002. The GHG reductions associated with AB 1493 that would affect the City in 2020 were calculated using California Air Resources Board's (ARB) Pavley I + Low Carbon Fuel Standard Postprocessor Version 1.0 (ARB 2010). This model applies a reduction to light- and medium-duty vehicle on-road mobile-source GHG emissions from AB 1493 for 2020 (ARB 2010).

Participation Rate
100%
Efficiency (percent increase in MPG)
14.1%

GHG Reduction (MT CO₂e/year)

33,931

**Scaled Measure Performance
(percent reduction in GHG emissions)**

33.9%

SF2: Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS) was designed to accelerate the availability and diversity of low-carbon fuels and reduce the carbon intensity of fuels used within California. ARB's Pavley I + Low Carbon Fuel Standard Postprocessor Version 1.0 was used to quantify the GHG reductions from LCFS that would apply to the City in 2020. This model applies an approximate 10% reduction to on-road mobile-source GHG emissions for LCFS in 2020 (ARB 2010).

Participation Rate

100%

Efficiency (percent decrease in carbon intensity of transportation fuels)

7.3%

GHG Reduction (MT CO₂e/year)

17,616

**Scaled Measure Performance
(percent reduction in GHG emissions)**

17.6%

SF3: Renewable Portfolio Standard

Established in 2002 under SB 1078 and accelerated in 2006 under SB 107, California set a Renewables Portfolio Standard (RPS) goal for investor-owned utilities to procure 20% of electricity from eligible renewable energy resources by 2010. This goal was increased to 33% by Executive Order (EO) S-21-09, which was signed by then-Governor Arnold Schwarzenegger in 2009. The GHG reductions in this measure are based on the amount of renewable energy used for SCE's electricity in 2007, and assumes that SCE will achieve the mandated RPS of 33% by 2020.

Participation Rate

100%

Efficiency (percent increase in RPS)

33%

GHG Reduction (MT CO₂e/year)

16,410

**Scaled Measure Performance
(percent reduction in GHG emissions)**

16.4%

Sourcewww.cpuc.ca.gov/PUC/energy/Renewables/

PAGE INTENTIONALLY LEFT BLANK

