

June 2009  
DRAFT for Public Review and Comment

# City of San Carlos

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## Climate Action Plan

Prepared by the City of San Carlos Planning Department and the  
General Plan Advisory Committee (GPAC) Climate Action Plan Subcommittee



City of San Carlos Planning Department  
600 Elm Street  
San Carlos, CA 94070



## **ACKNOWLEDGEMENTS**

Many individuals and organizations contributed to the completion of this report by providing guidance, data, and other general information. The following people helped in this endeavor to quantify greenhouse gas emissions and develop a Climate Action Plan for the City of San Carlos community.

### **General Plan Advisory Committee, Climate Action Plan Subcommittee**

Suzanne Henderson Emerson  
Don Cook, PE  
Michelle Margiotta

### **City of San Carlos**

Brian Moura, Assistant City Manager  
Al Savay, Community Development Director  
Deborah Nelson, Planning Manager

### **Climate Action Plan Coordination and Report Preparation**



500 12th Street, Suite 240  
Oakland, CA 94607

### **Other Agencies Providing Funding and Technical Support**

Association of Bay Area Governments  
Bay Area Air Quality Management District  
ICLEI – Local Governments for Sustainability  
Joint Venture Silicon Valley  
Pacific Gas and Electric  
Metropolitan Transportation Commission  
City/County Association of Governments of San Mateo

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## Executive Summary

The City of San Carlos Climate Action Plan (hereafter referred to as “Plan”) serves as a guiding document to identify ways in which the community and City can reduce greenhouse gas emissions and adapt to the inevitable effects of climate change. Specifically, the Plan does the following:

- ❏ Identifies sources of greenhouse gas emissions caused from actions within the City of San Carlos municipal boundary and estimates how these emissions may change over time;
- ❏ Provides energy use, transportation, land use, and solid waste strategies to bring San Carlos’ greenhouse gas emissions levels to 15% below 2005 levels by 2020 and 35% below 2005 levels by 2030;
- ❏ Mitigates the impacts of San Carlos on climate change (by reducing greenhouse gas emissions consistent with the direction of the State of California via AB32 and Governor’s Order S-03-05 and Public Resources Code section 21083.3). The CEQA Guidelines encourage the adoption of policies or programs as a means of addressing comprehensively the cumulative impacts of projects. (See CEQA Guidelines, §§ 15064, subd. (h)(3), 15130, subd. (c).)
- ❏ Allows the greenhouse gas emissions inventory and Climate Action Plan to be updated every five years and respond to changes in science, effectiveness of emission reduction measures and federal, state, regional or local policies to further strengthen the City’s response to the challenges of climate change.
- ❏ Provides substantial evidence that the emission reductions estimated in the Climate Action Plan are feasible.
- ❏ Serves as the threshold of significance within the City of San Carlos for climate change, by which all applicable developments within the City will be reviewed. If a proposed development is consistent with the emission reduction and adaptation measures included in the Climate Action Plan and the programs that are developed as a result of the CAP, the project would be considered to have a less than significant impact on climate change and emissions consistent with the direction of the California Attorney General (Climate Change, CEQA and General Plans, Revised March 6, 2009) and Public Resources Code 21083.3.
- ❏ Outlines ways in which the City can prepare for and adapt to the consequences of climate change; and,
- ❏ Discusses the various outcomes of reduction efforts and how these reduction efforts can be implemented and advertised;

The strategies to reduce greenhouse gas emissions are organized into 23 reduction measures with various components to each reduction measure. Measures are then separated into energy use, transportation and land use, and solid waste categories. The reduction measures are projected through 2030 with 2020 serving as an interim

target. The measures were chosen by a collaborative process between the Climate Action Plan Subcommittee ("Subcommittee"), the community of San Carlos, and City staff. Each reduction measure is analyzed with estimates of initial monetary cost to the City and reduction in greenhouse gas emissions, culminating in an overall recommendation of implementation priority.

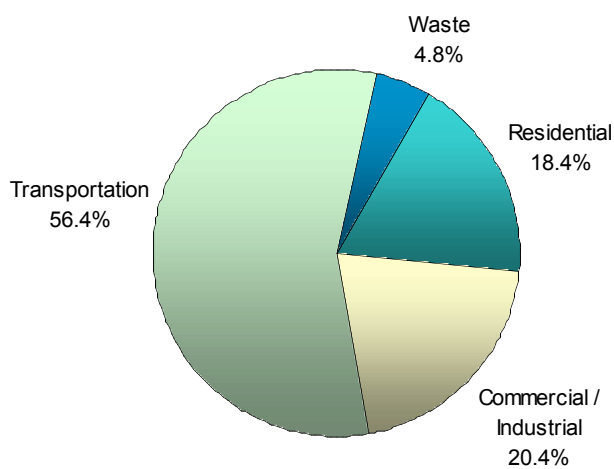
This report is a significant landmark in San Carlos' proactive approach to reducing and adapting to the effects of climate change. It builds upon residents' existing commitment to sustainability by formalizing the process of measuring and addressing greenhouse gas emissions. It also breaks new ground by being developed with the purpose of incorporating the outlined emission reduction strategies as components of the General Plan Update and corresponding Environmental Impact Report. By integrating climate action into the General Plan, San Carlos will ensure that the issue becomes an integral part of the planning process.

"The City of San Carlos will work with residents and businesses as well as in conjunction with neighboring cities, counties and other agencies interested in this matter to progress on reducing greenhouse gas emissions and to reduce global warming pollution levels."

– The San Carlos Climate Protection Letter

For the full picture of San Carlos' efforts to reduce greenhouse gas emissions and reduce the effects of climate change, please visit [www.cityofsancarlos.org](http://www.cityofsancarlos.org). As programs are developed to respond to the emission reduction measures outlined in this Plan, they will be explained and tracked on the City's website. Assistance and involvement from the community (including residents, businesses, schools and government agencies) will be crucial to the success of this Plan's implementation. The San Carlos community should be proud to take part in San Carlos' commitment to sustainability, of which this Climate Action Plan is a part.

### Community-Wide Greenhouse Gas Emissions



Activities within the jurisdictional boundary of San Carlos within calendar year 2005 caused an estimated 267,237 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) to be released into the atmosphere. The largest source of emissions (56%) was a result of highway and local road vehicular travel.

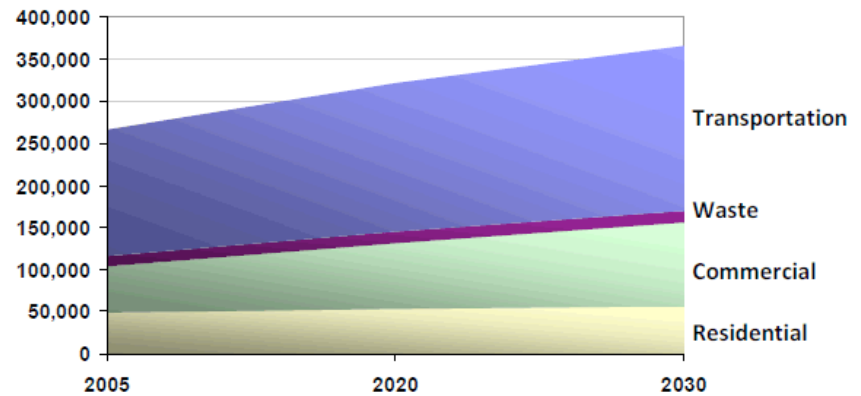
The emissions from municipal operations are currently contained within the Commercial/Industrial category. A separate municipal

greenhouse gas inventory is being developed and will be added as an addendum to this Plan when completed.

If the community of San Carlos continues with the 2005 pattern of energy consumption, travel, and waste production, the level of greenhouse gas emissions is estimated to increase to 321,519 metric tons per year by 2020 and 365,787 metric tons per year by 2030. These “business-as-usual” forecasts of 20.3% and 36.9% higher than 2005 levels, respectively, are due to estimated

increases in consumption, population, households, and commercial activity as outlined in the General Plan buildout scenario.

**2030 Greenhouse Gas Emissions Forecast by Sector**



### Achieving San Carlos' Reduction Target

The Climate Action Plan Subcommittee developed a strategic policy focus to direct the development of the Climate Action Plan and associated emission reduction measures. The policies focus on the following:

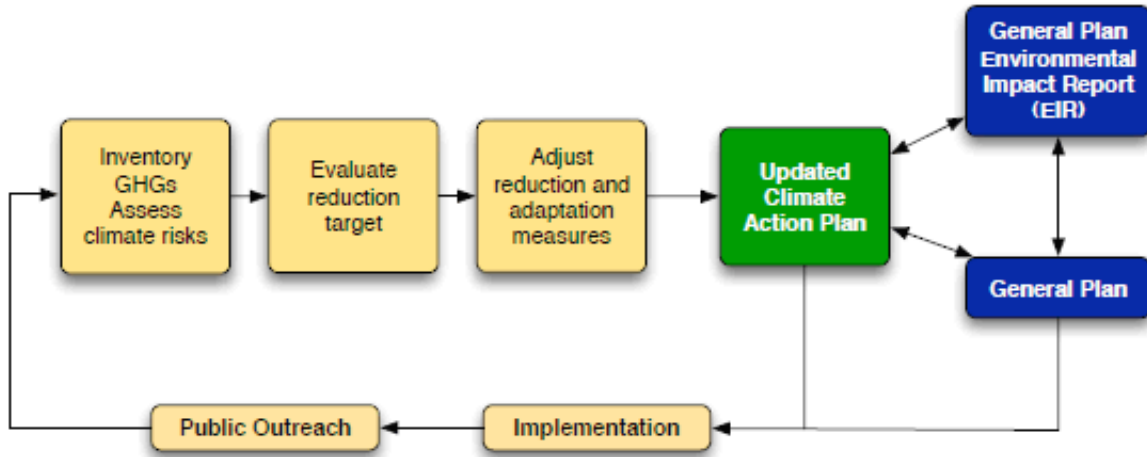
1. Building Efficiency / Site Design
2. Auto Emission Reduction
3. Low Carbon Energy Use
4. Alternative, Non-automotive Travel Modes
5. Waste Reduction Program

The Subcommittee was responsible for reviewing and analyzing strategies aimed at reducing the greenhouse gas emissions from energy consumption, transportation, land use, and solid waste production. Over one hundred possible reduction measures were initially considered. The Subcommittee narrowed this list to 31 measures based on feasibility, cost-effectiveness, and appropriateness to the community. The public then came together at a workshop to form the final 23 reduction measures. The process of selecting and clarifying San Carlos' reduction measures is explained further in Appendix D.

### General Plan Integration

The Climate Action Plan will be updated to analyze new reduction targets and efforts. The General Plan accommodates the Climate Action Plan update process by dynamically referencing sections of the Climate Action Plan instead of concrete text. This will ensure that the City and its planning resources are continuously up to date. The five-year CAP update process and its relation to the General Plan are depicted below.

The 5-year CAP Update Process and its relation to the General Plan



Energy Use Reduction Measures

The second largest contributor to San Carlos’ greenhouse gas emissions (39%) comes from residential, commercial, and industrial energy use in San Carlos. To address this significant cause of greenhouse gas emissions, the following measures were formed:

- ❑ Adopt a green building standard for all new development and major remodels.
- ❑ Expand energy saving opportunities to businesses.
- ❑ Create water and waste efficient landscapes.
- ❑ Improve residential energy efficiency.
- ❑ Identify opportunities for on-site renewable energy generation on City and privately-owned property.
- ❑ Implement reduction strategies included in the energy audit of City facilities. Continue to monitor City facility performance.
- ❑ Provide for increased albedo (reflectivity) of all urban surfaces including roads, driveways, sidewalks, and roofs in order to minimize the urban heat island effect.
- ❑ Encourage tree planting.

**Green Building Standards for new development and major remodels.**  
 Energy Use Reduction Measure Highlight  
**Description:** Two green building standard options were analyzed: 1) Support State green building requirements as they become available and provide information on stricter green building certifications and 2) Create a local green building ordinance referencing Leadership in Energy and Environmental Design (LEED), Build It Green (BIG) GreenPoint Rated, or equivalent rating systems.  
**Emission Reduction:** The analysis revealed that San Carlos will save 9,879-11,860 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) per year by 2030.

These measures were expanded upon and analyzed through various components. The reduction estimates for each measure are structured in a way that if the City discovers a component of the reduction measure is no longer feasible, it can be replaced with another component and still achieve the measure's overall target. All of the measures identified above are expected to save at least 29,792 metric tons of CO<sub>2</sub>e per year by 2030.

## Transportation and Land Use Reduction Measures

The transportation sector is the largest contributor to greenhouse gas emissions in San Carlos (56%). The majority of these emissions are from vehicles traveling on the length of State Highway 101 running through San Carlos. Transportation and land use are combined into one section because they are highly integrated. In many cases, it requires a change in land use patterns to alter the need for personal automobile use and move towards more fuel efficient vehicles. The transportation and land use measures are as follows:

- ❏ Encourage development that is mixed-use, infill, and higher density.
- ❏ Provide for an education program and stepped up code enforcement to minimize vegetation that degrades access along public rights of way.
- ❏ Convert more City vehicles to hybrid, electric, alternative fuel, or smaller vehicles.
- ❏ Increase bike parking.
- ❏ Actively promote walking and biking as safe modes of local travel, particularly for children attending local schools.
- ❏ Provide for a shuttle service connecting areas not adequately served by public transit.
- ❏ Increase housing density near transit.
- ❏ Promote car sharing programs.
- ❏ Increase accommodation and promotion of alternatively fueled vehicles and hybrids.
- ❏ Create travel routes that ensure that destinations may be reached conveniently by public transportation, bicycling, and walking.

### **Encourage development that is mixed-use, infill, and higher density.**

Transportation and Land Use Reduction Measure Highlight

**Description:** The principles of infill, high density, and mixed-use development lead to decreased vehicle miles traveled and increased neighborhood vitality. They also have multiple social benefits, including: better health, lower infrastructure costs, and increased accessibility.

**Emission Reduction:** The analysis revealed that San Carlos can save 5,544 metric tons of CO<sub>2</sub>e per year from reduced vehicle trips and shared building materials as a result of higher density, mixed-use development.

- ❏ Price on-street parking in high-traffic areas in order to alleviate congestion, increase motorist convenience, reduce Vehicle Miles Traveled (VMT), and create a new revenue stream for the City.

These measures are estimated to save 18,518 metric tons of CO<sub>2</sub>e per year by 2030. As with the energy sector, each measure's portion of the total reduction target is flexible; if a component of a reduction measure becomes infeasible, it can be adjusted as long as the overall measure's target is accounted for.

### Solid Waste Reduction Measures

The waste from San Carlos residents and businesses accounts for 4.78% of San Carlos' yearly greenhouse gas emissions, or 12,777 metric tons of CO<sub>2</sub>e. While a small portion of overall emissions, the community has a great deal of control over these emissions. The measures to reduce emissions from solid waste are as follows:

- ❏ For municipal operations, establish a zero waste policy.
- ❏ Make recycling and composting mandatory at public events.
- ❏ Establish an environmentally preferable purchasing program (EPP) for government operations.
- ❏ Increase overall waste diversion by 1% per year.

All four reduction measures are estimated to reduce greenhouse gas emission by 47,274 metric tons of CO<sub>2</sub>e per year by 2030.

#### **Increase overall waste diversion by 1% per year**

Solid Waste Reduction Measure Highlight

**Description:** San Carlos will reduce solid waste generation by a minimum of 1% per year. Steps taken to achieve this goal may include increasing the required construction and demolition diversion rate beyond the 50% currently required and providing expanded recycling outreach and services to multi-family residential buildings, including renter-occupied apartment buildings.

**Emission Reduction:** San Carlos can save at least 6,222 metric tons of CO<sub>2</sub>e per year by 2030.

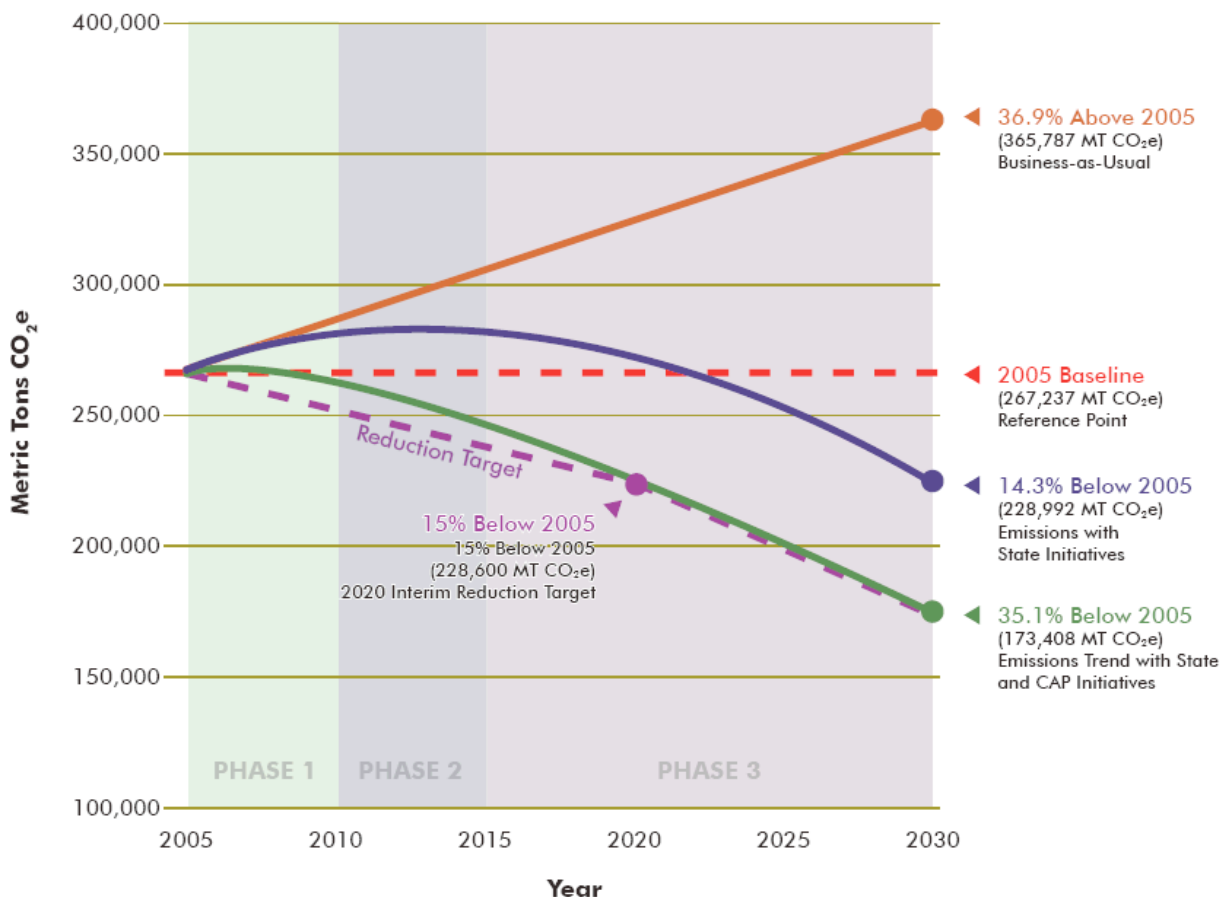
### Findings

The quantifiable reduction measures included in this plan are estimated to save at least 55,584 metric tons of CO<sub>2</sub>e per year by 2030 when implemented. We are confident that this significant decrease in local emissions, in concert with State initiatives for renewable energy and vehicle efficiency will result in the City meeting, if not exceeding, our emission reduction target of 15% below 2005 levels by 2020 and 35% below 2005 levels by 2030.

It is important to note that while we begin implementation of the measures of this document, emissions will continue to rise due to population growth and consumption trends. This makes our reduction target challenging but feasible; the decrease in per capita emissions as a result of the measures in this Plan will be working against an increase in overall emissions due to population and job growth. This trend is shown in the graph below. The business-as-usual red line is what we can expect without a

decrease in per capita emissions, the horizontal dotted line is a representation of constant 2005 emissions rates as a point of reference, and the bottom dotted line is our reduction target. If we look at the difference between our reduction target and business-as-usual projections, we see that the actual reduction needed from business-as-usual to reach our target is actually over 72%.

### 2030 Emission Reduction Scenarios in San Carlos



Possible scenarios for meeting the 2030 targets set forth in this Plan are depicted above and explored in greater detail in the body of this Climate Action Plan. The curved lines in the graph above represent phased implementation of the reduction measures in this Plan as well as State and regional initiatives. As shown through the lower green line above, we expect our 35% reduction target to be achieved through a combination of the reduction measures included in this Plan and State initiatives such as the renewable energy portfolio standard and implementation of recent State legislation.

### Implementation

This report lays the groundwork for a more important task ahead – implementation. The 23 reduction measures are crucial to attaining San Carlos’ reduction goal of 35% below 2005 levels by 2030. The San Carlos Climate Action Plan is a foundation for this effort that will be revised and built upon for years to come. Reduction measures will continue

to evolve as new climate-related technology, policy, and resources become available. That is why an essential part of implementation of this document is reassessment.

It is suggested that the City update the 2005 Community Greenhouse Gas Emissions Baseline Inventory every five years to see how emissions have changed since the 2005 baseline year. These updated reports will be two-pronged, first reporting emissions using present quantification methodology and protocol in order to create a basis of comparison and secondly reporting emissions using an up-to-date methodology and protocol that will likely capture other sources of emissions that we are currently unable to calculate with today's research methodologies and analysis tools. As a result of these updated inventories, this Climate Action Plan and corresponding reduction measures will be revisited. Attention will be shifted to those sectors displaying faster growth rates than others and to those emission reduction measures which are having greater success at reducing emissions with less cost than other measures.



As part of the adaptation element of this plan, it is recommended that the City prepare itself internally for climate change resiliency. A sustainability coordinator among City Staff and established points of contact to inform and collaborate with resident groups, businesses, schools, City departments, and government agencies to address potential threats of climate change is a way of guaranteeing timely and efficient response to climate challenges.

Timely implementation, along with the initiative of each resident, employee, and business of San Carlos, will put us well on our way to reducing our impact on the earth and the community in which we live while also preparing us for the challenges that lie ahead as a result of the inevitable transformations associated with climate change.

### **Suggested Implementation Prioritization**

This chapter separates reduction measures into three time periods for implementation: 2005 to 2010, 2010 to 2015, and 2015 to 2020. Phases indicate when implementation of the measure begins; the reduction effects and overall maintenance of the program will extend well beyond the allotted phase. All reduction measures will begin implementation by 2020. The period of 2020 to 2030 will be an extension of Phase 3 for evaluation and expansion of all reduction measures. The reduction measures in this Plan are structured in a way that if a component of the measure becomes infeasible, other components can be added or modified, allowing the overall measure's reduction target to still be met.

**Phase 1: Reduction Measures to Begin Implementation 2005 to 2010**

	<b>Reduction Measure</b>	<b>Emissions Reductions (Metric tons CO<sub>2</sub>e per year)</b>	<b>First Year Costs per Metric Ton CO<sub>2</sub>e</b>
1	Expand energy saving opportunities to businesses	13,300	\$0.18-\$0.38
2	Improve residential energy efficiency	3,383	Negligible
3	Encourage development that is mixed-use, infill, and higher density	5,544	\$0.81-\$1.62
4	Increase housing density near transit	4,957	\$4.54 - \$9.08
5	Actively promote walking and biking as safe modes of local travel, particularly for children attending local schools	170	\$923.52
6	Create travel routes that ensure that destinations may be reached conveniently by public transit, bicycling and walking	122	Negligible
7	Convert more City vehicles to hybrid, electric, alternative fuel, or smaller vehicles	59	\$6,537 - \$7,027
8	Increase overall waste diversion by at least 1% per year	6,222	Negligible

**Phase 2: Reduction Measures to Begin Implementation 2010 - 2015**

	<b>Reduction Measure</b>	<b>Emissions Reductions (Metric tons CO<sub>2</sub>e per year)</b>	<b>First Year Costs per Metric Ton CO<sub>2</sub>e</b>
9	Adopt a green building standard for all new development and major remodels	9,879	Negligible
10	Create water and waste efficient landscapes.	485*	\$24.74 - \$28.87
11	Identify opportunities for on-site renewable energy generation on City and privately-owned property	394	\$1,282 - \$1,320
12	Implement reduction strategies included in the energy audit of City facilities and continue to monitor City facility performance	160	N/A
13	Provide for increased albedo (reflectivity) of all urban surfaces including roads, driveways, sidewalks, and roofs in order to minimize the urban heat island effect	2,320	Negligible

	Reduction Measure	Emissions Reductions (Metric tons CO <sub>2</sub> e per year)	First Year Costs per Metric Ton CO <sub>2</sub> e
14	Encourage tree planting	356	\$35.96 - \$71.91
15	Address and minimize vegetation that degrades access along public rights of way	Unknown	N/A
16	Increase bike parking	150	\$6 - \$12
17	Price on-street parking in high-traffic areas in order to alleviate congestion, increase motorist convenience, reduce VMT, and create a new revenue stream for the City	4,576	\$50.26
18	Support zero waste	510	Negligible
19	Increase recycling and composting at public events	255	Negligible
20	Establish an environmentally preferable purchasing program (EPP) for government operations	287	\$17.42

\* These emissions are not included in the final reduction target analysis as emissions associated with the filtration and movement of water were not included in the City's baseline Greenhouse Gas Inventory.

**Phase 3: Reduction Measures to Begin Implementation 2015 - 2020**

	Reduction Measure	Emissions Reductions (Metric tons CO <sub>2</sub> e per year)	First Year Costs per Metric Ton CO <sub>2</sub> e
21	Provide for a shuttle service in order to increase transit ridership	1,733	\$1.15 - \$2.30
22	Promote car sharing programs	1,158	\$1.55 - \$3.11
23	Increase accommodation and promotion of alternatively fueled vehicles and hybrid vehicles	49	\$200