CLIMATE ACTION PLAN

CITY OF WEST SACRAMENTO

Draft

AUGUST 2010

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From Mayor Christopher Cabaldon

The City of West Sacramento has joined with other Cities around the world to make a commitment to reducing greenhouse gas emissions which threaten to bring devastating impacts to our world.

Some aspects of the Climate Change battle will need to be done on a National or State level such as vehicle fleet efficiency standards or the development of new renewable energy sources. The cities can play a role in this effort by encouraging our legislators to take these actions. However, much can also be done at the local level. In fact, in the last analysis, this battle will only be won at the personal level with the commitment of individuals to change the way we do things in our homes and businesses to reduce the use of greenhouse gas producing fuels.

The municipal organization of the City of West Sacramento can, should and has committed to lead by example in reducing greenhouse gases. From energy use management at the water treatment plant to minimize energy use during those peak usage hours where oil and gas fired electrical generation is at its peak, to the purchase of hybrid vehicles for pool cars, use of recycled materials in parks, more efficient management of public landscape watering, the adoption of a Green Purchasing Policy, a Transportation Management Plan for City Hall employees, and the construction of high energy efficiency buildings with its new Fire Stations and Community Center, and many other actions across departments, the City organization has begun to systematically reduce its carbon footprint.

West Sacramento plays a critical role in the regions efforts to reduce greenhouse gases. The City's location near the regional core makes it a special location for transit oriented, urban development which can be significantly superior in terms of the carbon footprint of new development. The City's long standing planning commitment to this kind of neighborhood development along the northeast riverfront in the Bridge District, Washington and Pioneer Bluffs and West Capitol Avenue makes it a leader in the region.

The City Council has for years recognized the creation of a Green and Sustainable Strategy as a high priority. This Climate Action Plan quantifies organizational and community emissions, sets targets for reductions and pulls together the measures which will allow us to reach our goals.

Success will require commitments from residents and businesses to change the way we do things. In some cases this may require hard choices; however in many cases simple changes may actually save money on energy expenses and improve our life styles and health.

It will take many years to reverse the climate course we have placed ourselves on. We must start now if we are going to keep our area a viable place to live for future generations.

Christopher Cabaldon

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Executive Summary

The debate is over. The overwhelming scientific consensus is that human-induced climate change is among the most pressing environmental and social problems facing this generation and those to come.

The time to act is now. Never in the past 1000 years has the planet warmed at a faster rate than during the 20th century, and the most recent decade has been the warmest ever on record. Allowing this trend to continue could result in decreased agricultural output, increased catastrophic weather events such as forest fires, drought and floods and displacement of entire populations due to rising sea levels.

West Sacramento must do its part. Although the United States accounts for a mere 4% of the world's population, it produces 20.4% according to Table No. 1 on page 6 of the world's greenhouse gases. West Sacramento released 410,682 tons of carbon dioxide equivalent (CO_2e) in 2007 and, if steps are not taken to achieve reductions, is projected to emit 30% more in 2020. However, on July 11, 2007, City of West Sacramento pledged to take action against this destructive trend by passing a resolution to join more than 230 U.S. local governments and 770 local governments worldwide in ICLEI's Cities for Climate Protection® (CCP) campaign. In so doing, West Sacramento committed to ICLEI's 5-Milestone methodology for combating global warming:

Milestone 1: Conduct a baseline emissions inventory and forecast

Milestone 2: Adopt an emissions reduction target

Milestone 3: Develop a Climate Action Plan for reducing emissions

Milestone 4: Implement policies and measures

Milestone 5: Monitor and verify results

Purpose of the Plan

The purpose of the Climate Action Plan is to place in one document the program which the community will follow to reduce Greenhouse Gas Emissions as well as the background of the existing emissions, future targets and the Goal and Policy framework leading to the actions to be implemented. The Plan will be implemented over a long period of time. Some of the actions identified may not be economically feasible in the near term but changes in technology, economics and public support may make them feasible in the future.

Emissions Inventory

Municipal: To calculate the GHG emissions from City operations, staff gleaned information about electricity and gas used in City facilities; water production and refuse and recycling generated within City

operations. In addition the amount of fuel used in City vehicles as well as commute habits of City employees was inventoried. To establish a uniform baseline a twelve month period was used and any data available for less than a twelve month period was extrapolated to construct time-line comparisons.

Our preliminary findings, depicted in the following chart(s), show both the CO_2e metric tonnes by major categories followed by the relationship by percentage of those categories to the total City CO_2 use.

Figure 0-1

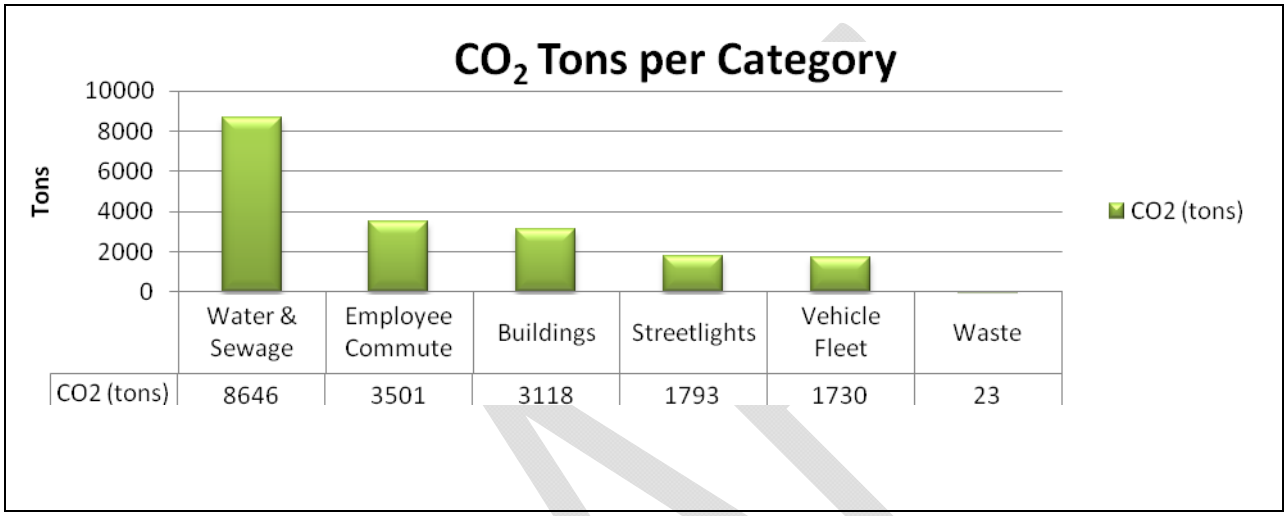
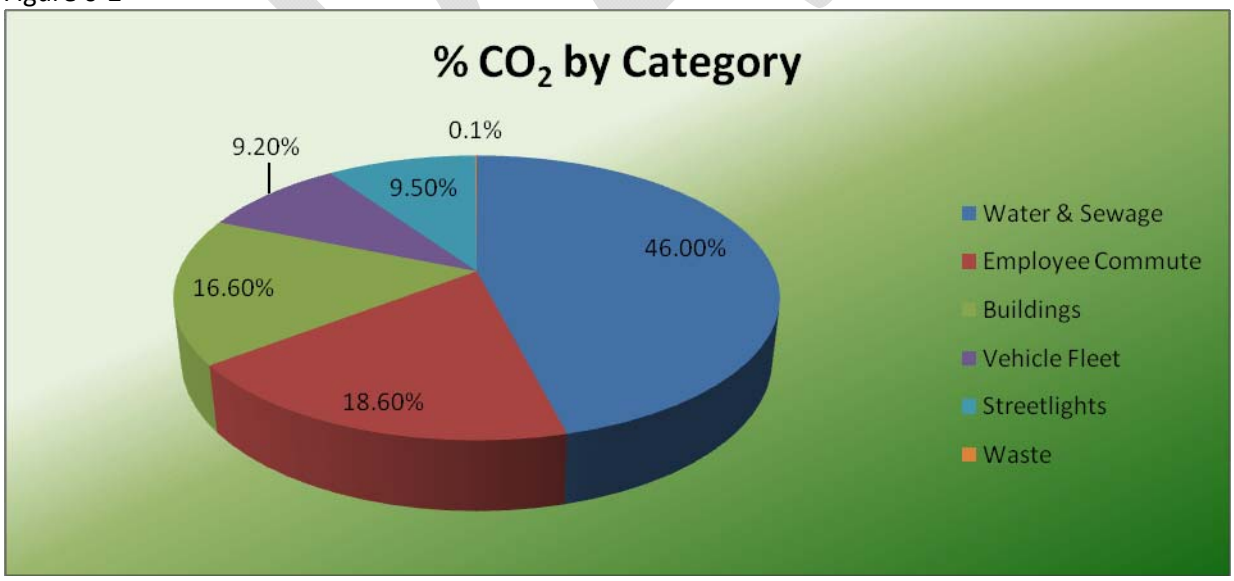


Figure 0-2

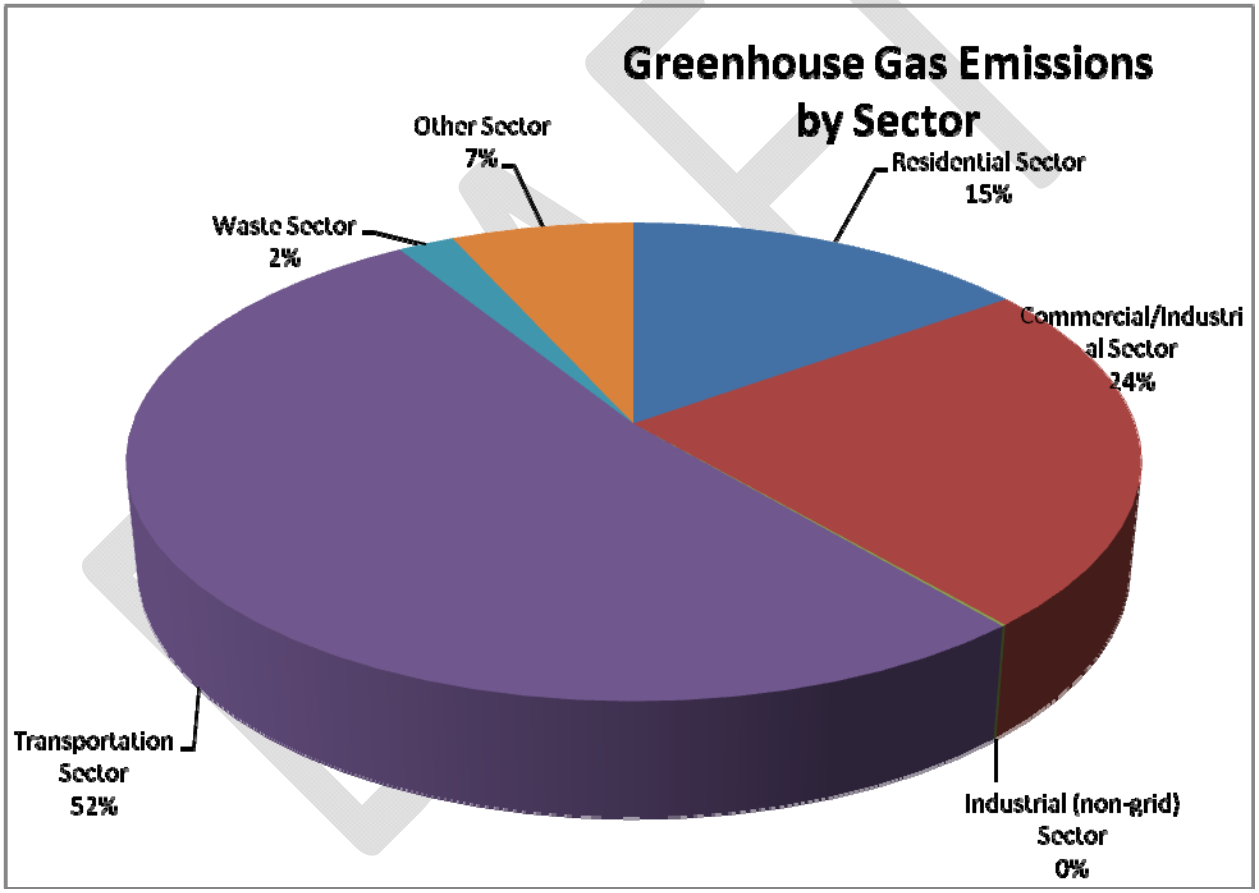


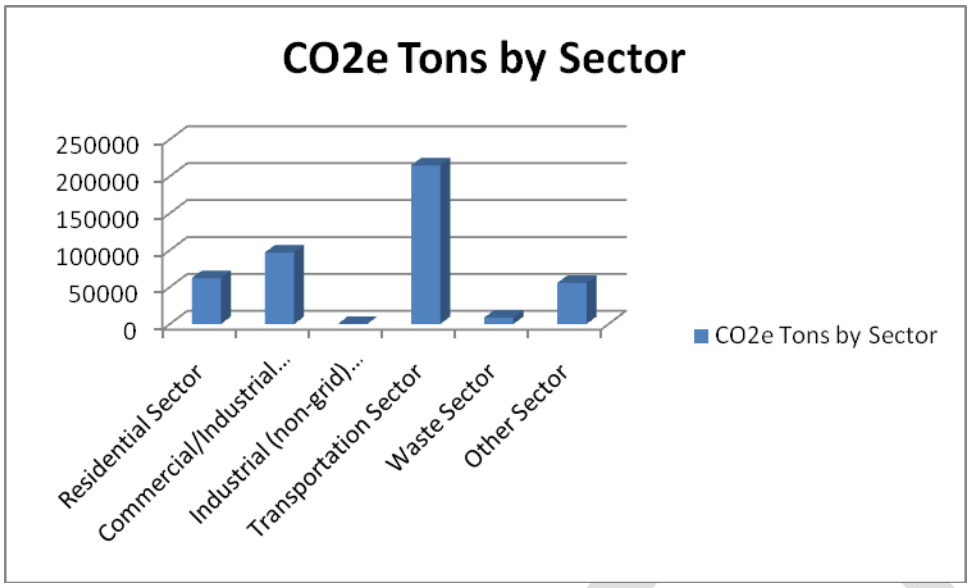
The Water and Sewage category is by far the largest generator of CO2. This is due to the vary energy intensive processes needed to treat and pump potable water and sewerage. The sewer treatment numbers in this table represent the South River Road Treatment Plant which, shortly after this

information was gathered, was shut down as the City connected to the Sacramento Regional Plant. Future analysis will need to compare the ongoing electrical demands of the local sewer collection system, and a pro-rata share of the Regional Plants' GHG emissions.

Community: The Community Sectors are broken out by Residential Energy Use, Commercial/Industrial Energy Use, Industrial (non-grid energy), Transportation, Waste and Other. The following chart(s) show both the CO_2e tonnes by major categories followed by the relationship by percentage of those categories to the total West Sacramento CO_2e generation. Total West Sacramento Community Greenhouse Gas Emissions for 2007 was 410,682 tonnes CO2e.

Figure 0-3





On a per capita basis, West Sacramento's residential emissions level is slightly lower than any jurisdiction in Sacramento County. West Sacramento's Commercial-Industrial Sector is relatively higher than typical cities around the region. In most local cities, Commercial-Industrial is about the same as Residential. West Sacramento has an unusually large employment base compared to its residential populations, so this is not unexpected. When evaluated on a per employee basis, West Sacramento is well within the range of cities in Sacramento County. The Transportation Sector is also unusually large. The presence of two significant, busy freeway segments in the community may be a contributing factor.

Emissions Targets

Municipal: The Municipal Goal is to reduce emissions 15% from current levels by 2020. As indicated by the municipal inventory, current emissions are 18,811 CO2 tons per year. The target for City organization emissions in 2020 is therefore 15,990 CO2 tons per year or less.

Community: West Sacramento is committed to reducing community-wide greenhouse gas emissions by 30% below a "Business as Usual" level based on a 2007 base year by 2020. Business as Usual assumes that emissions per resident and per employee continue at the same rate as today as the City grows. This approach for a target is due to the expected rapid growth of West Sacramento in population and employment relative to the State as a whole. That growth is critical to the regions ability to reach its targets given West Sacramento's location adjacent to the Sacramento urban core and the high density, transit oriented development planned along West Sacramento's riverfront and West Capitol Avenue.

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Existing Measures

Municipal: The City operates its water treatment plant at non-peak hours in order to reduce the use of non-renewable energy sources. The City Council has adopted a Transportation Management Plan for the Civic Center Complex which encourages the use of alternative transportation for City employees. A "Green" purchasing policy has been approved to encourage the use of environmentally superior materials and services by City departments, even if they are not in the short term the lowest cost alternative. The City has an active Tree Preservation and Planting program and has planted over 3,300 trees in the last four years from its Tree Mitigation Fund. The City's land use planning policies have encouraged climate change supportive development along the north eastern riverfront area of the community. Much of the future growth of the City will be in urban, transit oriented neighborhoods. Energy saving designs and materials has been incorporated into all new City buildings in the last few years, including City Hall, two Fire Stations and a new Community Center. Recycled materials and climate friendly design have been incorporated into new parks and in the renovation of existing parks. As part of its connection to the Sacramento County Regional Sewer Treatment Plant, the City renovated all of its sewer pump stations with more energy efficient pumps and controls.

Community:

The existing residents and businesses of West Sacramento are doing much to conserve energy and fight climate change. The community is currently diverting 60% of its solid waste stream from the land fill to recycling, in excess of the State goal of 50%. Numerous homes and businesses have installed photo voltaic systems on their properties. People are buying hybrid cars and replacing incandescent light bulbs with compact florescent bulbs. The most recent office building built in the City will qualify for LEED Platinum. The Community Inventory indicates that West Sacramento has a lower per capita residential Greenhouse Gas Emission level than any jurisdiction in Sacramento County.

Proposed Measures

A number of specific measures have been identified which can be accomplished by the City of West Sacramento to meet its Greenhouse Gas goals. Some measures are fairly general and others very specific. In many cases, a general measure leads to the implementation of a specific measure. An example of this would be an alternative transportation educational effort by the City leading to a greater use of hybrid cars in the community. Every effort has been made to avoid duplicative counting of emission benefits. In most cases the emission benefits have been recognized in the more general measure.

Municipal and Community Measures which have been recognized as providing emission benefits are listed below.

Municipal:

- Program Idling and RPM limits in City Vehicles
- Buy low GHG vehicles when replacing existing

- Use of alternative fuels in heavy vehicles.
- Encourage use of alternative transportation by City employees
- Replacement of existing street lights with LED.
- Energy Retrofits of some existing City Buildings.
- Development of future new City buildings as LEED Silver.
- Purchase Renewable Energy Certificates to provide municipal power.
- Install Solar installations at City facilities

Community:

- Implementation of an alternative transportation education program.
- Construction of the Riverfront Street Car System
- Develop high density, transit oriented housing
- Expanding transit as the City grows.
- Green Building Ordinance
- Energy Efficiency Educational program.
- Energy Efficiency Loan Program.
- Energy Efficiency Conservation Ordinances.
- Water Conservation through metered billing.
- Tree Planting
- Replacement of older appliances with energy star rated appliances

Conclusions and Summary

The City of West Sacramento will have to reduce 160,117 tons of CO_2e emissions in the community, including at least 2,820 tons of CO_2e emissions from municipal operations, in order to achieve our emissions reduction target.

Implementation of measures by the City of West Sacramento as identified in this document, together with measures being implemented by the State and Federal government do give the City of West Sacramento the potential for reaching its greenhouse gas reduction goals for 2020 at both the Municipal

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and Community Level. As shown in the table below, the measures identified reduce emissions to 30% below Business as Usual for the Community and 134% below the 2007 baseline for the Municipal organization.

Table (4.13): City of West Sacramento Emissions Summary

City of West Sacramento Emissions Summary		
	Community Analysis	**Municipal Operations Analysis**
Base year	2007	2007
Quantity of CO_2e emissions in base year (tonnes)	410,682	18,801
Target year	2020	2020
Business-as-usual projection of CO_2e emissions in 2020 (tonnes)	533,726	21,245
Percent CO_2e reduction targeted by target year relative to base year (%)	30%	15%
Quantity of CO_2e reduction targeted relative to base year (tonnes)	160,117	2,820
Quantity of CO_2e reduction to be achieved through proposed City of West Sacramento measures (tonnes)	52,554	543
Quantity of CO2e reduction to be achieved through measure external to West Sacramento	108,035	3,571
Percent of CO_2e reduction to be achieved through all existing and proposed measures (%)	100%	130%

The measures identified reduce the per capita emissions in West Sacramento from 8.7 metric tonnes CO_2e in 2007 to 6.3 metric tonnes CO_2e in 2020, a 27% reduction.

Next steps

Implement Plan: After adoption of this Plan, much on-going work will be needed to implement the Plan. Education, coordination and collaboration will be needed with City Departments, Residents and the Business Community to move towards the goals of the Plan. The California Environmental Quality Act will be used to implement many measures dealing with new development. The Draft Climate Action Plan meets all the requirements of CEQA Guidelines Section 15183.5.

Monitor results: Key indicators which are easily available should be reported to the Council and Community on an annual basis. Examples of key indicators include: total community electrical and natural gas use, Municipal energy and natural gas use for utility sectors (water treatment, water distribution, sewer collection, building use, etc.), Caltrans estimates of community vehicle miles travelled, and gallons of gas used in City vehicles.

The Municipal and Community Greenhouse Gas Inventories should be updated every five years to monitor the progress of the community in achieving the goals of the plan.

Revise: The Plan should be reviewed and revised regularly based on the areas which have been successfully implemented, new technology and new information in the area of climate change, measures which have been found to be unsuccessful and new standards or legislation.

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Background

About International Council for Local Environmental Initiatives (ICLEI) and the Cities for Climate Protection Campaign

ICLEI's mission is to improve the global environment through local action. The Cities for Climate Protection® (CCP) campaign is ICLEI's flagship campaign designed to educate and empower local governments worldwide to take action on climate change. ICLEI provides resources, tools, and technical assistance to help local governments measure and reduce greenhouse gas emissions in their communities and their internal municipal operations.

ICLEI's CCP campaign was launched in 1993 when municipal leaders, invited by ICLEI, met at the United Nations in New York and adopted a declaration that called for the establishment of a worldwide movement of local governments to reduce greenhouse gas emissions, improve air quality, and enhance urban sustainability. The CCP campaign achieves these results by linking climate change mitigation with actions that improve local air quality, reduce local government operating costs, and improve quality of life by addressing other local concerns. The CCP campaign seeks to achieve significant reductions in U.S. greenhouse gas emissions by assisting local governments in taking action to reduce emissions and realize multiple benefits for their communities.

ICLEI uses the performance-oriented framework and methodology of the CCP campaign's 5- Milestones to assist U.S. local governments in developing and implementing harmonized local approaches for reducing global warming and air pollution emissions, with the additional benefit of improving community livability. The milestone process consists of:

- Milestone 1: Conduct a baseline emissions inventory and forecast
- Milestone 2: Adopt an emissions reduction target
- Milestone 3: Develop a Climate Action Plan for reducing emissions
- Milestone 4: Implement policies and measures
- Milestone 5: Monitor and verify results

***City of West Sacramento's* Climate Action Plan**

- Provides background on the science and impacts of climate change
- Presents *City of West Sacramento's* baseline greenhouse gas emissions inventory and emissions reduction target
- Outlines the policies and measures in the transportation, energy efficiency, renewable energy, and solid waste management sectors that *City of West Sacramento* will implement and/or is already implementing to achieve its target
- Presents next steps required to implement the plan

10 Steps to Reduce your Carbon Footprint and Save Money

From CoolClimate.org

1. Change your commute!

Did you know that one third of the CO2 produced in the US is from the transportation of people or goods? Pick one day a week to walk, bike, take public transportation or carpool to work or when you're running errands. If possible, live close to your workplace. When driving, remember to combine several car trips into one trip and avoid idling. Additionally, you can get better fuel efficiency by following the speed limit. Exceeding the speed limit by just 5 mph during highway travel results in an average fuel economy loss of 6%.

2. Be a better consumer!

Did you know that the average American generates about 4.4 lbs of trash each day? To reduce the amount of trash you generate, follow these few easy steps. Use re-usable coffee mugs and shopping bags. If you forget your mug or bag at the store, buy a new reusable mug or bag and keep the extra one in your purse or car for use the next time you're out. Alternatively, set aside $1 each time you forget your mug or bag; depending on your memory, you'll have enough funds to purchase a reusable item sooner or later. Also, reuse as many things as possible and recycle at home, work, and school.

3. Shop local!

The shorter the distance your food travels to your plate or that product travels to your home, the fewer Greenhouse gases are produced. Declare one day a week "Local Day" and eat foods produced within 50 miles of your house.

4. Dry-up Household Water Consumption!

Did you know that water-related energy use consumes 19% of California's electricity, 30% of its natural gas, and 88 billion gallons of diesel fuel every year? To reduce your water consumption at home, turn off your water when it's not being used, take shorter showers, stop unseen leaks by reading your meter, install low-flow shower heads and aerators on your faucet, install and use water efficient landscaping and irrigation methods (for example, plant drought tolerant plants and/or install permeable surfaces and drip irrigation systems), and use EnergyStar appliances.

5. Unplug it!

Did you know that appliances, chargers, home theater equipment, stereos and televisions use electricity even when their power is "off"? Eliminating this "leaking" electricity could save you 6–26% on your average monthly electricity bill. Take a walking tour of your home and unplug seldom-used appliances and install power strips so that the power to frequently used items can be easily turned off.

6. Change the lights!

Replace any incandescent light bulbs that remain in your home with compact fluorescent lights (CFLs). Replacing one incandescent light bulb with a CFL can save $30 or more in electricity costs over the bulb‘s lifespan.

7. Set your Thermostat for the Season!

Set your thermostat in winter to 68°or less during the daytime, and 55° before going to sleep (or when you're away for the day), to save 5-20% of your space heating costs. During the summer, set thermostats to 78° degrees or more to save 5-20% of your cooling costs. For an easy fix, purchase an inexpensive programmable thermostat that makes these changes for you.

8. Increase Energy Efficiency at home!
Did you know that you can save up to 350 lbs of CO2 and $150 per year at home by simply keeping air filters clean? To determine more ways to increase energy efficiency, take advantage of free home energy audits offered by many utility companies. When you are ready to purchase an appliance, ensure that you purchase an EnergyStar appliance. To reduce carbon emissions associated with energy use, install or purchase alternative energy for your electricity needs.

9. Stop Unwanted Services!
Did you know that junk mail production in the US consumes as much energy as 2.8 million cars? Stop your junk mail at www.directmail.com/junk_mail. Stop unwanted catalogs at www.catalogchoice.org.

10. Get your friends and families to reduce their carbon emissions!

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Acknowledgements

This plan was created by City of West Sacramento staff. The primary drafter was Stephen Patek, retired Director of Public Works and Community Development. Many other staff contributed. The City's multi-departmental Green Strategy Team prepared portions of the text and reviewed and commented on the drafts. The Green Team is managed by Denise Kotko of the Finance Department. Major contributors include Steve Rikala, City Planner, Paul Dirksen, Community Investment, Amy Cameron, Economic Development, Joe Escobar, Police Department, Paulina Rosenthal, Resources/Recycling, Randy Goodwin, City Architect, Belinda Arthurs, Water Conservation, and Greta Vohlers, Transportation.

While the area of Climate Action Plans is a rapidly evolving one, much good work has been done by other Cities, Counties and organizations. It would be neither cost effective nor wise for the City of West Sacramento to re-invent the wheel in the format, language or content of its Climate Action Plan. Much of this plan is taken from the Alameda County/ICLEI template project, where the International Council for Local Environmental Initiatives was funded by the Air Resources Board to prepare a Climate Action Plan for Alameda County which would then be available as a template for other California jurisdictions. Much information regarding Greenhouse Gas Inventory Methodology was learned from the Sacramento County Greenhouse Gas Inventory prepared by ICF Jones and Stokes. Other Climate Action Plans reviewed and used as source material include that of the City of Hayward, prepared by HDR, Inc., the City of Berkeley, the County of Sonoma and the City of Davis. The City's General Plan environmental consultant (PBS&J) provided a useful peer review of the draft document as well as examples of Climate Action Plans and examples of inventory calculations.

Much helpful information is available from the State of California Agencies. The Air Resources Board is the leading agent of change at the State level and provides much guidance and resources in the preparation of Climate Action Plans. The Attorney General's office has also played an active role in providing policy direction to Cities. The Office of Planning and Research of the Governor's office is also much involved.

The City of West Sacramento's Climate Action Plan effort is a direct outcome of the City Council's direction to make a Green and Sustainable Strategy a top policy priority for the City beginning in 2007.

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Acronyms and Abbreviations

AB 32	Assembly Bill 32
ALAPCO	Association of Local Air Pollution Control Officers
Btu	British Thermal Unit
CACP2009	Clean Air and Climate Protection Software
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAR	California Climate Action Registry
CEC	California Energy Commission
CFC	chlorofluorocarbon
CH4	methane
CIWMB	California Integrated Waste Management Board
CO2	carbon dioxide
CO2e	CO2 equivalents
DERA	Sacramento County Department of Environmental Review and Assessment
FAA	Federal Aviation Administration
FMMP	California Division of Land Resources Protection Farmland Mapping and Monitoring Program
GHG	greenhouse gas
GWP	Global Warming Potential
HFC	hydroflourocarbon
HPMS	Highway Performance Monitoring System
IC	internal combustion

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ICLIE	International Council for Local Environmental Initiatives
IPCC	Intergovernmental Council on Climate Change
Lbs/MWh	pounds per megawatt hours
LMOP	Landfill Methane Outreach Program
LPG	liquefied petroleum gas
MTCO2e	metric tons of carbon dioxide equivalent
N2O	nitrous oxide
NAICS	North American Industrial Classification System
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
SF6	sulfur hexafluoride
SMAQMD	Sacramento Metropolitan Air Quality Management District
TAC	toxic air contaminant
VMT	Vehicle Miles Traveled
YSAQMD	Yolo/Solano Air Quality Management District

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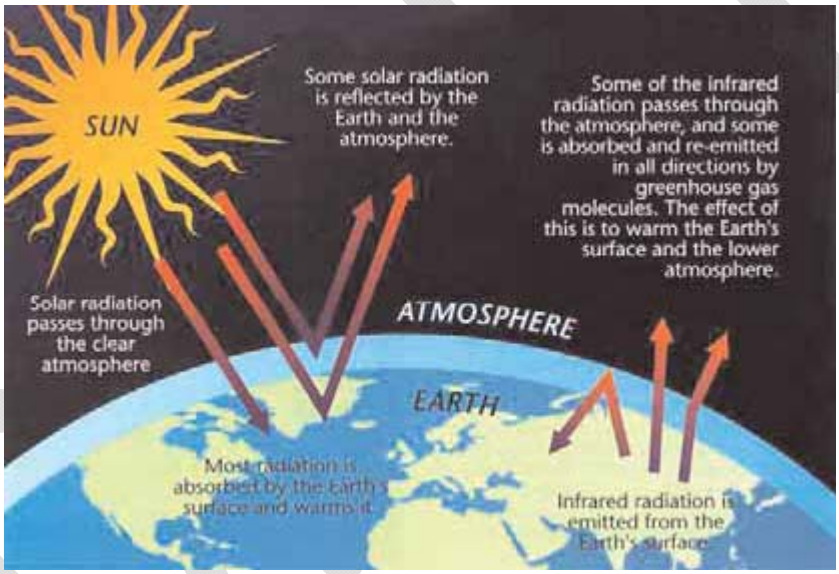
Chapter 1 – Introduction

I. Introduction

A. Introduction to Climate Change Science

The Earth's atmosphere is naturally composed of a number of gases that act like the glass panes of a greenhouse, retaining heat to keep the temperature of the Earth stable and hospitable for life at an average temperature of 60ºF. Carbon dioxide (CO_2) is the most prolific of these gases. Other contributing gases include methane (CH_4), nitrous oxide (NO_2), ozone (0_3) and halocarbons. Without the natural warming effect of these gases the average surface temperature of the Earth would be around 14ºF. These gases have been defined as greenhouse gases (GHG) because of the warming effect they have on the earth. Figure (1-1) illustrates how GHG emissions are able to warm the Earth.[1]

Figure (1-1) The Greenhouse Gas Phenomenon



Source: US Environmental Protection Agency

However, recently elevated concentrations of these gases in the atmosphere have had a de-stabilizing effect on the global climate, fueling the phenomenon commonly referred to as global warming. The global average surface temperature increased during the 20th century by about 1°F. According to NASA scientists, the 1990s were the warmest decade of that century, and the first decade of the 21st century was another record-breaker. The years 2004, 2005, 2006, 2007 and 2008, were the warmest five years since the 1890s, with 2008 being the warmest year in over a century [1].

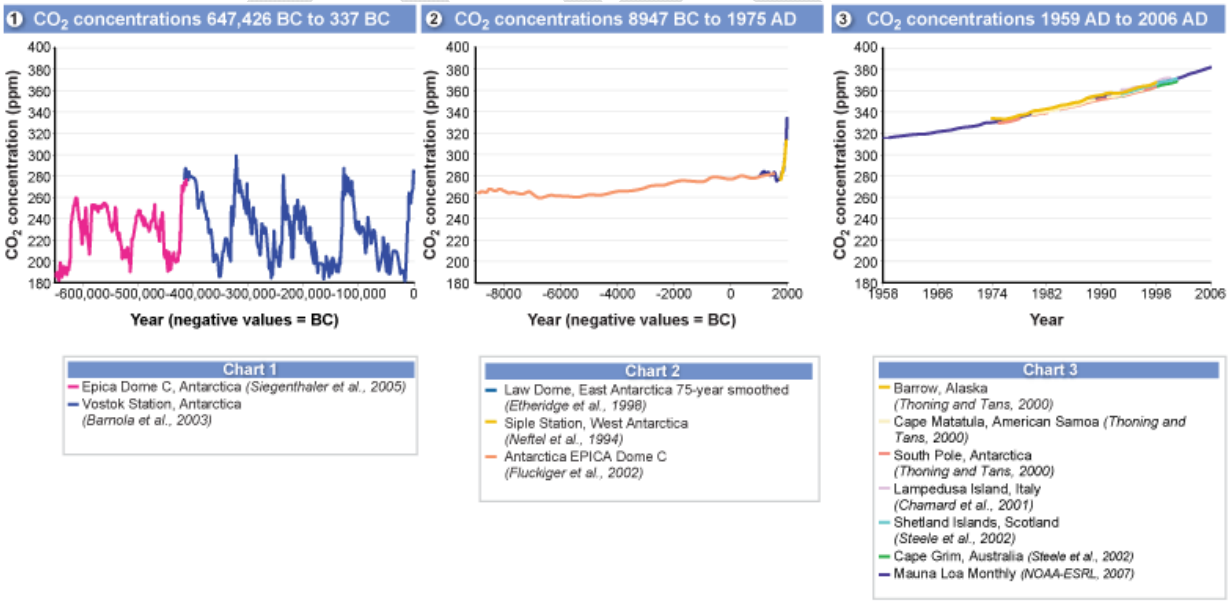
[1] 1 "Working Group 1, The Physical Science Basis of Climate Change" Intergovernmental Panel on Climate Change (IPCC) 2007"

Natural exchanges of CO_2 were in balance for many thousands of years – with living creatures, growing plants and natural events releasing CO_2, and carbon "sinks" such as the oceans absorbing carbon dioxide – leading to a relatively steady concentration of CO_2 in the atmosphere. The concentration of CO_2 in the atmosphere is now known accurately for the past 650,000 years. During this period, the concentration of CO_2 in the atmosphere varied between a low of about 180 parts per million (ppm) during ice ages, and a high of about 300 ppm during warm periods. In the past, before human industrialization, the so-called "carbon budget" was balanced.

Human-caused emissions of GHGs, primarily from the burning of fossil fuels, have busted the carbon budget. Since the beginning of the industrial era, atmospheric concentrations of CO_2 have climbed to their highest point in the last half-million years, rising from a bit under 300 p.p.m. in 1900 to over 380 p.p.m. today, and rising at about 2 p.p.m. per year. The increases in global average temperature we're seeing today are the result of human-caused increases in atmospheric greenhouse gases, coming on top of a natural trend of peaking CO_2, which have heightened the greenhouse effect well beyond its natural level. We're moving off the charts, performing a one-shot, uncontrolled experiment with the only Earth we have. The graphs shown in Figure (1-2) show the variation in CO_2 concentrations over time.

Figure 1-2

Atmospheric Concentrations of Greenhouse Gases in Geologic Time



Source: EPA Climate Change Website

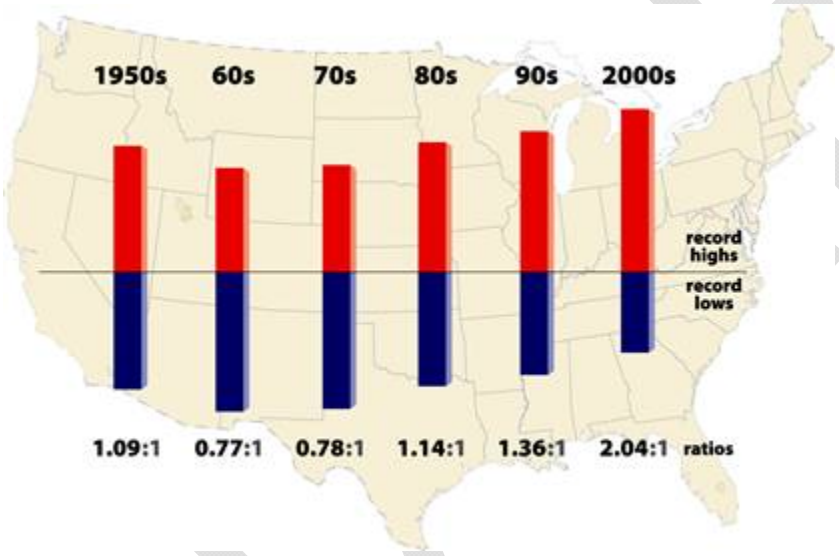
Scientific Facts and Projections:

- The atmospheric concentration of carbon dioxide (CO_2) during the last two decades has increased at the rate of 0.4% every year.
- Current CO_2 concentrations are higher than they have been in the last 420,000 years, and according to some research, the last 20 million years.
- About three-quarters of the CO_2 emissions produced by human activity during the past 20 years are due to the burning of fossil fuels.

Source: The Intergovernmental Panel on Climate Change

Figure (1-3) demonstrates the record rise in temperature that has occurred in the later half of the 20th century.

Figure 1-3 Record Highs Compared to Record Lows



The climate and the atmosphere do not react in a linear fashion to increased greenhouse gases. That is to say that you cannot simply predict the specific degree of warming that each ton of CO_2 emitted from a power plant or a vehicle's tailpipe will cause. The Earth's climate has a number of feedback loops and tipping points that scientists fear will accelerate global warming beyond the rate at which it is currently occurring. For example, as CO_2 emissions have increased in recent human history, the oceans have been absorbing a significant portion of these gases, but as the oceans become more permeated with CO_2, scientists anticipate they will reach a saturation point, after which each ton of anthropogenically

emitted CO_2 will have a more substantial impact.[2] Another example of this compounding can be found in the polar ice caps. Ice is highly reflective and acts effectively like a giant mirror, reflecting the sun's rays back into space. As the planet warms and some of this ice melts away, a darker land or ocean surface is revealed. This darker surface tends to absorb more heat, accelerating the speed at which the planet warms with each ton of greenhouse gas emitted. As these examples illustrate, the stakes are high, and there is no time to lose in the fight against global warming.

B. Effects & Impacts of Climate Change

Global Impacts

In addition to causing an increase in average global surface temperature, rising levels of GHG Emissions have a destabilizing effect on a number of different micro-climates, conditions and systems. According to the Intergovernmental Panel on Climate Change, surface temperatures are on course to increase by between 2.5 and 10.5ºF by the year 2100, with regions in the northern parts of North America and Asia heating by 40% above the mean increase.[3] The increase in the temperature of the oceans is projected to accelerate the water cycle, thereby increasing the severity and rate of both storms and drought, which, along with decreased snow pack, could disrupt ecosystems, agricultural systems and water supplies.

Snow cover has decreased by 10% in the last forty years. Average sea levels have raised between 1/3 and 2/3 of a foot over the course of the 20th century and are projected to rise by at least another 1/3 of a foot and up to almost three feet by the year 2100. These coastal infringements on such a large scale could lead to not only significant environmental and ecosystem disturbances, but also major population displacement and economic upheaval.[4]

Local Impacts:

While climate change is a global problem influenced by an array of interrelated factors, climate change is also a local problem with serious impacts foreseen for California, the Central Valley and nearby areas such as Bay Area and the Sierras and City of West Sacramento itself.

***Sea level rise*:** According to the Union of Concerned Scientists, the sea level in the State of California is expected to rise up to 12 inches of the next hundred years. The Pew Center on Climate Change has reported that this would result in the erosion of beaches, bay shores and river deltas, marshes and

[2] Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report: "Climate Change 2001: The Scientific Basis."
[3] Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report: "Climate Change 2001: The Scientific Basis."
[4] Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report: "Climate Change 2001: The Scientific Basis."

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wetlands and increased salinity of estuaries, marshes, rivers and aquifers.[5] This increased salinity has the potential to damage or destroy crops in low-lying farmlands. Infrastructure at or near sea level, such as harbors, bridges, roads and even the San Francisco International and Oakland International Airports are at risk of damage and destruction.

The San Francisco Bay Area Conservation Commission has modeled the impact of a sea level rise of 3 feet (approx 1 meter) on the San Francisco Bay Area. As shown in Figure (2), areas such as the Oakland Airport would be under water as well parts of Alameda, San Leandro, Hayward, Union City, Fremont and Newark, including sections of Interstate 880.

Figure (1-4) San Francisco Bay Area Land areas Affected by a 1-meter Sea Level Rise

Source: San Francisco Bay Area Conservation Commission

***Natural disasters*:** Climate models predict a 4ºF temperature increase in the next 20 to 40 years, with an increase in the number of long dry spells, as well as a 20-30% increase in precipitation in the spring and fall. More frequent and heavier precipitation will cause flooding and mudslides, which would incur considerable costs in damages to property, infrastructure and even human life. Heavy rains during the winter of 2005 offer a glimpse of the potential costly and disruptive effects of such precipitation.

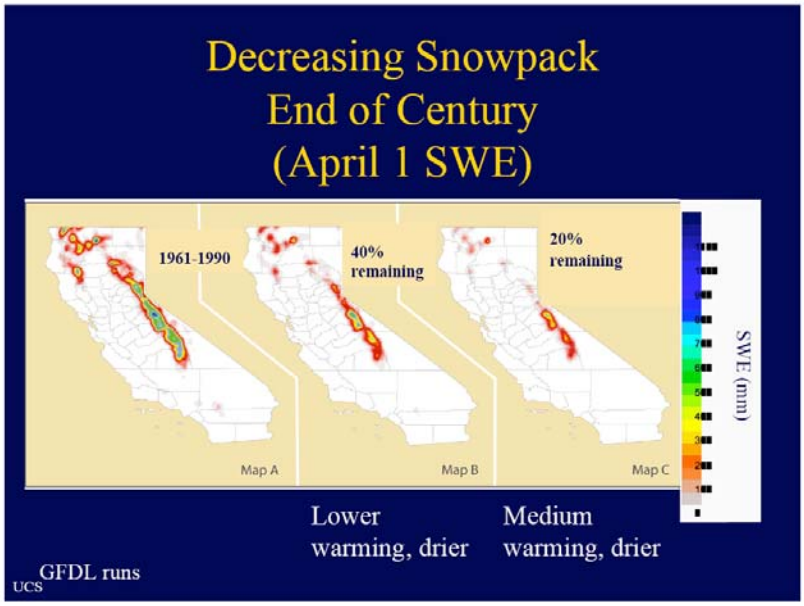
[5] Neumann, James E. for the Pew Center on Global Climate Change. "Sea Level Rise & Global Climate Change: A Review of Impacts to the US Coasts." February 2000.

In addition, the increase of wildfires due to continued dry periods and high temperatures is another expected impact of continued climate change. In these conditions, fires burn hotter and spread faster. During 2003, there were 14 reported fires in California which were enhanced due to Santa Ana winds and very low levels of humidity. The estimated damage costs were over $2 Million.

Impacts on water: Water quality and quantity are also at risk as a result of changing temperatures. With warmer average temperatures, more winter precipitation will fall in the form of rain instead of snow, shortening the winter snowfall season and accelerating the rate at which the snowpack melts in the spring. Not only does such snow melt increase the threat for spring flooding, it will decrease the Sierras' capacity as a natural water tower, resulting in decreased water availability for agricultural irrigation, hydro-electric generation and the general needs of a growing population.

The decrease in snow-pack is particularly relevant in the State of California and the Sacramento, as the Sierra snow-pack provides approximately 80% of California's annual water supply, and it is the origin of the American River, the primary source of water for the Sacramento regional water system. Figure (3) was provided by the Union of Concern Scientists for the California Climate Action Team Report (2006).

Figure (1-5) Decreasing Snowpack in California



Source: Union of Concern Scientists

***Impacts on plants and vegetation*:** Native plants and animals are also at risk as temperatures rise. Scientists are reporting more species moving to higher elevations or more northerly latitudes in response. Increased temperatures also provide a foothold for invasive species of weeds, insects and

other threats to native species. The increased flow and salinity of water resources could also seriously affect the food web and mating conditions for fish that are of both of economic and recreational interest to residents. In addition, the natural cycle of plant's flowering and pollination, as well as the temperature conditions necessary for a thriving locally adapted agriculture could be affected, with perennial crops such as grapes taking years to recover.

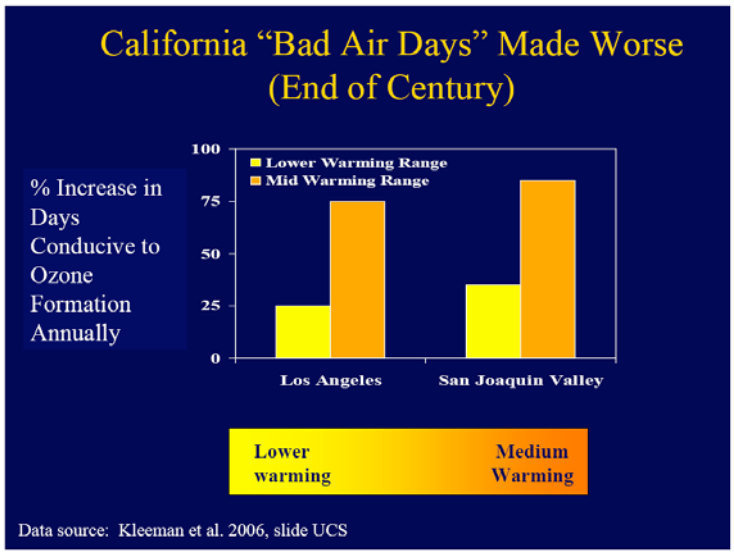
In California, the impacts of climate change on agriculture are estimated to be $30 billion by the Farm Bureau, mostly due to changes in chill hours required per year for cash crops.

***Public health impact*:** Warming temperatures and increased precipitation can also encourage mosquito-breeding, thus engendering diseases that come with mosquitoes, such as the West Nile Virus, a disease of growing concern in our region. Heat waves are also expected to have a major impact on public health and be a determinant factor of mortality. According to the IPCC (2004), the summer mortality rates will double by half by 2050 due to hot weather episodes.

Increased temperatures also pose a risk to human health when coupled with high concentrations of ground-level ozone and other air pollutants, which may lead to increased rates of asthma and other pulmonary diseases. Furthermore, anticipated increases in the number and severity of hot days place significant portions of the population, particularly the elderly, young, those already sick, and people who work outdoors, at risk for heat-stroke.

The incidence of bad air days in California's urban areas has increased, mostly in hot summer days (see Figure (1-6)) (Source: Union of Concern Scientists). On long, hot, stagnant days, ground level ozone can build up to levels that violate federal and state health-based standards. In the summer of 2006, the Sacramento Air Quality Management District (SAQMD) registered 15 Spare the Air days and exceeded the California 1-hour standard for ozone (set at 90 ppb) 43 times.

Figure (1-6) California Bad Air days



Given that climate change has local repercussions and effects on weather, water resources, ecosystems, public health, infrastructural stability and economic vitality, local governments have a vested interest in mitigating the amount of greenhouse gases being produced by their communities.

C. Action Being Taken on Climate Change

International Action

As evidence of climate change has mounted, groups at the international, federal, state and local level have responded with ways to confront the impending threat. The United Nations Framework Convention on Climate Change (UNFCC) leads international efforts to investigate and combat climate change. Recognizing the problem of potential global climate change, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988 to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk associated with human-induced climate change, its potential impacts and options for adaptation and mitigation, releasing its most recent assessment in 2007.[6]

In 1997, 10,000 international delegates, observers and journalists gathered in Kyoto, Japan to participate in the drafting and adoption of the Kyoto Protocol, requiring industrialized nations to reduce their collective greenhouse gas emissions 5.2% below 1990 levels. As of January 2007, 162 countries have ratified the Protocol, with the United States and Australia most notably absent from the list. Additionally, since 1995 the annual Conference of the Parties (COP) has met to discuss action and implementation to combat climate change, with the most recent COP, COP-12, being held in Nairobi in 2006.

State and Federal Action

Though adequate attention and action related to combating climate change has been lacking at the federal level, California has taken significant steps at the state level. California has been leading the charge on combating climate change through legislation:

Senate Bill 1078 Sher, 2002 – Established a Renewable Portfolio Standard requiring electricity providers to increase purchases of renewable energy resources by 1% per year until they have attained a portfolio of 20% renewable resources.

[6] Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report: "Climate Change 2007"

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Assembly Bill 1493 Pavley, 2002 – Requires the State Air Resources Board to develop and adopt regulations that achieve the maximum feasible reduction of greenhouse gases from vehicles primarily used for non-commercial transportation by January 2005.

Senate Bill 1771 Sher, 2000 – Requires the California Energy Commission (CEC) to prepare an inventory of the state's greenhouse gas emissions, to study data on global climate change, and to provide government agencies and businesses with information on the costs and methods for reducing greenhouse gases. It also established the California Climate Action Registry to serve as a certifying agency for companies and local governments to quantify and register their greenhouse gas emissions for possible future trading systems.

AB 32 Núñez & Pavley, 2006 – Institutes a mandatory limit on greenhouse gas emissions -- reducing emissions in California to 1990 levels by the year 2020, or 25% below forecasted levels. The bill also directs the California Air Resources Board (CARB) to establish a mandatory reporting system to track and monitor emission levels and requires CARB to develop various compliance options and enforcement mechanisms.

Senate Bill B 97 Dutton, 2007 – Requires the Governor's Office of Planning and Research (OPR) to develop guidelines for the analysis and mitigation of GHG emissions in CEQA documents. Local governments will be required to comply with those guidelines in the preparation of locally required CEQA documents.

On June 1, 2005, Governor Schwarzenegger signed Executive Order #S-3-05 establishing a greenhouse gas reduction target of reducing emissions to 2000 levels by 2010, to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. In April 2006, the California Climate Action Team released its Report to Governor Schwarzenegger and the State Legislature, outlining recommendations and strategies to achieve those reductions.

Local Action

A great deal of work is being done at the local level on climate change as well. ICLEI—Local Governments for Sustainability has been a leader both internationally and domestically for more than ten years, representing over 770 local governments around the world. ICLEI was launched in the United States in 1995 and has grown to more than 230 cities and counties providing national leadership on climate protection and sustainable development. In June 2006, ICLEI launched the California Local Government Climate Task Force as a formal mechanism to provide ongoing input and collaboration into the State of California's climate action process. ICLEI also works in conjunction with the U.S. Conference of Mayors to track progress and implementation of the U.S. Mayors Climate Protection Agreement, launched in 2005, which more than 376 mayors have signed to date pledging to meet or beat the Kyoto Protocol emissions reduction target in their own communities. By the end of 2008, Sacramento area mayors from Sacramento, Rancho Cordoba, and West Sacramento have signed the U.S. Mayors Climate Protection Agreement.

As pointed out from the paragraphs above, there are ongoing actions to address climate change at the local, statewide, national and international levels. Figure (1-7) summarizes the resources that local jurisdictions can use to address and analyze climate change and GHG emissions.

Figure (1-7) Climate Change and GHG Analysis Resources.

Climate Change Resources

International	
ICLEI	www.iclei.org
Intergovernmental Panel on Climate Change	www.ipcc.ch
Pew Center on Global Climate Change	www.pewclimate.org
United Nations Framework Convention on Climate Change	unfccc.int
World Research Institute	www.wri.org
Federal	
U.S. EPA Climate Change	www.climatechange.ca.gov
Department of Energy, Energy Information Administration	www.eia.gov
Regional	
Western Climate Initiative	www.westernclimateinitative.org
State	
California Air Resources Board	www.arb.ca.gov
California Climate Action Registry	www.climateregistry.org
California Climate Change Portal	www.climatechange.ca.gov
California Energy Commission	www.energy.ca.gov
California Integrated Waste Management Board	www.ciwmb.ca.gov
Local	
Association of Bay Area Governments	www.abag.ca.gov
Bay Area Air Quality Management District	www.baaqmd.gov
City of Hayward	www.ci.hayward.ca.us
Metropolitan Transit Commission	www.mtc.ca.gov
Stopwate.org	stopwaste.org

Climate Protection Efforts by the City of West Sacramento

Beginning in 2007, the City Council of West Sacramento has identified a Green and Sustainable Community Strategy as a high priority on the City's Policy Agenda. The Policy Agenda identifies the top dozen or so priority issues where the Council wishes to see progress. The City staff has formed a multi-departmental Green and Sustainability Team which is working on sustainability efforts. The City has completed both municipal and community inventories which are presented in this document. In November of 2008, the Green Team presented to the City Council a list of existing, near term proposed and longer term proposed activities and actions to implement a Sustainability Strategy. Those actions cover the full range of departments from avoiding operation of the water treatment plant at peak

electricity demand hours, preparation of a Transportation Management Plan with incentives for City Hall, development of a green preference purchasing policy, purchase of hybrid pool cars at City Hall, drought tolerant landscaping at City Parks and development of a computerized central controller, development of a bike barn at City Hall with pool bikes for use by City Employees while at work, construction of a new community center to a LEED Silver standards, and other efforts which will be discussed in more depth later in this document. The philosophy blessed by the Council was that the City organization should lead by example in sustainability efforts, and then work with the community to bring it along.

The City of West Sacramento will use the CEQA review process in compliance with State CEQA Guidelines to analyze and mitigate GHG emissions in new development projects. This draft Climate Action Plan complies with the criteria listed in CEQA Guidelines Section 15183.5 which provides guidance on what should be included in a qualified Climate Action Plan. Adoption of this Climate Action Plan will allow streamlining of CEQA review of development projects in regards to GHG emission impacts.

The following Chapter will present Greenhouse Gas Inventories for the West Sacramento City Organization and Community and discuss reduction targets for both.

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Chapter 2- West Sacramento Contribution to Climate Change

2.1. Emissions Inventory

A. Reasoning, Methodology & Model

The City of West Sacramento inventory was conducted by City staff. The purpose of the baseline emissions inventory is to determine the levels of greenhouse gas emissions that West Sacramento emitted in its base year, 2007.

ICLEI's Cities for Climate Protection inventory methodology allows local governments to systematically estimate and track greenhouse gas emissions from energy and waste related activities at the community-wide scale and those resulting directly from municipal operations. The municipal operations inventory is a subset of and included in the community-scale inventory. The municipal inventory generally followed the ICLIE Local Government Operations Protocol. While the Protocol was formally published and approved by the Air Resources Board in September2008 and the inventory was already completed, draft descriptions of the Protocol were available and were followed.

Once completed, these inventories provide the basis for creating an emissions forecast and reduction target, and enable the quantification of emissions reductions associated with implemented and proposed measures.

1. ICLEI's Emissions Analysis Software

To facilitate local government efforts to identify and reduce greenhouse gas emissions, ICLEI developed the Clean Air and Climate Protection (CACP) software package with Torrie Smith Associates. This software estimates emissions derived from energy consumption and waste generation within a community. The CACP software determines emissions using specific factors (or coefficients) according to the type of fuel used. Emissions are aggregated and reported in terms of carbon dioxide equivalent units, or CO_2e. Converting all emissions to carbon dioxide equivalent units allows for the consideration of different greenhouse gases in comparable terms. For example, methane is twenty-one times more powerful than carbon dioxide in its capacity to trap heat, so the model converts one ton of methane emissions to 21 tons of CO_2e.

The emissions coefficients and methodology employed by the software are consistent with national and international inventory standards established by the Intergovernmental Panel on Climate Change (1996 Revised IPCC Guidelines for the Preparation of National GHG Emissions Inventories), the U.S. Voluntary Greenhouse Gas Reporting Guidelines (EIA form1605), and, for emissions generated from solid waste, the U.S. EPA's Waste Reduction Model (WARM).

The CACP software has been and continues to be used by over 250U.S. local governments to reduce their greenhouse gas emissions. However, it is worth noting that, although the software provides West Sacramento with a sophisticated and useful tool, calculating emissions from energy use with precision is

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difficult. The model depends upon numerous assumptions, and it is limited by the quantity and quality of available data. With this in mind, it is useful to think of any specific number generated by the model as an approximation rather than an exact value.

2. Inventory Data Sources and Creation Process

An inventory of greenhouse gas emissions requires the collection of information from a variety of sectors and sources. For community electricity and natural gas data, staff consulted with Pacific Gas & Electric Company (PG&E). The City of West Sacramento's Traffic Model served as the source of transportation data. Solid waste data was gathered from Waste Management, Inc., City of West Sacramento staff from many departments was instrumental in providing data on municipal operations.

These data were entered into the software to create a community emissions inventory and a municipal emissions inventory. The community inventory represents all the energy used and waste produced within West Sacramento and its contribution to greenhouse gas emissions. The municipal inventory is a subset of the community inventory, and includes emissions derived from internal government operations.

There are two main reasons for completing separate emissions inventories for community and municipal operations. First, the government is committed to action on climate change, and has a higher degree of control to achieve reductions in its own municipal emissions than those created by the community at large. Second, by proactively reducing emissions generated by its own activities, the City of West Sacramento government takes a visible leadership role in the effort to address climate change. This is important for inspiring local action in City of West Sacramento, as well as for inspiring other communities.

City of West Sacramento's inventory is based on the year 2007. When calculating City of West Sacramento's emissions inventory, all energy consumed in City of West Sacramento was included. This means that, even though the electricity used by City of West Sacramento residents is produced elsewhere, this energy and emissions associated with it appears in City of West Sacramento's inventory. The decision to calculate emissions in this manner reflects the general philosophy that a community should take full ownership of the impacts associated with its energy consumption, regardless of whether the generation occurs within the geographical limits of the community.

B City Organization GHG Inventory results

Baseline Inventory Methodology

To calculate the GHG emissions from City operations, staff gleaned information about electricity and gas used in City facilities; water production and refuse and recycling generated within City operations. In addition the amount of fuel used in City vehicles as well as commute habits of City employees was inventoried. To establish a uniform baseline a twelve month period was used and any data available for less than a twelve month period was extrapolated to construct time-line comparisons.

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The Local Government Protocol discusses the inventory of Scope 1 emissions (direct emissions for City facilities such as City vehicles), Scope 2 emissions (emissions from electricity use by City facilities ever though the emissions occur at the power plant), and Scope 3 emissions (emissions not under direct City control but related to the City operations such as employee commute emissions and the emissions from the manufacture of supplies used by the City). All Scope 1 and 2 emissions have been calculated and included in the municipal inventory. Of Scope 3 emissions, only employee commute emissions have been included.

Emissions from the Port of West Sacramento are not included in the Municipal Inventory. Technically the Port emissions should be included because the City Council of the City of West Sacramento has a controlling majority of the Board of the Port District. The Port is its own distinct operation with a very specialized and complicated emissions profile. As of Summer of 2010, the Port is in the process of preparing its own GHG inventory and eventually will prepare a distinct Climate Action Plan. In future iterations of this plan, the two may be combined.

Our preliminary findings, depicted in the following chart(s), show both the CO_2e tonnes by major categories followed by the relationship by percentage of those categories to the total City CO_2e use. Total Municipal $C0_2e$ emissions were 18,801 tonnes.

Figure (2-1) CO_2e metric tonnes per Category.

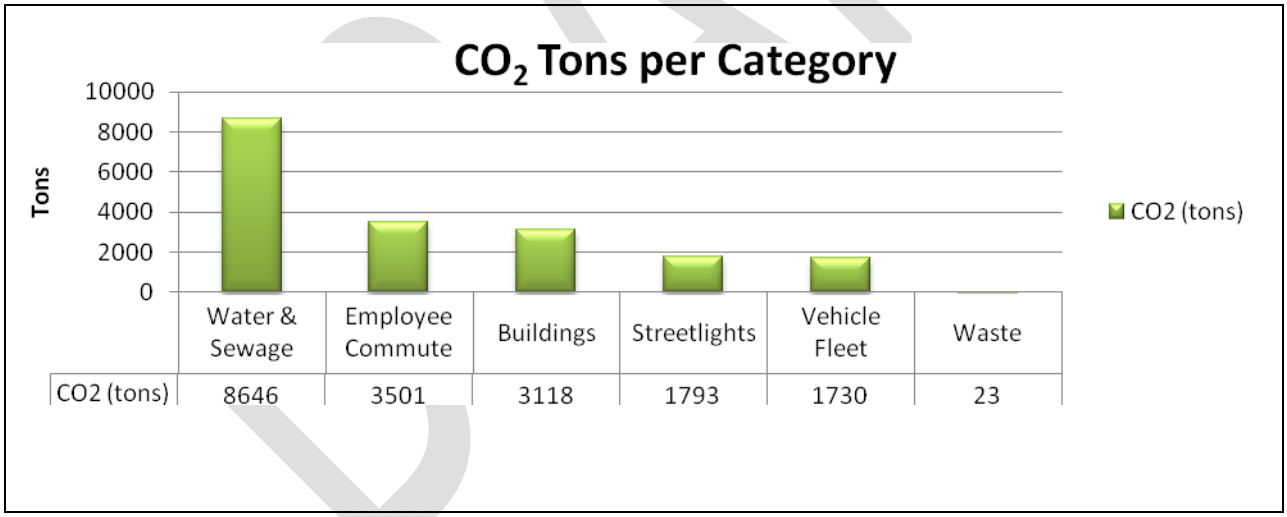
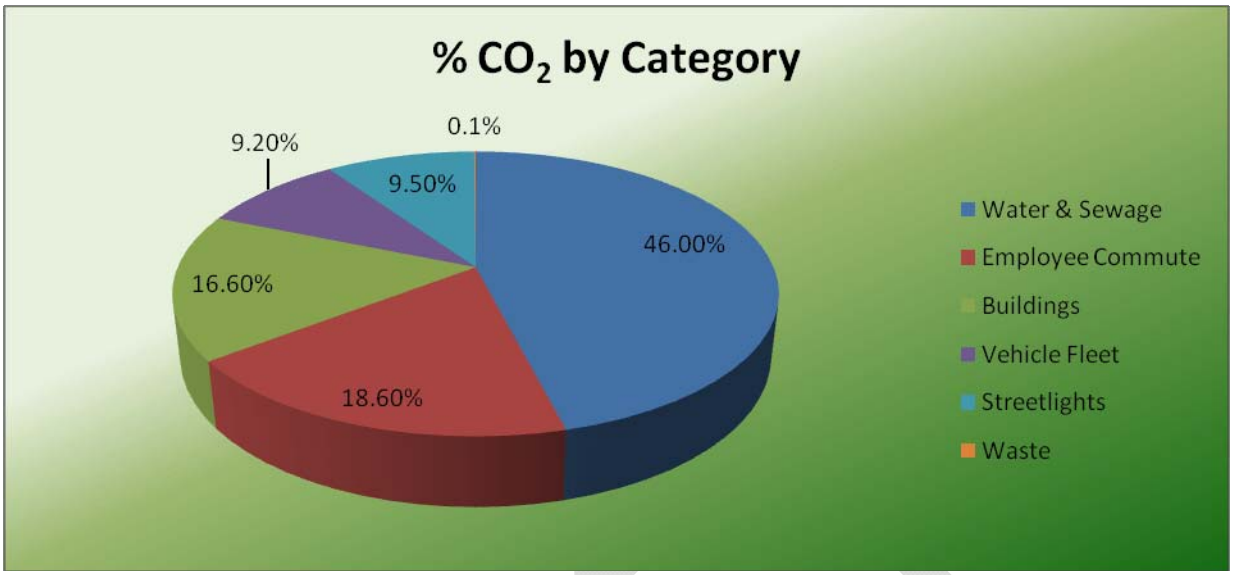


Figure 2-2



Water/Sewage

Energy used in the delivery of water to the community and the treatment of wastewater is by far the City's largest operational contributor to CO_2e emissions. While this operation could also be considered as part of the community inventory, it is included in this category as a major operation of city service. Water and sewage operations directly relate to the needs of the community and are a necessary operation in which service; therefore, emissions have the potential to increase with the population and/or habits of the population. The calculations for the water and sewage category were obtained using information from the PG& E bills for the same time period. The building at the water treatment plant itself is not included in the building inventory and is instead included in this category. A significant change in City operations is also the waste water treatment plant which was converted to the Lower Northwest Interceptor in October 2007 and therefore comparisons for future years will show a marked reduction as that facility goes off-line. Below is a breakdown of some common water/sewage utilities for the one year period reviewed:

Table (2-1) Water/Sewer Utilities

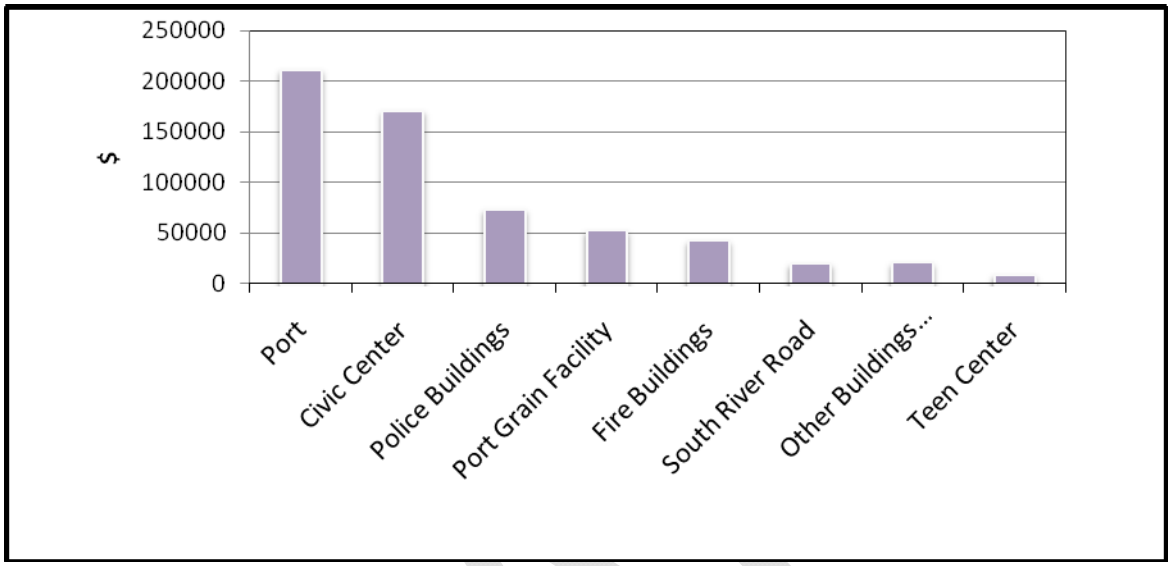
FACILITY	kWh	Cost	CO_2 (tons)
Bryte Ave Sewer Pump Station	296,800	$40,614	223
Bryte Bend Water Treatment Plant	5,458,658	$574,062	4112
Iron Triangle Sewer Pump	4014	$718	3
Pump Station-Stone Blvd	125,560	$17,250	94
Field Irrigation Pump	6465	$ 1290	5

Buildings

Information in this category came from PG&E bills that were aggregated per meter for one year September 1, 2006-August, 31, 2007. The ICLEI database allows entries for electricity, gas and costs associated. The total cost for this time period was well over $588,000. Below is a chart of the costs

associated with our current buildings for utilities through PG & E. The significant contributors were called out, while the *Other Buildings*, category is a grouping of smaller, limited electrical or gas users. The South River Road facility does not include the wastewater treatment facility.

Figure (2-3) Energy Costs per Building



Employee Commute

Staff surveyed employees and their commute patterns in December 2007. The response rate for this survey was over 95%. Employees that drive City issued vehicles were calculated in the Vehicle Fleet Category. The survey information was collected from a representative in each department and employees were asked:

- Weekly average commute (to/from work and typical meetings resulting from work if a personal vehicle was used)
- Type of Vehicle Driven (compact, SUV, heavy truck, compact, etc)

The information was then aggregated by vehicle type and entered into the ICLEI Database which calculated that an 18.6% contribution to overall CO_2 is from employee commute - our second largest category.

The information below is based upon the answers of 346 employees:

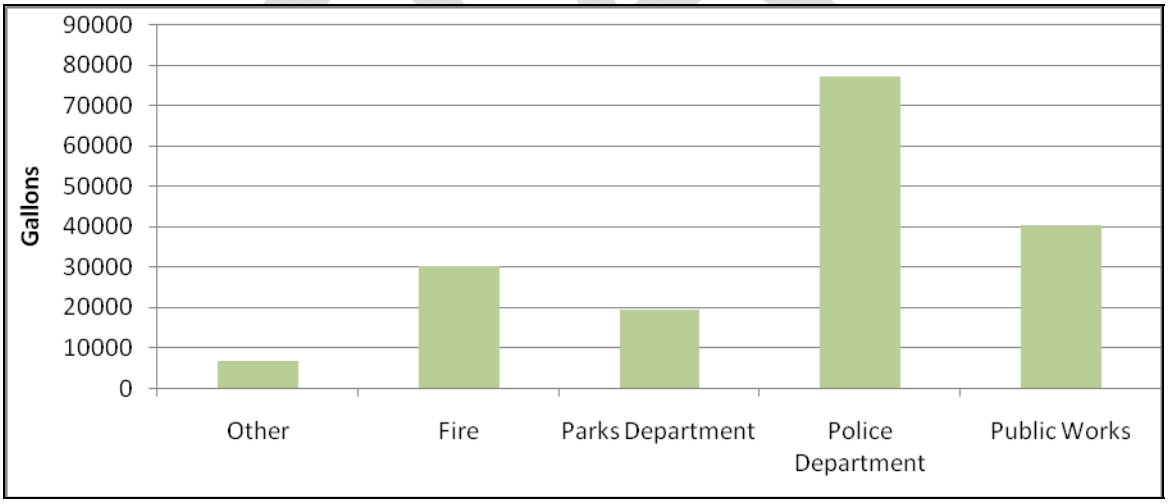
- 3,491,640 annual miles are driven by employees in their personal vehicles
- Average of 10,091 miles per employee annually or 201 miles/week
- Vehicle Type
    - 57 Compact Cars (16%)
    - 12 Full Size Cars (3%)
    - 82 Midsize Vehicles (24%)
    - 42 Heavy Trucks (12%)
    - 4 Passenger Vehicles (1%)

  - 7 Motorcycles/Other (2%)
  - 132 SUV/Light truck/Pick-up (38%)
  - 10 use alternative transportation as sole source (3%)
- Mileage Driven Weekly
  - < 100 miles 156 employees
  - 101-200 miles 74 employees
  - 201-300 miles 40 employees
  - 301-400 miles 30 employees
  - 401-500 miles 10 employees
  - 501-600 miles 8 employees
  - 601-700 miles 9 employees
  - 701-800 miles 7 employees
  - 800 + miles 12 employees

Vehicle Fleet

Vehicle Fleet information was gleaned from fuel used through City-issued fuel cards allocated to registered vehicles.

Figure (2-4) Gasoline Use By Department



Streetlights

The CO_2e produced from streetlights in West Sacramento for a one year period of time is 1,793 tons. The category for streetlights contains streetlights, street signals, and flashing beacons. Staff is working on an inventory of number of streetlights in West Sacramento, type of bulb utilized, typical wattage, hours of operations, etc.

Waste

The amount of waste that is derived from City operations was determined based on the annual volume of waster collected at all facilities. That data was then used to convert the volume of tons based on industry standards and as established in baselines reported to the California Integrated Waste Management Board. An estimate of the type of waste: paper products, food, organic materials, etc was determined using the standards supported in required annual reports. Hazardous waste was excluded from calculations.

Total

The total City of West Sacramento Municipal Organization GHG emissions for 2007 was 18,801 metric tonnes of CO_2e.

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C Community GHG Inventory results

This section discusses the methodology and results of the City of West Sacramento Community Greenhouse Gas Emissions Inventory. In most cases, the methodology followed is identical to the methodology used by ICF Jones and Stokes in the preparation of the "Greenhouse Gas Emissions Inventory for Incorporated and Unincorporated Sacramento County", February 2009. This appears to be a fine and scholarly, albeit, lengthy, document. As it is an inventory for the unincorporated County as well as each of the Cities in Sacramento County, it is by necessity more complicated. For a full and detailed explanation of greenhouse gas inventory methodology, this document is recommended. The approach of this methodology write up is to be more focused, concise and will assume somewhat more knowledge by the reader of the GHG Emissions inventory process.

SUMMARY

The Greenhouse Gas Inventory is based on the Clean Air and Climate Protection Software (CACP2009), made available by the International Council for Local Environmental Initiatives (ICLIE – Local Government for Sustainability. The City of West Sacramento is member of ICLIE. The software calculates Greenhouse Gas Emissions both for organizations, such as the City operations, and that of communities as a whole based on a checklist of data inputs.

The Community Sectors are broken out by Residential Energy Use, Commercial Industrial Energy Use, Industrial (non-grid energy), Transportation, Waste and Other. The information and methodology for each specific sector is shown below, followed by chart(s), showing both the CO_2 tons by major categories followed by the relationship by percentage of those categories to the total West Sacramento CO_2 generation.

RESIDENTIAL EMISSIONS

The CACP software calculates emissions from residential uses based on Electrical and Natural Gas use at residences on an annual basis. The relationship between electrical use and GHG emissions is unique to the sources used to generate the electricity. It is specific to each utility provider and can change from year to year and alternate power sources are used. A utility receiving much of its supply from windmill farms or hydroelectric will have a much lower carbon foot print from a utility receiving most of its power from coal or oil based generation. The CACP2009 software comes loaded with the specific parameters of most major utilities by year, including PG&E for 2007.

Electricity and Natural Gas

All domestic Electricity and Natural Gas is supplied in the City of West Sacramento by the Pacific Gas and Electric Company (PG&E). PG&E was contacted and supplied gross annual usage numbers for West Sacramento residential customers for 2003 though 2007 for both Electricity and Natural Gas. The 2007 year was used as the base year for this inventory.

Non-governmental, residential electrical use for 2007 was 118,000,000 Kilowatt Hours (KWH). County, residential electrical use (Yolo County Housing Authority units located in West Sacramento) was 86,760 KWH.

Non-governmental, residential natural gas use for 2007 was 6,762,573 Therms. County residential natural gas use was 7,846 Therms.

PG&E also provided calculated GHG emissions for each category. These numbers, happily, were identical to the emissions calculated by CACP from the usage data.

Total metric tonnes of CO_2e from residential electrically use was 24,388 metric tonnes. Total metric tonnes of CO_2e from residential natural gas use were 35,939.

Wood and Other Solid Fuel Burning

Wood burning whether cord wood or pellets generates CH4 and NOX. There is not a direct measure of the number of fire places, wood burning stoves or pellet stoves in West Sacramento. The assumption is therefore made that West Sacramento's levels are similar to Sacramento County's. The Sacramento County Metropolitan Air Quality Management District did a study in 2007 on the number of fire places, wood burning stoves, wood burning inserts and pellet stoves in Sacramento County. Table B-4 of the Sacramento Greenhouse Gas Emissions Inventory shows that all of Sacramento County generated 6,572,060 million Btu. from wood burning. The population of all of Sacramento County was 1,387,257 (Department of Finance E-4 Report). This would indicate a per capita factor of 4.73 million Btu. The 2005 population of West Sacramento was 40,303 (D of F). Using the Sacramento factor, West Sacramento's energy from wood burning would be 190,933 million Btu.

Wood burning heat generation is included in the West Sacramento GHG Inventory numbers for the sake of being conservative. The EPA considers biofuels such as wood, carbon neutral. In theory, the carbon release by burning the wood is carbon that was sequestered as the tree grew. If replacement trees are planted, the carbon from the wood burning would be again taken out of the air.

COMMERCIAL AND INDUSTRIAL EMISSIONS

As with Residential, all Electricity and Natural Gas is supplied in the City of West Sacramento by the Pacific Gas and Electric Company (PG&E). PG&E supplied gross annual usage numbers for West Sacramento Industrial and Commercial customers for 2003 though 2007 for both Electricity and Natural Gas. PG&E does not collect separate data for commercial verses industrial customers. The 2007 year was used as the base year for this inventory.

Industrial and Commercial electrical use in the City of West Sacramento for 2007 was 307,000,000 Kilowatt Hours (KWH). County non-residential electrical use in West Sacramento, (primarily the County Social Services Building on Jefferson) was 1,681,263 KWH. City of West Sacramento electrical use was 11,323,777 KWH. District electrical use (Washington Unified School District and Reclamation District 900 and 811) was 612,693 KWH.

Industrial Commercial natural gas use in the City of West Sacramento for 2007 was 5,054,439 Therms. County non-residential natural gas use was 29,049 Therms. The City's natural gas use was 223,318 Therms. District gas use was 114,468

PG&E also provided calculated GHG emissions for each category. These numbers, again, were identical to the emissions calculated by CACP from the usage data.

Total metric tonnes of CO_2e from non-residential electrically use was 67,781. Total metric tonnes of CO_2e from non-residential natural gas use were 28,770.

Industrial Specific Emissions (non-grid)

In addition to electrical and natural gas use from the grid and pipelines, some industrial operations have emissions from other sources. Information was obtained from the Yolo Solano Air Quality Management District regarding permitted fixed sources in West Sacramento. After a review of all permitted sources, it was determined that the only GHG emission source regulated was diesel powered emergency generators. A total of 26,020 gallons of diesel used produced 265 metric tonnes of CO_2 and 15,913 lbs of NOX.

It is entirely possible that there are other sources of GHG production from industrial processes in West Sacramento. At this time they are not regulated, nor measured by any governmental agency. Better data may be obtained in future years as cap and trade measure encourage more documentation.

TRANSPORATION EMISSIONS

On-Road Emissions

On road emissions is one area where this inventory followed a different methodology than the Sacramento County Inventory. The Sacramento County Inventory based its calculation of Vehicle Miles Traveled (VMT) on data from Caltrans provided in the Highway Performance Monitoring System California Public Road Data. This is information which Caltrans reports to the Federal Highway Administration on an annual basis. The information is generated from road miles within each City as reported by the Cities to Caltrans, plus projections based on a limited number of traffic counts at key locations. The Vehicle Miles traveled on freeways within each jurisdiction was prorated from County wide data based on total VMT on freeways in the County and the number of miles of freeway in each jurisdiction. Even ICF Jones and Stokes noted in their methodology discussion that this was not likely to be accurate at the jurisdiction level.

After discussion with City staff and traffic consultants, it was determined that a better number could be obtained from the City's Traffic Model. Part of the output of the model is estimates of Vehicle Miles Travelled. This number is available but not commonly reported during the preparation of a traffic analysis for an Environmental Impact Report. A subroutine was written to report total Annual Vehicle Miles Travelled within the City limits broken done by freeway traffic, arterial, and collector and local road traffic. An Existing Conditions traffic run from a 2007 EIR provided the VMT input to the CACP 2009 software.

A significant advantage of the Traffic Model approach compared to the HPMS source is that the traffic model provides the potential for land use based scenario comparisons in the future.

The traffic model reported an Annual Vehicle Miles Travelled on freeways within West Sacramento City Limits of 238,725,300. The model reported an Annual Vehicle Miles Travelled on arterial and collector streets within West Sacramento of arterial streets of 92,070,000. The model reported an Annual Vehicle Miles Travelled on local and collector roads of 20,989,320.

The CACP software indicates that these trips generated a total of 208,601 tonnes of CO_2e.

Off-Road Emissions

Information on Off-Road Vehicle emissions is available by County from the Air Resources Board Offroad2009 software. The software was obtained, installed and run for Yolo County in 2007. Data is provided for a number of classes of vehicles including agricultural, oil drilling, construction, light commercial, industrial and pleasure.

Total emissions from agricultural vehicles for Yolo County were 121.2 tonnes/day CO_2e. West Sacramento had 843 acres of farmed land in 2007, .2 percent of Yolo County's total of 460,540 acres. Based on that percentage, West Sacramento's agricultural vehicle emissions were .2,424. Tonnes/day CO_2e or 88.23 tonnes annually.

There is no oil drilling in West Sacramento.

Total emissions in Yolo County from construction, light commercial, industrial and pleasure off-road vehicles were 70.62 tonnes/day CO_2e.

These emissions were then apportioned by population. West Sacramento's 46,885 population represented 23.6 % of the total Yolo County 2007 population of 198,326.

West Sacramento's apportioned share of non-agricultural off-road emissions was 16.66 tonnes/day CO_2e, or 6,066.54 tonnes annually.

AGRICULTURAL EMMISSONS

Cattle, Swine and Dairy Cows

Cattle, Swine and dairies have the potential to be significant GHG producers. The northern half of West Sacramento is essentially developed and has no remaining agricultural land. The southern half of West Sacramento has high ground water and clay soils which do not lend themselves to animal production. There are no cattle ranches, pig farms or dairies in West Sacramento.

N2O Emissions from Fertilizers

BY 2007, most of West Sacramento's farmland had been converted to suburban or rural residential uses. Limited farming remains on properties which have been assembled for future suburban development. Crops include grapes, wheat, safflower, tomato, and squash seed. The Yolo County Agriculture

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Department does not tract farmed acres by jurisdiction. The Department does, however regulate and track the application of pesticides and herbicides in preparation for crop planting. In 2007, permits were issued for pesticide and herbicide applications on 843.5 acres of land in Southport.

The Sacramento County GHG Inventory identified a conservative approach of assuming all farmed lands would receive a maximum application of synthetic fertilizer. This fertilizer produces .308 metric tonnes of N2O per acre of application. The total N2O estimated from West Sacramento's 843 acres of agriculture for 2007 is 259.64 metric tonnes.

WASTE EMISSIONS

Land Fill Emissions from Waste Generation in 2007

The GHG emissions from solid waste disposal for the City was provided by Waste Management, USA Waste of California, Inc., the City of West Sacramento's refuse contractor in a document "Carbon Footprint Estimate for the City of West Sacramento's Refuse Collection and Disposal Services, August 20, 2009". The report followed generally accepted procedures outlined by the California Climate Action Registry and U.S. Environmental Protection Agency.

Both emissions from waste placed in landfills and the emissions from the operation of the landfill and the Waste Management collection operation were calculated. The final result was an emission of 8,707 tonnes of CO2e per year. The Waste Management Report also indicates that some aspects of the landfill operation, the sequestration of carbon sources within the landfill preventing carbon emissions and the use of methane as an alternative fuel to replace oil are potential sinks which could show negative emissions. Per discussions with ICLIE, these negative emissions are excluded from the emissions estimate.

HIGH GWP GHG EMISSIONS

Certain kinds of gas emissions have a much higher Global Warming Potential per quantity of gas than CO2. These gases include hydro fluorocarbons and chlorofluorocarbons. These gases are used in refrigeration equipment and are also produced by electrical transmission and distribution equipment. There is no site, County or City specific data available on these gases, only statewide estimates.

The California Energy Commission has estimated that total High GWP GHG emissions were equivalent to 15.1 million metric tons in 2005 (California Energy Commission 2006a). California's population in 2005 was 30,504,640 (California Department of Finance E-4 Report), indicating a per capita level of .495 metric tons. It is assumed for this analysis that the per capita figure would not have changed significantly from 2005 to 2007.

Based on West Sacramento's 2007 population of 46,885 persons, the West Sacramento contribution of High GWP GHG emissions was equivalent to 23,280 metric tons of CO_2e.

DOMESTIC WASTEWATER TREATMENT AND DISCHARGE EMISSIONS

The treatment and discharge of wastewater can produce emissions of CH4 and N2O, both Greenhouse Gases. CH4 is generated when microorganisms biodegrade soluble organic material in wastewater

under anaerobic conditions. N2O is generated during both nitrification and de-nitrification of the nitrogen present in wastewater, usually in the form of urea, ammonia and proteins (US Environmental Protection Agency 2007b)

On October 30, 2007, the City of West Sacramento connected to the Lower Northwest Sewer Interceptor pipe and all of its wastewater treatment was shifted to the Sacramento County Regional Plant in Elk Grove.

Due to a lack of site specific data, the Sacramento County Greenhouse Gas Emissions Inventory used a statewide average emissions figure developed by the Air Resources Board. These emission factors are 3.21 kg CH4 and 0.0953 kg N2O per person (California Air Resources Board 2008d, 2008e). Based on an end of 2007 population of 46,885 (California Dept. of Finance, E-4 Population estimates 1/1/2008), West Sacramento's emissions were 150,500 kg CH4 and 4465.28 kg N2O. These numbers equate to 5,282 metric tonnes of CO_2e

TOTAL WEST SACRAMENTO EMISSIONS

The Community Sectors are broken out by Residential Energy Use, Commercial Industrial Energy Use, Industrial (non-grid energy), Transportation, Waste and Other. The following chart(s), show both the CO_2 tons by major categories followed by the relationship by percentage of those categories to the total West Sacramento CO_2 generation. Total West Sacramento Community Greenhouse Gas Emissions for 2007 was 410,682 tonnes CO2e.

Figure 2-5 Community CO_2e tons by Sector

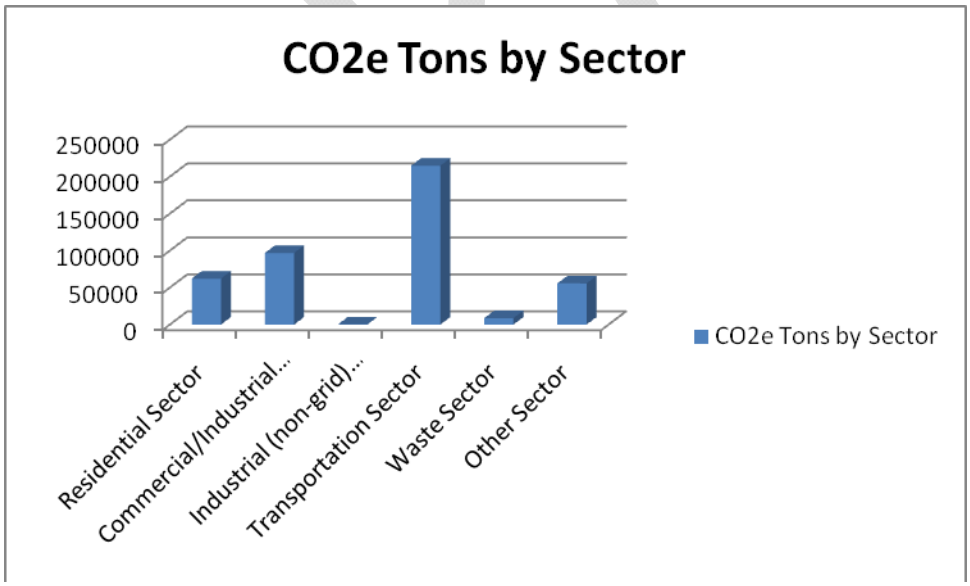
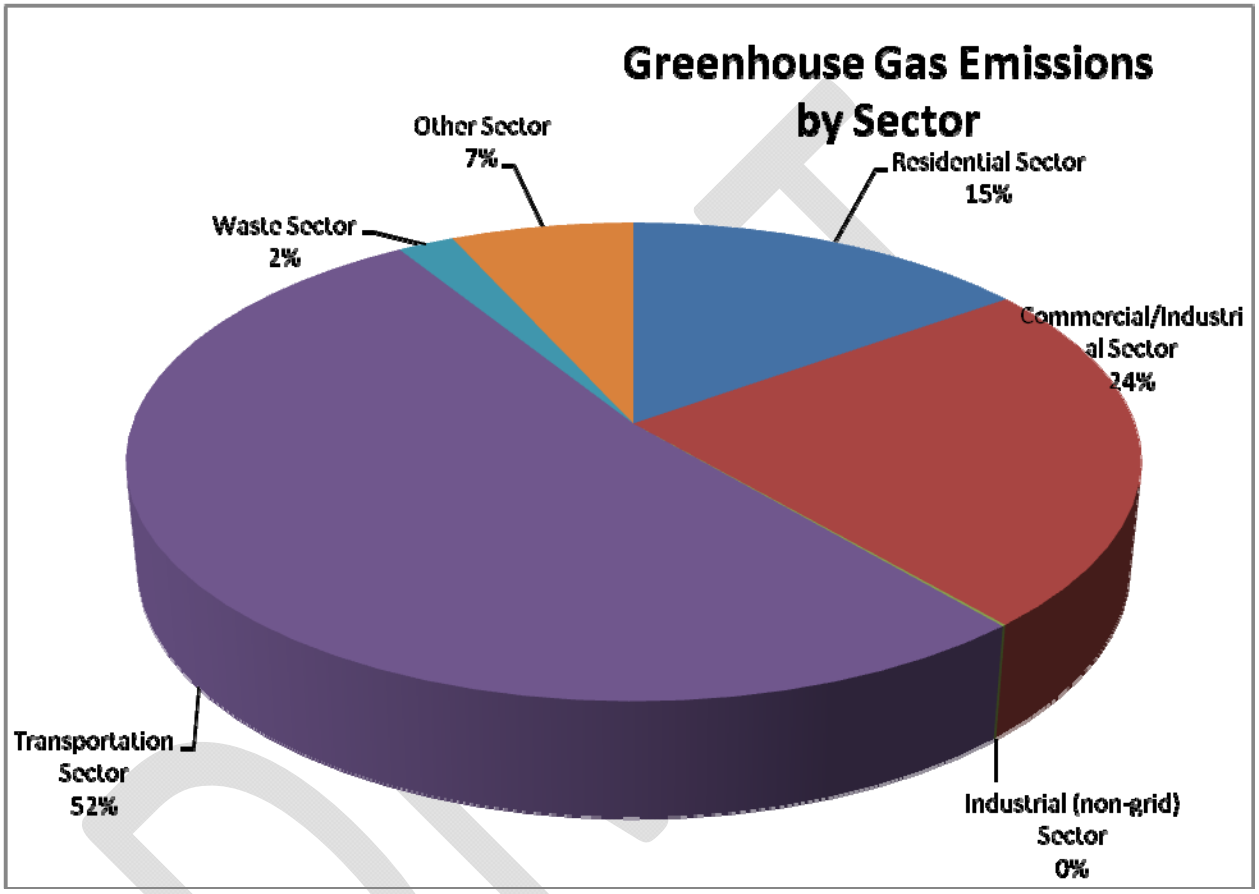


Figure 2-6
Community Greenhouse Gas Emissions by Sector



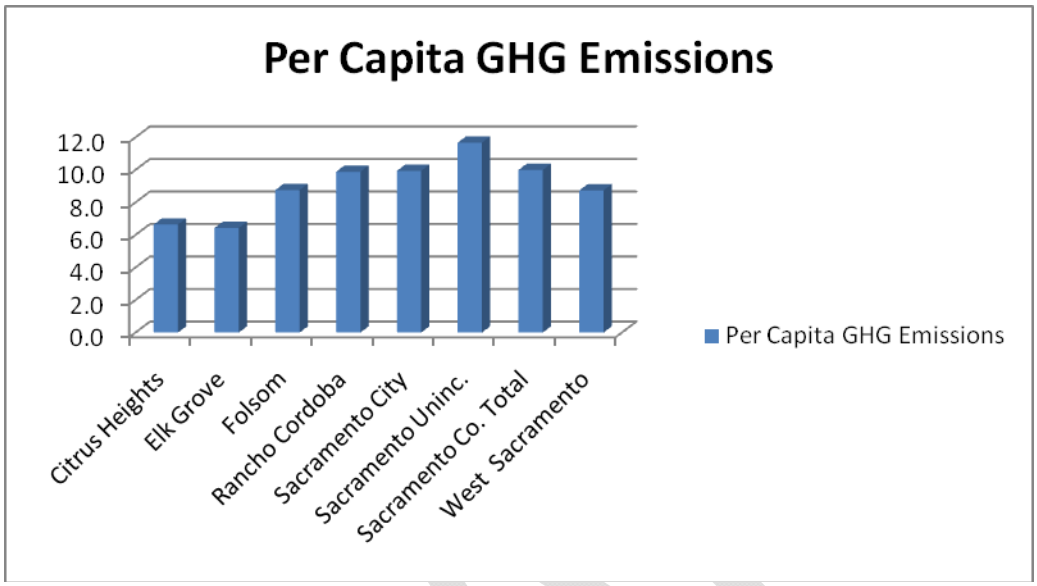
West Sacramento's Commercial-Industrial Sector is higher than typical cities around the region. In most local cities, Commercial-Industrial is about the same as Residential. West Sacramento has an unusually large employment base compared to its residential populations, so this is not unexpected.

PER CAPITA EMISSIONS

West Sacramento is well within the range compared to other Sacramento area cities. West Sacramento per capita emissions are 8.7 tonnes of CO2e per resident per year. The City of Sacramento per capita emissions are 9.9 tonnes per year. Cities in the region such as Citrus Heights and Elk Grove, which have

relatively smaller employment bases compared to their population, have the lowest per capita emissions at about 6.5 tonnes per year. The total incorporated and unincorporated area of Sacramento County has per capita emissions at 10 tonnes per year.

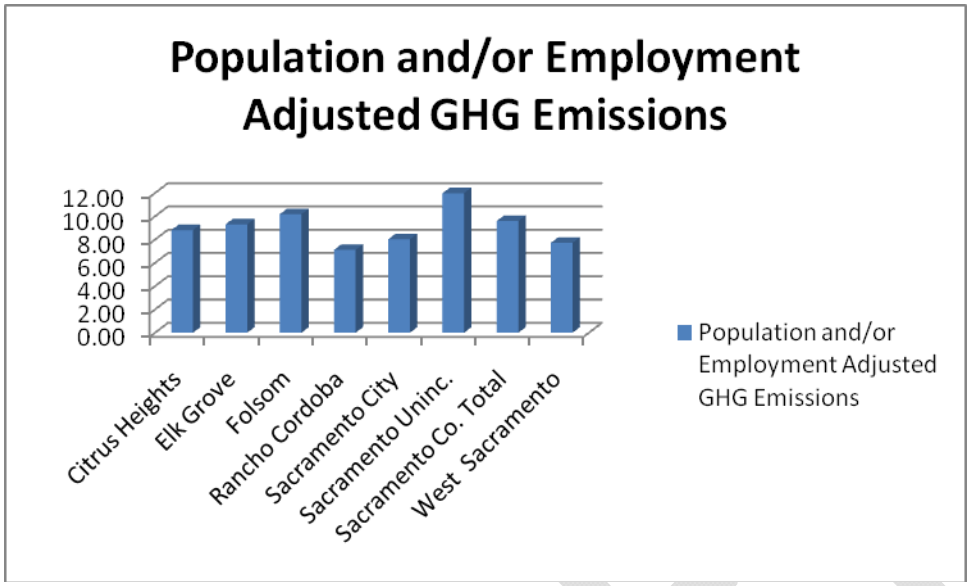
Figure (2-7) Per Capita GHG Emissions



POPULATION AND EMPLOYMENT ADJUSTED EMISSIONS

An additional analysis of emissions was prepared which divides the residential emissions by the residential population, Commercial/Industrial emissions by employment in each City and other sectors by a combination of population and employment. Taking population and employment into account, West Sacramento's emissions drop to 7.6 metric tonnes CO^2e (mt) per year compared to the City of Sacramento at 8.03 and the total incorporated and unincorporated area of Sacramento County at 9.59 per year. Using the population and employment approach, West Sacramento is actually the second lowest GHG emission city in the region, just behind Rancho Cordoba. Looking at residential emissions, West Sacramento is actually the lowest in the region at 1.32 mt per person compared to 1.76 mt for all of Sacramento County. West Sacramento is the third lowest looking at the Commercial/Industrial sector at 3.16 mt per employee. All of Sacramento County averages 3.38 mt per employee.

Figure 2-8

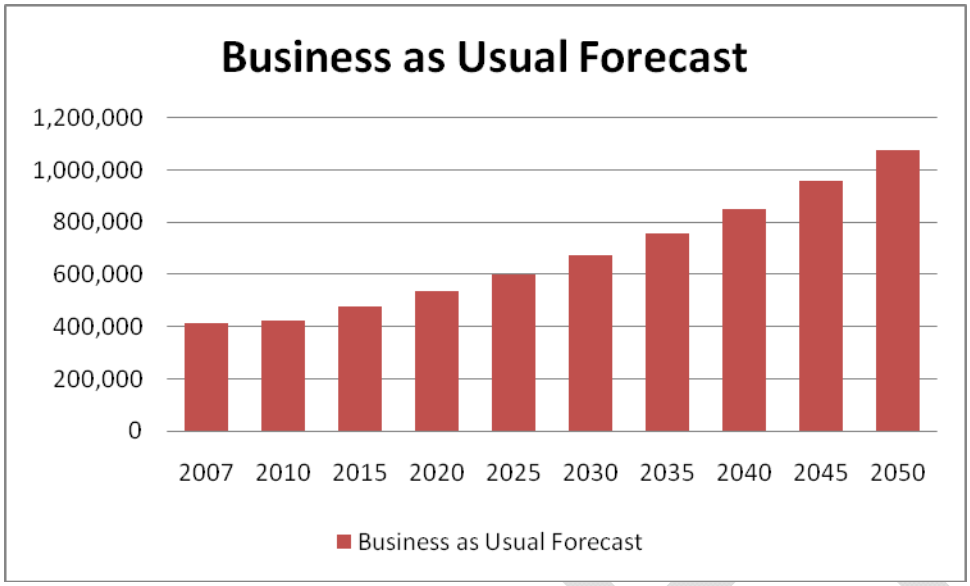


2.2 Business as Usual Forecasts

The record of the 19th and 20th Centuries has been a story of steadily increasing Greenhouse Gas emissions as populations and technologies increased. The result has been the climate change we are already seeing and accelerating change in the future. A Business as usual (BAU) approach would see continuing increases in greenhouse gas emissions as West Sacramento grows to maturity. Per capita greenhouse gas emissions in the 2007 base year for the Community of West Sacramento were 8.7 tons with a population of 47,000 and employment of 32,000. The current General Plan build out estimate is 85,000 residents and 75,000 employees. If greenhouse gas emissions continue at the current per capita rate, the build out emissions will be 739,500 tons CO_2e.

The State has set the year 2020 as the first checkpoint target year for showing reduced greenhouse gas emissions. Current population projects show West Sacramento as having a population of just over 59,000 persons by 2020. Without reductions in per capita emissions a business as usual level of greenhouse gas emissions for West Sacramento in 2020 would be 513,300 mt per year. West Sacramento expects to see a more rapid growth in employment in the City than growth in population. A forecast using a Population and/or Employment growth methodology similar to the emissions analysis above, leads to a projection of 533,726 mt CO2e in 2020 and 851,129 mt at build out (2050).

Figure (2-9) Business as Usual Forecast



2.3 Emission targets

2.3.1. Community Targets

Greenhouse Gas emissions increased by 15% in the State from 1990 to 2005 according to the Air Resources Board.. The State of California has established a goal of returning to 1990 GHG emissions levels by 2020. In the Scoping Plan prepared by the Air Resources Board, a goal for local governments was set as a 15% reduction from current levels by 2020. Both of these goals are based on an assumed level of growth for the State of California as a whole and that most local jurisdictions will grow at that same rate.

The target level for Greenhouse Gas Emissions based on that goal is shown below:

Table (2-2) Straight Percentage Target

Target Year	Base 2007 Emissions	Reduction %	Target Level
2020	410682 t	15%	349,079 t
2050	410682 t	83%*	69,816 t

*Equivalent to 80% reduction from 1990 level.

Development in West Sacramento plays a unique role in the accomplishment of the Sacramento Regional Blue Print. West Sacramento is directly adjacent to the regions Downtown and primary jobs center. The most southern and distant portion of West Sacramento is still less than ten miles from Downtown. The West Sacramento Riverfront along the Sacramento River from the confluence with the American River to just south of the Barge Canal has the potential and is planned to accommodate 10,000 housing units of exactly the kind of high density, mixed use, transit oriented, "smart growth" development that is part of the solution to the global warning problem. A Street Car line from West Sacramento to mid-town Sacramento is currently in planning. Extensions of that starter line north and south along the riverfront would be very easily accomplished. Residents in this area could literally live car free and still have access to the most concentrated employment, retail, services and entertainment areas of the region.

Since 2000, West Sacramento has been a rapidly growing City. In 2000 the population of West Sacramento was just over 30,000. By 2007 it had reached 47,000. The Sacramento Council of Governments projects that by 2035, the population of West Sacramento will reach 81,000. Achieving that growth in West Sacramento's central location and of the type of development described above rather than in more outlying areas at lower density is critical to the goals of the SACOG Blue Print for reducing vehicle trips and reducing the resulting GHG emissions. Clearly, the City of West Sacramento is expected to grow much faster than the State or the Sacramento Region as a whole, this level of rapid growth makes achievement of a 15% reduction from current levels much more challenging.

Recognizing that not all Cities are in exactly the same circumstance, the California Air Pollution Control Officers Association, in their "Model Policies for GHGs in General Plans" suggested an alternative goal. The alternative goal is to achieve a 30% reduction from "business as usual". "Business as usual" is the GHG emissions which would result from growth occurring with the same emissions levels per capita as the base year. The thirty percent reduction from "Business as Usual" seems the most appropriate for West Sacramento, given its expected population growth leading up to 2020. This approach would imply a 2050 target of a 91.5 % reduction from the base year.

Table (2-3) Business as Usual Target

Target Year	Projected BAU Emissions	Reduction %	Target Level	Reductions Needed
2020	533,726 t	30%	373,609 t	160,117 t
2050	1,075,462 t	91.5%	91,414 t	984,047 t

Impact of Vehicle Fleet Fuel Economy and Renewable Energy Generation Legislation

The above Business As Usual projection is based on the assumption that per capita and per employee emission rates will be unchanged over the projection period. Existing recently approved legislation at the Federal and State level make it likely that transportation and energy generation carbon emission rates will in fact decline over the period.

The Energy Independence, Clean Air and Climate Security Act of 2007, passed on June 2007, increased corporate average fuel economy standards for automobiles and light trucks. Starting in model year

2019, the combined average fuel economy of all vehicles sold by auto-makers must be at least 35 miles per gallon. By 2030, the average must be at least 45 miles per gallon.

In 2005, the California Air Resources Board CARB), applied to the Environmental Protection Administration for a waiver of the Federal Pre-emption of emission standards in order to enforce an even more strict standards. CARB proposes to enforce regulations that call for carbon dioxide and other pollutants to be reduced by 22 percent by the 2012 model year and 30 percent by the 2016 model year. In 2009, that exemption request was finally approved.

Senate Bill 1078 established a renewable portfolio standard requiring California's three major utilities – Pacific Gas and Electric, Southern California Edison and San Diego Gas and & Electric to produce at least 33% of their electricity using renewable sources by 2020. Current legislation has not set a longer term goal for 2050, but based on California's recent trend of increasing the renewable energy goal, it is reasonable to assume that in 2050 the goal will be at minimum 45 percent renewable generation.

The effect of these legislative mandates will be reflected at the end of Chapter 4 as Measures Implemented External to the City of West Sacramento and accounted for in analysis of how successful the City expects to be in reaching its targets.

2.3.2. Municipal Organization Targets

The Air Resources Board Scoping Plan sets as a goal for local governments a reduction of 15% in greenhouse gas emissions from "current" levels. The Scoping Plan was approved in 2007 but was based on 2005 data. On a State wide basis, a 15% reduction from 2005 levels is the same as returning to 1990 levels. As discussed above, the West Sacramento community population and employment is expected to increase at a rate higher than the State average over the next 40 years. A 30% reduction from Business as Usual was therefore established as the goal at the community level.

While the municipal organization can be expected to grow as the community increases in size, it would not necessarily be in the same proportions. The City of West Sacramento increased in population from 30,000 in the year 2000 to 48,000 in the year 2010, a 60% increase. In the same time period, the City's number of authorized positions went from 306 in 2000 to 355 in 2010, an increase of only 16%. While the closing of the sewer plant and the economic problems of the last three years play a role in the small amount of growth, it still seems likely that the size of the organization will not grow proportional to growth in population and employment.

The target proposed for the municipal organization is therefore the 15% reduction suggested in the Scoping Plan.

The municipal targets for Greenhouse Gas Emissions based on that goal is shown below:

Table (2-2) Straight Percentage Target

Target Year	Base 2007 Emissions	Reduction %	Target Level
2020	18,801 t	15%	15,980 t
2050	18,801 t	83%*	3,196 t

Even taking into account legislated reductions on transportation and energy carbon generation, the challenge for West Sacramento to meet these targets is substantial. Chapter 4 will lay out the specific mitigation measures the City of West Sacramento organization and community can implement to move towards that goal.

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Chapter 3 – General Plan Greenhouse Gas Goals and Policies

CITY OF WEST SACRAMENTO GENERAL PLAN GREENHOUSE GAS GOALS AND POLICIES.

The General Plan is the base document for development related policies for Cities in California. The City of West Sacramento General Plan was originally adopted in 1990 after incorporation. A significant update was done in 2000. The City of West Sacramento is currently in the process of updating its General Plan with the intent to complete that update in late 2010. A major part of the revisions being proposed in the 2010 General Plan are additional policies recognizing and addressing the Greenhouse Gas and Climate Change issue. New policies are proposed under Natural Resources, Public Health and Safety, Public Facilities, Land Use and Transportation. A number of existing policies already address issues which would impact Greenhouse Gases. All of the existing or proposed General Plan policies which would affect greenhouse gases are included in this Chapter. New, proposed language is underlined. They form the legislative base for regulatory measures and actions to be undertaken by the City.

3.1 EMISSION TARGETS

Natural Resources Goal F. COMMUNITY GREEN HOUSE GAS EMISSIONS - To combat global warming, The City of West Sacramento will, by 2020, reduce Green House Gas emissions from within its boundaries to a level 30% less than the level that would otherwise occur if all activities continued under a "business as usual" scenario. (GHG)

Policies

Inventories NR 6.F.1. The City will establish Green House Gas emissions inventories, using methods approved by or consistent with guidance from the Air Resources Board, including emissions from municipal emission, and emissions from all business sectors and the community. The City will update those inventories every 3 years to incorporate improved methods, better data, and more accurate tools and methods, and to assess progress.

Forecast NR 6.F.2. The City will define a "business as usual" scenario of municipal, economic and community activities and prepare a projected inventory for 2020 based on that scenario.

Climate Action Plan NR 6.F.3. The City will, in collaboration with the stakeholders from the community at large, establish a Climate Action Plan which will include measures to reduce Green House Gas emissions from community, business and municipal activities by at least 30% by 2020 compared to the "business as usual" emissions.

Blueprint Participation NR 6.F.4. The City will continue to participate in the Sacramento Regional Blueprint effort and will ensure that local plans are consistent with the Blueprint.

Public Facilities and Services Goal J: MUNICIPAL GREENHOUSE GASES - To reduce Greenhouse Gas emissions by 15% from current levels from municipal facilities and operations, and by purchasing goods and services that embody or create fewer GHG emissions. (GHG)

Policies:

Energy Efficiency Plan PFS 4.J.1. The City will prepare and implement a comprehensive plan to improve energy efficiency of municipal facilities including City buildings, vehicles, parks, utilities and treatment facilities.

City Building Efficiency PFS 4.J.2. The City will require that any newly constructed, purchased, or leased non-residential municipal space will meet LEED Silver criteria and will retrofit existing buildings as feasible to meet standards under Title 24 of the California Building Energy Code.

GHG Training PFS 4.J.3. The City will ensure that staff receives appropriate training and support to implement objectives and policies to reduce GHG emission.

City Vehicle Efficiency PFS 4.J.4. The City will improve efficiency at municipal systems and reduce GHG emissions from City vehicle and equipment engines.

Employee Travel PFS 4.J.5. The City will implement measures to reduce employee vehicle trips and to mitigate emissions impacts of municipal travel.

Green Purchasing Policy PFS 4.J.6. The City will adopt and implement a purchasing policy which allows consideration of long term energy efficiency, recycled content and other factors which minimize a products impact on the environment in addition to normal considerations of purchase price, suitability and quality in the purchase of goods and supplies.

3.2 TRANSPORATION AND LAND USE

Land Use Goal A: ORDERLY AND PLANNED LAND USE: - To provide for orderly, well planned, and ~~balanced~~ **sustainable** growth **that meets the needs of residents and businesses alike and allows for the efficient use of the land and provision of City infrastructure.** ~~consistent with the limits imposed by the city's infrastructure and the city's ability to assimilate growth.~~(GHG)

Policies

Land Use Diagram. LU 1.A.1. The City shall utilize and maintain the Land Use Diagram to designate the location and extent of each land use designation within the Planning Area~~.~~

Rate and Pattern of New Growth LU 1.A.2. The City shall ~~link the~~ phase the rate and pattern of new growth in West Sacramento based on the provision of adequate services and infrastructure, including schools . ~~The City shall, through specific plans and planned development plans for major projects, ensure that growth occurs in an orderly fashion and in pace with the expansion of public facilities and services.~~

Sustainable Development LU 1.A.3**.** The City shall promote compact development patterns, mixed use, in-fill and higher-development intensities that use land efficiently; reduce pollution and automobile dependence and the expenditure of energy and other resources; and facilitate walking, bicycling, and transit use.

Encouraging Infill LU 1.A.4. The City shall actively encourage infill development that is architecturally and environmentally sensitive, embodies principles of sustainable planning and construction through incentives (e.g. planned development standards, provision of infrastructure) that is compatible with existing neighborhood land uses.

Overcoming Barriers to Accessibility LU 1.A.5. The City shall strive to remove and minimize the effect of natural and manmade barriers such as the Sacramento River and the Deep Water Ship Channel to accessibility between and within existing neighborhoods corridors, and centers.

Annexations Within the Planning Area LU 1.A.6. Future urban development within the Planning Area should occur under the jurisdiction of the City. To this end, the City shall require that vacant unincorporated properties be annexed into the City prior to the provision of any City services, or that a conditional service agreement be executed agreeing to annex when deemed appropriate by the City. In order to minimize the disruption and protect ~~of~~ agricultural land, development which is adjacent to the city boundaries or which has convenient freeway access shall be preferred.

Proposals for development of land not adjacent to the city or without convenient freeway access shall be discouraged.

Joint Use of Public and Quasi Public Uses LU A.1.7. (Formerly LU F-2)

The City shall promote the clustering of public and quasi-public uses such as schools, parks, libraries, child care facilities and community activity centers. Joint use of public facilities shall be promoted, and agreements for sharing costs and operational responsibilities among public service providers shall be encouraged.

Monitor the Availability of Land LU A.1.8. The City shall monitor the availability of land in each general plan designation on an annual basis and make adjustments as necessary to promote a reasonable citywide balance between new employment generating development and housing development.

Land Use Conflicts LU A.1.9 The City shall continue to apply the regulations and procedures of the Zoning Ordinance and shall use the CEQA environmental process to prevent or mitigate land use conflicts.

Annual General Plan Review LU A.1.10 The City shall annually review the General Plan in order to monitor its implementation.

Major General Plan Review LU A.11 The City shall conduct a major review of the General Plan, including the General Plan Policy Document and Background Report, every seven years from the date of final approval of this General Plan and shall revise it as deemed necessary.

Fair Share LU A.12. The City shall ensure that all new development pays its fair share in financing public facilities and services.

Land Use Goal C: COMMERCIAL/MIXED USE - ~~To designate adequate land and provide support for the development of commercial uses providing goods and services to West Sacramento residents and West Sacramento's market area.~~ **To encourage new commercial, office and mixed use (commercial/housing/office development at locations that provide convenient neighborhood retail and services to existing and new housing areas, and to maximize new community commercial and regional shopping opportunities where their economic viability can be sustained. (GHG)**

Policies

Commercial Expansion. LU 1.C.1. The City shall promote and assist with the maintenance and expansion of West Sacramento's commercial sector to meet the needs of West Sacramento residents, employees, and visitors.

Office Expansion. LU 1.C.2. The City shall seek to selectively expand its share of the region-serving retail ~~commercial~~ /office development.

Sales Tax Contributors. LU 1.C.3. The City shall promote the establishment, maintenance, and expansion of businesses in West Sacramento that generate high retail sales taxes as important contributors to the local economy.

CBD and Riverfront. LU 1.C.4. The City shall promote the Central Business District and areas along the Sacramento River between the I Street Bridge and the Barge Canal as pedestrian oriented commercial mixed use **c**enters of West Sacramento with mid to high rise regional office.

Visitor Destination. LU 1.C.5. The City shall promote development of West Sacramento as a visitor destination, capitalizing on its riverfront location.

Hotels/Motels. LU 1.C.6. The City shall promote the development of hotels, motels, and related convention facilities, with an emphasis on high-quality development.

Arterial Locations. LU 1.C.7. New major commercial development shall be located along major arterials and at the intersections of major arterials and freeways.

Quality Mixed Use. LU 1.C.8. In approving new ~~commercial~~ mixed use projects, the City shall seek to ensure that such projects reflect the City's concern for achieving and maintaining high quality development.

Avoid Strip Development. LU 1.C.9. New commercial development at the intersections of primary arterials and near freeway on ramps shall be designed to avoid the appearance of strip development.

Promote West Sacramento. LU 1.C.10. The City shall work with local business groups and associations, such as the West Sacramento Chamber of Commerce, to promote West Sacramento businesses.

~~The City shall ensure that new commercial development pays its fair share in financing public facilities and services.~~

Neighborhood Serving Commercial Development. LU 1.C.11 The City shall encourage small neighborhood serving commercial and mixed uses adjacent to and within residential areas where such uses are compatible with the surrounding area and mitigate any significant impacts (i.e., traffic, noise, lighting).

Parcel Assembly. LU 1.C.12 The City shall support the assembly of land for commercial growth where the fragmentation of parcels and/or the limited size of existing parcels acts as a deterrent to new commercial/ mixed use development.

Grouping Commercial Development. LU 1.C.13. The City shall avoid continuous "strip commercial" in new development areas by encouraging the clustering of commercial land uses in appropriate locations

Land Use Goal E: GREEN AND SUSTAINABLE WEST SACRAMENTO - To develop local and support regional and statewide plans and ordinances to reduce greenhouse gas emissions and fund sustainable transportation improvements while meeting local housing needs. (GHG)

Policies

Blueprint Strategy LU 1.E.1. Actively implement the principles of the SACOG Blueprint Strategy and seek funding and incentives to implement local projects consistent with the strategy

SACOG Coordination. LU 1.E.2. The City shall work with SACOG to develop and periodically update the Sustainable Communities Strategy or Alternative Planning Strategy as part of the Regional Transportation Planning process.

Sustainable West Sacramento Strategy. LU 1.E.3. The City shall review SACOG's Regional Transportation Plan, including the Sustainable Communities Strategy or Alternative Planning Strategy, each time it reviews and updates the General Plan, major general plan element, planned development amendment, s, and/or zoning amendment , to ensure overall consistency among all of these plans and allow for CEQA streamlining and eligibility for State transportation funding.

Expedited CEQA Processing. LU 1.E.4. The City shall work with SACOG to ensure that cumulative impacts for any Regional Transportation Plan are analyzed pursuant

to CEQA so that applicable projects may benefit from CEQA streamlining (e.g., full exemption, Sustainable Communities Environmental Assessment, or traffic mitigation) as provided by State.

Transportation Goal A: COMPREHENSIVE MULTI MODAL CIRCULATION SYSTEM ~~**To create and maintain**~~ **Develop** a multi-modal ~~roadway~~ **transportation** network which will ensure the safe and efficient movement of people and goods throughout the City **that supports vibrant neighborhoods and reduces air pollution and green house gases.(GHG)**

Policies:

Multimodal Access. TC 3.A.1. The City shall promote the provision of multimodal access to activity centers such as civic and commercial centers and corridors, employment centers, transit stops/stations, schools, parks, recreation areas. and tourist attractions

Complete Streets TC 3.A.2. The City shall ensure that all new roadway projects and major reconstruction projects provide appropriate and adequate rights-of-way for all users including bicyclists, pedestrians, transit riders, and motorists except where pedestrians and bicyclists are prohibited by law from using a given facility.

Eliminate Gaps in Facilities and Amenities TC 3.A.3. The City shall eliminate gaps in providing connections between roadways, bike ways, pedestrian access, trails and open space areas to provide for completely connected development.

Transportation Goal C: TRANSIT ~~**To promote and maintain public and private transit systems that are responsive to the needs of all West Sacramento residents.**~~ **To develop and maintain a range of transportation choices that allow residents to travel efficiently and safely throughout the City and the region. (GHG)**

Policies:

Light Rail. TC 3.C.1. The City shall cooperate with Sacramento Regional Transit District (RT), Yolo Transit, and the City of Sacramento to actively pursue extension of light rail/street cars into West Sacramento to serve existing and proposed urban residential, business, and employment centers, starting with West Capitol Avenue and the Riverfront. ~~Particular consideration shall be given to use of railroad rights-of-way, including the Yolo Short Line Railroad right-of-way in the Southport area. Transit station sites shall be identified along potential routes for extension of the light rail system.~~

Feeder-Bus TC 3.C.2. Should extension of the light rail system into West Sacramento prove infeasible, the City shall seek development of a feeder-bus system to facilitate use by West Sacramento residents of the Sacramento light rail system.

YOLOBUS TC 3.C.3. The City shall work to assure that YOLOBUS service is responsive to local needs.

RT TC 3.C.4. The City shall explore the possibility of ultimately contracting with RT for provision of bus service in West Sacramento and between West Sacramento and Sacramento.

Intercity Rail TC 3.C.4. The City shall support the establishment of high-speed intercity rail service connecting the Bay Area with the Sacramento area.

Private Transit TC 3.C.5. The City shall encourage privately-owned transit systems, such as taxicabs and private bus companies, to provide convenient transfers to and from public transit systems.

Land Uses TC 3.C.6. Special consideration shall be given to proposed land uses adjacent to transit routes to ensure compatible and supportive relationships.

ParaTransit TC 3.C.7. The City shall support the provision of paratransit services for elderly and disabled residents of West Sacramento.

Park and Ride TC 3.C.8. The City shall cooperate with Caltrans in the development of park-and-ride facilities near major transportation corridors.

Transportation Goal F: INTEGRATED BICYCLE SYSTEM Develop and maintain a safe, comprehensive, and integrated bicycle system with support facilities throughout the city that encourage bicycling that is accessible to all.

Policies:

Bike and Pedestrian TC Plan 3.F.1. The City shall maintain and implement a Bike and Pedestrian Plan that provides that new development be consistent with the applicable portions of the Plan as well as the goals and policies of the General Plan.(GHG)

Pathway System TC 3.F.2. The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways which encourages walking or bicycling as an alternative to driving. New development shall be required to pay its fair share of the costs for development of this pathway system.

Bicycle Routes TC 3.F.3. The City shall establish a safe and convenient network of identified bicycle routes connecting residential areas with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.

Connections between New Development and Bikeways TC 3.F.4. The City shall ensure that new commercial and residential development projects provide frequent and direct connections to the nearest bikeways.

Separated Paths Preferred TC 3.F.5. Bicycle routes shall emphasize paths separated from vehicle traffic to the maximum extent possible, but shall also include bicycle lanes within ~~public~~ arterial and collector streets~~; bikeways may, however, be combined with pedestrian and vehicle routes, where appropriate~~.

Coexistence TC 3.F.6. The City shall limit on-street bicycle routes to those streets where the available roadway width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.

Bicycle Safety TC 3.F.7. Bicycle safety shall be considered when implementing improvements for automobile traffic operations, including setting speed limits.

Class II Bike Lane Requirements. TC 3.F.8. The City shall require Class II bike lanes on all new arterial and collector streets.

~~**NEW POLICY: Safe Speed Management Policies.** The City shall develop and implement safety and speed management policies that support driving speeds on all city streets that are safe for bicyclists. ?~~

~~The City shall attempt to establish bicycle parking facilities at all new major public facilities, business and employment sites, and shopping centers.~~

Bike Facilities in New Developments. TC 3.F.9. The City shall require that larger new development projects (e.g., employment centers, educational institutions, recreational and retail destinations, and commercial centers) provide bicycle parking (i.e., short-term bicycle parking for visitors and long-term bicycle parking for residents or employees), personal lockers, showers, and other bicycle-support facilities.

Open Space and Waterways TC 3.F.10. To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas and adjacent to waterways.

Bridge Crossings TC 3.F.11. All new bridge crossings shall include bicycle and pedestrian pathways.

Motorists, Bicyclists, and Pedestrian Conflicts. TC 3.F.13. The City shall develop safe and convenient bikeways that reduce conflicts between bicyclists and motor vehicles on streets, and bicyclists and pedestrians on multi-use trails.

Conversion of Underused Facilities. TC 3.F.14. The City shall convert underused rights-of-way along travel lanes, drainage canals, and railroad corridors to bikeways wherever possible and desirable.

Bike Safety for Children. TC 3.F.15. The City shall support infrastructure and programs and develop partnerships with the WUSD that encourage children to bike safely to school.

Phasing TC 3.F.16. Bike lanes connecting to the existing bike lane system shall be provided in the first phase of all major phased developments.

Transportation Goal G: WALKABLITY - Develop and maintain a safe, accessible and integrated pedestrian system that promotes walking. (GHG)

Policies

Complete Streets. TC 3.G.1. Develop streets that balance walking, bicycling and public transit with other modes of travel.

Cohesive Network.TC 3.G.2. The City shall develop a cohesive pedestrian network of public sidewalks and street crossings that makes walking a convenient and safe way to travel.

Continuous Network. TC 3.G.3. The City shall provide a continuous pedestrian network in existing and new neighborhoods that facilitates convenient pedestrian travel free of major impediments and obstacles.

Building Design. TC 3.G.4. The City shall ensure that new buildings are designed to engage the street and encourage walking through design features such as placing the building with entrances facing the street and providing connections to sidewalks.

Housing and Destination Connections. TC 3.G.5. The City shall require new subdivisions and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops and stations, schools, parks, and shopping centers.

Safe Pedestrian Crossings. TC 3.G.6. The City shall improve pedestrian safety at intersections and mid-block locations by providing safe, well-marked pedestrian crossings, bulbouts, or median refuges that reduce crossing widths, and/ or audio sound warnings.

Speed Management Policies. TC 3.G.7. The City shall develop and implement speed management policies that support driving speeds on all city streets that are safe for pedestrians.

Safe Sidewalks. TC 3.G.8. The City shall develop safe and convenient pedestrian ways that are universally accessible, adequately illuminated, and properly designed to reduce conflicts between motor vehicles and pedestrians.

Completion of Sidewalk System TC 3.G.9. The City shall attempt over time to fill any gaps in the sidewalk systems of existing neighborhoods, giving priority to streets which serve as pedestrian collectors or arterials.

Sidewalks TC 3.G.10. The City shall require sidewalks, where possible separated sidewalks, on both sides of all new streets and with all new street improvement projects, except industrial streets where sidewalks shall be required on one side of the street.

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Transportation Goal G: TRANSPORTATION MANAGEMENT - To utilize transportation demand and system management as a means to improve system efficiency and reduce dependence on single occupancy usage of motor vehicles. (GHG)

Policies:

Ridesharing TC 3.G.1. The City shall encourage and support programs which will increase ridesharing.

Emerging Technology TC 3.G.2. Use emerging transportation technologies and services to increase transportation system efficiency.

Transportation Systems Management TC 3.G.3. The City shall adopt a Transportation Systems Management (TSM) ordinance applicable as an environmental impact mitigation measure to major development projects and employers.

Facilities for Emerging Technologies TC 3.G.4. The City shall assist in the provision of support facilities such as alternative fueling stations (e.g., electric and hydrogen) for emerging technologies.

Use of Public Right-of-Way TC 3.G.5. The City shall provide for the use of public right-of-way, including parking facilities at major transit stations and employment centers, for support facilities such as alternative fueling stations in urban centers and other areas where appropriate.

Natural Resources Goal D: AIR QUALITY - To promote and, insofar as possible, improve air quality in West Sacramento and the Sacramento Region. (GHG)

Policies:

Support and Participate NR 6.D.1. The City shall support and participate in local and regional air quality planning programs to ensure the earliest practicable attainment and subsequent maintenance of federal and state ambient air quality standards.

Use of CEQA Process NR 6.D.2. The City shall utilize the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of development proposals. The CEQA process shall also be utilized to ensure early consultation with the Yolo-Solano Air Quality Maintenance District (AQMD) concerning air quality issues associated with specific development proposals.

Sensitive Land Uses NR 6.D.3. The City shall separate sensitive land uses from significant sources of air pollutants or odor emissions.

Early Coordination with YSAQMD NR 6.D.4. The City shall establish procedures to ensure early notification and coordination with the Yolo-Solano Air Quality Maintenance District when industrial developments are proposed. Such early coordination will assist applicants in complying with applicable air quality regulations and will assist the City in promptly identifying and resolving potential air quality problems.

Promote Mixed-Uses NR 6.D.5. The City shall promote mixed-uses for major development projects to reduce the length and frequency of vehicle trips.

Circulation System NR 6.D.6. The City shall develop a local circulation system that encourages and accommodates the use of transportation modes other than the automobile.

New Development NR 6.D.7. The City shall ensure that new development incorporates the infrastructure, facilities, and design standards necessary to encourage and accommodate transit, ridesharing, and non-automobile travel modes.

Child Care NR 6.D.8. The City shall encourage the establishment of child care facilities at or near worksites and near residential areas as a means of reducing pollutants from automobile travel.

TSM Ordinance NR 6.D.9. The City shall continue to implement a local Transportation System Management (TSM) ordinance as a mitigation measure in accordance with state law. The TSM ordinance was developed in consultation with the Yolo-Solano Air Pollution Control District, Yolo County, the Sacramento Area Council of Governments, and the Sacramento Metropolitan Air Quality Management District. The TSM ordinance distinguishes between the physical facilities to be provided by developers and the trip reduction incentives and programs to be implemented by employers.

Monitoring NR 6.D.10. The City shall verify air quality projections with periodic spot monitoring, especially at identified emission point-sources.

Major Intersections NR 6.D.11. Major intersections shall be designed to minimize long vehicle delays which result in carbon dioxide (CO) "hot spots."

3.3 ENERGY USE AND ALTERNATIVE ENERGY

Natural Resources Goal E. TREES - To protect existing mature trees and encourage the development of a healthy urban forest. (GHG)

Policies

Tree Ordinance NR 6.E.1. The City will maintain an ordinance which regulates the removal of existing trees, attempts to preserve existing trees where possible and requires mitigation where healthy trees must be removed either by planting on site, planting in another location approved by the Tree Administrator, or a combination of planting and a contribution to a Tree Mitigation Fund.

Require Planting NR 6.E.2. The City will require the planting of street trees, parking lot canopy trees, screening trees and other amenity trees and landscaping in all new development.

City Property NR 6.E.3. The City will look for opportunities to add new trees to existing City owned properties. .

Property Owner Responsibility NR 6.E.4. The City will require property owners to maintain and protect trees on their property as well as street trees adjacent to their property.

Healthy Pruning NR 6.E.5. The City will provide the capability to prune street trees as necessary to prevent hazards and provide street visibility in a manner which will not endanger the health of the trees.

Education NR 6.E.6. The City will provide educational programs on how to plant and take care of trees in urban areas.

Natural Resources Goal G. REDUCE ELECTRICITY USE - To reduce the emissions from the generation of electricity by reducing electricity use through increased efficiency. (GHG)

Policies

Green Buildings NR 6.G.1. The City will establish Green Building requirements and standards for new development and redevelopment projects, and will work to provide incentives for green building practices and remove barriers that impede their use.

New Development Standards NR 6.G.2. The City will establish standards to increase energy efficiency at new developments through improved building standards, assistance to energy efficiency features at affordable housing project, and efficient outdoor lighting.

Heat Island Reduction NR 6.G.3. The City will establish standards to reduce exterior heat gain and heat island effects through tree planting, reflective paving materials, covered parking and cool roofs.

Existing Buildings NR 6.G.4. The City will pursue policies and programs to improve energy efficiency of existing buildings through energy audits, energy efficiency funding and educational activities.

Natural Resources Goal H. ALTERATIVE ENERGY - To reduce the emissions from the generation of electricity by promoting and supporting the generation and use of alternative energy. (GHG)

Policies

Siting NR6.H.1. The City will establish policies and programs that facilitate the siting of new renewable energy generation.

Private Development NR 6.H.2. The City will promote and require renewable energy generation and co-generation projects in conjunction with private development where feasible and appropriate.

Solar Energy NR 6.H.3. The City will promote, support and require, as appropriate, the development of solar energy.

Financing NR 6.H.4. The City will pursue and provide economic incentives and creative financing for renewable energy projects, as well as support for community members or developers seeking funding for such projects.

Purchase NR 6.H.5. The City will implement measures to support the purchase and use of renewable and alternative energy.

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3.4 WASTE

Public Facilities and Services Goal D: SOLID WASTE - To provide for the collection and disposal of solid waste while minimizing the generation of waste. (GHG)

Policies:

70% Diversion PFS 4.D.1. The City shall study and actively pursue methods of solid waste recycling and reuse, including source separation, with the goal of reducing its solid waste generation by 70 ~~50~~ percent by the year 20~~0~~20. Recycling methods that involve the production of energy shall be considered. (GHG)

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Mandatory Collection PFS 4.D.2. The City shall continue to require mandatory garbage collection throughout the city.

Adequate Service PFS 4.D.3. The City shall monitor the operations of garbage collection contractors to ensure that service levels are adequate.

Landfill Capacity PFS 4.D.4. The City shall maintain close contact with the Yolo County Public Works Department concerning the City's continuing use of the Yolo County Central Landfill and its capacity projections.

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Chapter 4 – Actions to Address Climate Change

4.1. Existing Emissions Reduction Measures & Policies

At both the community-scale and within municipal operations, City of West Sacramento is already undertaking a number of programs, policies and projects that result in reduced greenhouse gas emissions. While the goals of many of the existing actions listed below (e.g., reducing local air pollution, reducing traffic, improving public health, increasing energy efficiency and conservation, improving solid waste management) is not necessarily to reduce greenhouse gas emissions, the policies do serve that function. Ultimately, the goal of City of West Sacramento's Climate Action Plan is to build on existing planning and implementation efforts and integrate them into the broader task of reducing the community's impact on climate.

The emission reduction benefits of each quantified measure were based on the use of the **Climate and Air Pollution Planning Assistant** calculator developed and supplied by **the International Council for Local Environmental Initiatives (ICLEI)**. This spreadsheet contains 70 possible measures which can be used by communities to reduce Greenhouse Gas. Some measures are directed at the municipal organization, some the community and some both. Based on the amount of participation in implementing the measure, the spreadsheet will predict the amount of CO2e eliminated by each measure. Some measures are very specific (Replace Computer Monitor with EnergyStar rated replacements). Some measures are very general (Educate the public on low carbon transportation options). Every effort has been made to not double count benefits when a general measure would result in the implementation of a specific measure. The amount of benefit potential in each measure is based on the experience of a number of Cities around the country.

City of West Sacramento's existing actions are organized into four categories: transportation, energy efficiency, renewable energy, and solid waste management[1]. These categories follow the major sources of emissions found in the GHG emissions inventories and described in Section IIB in addition to the waste sector.

A. Existing Community-Scale Measures

The measures outlined in this section represent an excellent first step towards significant reductions of greenhouse gas emissions in the community. They have been broken down by sector and are outlined below.

[1] Waste Management is used in the broader sense to include, waste reduction, recycling, composting and final disposal activities.

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Transportation and Land Use

Community Purchases of hybrid vehicles: A large number of citizens and businesses have already purchased hybrid or other low emission vehicles. The Sacramento region is in fact has among the highest penetration levels for hybrid vehicle purchases in the country.

Participation in Yolo County Transportation Management Association: A number of existing businesses are members of the YCTMA and encourage their employees to ride bikes, transit or carpool.

Bike to work: West Sacramento's closeness to the employment concentration of the Sacramento downtown leads to many residents riding bikes to work. Many West Sacramento residents participate in the May Bike to Work program every year.

Provision of bike facilities at work places: Several larger businesses encourage bicycle use by their employees by providing for storage of bicycles including the California General Services Administration office, Calstrs, and Raley's Corporate Headquarters.

Pedestrian Friendly neighborhoods: Good planning, both recently and in the past have lead to a number of very pedestrian friendly neighborhoods with short blocks, landscaped separated sidewalks, thru block trails and pedestrian connected cul-de sacs. The older traditional neighborhoods such as the States Streets and Washington are classic examples of pedestrian friendly areas. They have been joined by neighborhoods like the Summerfield area with its pedestrian links from cul de sacs to the arterial streets and the Bridgeway Island subdivision with pedestrian connections radiating out from the neighborhood core with the elementary school, park, multi-family and future commercial.

Energy Efficiency

Home Energy Improvements: Many West Sacramento homes have been improved by energy efficiency practices ranging from replacement of light bulbs with Energy Star light bulbs, replacement of single pane with double pane windows, insulation improvements, purchase of Energy Star appliances to motion detector light switches. In recent years the City provided a Home Improvement Holiday program of free building permits for home improvement projects in the summer. Much of the work permitted under that program involved energy improvements.

Business Energy Improvements: West Sacramento businesses have recognized that energy conservation is good business practice. Many commercial buildings have added white roofs, Energy Star light bulbs, Energy Star air conditioners, computers, monitors, improved insulation, motion sensitive light switches, and more energy efficient process equipment.

Tree Planting and Landscaping: For almost 20 years, the City has required extensive tree planting in new development including shade trees along street frontages, screening trees along property lines between different uses and shade trees in commercial parking lots. Thousands of new trees have been planted on private property as a result. West Sacramento matches Sacramento as a "City of Trees". These landscaping requirements have recommendations that encourage low water use planting as well.

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Renewable Energy

Solar Voltaic Facilities: Several local businesses have installed solar photovoltaic arrays. The largest, a 1 megawatt facility at Tony's Fine Foods is one of the largest business owned facilities in California. The Port of West Sacramento has also recently put on line a 637 kilowatt facility on the roof of one of its warehouses. Numerous home owners have also installed small photovoltaic arrays to reduce their grid energy use.

Solid Waste

Recycling: The community has consistently beaten the goal of recycling 50% or its waste stream, averaging closer to 60% recycling. This effort has been aided by the provision of curb side recycling bins and recycling education from the City and Waste Management, the City's primary waste collection franchise partner.

B. Existing Municipal Operations Measures

City of West Sacramento has also already undertaken a number of municipal operations measures resulting in reduced greenhouse gas emissions relative to the base year of 2007. These measures are an excellent first step towards significant reductions of greenhouse gas emissions from municipal operations. They have been broken down by sector and are outlined below.

Transportation, Land Use and Development

Employee Commute: According to the ICLEI report of the City, the employee commute comprises 18.6 percent of GHG emissions. As part of the General Plan, the City has placed key municipal sites in a concentrated downtown area adjacent to transit opportunities, which reduces the environmental impact of travel to and between City sites. Some of the transit opportunities in the City stem from the City's membership with the Yolo Transportation Management Association (TMA). This organization provides City employees with access to limited financial incentives for trying alternative modes of transportation and supporting services such as guaranteed emergency rides home for alternative mode commuters. Alternative modes of transportation include any means other than single occupancy vehicles. The City also works cooperatively with the Yolo TMA to coordinate educational events and distribute alternative commute mode information. The City's recent opening of a bicycle facility in the secured area of City Hall's parking lot allows for the safe and convenient storage of commute bicycles and share bikes, thereby increasing the ease of commuting by bicycle. The City's share bike program provides a low-impact mode of midday transportation for employees regardless of commute mode. In February 2010, the City designated the two parking spaces closest to the employee west entrance as reserved for car pool or alternate fuel vehicles.

To help further reduce emissions from employee commute and work travel during the day, employees can take advantage of municipal-wide transit options. Currently, the primary option is public buses. The

City works cooperatively with the Yolo County Transportation District (YCTD) and other area transit operators to ensure proper placement of bus stops and corresponding infrastructure such as poles and signs. The public works division maintains the shelters, benches, and trash and recycling receptacles, where applicable. The City is working to raise money for the Downtown/Riverfront Streetcar Study and is planning an improved Transit Center along West Capitol Avenue to provide a safe and convenient transit hub.

Land Use: The most powerful tool the City is using to minimize Greenhouse Gases is its land use planning. Currently, the City is implementing four development programs to improve the sustainability of the City and the Region. The first is the West Capitol Avenue Streetscape Plan. This is an effort to transform the Avenue into West Sacramento's new downtown and urban core, a new vibrant street that takes advantage of its prime location and provides an attractive location for civic and mixed-use projects that take advantage of multiple modes of transportation. Heavy landscaping of the avenue and reducing the scale of the street to a pedestrian friendly design will also result in GHG reductions. The City was awarded a Grant from the Sacramento Area Council of Governments to help fund Phase 1 of the project. Long-term future phases of the project extend the improvements along West Capitol Avenue out to Harbor Boulevard.

Implementation of the Triangle (Bridge District) Plan is a second effort that furthers both the requirements of SB 375 and the City goals. In June the City was awarded funds to jump start office and residential development in the Bridge District. A vital new transit oriented district that includes five to seven million square feet of office, hotel, and 4,500 residences is planned. The grant will help assure that 731 new affordable and market rate units are constructed in the Triangle by the end of 2012. The West Sacramento Riverfront, Bridge District and West Capitol Avenue all will continue to undergo rapid urban development that will introduce a new mixture of residential, office and civic uses. Work on the Downtown/Riverfront Street Car is a third project that the City commenced in 2006 that will result in implementation of the Regional Transit Plan and smart growth policies. The project is a joint effort between the City, City of Sacramento, Regional Transit and Yolo Bus. The streetcar would generally run between the Sacramento Convention Center and our City Hall. The proposed streetcar service would provide additional capacity for the two cities by supplementing existing transit and bus service. Long-term, the street car service is planned to extend to the Bridge District to provide for transit access for new growth anticipated in the area.

The Southport Framework Plan calls for the development of a series of villages as the form for development. Each village, which ranges from 2,700 to 4,000 housing units, is focus around a central core which includes commercial, an elementary school, a park, lots for civic uses and high and medium density residential. Village pedestrian and bicycle routes are designed to follow to and from the village core and to connect to a regional bike and pedestrian system.

While the planning for these areas has been completed, the greenhouse gas savings will occur as these areas develop. No current emission benefits are assumed.

Energy Efficiency

Reduced Water Related Energy Use: According to the ICLEI report, water and sewer activities comprise 46 percent of the City's GHG emissions. These activities include the water and sewer plants as well as

distribution and collection pump stations. It is not unusual for this category to be the largest user of electricity and as such the largest source of carbon dioxide. The City has taken several steps to decrease these emissions and increase overall efficiency.

One effort is the merger of the City's sewer activities with those of the County of Sacramento. While not a considered outcome, the City will notice a decrease in electricity and an ensuing carbon dioxide emissions reduction from the sewer component. As part of the project to connect to Sacramento Regional Sanitation, the City's sewer pump stations were modernized. In addition to not needed to pump all effluent up a hill to the old plant for treatment, more modern and energy efficient pumps and controls were installed at the pump stations. Calculations in future years will determine if the consolidation with Sacramento Regional Sewer System results in an overall decrease in GHG emissions attributed to the sewer component of the data.

Efforts for water conservation within the City include operating the Bryte Bend Water Treatment Plant (BBWTP) at lower power demand times in cooperation with PG&E, thereby eliminating peak energy requirements. While this does not decrease the need for electricity, it assures that the demand does not interfere with the ability to provide energy during peak load times when gas and oil powered plants are most in use.

Efforts to decrease water use in landscaping have been taken by designing Water Wise Drought Gardens within the City to promote low water use plants at City facilities. Since 1993, the City's Landscape Development Guidelines have encouraged water wise landscaping in new developments by limitations on the amount of turf used in required landscaping. The City has also reduced city irrigation costs from previous years by 20 to 30 percent by installing a centrally controlled, computerized irrigation control system in City Parks.

City Buildings and Parks: Based on the ICLEI report, City buildings comprise 16.6 percent of the City's GHG emissions. As part of the General Plan, the City has placed key municipal sites in a concentrated downtown area adjacent to transit opportunities, which reduces the environmental impact of travel to and between City sites. This arrangement lays the foundation for implementing sustainable policies. As part of this centrally located municipal development, the City is incorporating sustainable design and construction strategies into new construction projects. In particular, the City is implementing techniques to have the Community Center certified under the United States Green Building Council as a Leadership in Energy and Environmental Design (LEED) Silver facility. LEED is the most recognized green building standard in the international and national community. It outlines detailed strategies that architects, owners and contractors can use to encourage water and resource conservation, to reduce waste generated by construction projects, to increase energy efficiency in buildings, to provide durable buildings that are efficient and economical to own and operate, and to promote the health and productivity of residents, workers, and visitors to the City. Based on the number of strategies implemented to be sustainable, building projects are rated at different levels, with the levels ascending in sustainability from Certified, Silver, Gold to Platinum.

The City is also retrofitting existing buildings to incorporate more sustainable features, such as compact florescent light bulbs, low flow toilets and sinks, photovoltaic cells, and motion-activated lighting. Computerized heat and air systems are also being installed to meet state standards for office environments. These systems send alerts if a filter needs to be changed or if a roof-mounted unit is not operating efficiently.

Designs for City parks and trails utilize low emission materials that are durable in order to minimize long-term operations and maintenance needs. One example of such a sustainable design is the new Patwin-Summerfield Bicyclist and Pedestrian Bridge. The bridge uses a zero-maintenance concrete deck and a steel structure whose weathered surface is easily cleaned. The bridge is strategically located and specifically designed to accommodate park maintenance vehicles, thereby reducing normal maintenance trips for Patwin and Summerfield Parks by up to 50 percent. This connection across the Main Drain Canal also provides a short cut for non-motorized trips between the Bridgeway Island/Lakes areas, Town Center and Westbridge Plaza, and the new high school.

All new municipal parks and landscapes designed and built over the past two years have used the "purple pipe" irrigation pipe standards promulgated by the Sacramento Regional County Sanitation District for use of non-potable water for irrigation. Use of the "purple pipe" standards enables the City to discontinue use of costly treated water when alternative water supplies are available. The first example of non-potable water supply for irrigation will go on-line before the end of 2008, when trees planted around the MC-10 Storm water Detention Ponds will be irrigated by water pumped from the north basin.

Recycled materials are also used to build parks and trails when possible. Recent park projects have specified recycled content in seating fixtures, play structures and fall zone materials. Construction of the Clarksburg Branch Line Trail used recycled, crushed concrete for over 3.2 miles of pathway improvements.

The City has implemented grass cycling with mulching mowers for 130 acres of the city parks and chips tree clippings to use as landscaping mulch. The City has placed all parks on a central irrigation system, which saves 20 to 30 percent of the annual cost of running the irrigation system. The effort also reduces employee hours spent traveling and travel emissions that were previously created when adjusting individual site irrigation systems. Data will be gathered to gauge the efficiencies gained from installing this system by comparing water usage with and without the central irrigation system.

The City has also planted over 5,100 new trees for tree mitigation along city streets, in city parks, and on open space areas. Additionally, travel emissions have been reduced for Park employees by rearranging site cleanup procedures. Now, staff and equipment move congruently as crews from site to site in pre-determined sections of the City. This eliminates excessive travel from sites across the City to obtain tools or equipment as well as requiring fewer commute vehicles.

Streetlights: According to the ICLEI report of the City, streetlights produce 9.5 percent of the City's GHG emissions. Several activities are currently being undertaken to reduce this emission percentage. A majority of streetlights have been converted to high-pressure sodium from metal halide over the past few years. Installing light emitting diodes (LED) in streetlights has been explored, but it remains too costly.

A majority of traffic signals have been converted to LEDs. LEDs have proven for years now to be the most energy efficient means of controlling local traffic.

City Vehicles: According to the ICLEI Report of the City, the vehicle fleet produces 9.2 percent of the City's GHG emissions. Currently, the City owns 231 mobile pieces of equipment, including vehicles, tractors, and emergency response vehicles. Eighteen of those use alternative fuels, including ethanol, compressed natural gas, and hybrid systems. The Police Department, Public Works and multiple departments located at City Hall have purchased alternative fuel or hybrid vehicles. In addition, many of the new Police Department vehicles have flexible fueling systems that allow for use of either gasoline or ethanol fuel.

While the ICLEI Report does not include vehicle fleets of City contractors, the City does conform to stipulations in the California Climate Action Registry that requires the City's waste hauler, Waste Management, to reduce the carbon emissions for its truck fleet by 10 percent by 2011. This 10 percent value is based on fleet emissions produced when servicing the City during the calendar year of 2007. This effort reduces GHG emissions of fleets used to service the City and an offset will be realized because of this requirement in the contract with Waste Management.

Recycling: According to the ICLEI Report of the City, waste practices produce 0.1 percent of the City's GHG emissions. Currently, the City has an employee recycling policy that requires all facilities to accommodate and participate in the recycling program. The current employee recycling policy also addresses waste reduction and encourages employees to make double-sided copies, reuse single-sided paper and use reusable items in the employee break rooms. The City also has a Recycled Content Product Purchasing Policy, which directs departments to buy recycled content products whenever possible. Additionally, the City requires special event recycling for Galleria rentals by including recycling program language in the rental agreement. The City conforms to stipulations in the California Climate Action Registry that requires the City's waste hauler, Waste Management, to reduce carbon emissions by 10 percent for its truck fleet by 2011, based on emission averages from service in 2007. Beginning in 2008, the Contractor will also provide to the City a carbon emissions inventory for the Contractor's waste and recyclables related operations in connection with performance of services to the City, including estimated emissions associated with materials placed in the Yolo Landfill and energy savings associated with the collection and processing of recyclables collected in the City.

Renewable Energy: The Port of West Sacramento has recently brought on line a 675 kilo watt solar panel installation on the roof of two transit sheds. This facility will provide all of the Ports power needs. The project was done in partnership with Pacific Power Management of Auburn. The system will eliminate over 34 million tons of CO2 emissions over the next 25 years.

Purchasing: In 2009, the City adopted an Environmentally Preferred and a Recycled Content Purchasing Administrative Policy requiring that the potential impacts of products on the environment should be considered in the evaluation of product purchases.

C. Summary of Existing Emissions Reduction Measures

Based on the emissions reductions already achieved since *2007* through the above measures, *City of West Sacramento* will have to reduce *X* tons of CO_2e emissions in the community, including at least *Y* tons of CO_2e emissions from municipal operations, in order to achieve our emissions reduction target.

Table (4.3) : *City of West Sacramento* Emissions Summary

***City of West Sacramento* Emissions Summary**		
	Community Analysis	**Municipal Operations Analysis**
Base year	2007	2007
Quantity of CO_2e emissions in base year (tons)	410,682	18,801
Target year	2020	2020
Business-as-usual projection of CO_2e emissions in 2020 (tons)	533,726	NA
Percent CO_2e reduction targeted by target year relative to base year (%)	30%	15%
Quantity of CO_2e reduction targeted relative to base year (tons)	160,117	2820

Source: CACP Model Output

4.2 Proposed Emissions Reduction Measures & Policies

Based on careful consideration of the emissions reductions needed to achieve our stated targets, the distribution of emissions revealed in our emissions inventory, existing priorities and resources, and the potential costs and benefits of various potential emissions reduction projects, City of West Sacramento has identified a set of emissions reduction measures that should be set into motion immediately. The actions are divided into the following sectors/measure types: transportation, energy efficiency, renewable energy, and solid waste management[2]. Within each of these categories, the measures are further divided into the measures that affect community-wide emissions and measures that affect the emissions that result from municipal operations.

The emissions that result from municipal facilities and operations account for only 4.8% percent of City of West Sacramento's community-wide emissions. That being said, measures taken to reduce municipal emissions show that the city's elected officials and staffers are committed to action on climate change and to inspiring action in both our community and neighboring communities. City of West Sacramento is proud of the emissions reduction efforts implemented to date and is committed to building on those efforts by increasing fleet fuel efficiency, reducing solid waste, and increasing energy efficiency and conservation in municipal buildings.

4.2.1. Transportation and Land Use Measures

Broadly, there are three main ways to reduce GHG emissions from the transportation sector. One way is to implement policies that reduce dependence on personal motor vehicles and encourage alternative modes of transportation, such as public transit, cycling, and walking. Another way is to utilize vehicles that release fewer greenhouse gases, such as hybrids, more fuel efficient vehicles, and vehicles that run on alternative fuels. A final way is to encourage 'smart growth' or policies that promote efficient land use development. Smart growth reduces the need to travel long distances, facilitates transit and other non-automotive travel, increases the availability of affordable housing, employs existing infrastructure capacity, promotes social equity, helps protect natural assets, and maintains and reinforces existing communities.

The emission measures effectiveness was estimated using the Climate and Air Pollution Planning Assistant developed and provided by ICLIE. This spreadsheet calculates the effectiveness of common Greenhouse Gas Emission Reduction measures being used in Cities around the country. Measure effectiveness for 2020 reflects a 35% reduction in the CO_2 per vehicle miles travelled consistent with the mandate to increase the combined average fuel economy of all vehicles sold in California to at least 35 miles per gallon beginning in 2019 and to reach 45 miles per gallon by 2030. While a higher vehicle fuel economy in the future is a major step towards reaching our GHG emission goals, it has the effect of significantly reducing the GHG effectiveness of City measures directed at reducing vehicle miles travelled.

[2] Waste Management is used in the broader sense to include, waste reduction, recycling, composting and final disposal activities.

No standard has been set for 2050. For the purposes of this analysis, it is assumed that by 2050 average fuel economy will be 60 miles per gallon, conservatively consistent with the trend of a 10 mile per gallon increase every 10 years.

4.2.1.A. Community Measures

Table (4.4): Proposed Community Transportation and Land Use Emissions Reduction Measures

Transportation Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO2e Reduction by 2050 (tons)
An NQ under Annual CO2e Reduction means no reduction has been quantified for that measure, reductions related to that measure may be included in a broader measure..			
Vehicle Fuel Efficiency			
▪ Promote community purchases of compact and hybrid vehicles	2010	NQ	NQ
▪ Implement and promote the Clean Air Vehicles Program of the YSAQMD	2010	NQ	NQ
▪ Lobby for increased CAFE standards	2010	NQ	NQ
Alternative Fuels			NQ
▪ Encourage development of alternative fuel capability at existing gas stations.	2010	NQ	NQ
▪ Change zoning ordinance parking section to require provision of prime parking spots for car pool or alternate energy automobiles.	2010	NQ	NQ
Trip Reduction/ Transportation Demand Management			
▪ Support expansion of Yolo County Transportation Management Association effort to encourage alternative commute transportation choices.	2010	NQ	NQ
▪ Continue to develop virtual City Hall services to reduce need for citizens to drive for services.	2010	NQ	NQ
▪ Implement Intelligent Transportation Systems Technology.	2011	NQ	NQ
▪ Partner with City Car Share or a similar car sharing program to disincentivize car ownership	2018	NQ	NQ

Alternative modes of transportation			
▪ Develop Street Car System.	2013	9,617	27,502
▪ Update and implement Bicycle and Pedestrian Master Plan.	2011	NQ	NQ
▪ Support expansion of bus transit services as City grows.	2018	NQ	NQ
▪ Change zoning ordinance to require secure bike storage facilities for significant new private development.	2010	NQ	NQ
▪ Support inter-regional high speed rail.	2010	NQ	NQ
▪ Fill gaps in the sidewalk and bikeway system of the City.	2013	NQ	NQ
▪ Actively use the City's public communication tools (web site, City Lights, cable, utility bills, Commissions) to educate the public and City Staff on low carbon transportation alternatives.	2010	11,017	10,990
Land use related			
▪ Provide Infrastructure and Zoning for High Density, Urban, Mixed Use Riverfront and West Capitol Areas.	2010	8,129	19,306
▪ Integrate rail, bus, bicycle and pedestrian networks	2010	NQ	NQ
▪ Provide low cost passes for street car system to residents and employees to encourage high density development.	2014	NQ	NQ
▪ Participate in SACOG's Smart Growth Strategy	2010	NQ	NQ
▪ Use the CEQA review process to mitigate the GHG emissions impacts of new development	2010	NQ	NQ
▪			

Promote community purchases of compact and hybrid vehicles

Importance/Context

Increased use of high-efficiency, low-carbon vehicles like hybrids, fuel cell, plug in electric, natural gas, Bio-diesel or even high fuel efficiency compact cars has the potential to significantly reduce not just Greenhouse Gas emissions, but at the same time other air pollutants. Transportation makes up 52% of total West Sacramento GHG emissions and generally near half of all Greenhouse Gas Emissions nationally. The City is the proud home of the National Fuel Cell Partnership, a research and

demonstration facility on Industrial Boulevard which is the home to representatives of all the major auto makers and related support companies at the forefront of the Fuel Cell Vehicle technology.

Implementation Scenario

The City's ability to influence behavior on this item is limited. The City does not regulate fuel efficiency standards, nor does it have the resources to financially incentivize the purchase of low-carbon vehicles. It can lead by example in its own fleet purchases and it can include encouragement to its citizens via its communication channels regarding Green activities.

Emission Reductions

The emission benefits of this measure are captured under the City communication measure below.

Costs and Additional Benefits

Costs would be limited to staff time and marketing resources used to promote the purchase of low-carbon vehicles.

The additional benefits include improved air quality in general with resulting improvements in the respiratory health of the community.

Implement and promote the Clean Air Vehicles Program of the YSAQMD

Importance/Context

The Yolo/Solano Air Quality Management District administers a variety of Clean Air Programs. These include: The Clean Air Grant program, where up to $400,000 per year is available on a competitive basis for projects which reduce air pollution, a wood stove change out program which provides incentives for removing wood burning stoves and replacing them with high efficiency and low-emission gas, pellet or EPA certified cleaner burning wood appliances, a lawn mower exchange program which provides a discount for the exchange of a battery powered electric lawn mower for and older gasoline fueled lawn mower, a Clean School Bus program, and programs for improvements to on and off road heavy vehicles.

Implementation Scenario

The City role would be a support and marketing one helping members of the community become aware of and participate in the YSAQMD programs as part of its overall communication effort.

Emission Reductions

While replacing gas fuel lawnmowers with electric mowers would have minimal effects on CO_2, the replacement of 250 lawnmowers with electric would reduce VOCs by 4,750 lbs. per year.

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Costs and Additional Benefits

The subsidy program costs $250 per lawnmower purchased.

Electric lawnmowers are quieter than gasoline.

Lobby for increased CAFE standards

Importance/Context

In 2002, AB 1493 known as the "Pavley Bill" was signed into law. This bill directed the Air Resources Board to "develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emission form motor vehicles". CARB established a regulation that mandated auto makers meet a 22% reduction in emissions for vehicles sold in California by the 2012 model year and a 30% reduction for the 2016 model year. Enforcement of the regulation required a waiver of EPA's pre-emption on Fuel Efficiency Standards. After years of delay and denial, that waiver was granted in 2009. To achieve control over greenhouse gases from automobiles, it is likely that future higher standards will be required and the technology changes what is "feasible and cost-effective.

Because of the high percentage of total Greenhouse Gas Emissions that are a result of the burning of gasoline and diesel for transportation, reaching the 2050 goals is likely to require that the transportation system be largely carbon free.

Implementation Scenario

The City plays no direct role in the setting of fuel efficiency standards, but it can raise its voice in support of future legislation or regulation to increase the standards.

Emission Reductions

The emission benefits of this measure is reflected in the section on measures external to the City.

Costs and Additional Benefits

The requirement that automakers produce more energy efficient cars is likely to result in higher initial purchase prices for automobiles in the future. Costs to the City to lobby are probably minimal and likely to take the form of letters to our Senators and Congressmen.

In addition to the GHG benefits, higher efficiency vehicles will likely also produce less other pollutants which will have health benefits. Less use of petroleum for powering vehicles will save supplies for other uses such as plastics.

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Encourage development of alternative fuel capability at existing gas stations

Importance/Context

Several alternative fuels for powering motor vehicles are known which have significantly lower carbon emissions than gasoline. Compressed Natural Gas, Low carbon diesel, ethanol, bio-diesel, propane and fuel cells are all working technologies available today to reduce carbon emissions. One of the major obstacles to the expanded use of alternative, low-carbon fuels is the lack of refueling stations available is sufficient number and location to create a viable system. New stations may be built to supply these fuels but it would seem more efficient and "green" to add this capability to existing stations.

Implementation Scenario

The City could waive its portion of any Building Permit costs required to install additional or modified pumps and storage facilities to supply alternate fuels at the retail level. This would not constitute a significant loss of revenue for the City compared to its normal Building valuation revenues but would show a support and commitment for the effort.

Emission Reductions

Due to the indirect nature of the City's involvement and unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

Adding handling and storage for alternative fuels will have substantial costs for stations. Lost building revenues from a waiver would probably be in the thousands of dollars for the entire program.

Additional benefits would include higher sales volumes for those stations which do carry alternative fuels.

Change zoning ordinance parking section to require provision of prime parking spots for car pool or alternate energy automobiles

Importance/Context

One of the tools Caltrans is using to encourage car pooling and use of alternative energy vehicles is the provision of car pool lanes. In exchange for the additional effort need to car pool or the additional cost of using an alternative energy vehicle, you get to use a less congested, more convenient driving lane. In a similar approach, it is within the authority of the City to condition new developments to provide prime location and or free parking at work sites to encourage people to car pool or use alternative fuel vehicles. In early 2010, the City designated two sites adjacent to the main employee entrance at City Hall for the use of car pool and alternative fuel vehicles.

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Implementation Scenario

For the City, the change would involve a fairly minor amendment to the Parking section of the Zoning Ordinance. The City could include the amendment with one of its regular batches of minor amendments to the Zoning Ordinance that typically takes place once a year.

The implementation at the private work place presents more challenges. Unless the business and the employees are supportive a lack of enforcement would make the designation of prime spaces meaningless. There is some administration involved if the provision is to be enforced. The City's own experience is that employees are respecting the designated spaces and only qualifying cars are using them.

Emission Reductions

Due to the indirect nature of the City's involvement and unpredictability of results, no emission reduction is estimated from this measure. The emission reductions from alternate energy vehicle use as a result of all related measures are shown below under the Yolo County Transportation Management support measure.

Costs and Additional Benefits

The cost to write and adopt a Zoning amendment is probably under $1,000. The cost to a business to sign a parking space is about $200.

In addition to the carbon reduction of fewer vehicles because of car pooling, it would reduce traffic.

Support expansion of Yolo Transportation Management Association effort to encourage alternative commute transportation choices.

Importance/Context

The Yolo Transportation Management Association (YTMA) is a non-profit organization dedicated to working with employers to encourage the use of alternative commute choices to the single occupancy motor vehicles. YTMA administers The Rideshare Incentive Program (TRIP). The Rideshare Incentive Program is designed to incentivize and reward commuters who try other means of commuting other than single occupancy vehicles and by changing daily commute habits, TRIP participants earn financial incentives for a two or three month period to use a rideshare alternative, including carpooling, van pooling, mass transit, or bicycling or walking. At the end of a one-year period there are additional incentives for those who stayed with their alternative commute choice.

Administration of the program is funded by dues paid by participating employers who join the YTMA. Incentives are funded by grants from the Yolo-Solano Air Quality Management District.

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Implementation Scenario

The City of West Sacramento is a member of YTMA. It can use its communication channels to make West Sacramento residents and businesses aware of the programs of the YTMA. While somewhat limited by State law, the City can require major new developments which are shown to have significant impacts on traffic and transportation via the California Environmental Quality Act review process to, as a mitigation measure, prepare and implement Transportation Systems Management programs. These programs show how an employer can encourage the use of alternative commute transportation choices. One of the common measures in these plans is for the employers to contribute funds to YTMA to provide financial incentives to their employees to bike, carpool, or use mass transit. The Calstrs office building was required to prepare and implement a TSM. That requirement is also in place for all future development in the Bridge District.

Emission Reductions

The emission benefits of this measure are captured under the City communication measure below.

Costs and Additional Benefits

Membership cost in YCTA is on sliding scale based on the number of employees at the primary work site. West Sacramento pays $1,000 per year to be a member.

Additional benefits of the use of alternative transportation are reduced congestion on the roads, air quality improvement and the health benefits of more physically active transportation modes.

Continue to develop virtual City Hall services to reduce need for citizens to drive for services.

Importance/Context

In addition to the vast amount of information the Internet puts at our fingertips that we might have had no way to find or access before, the internet can and does actually help us reduce trips. Internet shopping is changing the way we buy things, avoiding trips to stores or at least reducing the amount of driving around looking for the best price. City Hall has been for several years, building its web page and electronic presence to better serve its citizens. Much information is available on the City organization and activities that years ago would have required a physical trip to City Hall to get. Bills can be paid electronically, Council agendas reviewed, Council meetings watched, application forms obtained, information on projects and permits readily available. Detailed maps and air photos of the City are available on line with parcel level information. This is another area where the City should be and has been a leader in the community.

Implementation Scenario

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The City is continuing to work in the area of making historical records (Building Permits, Zoning actions, Plans, agenda reports) available on the web. The ability to apply for and pay for minor building permits without coming to City Hall is another area of future potential. The potential for "virtual" attendance at Council and Commission meetings, including two way visual interactions is within the technology and could be implemented.

Emission Reductions

Due to the indirect nature of the City's involvement and unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

In addition to the energy benefits, a robust "virtual City Hall" has the potential to increase citizen involvement with the community.

Implement Intelligent Transportation Systems Technology

Importance/Context

Intelligent Transportation Systems (ITS) Technology involves the ability to manage the traffic control systems in real time to more efficiently guide traffic flow. Through the use of cameras and sensors, transportation staff can remotely monitor traffic flow and remotely control traffic signals or signing to improve traffic flow. Improved traffic flow reduces unnecessary idling and shortens trips, reducing fuel use.

Implementation Scenario

Over the years, the City has been laying the groundwork for an ITS by interconnecting the traffic signals on major arterials. Jefferson Boulevard has been the primary focus of attention. Most of the lights on Jefferson are interconnected. At this point, the signals are controlled by built-in computers which adjust the timing of the signals to provide green time through the Jefferson signals moving with the speed limit to theoretically allow cars to proceed with no stops. The next step would be a central computer which would serve as a traffic management center.

Emission Reductions

Due to the indirect nature of this measure and unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

Implementation of a full traffic management center will cost about $100,000.

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Additional benefits include the saving of people time in transit and a potentially happier commuter. A more efficient traffic flow will reduce GHG's and other pollutants.

Partner with City Car Share or a similar car sharing program to incentivize minimizing car ownership.

Importance/Context

In several areas of the country, particularly in urban areas with robust transit systems, businesses are developing which specialize in renting cars by the hour. In urban area, owning a car is particularly expensive, garage space may be very expensive. With much of what a person needs within walking distance or a convenient transit trip, the need for a car is less. When a car is actually needed to go some place not easily reached by alternative modes, it may be easier and cheaper to simply rent a car for the time you need it. This short term rental is the business model for City Car Share and others like it. Rental cars may be parked in parking spaces in many places in a neighborhood, so cars are available within a short walk from residents. Renters are pre-registered with the company, payment secured by a credit card. When a member needs a car, they walk to the Car Share location, pick out a car, have a secure, controlled method for providing a key and the renter drives off. On return, mileage is converted to a charge.

Implementation Scenario

In the current sub-urban environment of West Sacramento and the still not robust transit service in the Sacramento Region, this sort of program may be premature. As the Bridge District, Washington and West Capitol Avenue develop as transit and pedestrian oriented urban centers with convenient street car connection to regional employment and commerce, the model may become very workable.

Emission Reductions

The concentrated urban environment to support programs such as this is not likely to have matured by the 2020 target date.

Costs and Additional Benefits

This is primarily a private business activity. What the City may do is provide parking spaces, on street or in public parking garages as locations for the rental cars.

In an urban environment, this car sharing system has the potential for saving users significant costs by allowing them to not own a car or own fewer cars than they would otherwise need. It means the need for more cars in the world is reduced, saving the carbon footprint associated with building a car.

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Develop Street Car System.

Importance/Context

For the last four years, the Cities of Sacramento, West Sacramento along with the transit agencies Regional Transit and the Yolo County Transportation District, have been working on a Streetcar line which would run from the West Sacramento Civic Center to Mid-town Sacramento. It would link the two downtowns and the various parts of Sacramento Downtown. Preliminary engineering and environmental have been completed. Funding is being sought. It is hoped that the line can be operational in two years. Evidence from around the Country is that a streetcar would greatly accelerate the timing and density of development along the route. On the West Sacramento side areas benefited would include West Capitol Avenue, the Bridge District and the Washington neighborhood. These are the near term opportunity areas for building transit-pedestrian oriented, urban mixed use neighborhoods at high density. This type of development, near to the employment center of the region, is critical to achieving the regional goals set in the SACOG Blueprint process.

The Downtown-Riverfront Streetcar line is seen as the initial step is a streetcar system that will eventually cover much of the regional downtown. Future service extensions would add links to the Sacramento River District north of downtown, the R Street corridor, the multi-modal center. On the West Sacramento side the system would extend farther down West Capitol Avenue and north and south along the riverfront. The system would unify a regional downtown which might have a resident population of 35,000 people in addition to 150,000 employees.

This type of development is orders of magnitude more efficient from a Greenhouse Gas Emissions point of view. In addition to eliminating the commute to work from outlying cities, this area would truly allow people the choice of living car free as nearly any service or good desired could be reached on foot or in combination with a streetcar ride. In addition to the transportation GHG savings, higher density housing is inherently more energy use efficient.

Implementation Scenario

Funding is the single most critical question affecting the potential for building the Streetcar line. Initial funding strategies focused on Redevelopment Tax Increment and participation by property owners along the route in an assessment district to fund construction. The ravages of the economy the last three years have made both funding sources problematic. The City of West Sacramento has applied for a $25 million Urban Circulator Grant to jump start the construction of the West Sacramento side. The success of that application will be known in June of 2010.

Emission Reductions

If the Downtown Streetcar is up and running and serving 5,000 persons per day as expected by 2020, the CAPPA calculates the elimination of 9,617 metric tons of CO_2e.

The feasibility study indicated a likely mature ridership for the Downtown Streetcar at over 10,000 riders per day. The Streetcar system envisioned for West Sacramento would include extension of the West Capitol Streetcar to Harbor Boulevard, and the construction of lines running through the riverfront urban districts from the Rivers village core to Stone Locks at least. An ultimate ridership of 30,000 persons per day at build out is not unreasonable. CAPPA indicates this would result in the elimination of 27,502 metric tons of CO_2e.

Costs and Additional Benefits

The estimated cost of the Downtown/Riverfront Streetcar line is $70 million.

A streetcar is sometimes described as a pedestrian accelerator. It allows someone, without getting in an automobile, access to a larger field of activities and environment which would otherwise be beyond walking distance. A streetcar could also be described as an urban development accelerator. Experience around the country indicates areas served by streetcar see much faster and denser development than similar areas only served by buses. A streetcar leads to more compact development reducing trips by cars regional by more than just the trips actually taken on the streetcar. Air quality improvements and the related health benefits are another potential outcome.

Update and implement Bicycle and Pedestrian Master Plan.

Importance/Context

The first Bicycle and Pedestrian Master Plan was prepared for the City in October 1991. The first update was completed in 1995. A second update was begun in 2005. Amphion and Alta Planning and Design was contracted to prepare the update. A series of three Working Papers were prepared assessing goals, conditions, needs, opportunities and constraints and standards. Other priorities impacting the critical City staff working with the consultant resulted in delays in providing responses to the consultant and the completion of the draft plan. The economic and budget crisis beginning in 2007 placed the document on continued hold. Having a current Bicycle Master Plan is a necessity to be eligible for Bicycle Transportation Act funds. This State grant provides up to $500,000 for bicycle projects.

Regardless of the status of the Master Plan, the City has made great strides in improving conditions for bicycles since incorporation. Bike Lanes have been added on West Capitol Avenue, Jefferson Boulevards, Sacramento Avenue, Harbor Boulevard and much of Industrial Boulevard. Initial improvements have been completed on the Clarksburg Branch Line Trail, a rail to trail conversion which travels the length of Southport. Initial work has also been done on a portion of the Main Drain Recreation Corridor.

Implementation Scenario

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Staff intends to apply in 2010 for a Caltrans Planning Grant to fund the completion of the Bicycle and Pedestrian Master Plan update.

As time allows, staff has continued to pursue other funding for bike/ped. Improvements. Applications have been submitted to SACOG to fund the paving of the northern section of the Clarksburg Trail, which is currently just compacted, recycled concrete, and to build a bike/ped. bridge connecting the trail to the High School/Rec. Center. Funded infrastructure improvements in the Bridge District include the construction of a paved riverfront trail running from the Tower Bridge to the Pioneer Bridge. Construction of these improvements will begin in 2010. Staff will also continue to pursue funding for the North Utility Corridor Trail. This would be in the old Sycamore Drain, now the right of way for the Sacramento Regional County Sanitation Districts Lower Northwest Interceptor. The right of way runs north/south in the center of the northern half of the City.

Under the City's current Standard Specifications for Public Works, all new roads of collector or arterial status are required to have bike lanes and sidewalks. The approved master plans for new development (Yarbrough, River Park, and The Rivers) include extensive bike and ped. facilities. The Bridge District development plans include bike lanes on the major through streets, along the river and most of the District will have 15 to 20 foot wide sidewalks with pedestrian amenities.

Emission Reductions

Due to the indirect nature of this measure and unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

Finishing the update of the 2005 Bicycle and Pedestrian Master Plan will cost about $30,000. Much has happened in the five years since the draft and it would have to be thoroughly reviewed and updated before proceeding with completing it. The draft did not reach the point of developing cost estimates for the identified improvements. Three long range, big ticket improvements would be a bike/ped overcrossing of US 50 at the North Utility Corridor, widening of the Westacre underpass to provide better bike/ped. access, and an undercrossing at the Mikon Rail Crossing at the north end of the Northern Utility Corridor. All of these projects would have multi-million dollar price tags.

In addition to the GHG benefits of this alternative mode of transportation, increased bicycle use will reduce traffic congestion, reduce other air pollutants which provide health benefits, provide a low cost mode of transportation and provide improved public health from exercise for the people that use bikes.

Support expansion of bus transit services as City grows.

Importance/Context

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West Sacramento is provided with bus transit service by the Yolo County Transportation District. There are 5 routes serving the City. Four of the five routes go into downtown Sacramento. In 2006, YCTD prepared a Short Range Transit Plan for its county wide service. The plan called for an immediate expansion of service to West Sacramento to recognize the significant growth in population the City had experienced from 2000 to 2006. The amount of vehicle hours of service was nearly doubled compared to pre-2006 and new routes added in Southport. The Plan called for another doubling of service by reduced headways on the routes in about 2010 and a final doubling of service and an additional route in southern Southport at some point in the future..

Implementation Scenario

Funding for bus service comes from a variety of sources, some directly from the State, some from the Cities Road Funds, some from the Federal Government. Much of the funding is population formula determined. The rapid growth proposed in West Sacramento was based on the assumption that the rapid growth in population in the early 2000's would continue in the late 2000's. That growth did not happen and it is unclear when it will return. It will eventually return and when it does the plan is in place to expand bus service to match city growth. The current population growth assumption is that West Sacramento will grow from 48,000 in 2010 to about 59,000 in 2020, a roughly 20% increase.

Emission Reductions

Assuming bus ridership expands at least consistent with population growth, an additional 400 bus riders per day would result in a reduction of 222 metric tons of CO2e. Growth in bus service proportional to population through 2050 would result in a reduction of 400 metric tons of CO2e.

Costs and Additional Benefits

Sufficient capacity exists in the present system to absorb a 20% growth in ridership without additional cost. An existing route may need to be re-configured to serve the Bridge District.

Additional bus ridership will help reduce congestion on the roads as well as improve air quality.

Change zoning ordinance to require secure bike storage facilities for significant new private development.

Importance/Context

The City's Zoning Ordinance sets standards for the amount of automobile parking required for different land uses. It does not currently set any requirements for bicycle parking or secure storage. A number of Zoning Ordinances have begun to require bike parking or storage, usually as a small percentage of the number of vehicle spaces required (see Pittsburg, PA, Madison, W., Milwaukee, W.). One of the challenges to the riding of a bike to work is having a secure place to park it. The City of West

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Sacramento City Hall provides a bike barn to employees to protect their bikes. The Ziggurat and the Calstrs buildings include secure bike storage areas in their parking garages, but this was done voluntarily not required.

Implementation Scenario

A Zoning Ordinance amendment could be incorporated in the next annual Zoning Ordinance review in conjunction with the earlier recommended amendment to provide prime parking spaces for car pool and alternative fuel vehicles.

Emission Reductions

Reductions as a result of bike related measures are summarized under a later measure.

Costs and Additional Benefits

The cost to write and adopt a Zoning amendment is probably under $1,000. The cost to a business to provide a bike locker is about $200 per bike.

In addition to the carbon reduction of fewer vehicles because of bicycling, it would reduce traffic and congestion.

Support inter-regional high speed rail.

Importance/Context

A major component of the regional transportation system is the Capitol Corridor passenger trains running from Sacramento to San Jose with one train per day beginning in Auburn. This system is operated by Amtrak and at 1.6 million riders in 2009, is the forth busiest route in the Amtrak system. The route is served by 16 trains per day in both directions. Capitol Corridor trains are regular speed trains (60-70 mph.).

In 2010, there is much discussion of the development of a high speed rail system for California. The proposed route would go from Sacramento to San Diego with a side route from Stockton to San Francisco. A 10 billion dollar State bond was approved in 2008 and additional funds have been provided from the Federal Government for planning and design.

Implementation Scenario

West Sacramento is not directly involved with decisions regarding this high speed rail system. Support would be political in terms of Council endorsement of the concept and implementation of the project.

Emission Reductions

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The Californian High Speed Rail Authority estimates that a trip by high speed rail from Sacramento to Los Angeles would save 309 lbs of CO_2 compared to that same trip by car.

Costs and Additional Benefits

The estimated cost of the California High Speed Rail system is in the area of $45 billion.

Fill gaps in the sidewalk and bikeway system of the City.

Importance/Context

In general, West Sacramento's sidewalk and bike lane system is now relatively complete. A few clear gaps exist in both sidewalks and bike lanes that are logical connections within the system. Sidewalks are technically the responsibility of the adjoining property owner to construct. This requirement is generally enforced in conjunction with a building permit on the property .In most cases the gaps in sidewalks are adjacent to undeveloped properties. The most glaring gaps are listed below with discussion of how they might best be filled.

Implementation Scenario

<u>Sidewalks</u>

Linden Road – at Our Lady of Grace. New development has build sidewalks on most of Linden on both sides. There is no sidewalk adjacent to the Our Lady of Grace School. The school has indicated it does not have the funds to construct the sidewalk. – This gap causes a significant American Disabilities Act issue for both the school and the City. A future partnership as part of the ADA program may be needed.

Higgins Road – east and west of Constitution, north side. These are undeveloped parcels surrounded by developed properties with sidewalks. - Pedestrian traffic is rather light in this area. Development of the adjacent parcels will fill the gap.

Michigan – from Pecan to Lower Northwest Interceptor. The Maple Holly neighborhood is one of the few areas in the City where there are no sidewalks. Narrow Right of Way, mature trees and short setbacks make it nearly impossible to build a sidewalk system without major damage to the neighborhood. Michigan serves as a pedestrian collector street leading from the neighborhood to Westfield Elementary and the CBD. – This project would likely be a good grant funded project from Stimulus Safe or CDBG.

Jefferson Blvd from Marshall to Southport Parkway - Pedestrian traffic in this area is currently minimal. Sidewalk would be added when the road is widened to four lanes as a condition of development of the Yarbrough Project.

Southport Parkway across the Seaway Property – Sidewalks would be built with future subdivision improvements. A better short term solution would be completion of the Main Drain Trail from Summerfield Park around the Summerfield subdivision. The Parks Development Team continues to look for grants for this improvement.

West Capitol Avenue – Harbor to Garnett. There is a gap on the south side where West Capitol was built as only two lanes with the idea it would be widened later. It appears it will be many years before that occurs if it ever does. A pedestrian alternative does exist with Evergreen.

The Bridge District Sidewalks are currently non-existent except adjacent to Raley Field. A core sidewalk system will be built with the Prop. 1A grant project beginning summer 2010 and being complete by 2012.

Bicycles

Southport Parkway across the Port's Seaway Property.-This four lane road will ultimately be a six lane road. In its current condition it does not include paved width for a bike lane. This is a connecting road from the Bridgeway Island subdivision to the Town Center and cars generally travel at a high rate of speed. As with pedestrians, a better solution might be improvement of a bike way on the Main Drain Trail.

Bridge District. – This area is currently very unfriendly to bicycle due to narrow roads and poor pavement conditions. Facilities will be provided with the 1A grant project.

Westacre Underpass. The Westacre underpass below US 50 is very narrow and does not provide either bike lanes or sidewalks. This results in a dangerous situation for bicyclists and pedestrians. Widening the underpass would cost several million dollars.

Emission Reductions

Due to the unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

None of these projects have cost estimates but standards 5 foot wide sidewalk generally runs about $40-$50 per linear foot.

In addition to the carbon reduction benefit of encouraging pedestrian and bicycle use, walking and bicycling have clear health benefits to the West Sacramento population.

Actively use the City's public communication tools (web site, City Lights, cable, utility bills, Commissions) to educate the public and City Staff on Low carbon Transportation Alternatives.

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Importance/Context

The City has a number of tools for communicating information to its citizens. There is a semi-annual newsletter, "City Lights" which goes to every home in the City. The City has control of one cable channel for governmental affairs and another for community affairs shows. The City has rights to a billboard on US 80 for half of each year. Utility billings go out monthly to most addresses and the City has the ability to add language or inserts for very little cost. The City also has a web site which receives fairly solid traffic. As the local jurisdiction the City has the ability to sponsor events and make news. While never as effective as we would like, the City has an ability to reach its citizens in ways the State and Federal Government cannot. The key to reducing greenhouse gas emissions is changing behavior and creating awareness.

Implementation Scenario

The Green Team routinely uses these communication tools to discuss and promote Green activities and practices. It needs to continue to include regular articles in City Lights, maintain the Green City web page on the City web site, and use the utility mailers to encourage Alternative transportation. More effective use could be made of the cable channel and billboard. The City's ability to reach its citizens will be crucial to the effectiveness of efforts like the Yolo Transportation Management Association. As has been mentioned elsewhere, much of the City's role in achieving GHG reduction will come from its ability to communicate and educate its citizens. One of the City's most visible efforts to date has been its support of May as Bike to Work month. The City has actively promoted Bike to Work month for over 5 years. The City Council itself has been an active promoter and participant as Council member's bike to work.

The City needs to continue to use its communication channels, posters at City facilities, City Lights, cable channel, web page, to educate its citizens on low carbon transportation options such as carpooling, hybrid and alternative fuel vehicles, bicycling, and transit.

Emission Reductions

The CAPPA estimates that an active educational effort by the City could result in as much as an 8 to 13 percent reduction in car use. The Greenhouse Gas benefit of an 8% reduction in vehicle miles traveled would result in 11,017 metric tons of CO_2e would be eliminated.

The educational program targeted to the 42,000 households which will exist in West Sacramento by 2050 would, according to CAPPA result in the elimination of 10,990 metric tons of CO_2e.

Costs and Additional Benefits

The cost of using the City's communication channels for this promotion is probably under $10,000 a year in staff time and printing.

Bicycling, walking, transit and carpooling are a low cost alternative to driving and reduces congestion on the roads. Bicycling and walking improves the health of the participant..

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Provide Infrastructure and Zoning for High Density, Urban, Mixed Use Riverfront and West Capitol Areas in order to reduce trips by car and make existing public transit more accessible.

Importance/Context

As has been previously discussed in this document (page 4, this Chapter) the City of West Sacramento has plans for high density, transit and pedestrian oriented urban development along its northeastern Riverfront. This area includes: the Washington Neighborhood, the Bridge District, Pioneer Bluffs and Stone Locks. In addition, the City has plans for a medium high density residential and mixed use boulevard along West Capitol Avenue from the Riverfront to Harbor Boulevard. Thirty thousand people might live in these neighborhoods eventually, a streetcar ride away from all of downtown Sacramento.

The successful development of these neighborhoods, along with the River District, Docks and "R" Street corridor on the Sacramento side of the river, is critical to the achievement of the Regional Blueprint developed through the regional planning agency, SACOG. This vision of a more dense, less sprawling future for the region was accepted by almost all of the jurisdictions, with West Sacramento in the forefront.

Implementation Scenario

When Raley Field was built in 2000, it was expected that development would begin to spring up around it immediately. What soon became apparent was that the cost of upgrading the infrastructure of the area from that built to serve fairly low intensity industrial uses to something which would support the 5,000,000 square feet of office and 5,000 housing units was a major obstacle. The core sewer, water, storm drain and road system that existed needed to be completely replaced with a much higher capacity system. The economics of building high density urban development in a region which has very little of such development simply didn't work. One of the major reasons the economics didn't work was the cost of infrastructure.

Over the last three years, the City and the property owners have worked intensively to come up with a financing plan which would work. A fundamental break through occurred in June 2008 when the City was informed it had been approved for a $25 million dollar Prop. 1 grant from the State of California for the construction of core infrastructure for the Triangle (now Bridge) district. Based on that grant award, the City and the property owners have been able to negotiate a financing and entitlement plan which both parties believe can be made to work in what is hoped to be a better economy in a few years.

Construction of the core infrastructure is scheduled to begin in summer 2010, completing in 2012. Initial private development is scheduled to begin in 2012 or 2013 with up to 700 housing units to be started. Included in the financing plan are funds for extending the Downtown Riverfront Streetcar into the core of the Bridge District.

The Washington neighborhood, with the construction of the Ziggurat, Calstrs, Metro Place and Riverwalk, has shown its readiness to attract and support urban development. Prior to the collapse of

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the housing market in 2007, a number of projects were moving forward with the intention of near term development. When the market returns to normal, it is expected that Washington will lead in new urban development. The City has recently been awarded $4 million dollars to complete the conversion of the once State Route 275 off ramp into a boulevard with intersections at 3rd and 5th. This link was the major circulation improvement needed to serve growth in Washington. Some upgrades to sewer and water capacity may be needed before build out, however the improvements made for the Raley's Landing project make Washington much more ready than the Triangle currently is.

The Pioneer Bluff area south of US 50 will face infrastructure cost challenges at least as difficult as the Bridge District. Sewer and water capacity is minimal, storm drainage non-existent. South River Road was built to handle heavy truck traffic and is structurally good but will need to be widened.

The Stone Locks area will need the construction of the South River Road Bridge crossing of the Barge Canal. The properties which make up the Stone Locks project literally have no water, sewer or storm drainage.

Pioneer Bluff and Stone Locks are many years off from redevelopment beginning. They will need a similar intensive financing plan to move forward when the time comes.

The City is in the process of updating its General Plan. In January 2010 the City Council approved a preferred alternative land use map for analysis in the Environmental Impact Report on the General Plan update. The preferred alternative map includes increased residential density and employment intensity in the Pioneer Bluff, West Capitol Avenue and Stone Locks areas. These new designations are more consistent with the vision of this high density, transit oriented urban environment.

Emission Reductions

If, as expected, the provision of this infrastructure and zoning leads to the development of 2,000 transit oriented housing units in the Washington and Bridge District by 2020, this would lead to a reduction of 8,129 metric tons of CO2e compared to standard suburban development.

Full development of the Washington neighborhood, Bridge District, Pioneer Bluffs, Stone Locks and West Capitol Avenue would provide an additional 8,000 urban housing units at 1,500 square feet per unit or 12,000,000 square feet of residential and 6,000,000 square feet of commercial. CAPPA indicates that the development of 10,000 transit oriented units would result in the reduction of 19,306 metric tons of CO_2e

Costs and Additional Benefits

The core infrastructure for the Bridge District which is to be constructed in 2010-2011 is approximately $30 million.

In addition to air emission reductions, the development of these areas will improve housing and transportation choices, and create an environment which has been shown to attract young, creative residents who have had a tendency to leave the Sacramento Region.

Integrate auto, rail, bus, bicycle and pedestrian networks

Importance/Context

In order to maximize the participation in alternative transportation multiple modes must be tied together. It is not possible to run a streetcar or bus to everyone's front door. In order to shorten route times, the number of stops and length of route must be kept to a reasonable minimum. This shortening of routes also minimizes the number of homes which will be in short walking distance to the bus or rail stops. To increase the number of homes which can be served by transit the pedestrian and bicycle networks need to work with the transit network. This increase can be done by designing neighborhoods so that the pedestrian system leads in the shortest possible distance to the bus stops. The Bridgeway Island subdivision is an example of a walkway system which has a pedestrian system which flows to the village core where the bus stops are located. It can also be done by encouraging the use of bicycles to feed into the transit system.

Implementation Scenario

Yolo Bus has added bicycle racks to all of its commute buses to allow people to ride from their home to the bus stop, place the bike on the bus rack and then have the ability to remove the bike and ride it to their ultimate location.

The City has created within its Geographic Information System layers showing the Street Classification system, the current and future bus route system, the primary pedestrian and bicycle routes, existing and future, and a potential streetcar system. This information allows an easy comparison and overlay of the different transportation modes.

The bus transit center for the City is to be built in 2010 within the Civic Center at West Capitol and Merkeley. Nearly every bus route will stop at this location. This location is also the current West Sacramento end point for the Downtown/Riverfront Streetcar project. There will be 26 public bike rack slots available in the Civic Center/Transit Center area.

One future point of integration is the requirement within the Yarbrough and River Park developments to provide park and ride lots for both autos and bicycles within the village cores of those projects. These lots would be the primary stops within the village for a future commuter bus to downtown. The Liberty project currently under review north of the River Park project should have similar requirements. The provision of bike lockers at these park and ride locations might encourage bike riders who do not need to use the bike at the end of the bus trips.

Emission Reductions

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Due to the indirect nature of the City's involvement and unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

Bike racks will cost between $200 and $500 per slot.

In addition to less air pollution and congestion, additional use of bicycles will have direct health benefits to the riders.

Provide low cost passes for street car system to residents and employees to encourage high density development.

Importance/Context

It is anticipated that up to 30,000 residents and 30,000 employees will be within a three block walk of the Street car system. The ability to use that system for as a pedestrian accelerator giving the residents and employees quick, convenient and inexpensive access to all of the amenities of the greater downtown will be a major attraction to those locations. More rapid and higher density development would be expected along the street car line as a result of its construction and operation.

Implementation Scenario

The operator of the street car system would be likely to offer Monthly and Annual passes for sale by regular users of the system. The passes would generally be of low enough cost that the per trip cost for regular users such as residents and employees along the system would be much less that on an individual ticket basis. Employers and residential building owners might include subsidies for purchases of passes as a marketing tool for attracting employees or renting or selling residential units.

Emission Reductions

Emission benefits have been included in the Street Car development measure above.

Costs and Additional Benefits

If properly priced, the revenues from a pass will be close to the revenues which the user might have paid in that period on a per trip basis, but the user is likely to choose to ride the system more than they would have otherwise instead of using other transportation.

Regular use of the system by local residents and employees will help create a more vibrant and successful area in the vicinity of the street car system.

Participate in SACOG's Smart Growth Strategy

Importance/Context

The Sacramento Area Council of Governments is the metropolitan transportation planning agency for the Sacramento Region and is made up of elected representatives from all of the area Cities and Counties. SACOG is charged with preparing the regional transportation plan that is a requirement of receiving any State or Federal funds for transportation. In 2002-2004, realizing that lane use drives transportation needs; SACOG prepared the "Blueprint for the Future" land use plan for the Sacramento region. That plan emphasized infill development to meet the needs for the region's growth rather than continuing expansion on the periphery of the region.

West Sacramento staff and elected officials were major participants in the development of the Blueprint. As addressed earlier, West Sacramento's plans for dense, urban, mixed use development along the northeast riverfront and along West Capitol Avenue are totally consistent with and necessary for the accomplishment of the Blueprint objectives.

Implementation Scenario

The City is in the process of updating its General Plan. In January 2010 the City Council approved a preferred alternative land use map for analysis in the Environmental Impact Report on the General Plan update. The preferred alternative map includes increased residential density and employment intensity in the Pioneer Bluff, West Capitol Avenue and Stone Locks areas. These new designations are more consistent with the vision of this high density, transit oriented urban environment.

West Sacramento will continue to engage in future updates to the Blueprint and Metropolitan Transportation Planning efforts.

Emission Reductions

Due to the indirect nature of the City's involvement and unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

Costs for participating in SACOG's planning efforts have been limited to a few thousand dollars per year of staff costs.

As a result of the City's participation in the regional strategy, the City has received a $4 million grant for the Tower Bridge Gateway-Garden Street Intersection, a $500,000 grant for a street car feasibility study, a $7 million grant for the West Capitol Avenue Streetscape project and a $4 million grant for the Tower Bridge Gateway- 3rd and 5th Intersections. These grants were directly from SACOG. The City's participation and the support from SACOG also contributed to the award of a $24 million grant from the State of California Prop 1A program.

Use the CEQA review process to mitigate the GHG emissions impacts of new development

Importance/Context

Senate Bill 97 (Dutton), enacted in 2007, amends the California Environmental Quality Act (CEQA) to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs the Governor's Office of Planning and Research to develop CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009 and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010. OPR did draft and summit guidelines and they were approved and became effective in March 2010. The Guidelines spell out how State and local agencies can set standards to determine in a GHG emissions impact is significant, discusses general types of GHG emissions mitigation measures, and under what conditions, one environmental document may "tier" off the GHG analysis of a prior environmental document such as a General Plan or Climate Action Plan environmental review.

The City's implementation of these Guidelines through its CEQA review process provide a mechanism for mitigating the GHG impacts of all new development in the future. The City can impose mitigation measures which will reduce the GHG impacts of specific development projects.

This Climate Action Plan is written with the intent of being consistent with CEQA Guidelines Section § 15183.5 which describes the contents of a "Qualified Plan" for the reduction of GHG emissions that can be used in tiering future CEQA analysis.

Implementation Scenario

Part of the General Plan update being done in 2010 will include new and amended General Plan policies which address GHG emissions and the reduction of those emissions. Those new and amended General Plan policies are included in Chapter 3 of this Climate Action Plan. The environmental review of the General Plan update will include a review of the GHG impacts of the General Plan and the development that would be allowed under that Plan. The Environmental Impact Report for the General Plan will include the setting of standards of significance and the identification of mitigation measures, many of which will come from this Climate Action Plan.

In the future, all major development projects will have their GHG emissions analyzed and mitigation measures proposed to reduce those impacts.

Emission Reductions

Due to the unpredictability of results, no emission reduction is estimated from this measure.

Costs and Additional Benefits

Additional review of projects for GHG emission impacts will add some cost to the process of obtaining entitlements. Mitigation of those impacts may also have impacts on development costs. The costs would be specific to each specific project and cannot be estimated at this time. The availability of this Plan to tier project specific analysis from could significantly reduce analysis costs for most projects.

The additional benefits to health, environmental quality, safety and quality of life identified with many of the measures listed in this document would be translated to the specific projects.

4.2.1.B. Municipal Operations Measures

Table (4.5): Proposed Municipal Transportation Emissions Reduction Measures

Transportation Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO_2e Reduction by 2050 (tons)
Vehicle Fuel Efficiency			
▪ Discourage unnecessary idling of City vehicles	2011	70	20
▪ Retire old and under used vehicles, replace with hybrids and/or smaller, more fuel efficient fleet vehicles	2011	66	20
Alternative Fuels			
▪ Utilize alternative fuels in city fleet and heavy equipment.	2015	90	30
▪ Implement a "cops on bikes" program	2012	NQ	NQ
Alternatives Modes of Transportation			
▪ . Promote carpooling, bicycling and the use of mass transit by municipal employees	2010	32	20
Trip Reduction/Transportation Demand Management			
▪ Allow flex time and telecommuting by municipal employees.		NQ	NQ
Land Use			
▪ Connecting transportation funding directly to smart-growth initiatives	2010	NQ	NQ

Discourage unnecessary idling of City Vehicles (vehicle efficiency):

Importance/Context –

Idling burns fuel to get you nowhere. Burning gasoline or diesel in vehicles releases greenhouse gas emissions as well as local air pollutants. Idling also causes needless engine wear. But local governments have the power to reduce idling through public education and enforcement of anti-idling ordinances. In

addition to saving fuel costs and reducing emissions, anti-idling policies protect public health. Exhaust from cars and buses can enter buildings and vehicles, contributing to respiratory problems.

Implementation Scenario –

The best ways to reduce idling in the community include public education and implementing a community-wide anti-idling ordinance. Public service announcements on radio, TV, and on local government websites are effective. Targeted outreach to places where buses are most likely to wait while passengers load and unload, such as hotels, tourist destinations and schools, is also effective. More regulatory action can be taken by passing an anti-idling ordinance that restricts idling of all non-emergency vehicles to no more than three minutes.

In terms of City vehicles, all current City trucks and cars include available computer programming in the vehicle which can allow the City to set physical limits on idling time and maximum RPMs and maximum speed permitted on the vehicle. A City Committee is working on vehicles for all departments to reduce the number of vehicles and improve efficiency. This kind of restriction can be implemented by administrative policy.

Emissions Reductions

The emission reductions on idling and RPM restrictions on 30 trucks and 10 passenger vehicles would be 70 tons CO2 per year in 2020.–

Reducing fuel consumption by reducing idling also reduces emissions. The benefits of not burning 600 gallons of fuel per year include an annual reduction of 6 tons of CO_2e, 193 pounds of nitrogen oxides, and 44 pounds of sulfur oxides.

Costs and Additional Benefits

Reducing idling saves businesses, public institutions and residents in fuel costs.

Retire old and under used vehicles, replace with hybrids and/or smaller, more fuel efficient fleet vehicles

Importance/Context

Currently, the City owns 231 mobile pieces of equipment, including vehicles, tractors, and emergency response vehicles emergency response vehicles. Eighteen of those use alternative fuels, including ethanol, compressed natural gas, and hybrid systems. Vehicles and equipment create 9% of the GHG emissions from the City organization. The Police Department, Public Works and multiple departments located at City Hall have purchased alternative fuel or hybrid vehicles. In addition, many of the new Police Department vehicles have flexible fueling systems that allow for use of either gasoline or ethanol fuel. While most of the vehicles are not standard passenger cars some are and would lend themselves to the use of hybrids. Additional opportunities will probably be added over the next ten years as the hybrid technology expands. Three pickup truck models are now available as hybrids for example.

Currently 4 out of 10 non-patrol vehicles in the Police Department are hybrids. More hybrids are being considered as non-patrol vehicles are replaced. While there is not currently a police patrol hybrid vehicle on the market, the high mileage, in City drive pattern of a Police patrol vehicle is a perfect match for a hybrid drive train. As hybrid costs come down and the technologies reliability becomes more demonstrated, the likelihood of someone producing a hybrid patrol car in the next few years is high. This is particularly true given the Ford Motor Company's decision to stop production on the Crown Victoria police interceptor after 2011.

Most of those vehicles will be replaced over the next ten years. This replacement offers the opportunity to phase in more fuel efficient vehicles.

Implementation Scenario

As vehicles come up for replacement it offers the opportunity to evaluate the feasibility of replacing them with hybrids, alternative fuel or smaller vehicles. Replacement vehicles should be evaluated under the questions; are hybrid or alternative fuel versions of the vehicle type available, if so would the savings in gasoline costs over the expected life of the new vehicle make a hybrid cost competitive

Emission Reductions

If 20 City passenger vehicles are converted from standard to hybrid vehicles there will be a reduction of 66 metric tons of CO2.

Costs and Additional Benefits

Hybrid vehicles currently cost about $5,000 more than standard drive trains.

Utilize alternative fuels in city fleet and heavy equipment.

Importance/Context –

B100 is biodiesel derived from 100 percent vegetable oil or animal fats. It can be used to replace conventional diesel fuel and significantly reduces greenhouse gas emissions. Biodiesel is also available in blends such as B20 (20 percent biodiesel). B20 is more common because of the higher cost of biodiesel and engine compatibility issues. Biodiesel can be used in vehicles from cars and light trucks, to fire engines and heavy dump trucks.

Implementation Scenario –

Convert 5 city-owned heavy trucks to B100 biodiesel. Converting the municipal fleet to an alternative fuel such as biodiesel reduces the consumption of fossil fuels. Shifting to B100 achieves significant reductions in local air pollutants such as particulate matter and volatile organic compounds. Biodiesel is also non-toxic and biodegrades four times faster than conventional diesel. However, biodiesel can be up to twice as expensive as conventional diesel. Establishing a local supply will reduce this cost. B100 is not currently supported for use in standards diesel engines. Its use would void all warranties. Advances in the cost, availability and support for the fuel are needed. Therefore, an implementation

date of 2015 is assumed. As circumstances and technology change in the next few years, alternate but equivalent measures may actually be used rather than biodiesel.

Potential sources of funding for this effort include the Yolo Solano Air Quality Management District (YSAQMD), the Sacramento Council of Governments, and the Federal Transportation Administration.

Emissions Reductions –

Converting 5 City-owned heavy trucks to B100 biodiesel would reduce emissions by approximately 95 tons annually.

Implement a "cops on bikes" program

Importance/Context

A number of Cities, including the City of Sacramento have police on bicycles. These programs are typically in urban civic center areas where there are lots of pedestrians and car traffic is slow and congested. In these types of environments, mobility on a bicycle will often be greater than in a car. West Sacramento currently does not have that type of environment but hopes and expects to have such urban environments along the north east riverfront and along West Capitol Avenue.

Implementation Scenario

The City should monitor development along the riverfront to determine when it appears that a sufficient density of urban development exists for bikes to have an advantage over auto patrol cars and judge when such a program should be started. That situation is not likely to occur prior to 2020 but may exist soon after.

The Police Department has indicated an interest in considering a "cops on bikes' program sooner on a special event basis at the riverfront, around Raley Field and around the Civic Center. The combination of a bicycle on a patrol car to allow more personal contact by officers in the neighborhoods would also be considered.

Emissions Reductions

Emission reductions would be fairly minimal by 2020.

Costs and Additional Benefits

Bicycle patrol would be clearly cheaper than patrol with an automobile. Bicycle patrol also creates a more personal connection to pedestrians in such urban areas. As discussed above, in a true urban environment, a bicycle may have superior mobility than a car.

Promote carpooling, bicycling and the use of mass transit by municipal employees

Importance/Context

The City of West Sacramento is one of the larger employers in the West Sacramento community. City Hall is one of the larger concentrations of employees in the City. Of primary significant is the City's need to act as a role model for other employers. It must walk the walk if it is going to talk the talk regarding alternative transportation.

Implementation Scenario

The site for City Hall was selected, among other reasons, for its location at one of the most richly served bus transit locations in the City. Most of the bus lines serving the City stop within a block of City Hall. The City has provided a bike barn on site with loaner bikes and repair equipment. The City is a participating member of the Yolo Transportation Management Association (YTMA). The programs of YTMA include financial incentives to member's employees who switch to bike, carpool, van pool, mass transit, or walking. YTMA also facilitates the pairing up of persons for car or van pooling. YTMA also provides a Guaranteed Ride Home for persons using alternative modes.

The City itself promotes employees to use alternative modes of transportation though its internal communication processes, intranet, newsletter (City Circuit) and posters.

Emissions Reductions

If 150 employees are offered incentives to car or van pool and 5 employees switch to mass transit, the CAPPA calculator indicates a reduction of 32 metric tons of CO2 annually.

Costs and Additional Benefits

The City currently budgets $20,000 for alternative transportation incentives each year. This year's experience indicates a smaller amount may be adequate. There is great pressure in the current fiscal environment to cut back on discretionary funds such as those for alternative transportation. It is vital to the success of the entire Climate Action process that the City continues to show its commitment and leadership in this effort.

Allow flex time and telecommuting by municipal employees.

Importance/Context

Computers, phones, the internet, video conferencing and other technology, and most people's understanding and ability to use those technologies have all advanced dramatically in recent years. Those advances have made the potential for telecommuting more feasible every year. While not ever job lends itself to that possibility, an ever increasing portion of employees have jobs which might allow them to telecommute, at least on an occasional basis. Each day spent telecommuting is one less round trip commute which saves time, gas and GHG emissions.

Allowing an employee to work 4 ten hour days rather than 5 eight hour days eliminates 20% of that employees commute time and GHG generation.

Implementation Scenario

City policy on flex time and telecommuting is fairly limited. Both must be approved by the requesting department and the City Manager's Office. It generally must be shown that the arraignment has direct benefits to the City and department, not just the employee and not just to eliminate a commute day. The arrangement has been used most often in the case of an injured employee who can and wants to work but has temporary mobility restrictions. This policy may need to be examined time to time and more weight placed on the GHG emissions benefits.

Emissions Reductions

The CAPPA calculator indicates that if 20 employees are offered telecommute incentives, 3 metric tons of CO2 can be eliminated.

Costs and Additional Benefits

The primary concern on flex time hours is that many City jobs involve access to the public or close communication with co-workers. Some confusion can develop coordinating who is off what days.

Since most employees now have home computers and internet access there is no direct cost to the City for allowing this work style. The areas of concern are: can people be productive at home or do they more easily get distracted, how much communication is lost without the potential to walk down the hall to talk to co-workers in person, how much supervision is lost when the employee is remote.

If successfully implemented, a telecommute or flex time alternative may result in a happier, more productive employee.

Connecting transportation funding directly to smart-growth initiatives

Importance/Context

On a regional scale, SACOG with its Blue Print project and Metropolitan Transportation Plan have made smart growth initiatives the priority for transportation funding decisions. West Sacramento has benefited more than any other jurisdiction in the region from that focus. West Sacramento has received three of the largest Community Design Grants awarded by SACOG for projects along Tower Bridge Gateway and West Capitol Avenue. The City has also received large State grants for infrastructure in the Bridge District. These grants were received in large measure because the City itself has focused

Implementation Scenario

Beyond the current infrastructure work in and around the Bridge District, which includes both transportation and underground infrastructure, the potential for future funding is unclear. The current economy has dried up Traffic Impact Fee revenues and Redevelopment Tax Increment. When Redevelopment Increment growth returns, it can be expected that the City will continue to prioritize the urban riverfront and West Capitol Avenue. The City's Capital Improvement Program reflects this priority.

Emissions Reductions

Emission reductions have been estimated in the **Provide Infrastructure and Zoning for High Density, Urban, Mixed Use Riverfront and West Capitol Areas** Measure under Land Use and Transportation.

Costs and Additional Benefits

Costs and benefits shown under prior measure.

4.2.2. Energy Efficiency Measures

Increasing energy efficiency throughout the community has immense potential to both reduce greenhouse gas emissions and save people money. A wealth of resources exists to assist municipalities in this regard. ENERGY STAR, for example, offers local government's energy efficient products and tools for improving energy management. Promoting ENERGY STAR resources to both businesses and residents is a good way to achieve increased energy efficiency. Other methods to increase community energy efficiency include subsidizing energy management services such as energy audits for residents and businesses. Ensuring that developers and building contractors are trained on energy conservation and efficiency is also within a city's power to do.

The emission measures effectiveness was estimated using the Climate and Air Pollution Planning Assistant developed and provided by ICLIE. This spreadsheet calculates the effectiveness of common Greenhouse Gas Emission Reduction measures being used in Cities around the country. Measure effectiveness for 2020 reflects a 50% reduction in the CO2 per kilowatt hour produced by PG&E consistent with the mandate on the major California utilities to increase their power received from Qualified Renewable Energy sources to 33% (SB 1078). PG&E currently generates 46% of its power from hydor and nuclear, which are not classified as Qualified Renewable Energy sources but do not produce greenhouse gases. In the case of PG&E that will result in the reduction of energy generated from natural gas fired plants from 40% of total electricity to 20% with a resulting reduction of 50% in greenhouse gas production per kilowatt.

No standard has been set for renewable energy production for 2050. For the purposes of this analysis, it is assumed that in 2050 PG&E will be generating 10% of its power from natural gas and the remaining 90% from non-GHG producing sources. This will result in a 75% reduction in greenhouse gas production per kilowatt compared to the baseline.

4.2.2.A. Community Measures

Table (4.6): Proposed Community Energy Efficiency Emissions Reduction Measures

Energy Efficiency Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO_2e Reduction by 2050 (tons
Energy Star light fixtures and CFL's			
• Create Energy Efficiency Financing Program under AB 811 for Residential and Commercial/Industrial Buildings.	2010	1,464	6,132
• Implement residential and commercial energy conservation ordinances	2015	602	380
• Participate in low-income weatherization initiatives with the goal of weatherizing all qualifying low-income homes in West Sacramento.	2010	NQ	NQ

• Promote the purchase of ENERGY STAR appliances	2010	NQ	NQ
• Promote water conservation through implementation of metered billing for water use, education, water efficient landscaping ordinance.	2013	500	221
• Actively use the City's public communication tools (web site, City Lights, cable, utility bills, Commissions) to educate the public and City Staff on personal efforts which can conserve energy.	2010	8,302	7,665
• Provide incentive program for existing homes and businesses to install "smart" irrigation controllers which automatically react to rain, temperature and moisture.	2011	NQ	NQ
• Adopt and enforce green building ordinance.	2010	12,152	51,358
• Partner with P.G.& E. and local employers to complete energy audits on all local businesses.	2010	NQ	NQ
• Encourage participation in Sacramento Sustainable Business Program.	2010	NQ	NQ
• Promote planting of shade trees on private and public property.	2010	116	408

Source: CAPPA Model output

2.3 Community Energy Efficiency Measures Description

Create Energy Efficiency Financing Program under AB 811 for residential and commercial/industrial Buildings

Importance/Context Energy used in existing buildings off the Pacific Gas and Electric electrical and natural gas grid represents 39% of total community Greenhouse Gas creation. West Sacramento has approximately 9,000 housing units which were constructed prior to the adoption of Title 24 energy efficiency requirements in 1978. Most of the industrial buildings on the west side of the City were also built pre-Title 24. West Sacramento's future growth, both residential and commercial, will be in building which meet or exceed the high energy efficiency standards of the current Title 24. Probably the greatest potential for significant GHG emission reductions that are somewhat under local control will be improvements to the energy efficiency of older buildings in the community. While many older buildings may have received energy efficiency improvements such as improved insulation and upgrading to double paned windows, many more have not.

Implementation Scenario

In 2008, Assembly Bill 811 was signed into law. The law provides for Cities to designate areas within which property owners may voluntarily enter into contracts to place tax assessments on their real

property to finance energy efficiency and renewable energy improvements. California Communities is a joint powers agency sponsored by the League of California Cities and the California State Association of Counties. The City of West Sacramento is a member of this JPA. The member agencies of California Communities include all 58 counties and more than 400 other local governments throughout California, including the cities of Davis, Winters and Woodland and the County of Yolo.

The California First Program is being instituted by California Communities to issue bonds that would be available to finance private property improvements for renewable energy generation and conservation. If a property owner chooses to participate, they will be able to borrow funds from a bond pool issued by California First. Repayment is made through assessments on the improved property and paid with the owner's property taxes. The assessment runs with the property rather than with the owner. The program is available for both residential and commercial/industrial properties.

A grant application for $16.5 million from the California Energy Commission State Energy Program has been approved which will cover the costs that local governments will incur by participating in the California First program. The funding from this grant comes from the American Recovery and Reinvestment Act (ARRA). The County of Sacramento is acting as the lead agency for the grant application on behalf of a collaborative of 14 counties and all of the incorporated cities within those counties, including Yolo County. Approximately $6 million will be used to buy down interested rates for the loans to property owners; $1.5 million is for contract administration and $8.5 million for program administration and marketing. The administration and marketing funding for Sacramento and Yolo Counties is $1,800,000.

Sacramento County would be responsible for establishing and implementing the program. The City of West Sacramento would participate primarily through using its communication channels (City Lights, cable channel, web site, utility bills) to its citizens and businesses to make people aware of the program

Types of improvements financed would include weatherization (insulation, double pane windows, and seals around doors), installation of Energy Star appliances, and potentially renewable energy sources.

Emission Reductions

If this program can retrofit 2,000 pre-Title 24 homes in West Sacramento by 2020, the CAPPA program projects that 1,190 metric tons of CO2e can be eliminated annually. A commercial program retrofitting 500,000 square feet of conditioned space could save 374 metric tonnes.

Predictions of post 2020 accomplishments from this program or successor programs is difficult. If an additional 3,000 pre-title 24 homes are retrofit by 2050, the CAPPA program projects that an additional 3,572 metric tons of CO2e can be eliminated for a total of 4,762ons.

Costs and Additional Benefits

Thanks to the State Grant, the City's costs will be limited to the staff time and resource costs of using its communication resources to promote the program.

Private building owners would incur the costs of making energy efficiency improvements which would vary widely depending on the existing state of the building involved.

Additional benefits from more energy efficient existing buildings would include:

- Lower monthly energy bills.
- Improved work place comfort
- Reduced building operations and maintenance costs from longer lived lamps or other equipment.
- Improved Indoor air quality.
- Productivity and health benefits.
- Water savings.

Implement residential and commercial energy conservation ordinances

Importance/Context

As discussed under the energy efficiency financing measure, West Sacramento has many buildings which were built before the implementation of the Title 24 Energy Efficiency requirements of the Building Code. Several Cities have adopted ordinances requiring energy audits of existing buildings and in some cases requiring energy efficiency improvements to buildings. Given the magnitude of the emission reductions needed to reach the GHG targets and the large percentage (39%) contributed by energy use in existing buildings, it may not be possible to reach the goals without a mandatory conservation ordinance.

Implementation Scenario

Given the state of the economy in 2010, a mandatory energy conservation ordinance should be approached cautiously. It may be necessary to phase in a conservation ordinance after first aggressively implementing the voluntary energy efficiency financing measure outlined above. When an ordinance is adopted, its provisions could also be phased beginning with energy audit requirements and later proceeding to mandatory improvements.

Sample ordinances are available (San Francisco, Berkeley, Boulder) to assist in drafting an ordinance for West Sacramento. Members of the Green Team, working with the City Attorney's Office would likely draft such an ordinance when given direction to do so.

At this point in time it is recommended that a mandatory energy conservation ordinance be re-considered in about 2015 to allow for a voluntary effort to be fully tested.

It is entirely possible that a mandatory energy conservation requirement could be imposed at the State or Federal level within the next few years.

Emission Reductions

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If a residential and commercial energy conservation ordinance were implemented in 2015 and applied to 500 housing units and 1,000,000 square feet of non-residential by 2020, the CAPPA calculator indicates 475 metric tons of CO2 would be eliminated.

The City has just over 15,000,000 square feet of commercial-industrial space built before the year 2000. Significant portions of that space are un-conditioned warehouse space. A conservative assumption that by 2050 some 5,000,000 square feet of industrial space will be retrofit for energy improvements through this and other programs indicates that 253 metric tons of CO2e would be eliminated.

Costs and Additional Benefits

The City would incur the costs of drafting and enforcing an ordinance. As the ordinance is likely to be implemented in phases, there will likely several rounds of costs. Enforcement will be an ongoing cost.

Private building owners would incur the costs of making energy efficiency improvements which would vary widely depending on the existing state of the building involved.

Additional benefits from more energy efficient existing buildings would include:

- Lower monthly energy bills.
- Improved work place comfort
- Reduced building operations and maintenance costs from longer lived lamps or other equipment.
- Improved Indoor air quality.
- Productivity and health benefits.
- Water savings.

Participate in low-income weatherization initiatives with the goal of weatherizing all qualifying low-income homes in West Sacramento.

Importance/Context

Low-income residents may need assistance beyond the Energy Efficiency Financing Plan presented above. Low-income weatherization programs have been available for many years; however, funding levels have fluctuated from year to year. The American Reinvestment and Recovery Act of 2009 (ARRA) included $5 billion to the Weatherization Assistance Program. A low-income weatherization non-profit, North Coast Energy Services, Inc. operates in Yolo County and four other counties to the north and west. Weatherization, on average, can reduce heating bills by 32% and an overall energy bills by about $350 per year. In addition to saving low-income families on energy bills, weatherization reduces energy use which also reduces Greenhouse Gases.

Implementation Scenario

Similar to the financing program, the City's role in low-income weatherization efforts is more of a support and communication of the availability of the programs to its residents.

Emission Reductions

Emission reductions from this measure are included in the AB 811 loan program measure above.

Costs and Additional Benefits

The cost of the program includes the cost of administration and marketing as well as the actual cost of the weatherization improvements. Funding for these costs is available from ARRA and would flow through North Coast Energy Services. City costs would be limited to staff time for coordination and costs related to using City communication resources to promote the program.

Benefits would include: energy cost savings, reductions in necessary generation capacity development, more comfortable homes and improved interior air quality.

Promote the purchase of ENERGY STAR light fixtures and compact fluorescent light bulbs (CFLs)

Importance/Context –

Residents can save significant amounts of money and energy by installing light bulbs and light fixtures that have earned the ENERGY STAR. Such energy efficient lighting requires at least 65 percent less energy than incandescent lighting, generates 70 percent less heat, and last up to 10 times longer. On average, an ENERGY STAR qualified light bulb can save up to $30 in electricity costs over the lifetime of the bulb. [3] When residents install ENERGY STAR lighting they are also reducing greenhouse gas emissions by using less energy at home.

Implementation Scenario –

ENERGY STAR's "Change a Light, Change the World" campaign is a national challenge through which City of West Sacramento will encourage its citizens to take small, simple steps toward increased energy efficiency. Championing the ENERGY STAR "Change a Light, Change the World" campaign would cost the jurisdiction little while serving to save residents money and reducing emissions at the same time. As a jurisdiction, City of West Sacramento will set a pledge goal of getting at least 1,000 community members to pledge to replace at least one incandescent bulb at home with a more energy efficient one. City of West Sacramento can follow its progress toward its pledge goal by encouraging community members to log their pledges online at www.energystar.gov/joinCAL.

[3] Source: http://www.energystar.gov/ia/partners/promotions/change_light/downloads/MayorToolkit.pdf

Additional steps that the jurisdiction will take to encourage its citizens to switch to more energy efficient bulbs include: inviting local schools and universities to make pledges; and posting a link to the ENERGY STAR Change a Light pledge on the jurisdiction's website.

Emissions Reductions – On average, an ENERGY STAR qualified light bulb can reduce emissions by 450 pounds over its lifetime. If City of West Sacramento reaches its goal and at least 1,000 community members commit to changing just one bulb, the emissions reduction achieved will equal approximately 225 CO_2e tons. The emission benefits for this program are incorporated in the use of City communications tools to encourage energy conservation.

Costs and Additional Benefits

The purchase cost of an Energy Star light bulb is roughly 4 times the cost of an incandescent bulb.

In addition to reducing Greenhouse Gases, by using Energy Star rated light bulbs, residents and businesses can save money on electricity use, replacement of light bulbs and reduce materials going to the land fill.\

Promote water conservation through implementation of metered billing for water use, education, water efficient landscaping ordinance.

Importance/Context

The Bryte Bend Water Treatment Plant and related pumps and water distribution infrastructure is the single largest electrical energy consumer in the City of West Sacramento. The cost of electricity at the plant for 2009 was $618,000. The primary purpose of the system is to provide clean, safe drinking water to residents and businesses, however, particularly in the summer; the majority of the treated water used is for landscaping. Businesses are currently on metered billing for water use. Meters have been installed with new houses for a number of years and the City is moving steadily to have meters installed on all homes. Historically and at this time billing is on a flat rate basis. Per agreements with the State wide water contracts, all users must be billed based on water use by 2012.

Implementation Scenario

New homes have been required to install meters for many years. The City has had an aggressive water main replacement program in the older neighborhoods for over a decade. With each replacement of a water main, the related houses have had water meters installed as well. As of early 2010, about 40% of older homes have been retrofitted with meters. Contracts in 2010 and 2011 will approach 100%. During 2012 the meter installation will be completed and residents will provided information on their bill on how their flat rate compares to the future use base rate. By January 2013, all bills will be based on usage. The City has had one staff person at the water plant for several years whose responsibility has been to promote water conservation through education.

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Emission Reductions

A 15% reduction in water treatment and distribution from metered billing and a water efficient landscaping ordinance is estimated by the CAPPA program to result in a reduction of 500 metric tons of CO2 per year by 2020 and 221 by 2050..

Costs and Additional Benefits

Meter installation in new houses has been the responsibility of the contractor constructing the house. Meter retrofits have been funded from the capital portion of water rates. Implementation of the use based billing will be paid from water rates. Total cost of the metering program will be about $5,000,000 by 2013. A grant for $900,000 for water meter work was received in 2010 from ARRA.

Metering combined with a water efficient landscaping ordinance is expected to result in a 15 % reduction in water use. The use reduction will likely result in a $ 100,000 reduction in electric use and costs at the water plant and in the water distribution system. A reduction in use rate will also reduce or postpone the need to eventually build additional treatment capacity at the plant.

Actively use the City's public communication tools (web site, City Lights, cable, utility bills, Commissions) to educate the public and City Staff on personal efforts which can conserve energy.

Importance/Context

The City has a number of tools for communicating information to its citizens. There is a semi-annual newsletter, "City Lights" which goes to every home in the City. The City has control of one cable channel for governmental affairs and another for community affairs shows. The City has rights to a billboard on US 80 for half of each year. Utility billings go out monthly to most addresses and the City has the ability to add language or inserts for very little cost. The City also has a web site which receives fairly solid traffic. As the local jurisdiction the City has the ability to sponsor events and make news. While never as effective as we would like, the City has an ability to reach its citizens in ways the State and Federal Government cannot. The key to reducing greenhouse gas emissions is changing behavior and creating awareness.

Implementation Scenario

The Green Team routinely uses these communication tools to discuss and promote Green activities and practices. It needs to continue to include regular articles in City Lights, maintain the Green City web page on the City web site, and use the utility mailers to encourage conservation. More effective use could be made of the cable channel and billboard. The City's ability to reach its citizens will be crucial to the effectiveness of efforts like the Energy Efficiency Financing Program and Low-Income Weatherization Program.

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Emission Reductions

Experience in other communities indicates that a robust outreach and educational program could result in a 10% decrease in energy use. That energy savings would be a result of a number of actions such as the purchase of Energy Star appliances when replacing old appliances, use of motion detection lighting controls, lowering or raising thermostats, water conservation, building improvements. The outreach program would support some of the other measures for which emission reductions have been calculated. A 10% decrease in energy uses is assigned to this measure. This measure is expected to result in a reduction of 8,312 metric tons of CO2 annually.

Continuing this program to 2050 with the result of a 10% reduction in energy use would save 7,665 metric tons of CO2e.

Costs and Additional Benefits

The primary cost is the staff time of employees who have primary responsibilities in areas outside the Green Team. It takes time to write articles, sponsor events, issue press releases, maintain web sites. The commitment of the people on the Green Team and the willingness of their home departments to provide the time necessary are critical. This commitment is particularly difficult in the 2009-2010 fiscal environment. All departments have lost positions and have fewer resources available.

Additional benefits beyond the potential Greenhouse Gas reduction goals to an aggressive communication effort include the better connection the City can achieve with its citizens.

Provide incentive program for existing homes and businesses to install "smart" irrigation controllers which automatically react to rain, temperature and moisture.

Importance/Context

As discussed under the water conservation measure above, significant energy is used to treat to drinking water standards water which is used in irrigation. Most homes and business now rely on timer irrigation controllers. Ideally, property owners would regularly adjust their controllers to match the weather, reducing or eliminating watering in cool and wet weather. Unfortunately, that rarely happens. Often sprinkler timers are reset once or twice a year with the result being irrigation occurring while it is raining. "Smart" irrigation controllers are now available which can sense the weather conditions. Basic rain sensitive override devices are available in local hardware stores for as little as $20 which simply have a cup which catches rain and so long as there is water in the cup, the device maintains the irrigation controller in an off mode. More sophisticated controllers sensitive to air or ground moisture levels and temperature are available but are much more expensive.

Implementation Scenario

As part of other water conservation programs, the City could offer coupons redeemable at local stores for the rain sensor devices. The City can also make sure water conservation education efforts include increasing awareness that such devices exist. As time goes on, it is likely that the more sophisticated sensors will get more cost effective and generally available.

Emission Reductions

Emission reductions for this measure are assumed to be covered under the City outreach measure.

Costs and Additional Benefits

Simple smart controllers are as little as $20 in local hardware stores, more sophisticated versions can be $1,000.

Over irrigation is a common cause of landscaping being less healthy than it could be.

Adopt and enforce green building ordinance

Importance/Context

The City of West Sacramento is well less than half way built out. Full build out may take fifty years but eventually the amount of space built from now on will exceed the amount of space currently existing. It is far easier and less expensive to build high energy efficient, new Green Buildings than to retrofit existing buildings. The Green Team has been working on drafting a Green Building Ordinance for the last year. A draft was prepared and circulated through the building community, City Commissions and the public. The draft was based on standards established by LEED for commercial/industrial buildings and Build it Green for residential. As the City Green Building Ordinance was being drafted, the State of California began implementing the California Green Building Ordinance. In late 2009, it was learned that the Californian Green Building Ordinance was being considered as the basis for the addition of Green Building provisions to the International Building Codes.

Implementation Scenario

Based on direction received from a City Council workshop, the Green Team is revising the Green Building Ordinance to be based on the State Green Building Ordinance. It is expected that a revised ordinance consistent with the State GBO but making mandatory some of the provisions that are voluntary under the State GBO will be returned to Council for adoption in 2010.

Emission Reductions

To accommodate a growth in population to 59,000 by 2020 as expected will require construction of about 4,000 housing units. These are likely to be predominately smaller, urban units in the Riverfront area. If an additional 4,600,000 square feet of non-residential is built in the decade, total square

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footage would be about 13,000,000 square feet of new construction. According to the CAPPA calculator, this square footage built under a Green Building Ordinance would result in the elimination of 12,152 metric tons of CO2.

The General Plan update projects an additional 61,000 persons in population and 55,000 more jobs in West Sacramento at build out, which should occur by 2050. At 2.6 persons per household and an average unit size of 1,800 square feet, residential development will result in the construction of 42,000,000 square feet of residential buildings. Assuming 500 square feet of building per job, employment growth will result in the construction of 27,500,000 square feet of commercial/industrial space. According to CAPPA, this combined square footage of 70,000,000 square feet of Green Building will eliminate 51,389 metric tons of CO2e.

Costs and Additional Benefits

The additional cost of constructing a new building to the higher energy and environmental standards of a Green Building Ordinance will vary depending upon the standard applied and the type of building. Generally estimates are in the 5-10% range for additional cost.

Additional benefits from more energy efficient existing buildings would include:

- Lower monthly energy bills.
- Improved work place comfort
- Reduced building operations and maintenance costs from longer lived lamps or other equipment.
- Improved Indoor air quality.
- Productivity and health benefits.
- Water savings.
- Potential for greater marketability of the building to environmentally conscious tenants.

Partner with P.G.& E. and local employers to complete energy audits on all local businesses.

Importance/Context

Unlike most Cities, West Sacramento's Greenhouse Gas Emissions from its Commercial/Industrial sector are larger (24%) than it's Residential Sector (15%). In most local cities, the two are roughly equal. West Sacramento possesses an employment and business base that is much larger than a typical city of its population. This large business base makes it imperative that a significant amount of the overall Greenhouse Gas Emission reduction must come in the business sector.

Implementation Scenario

The first step to making improvements to business energy efficiency understands how energy is being used in the business. An energy audit looks at how energy is being used by the business and identifies areas where improvement is most available. An energy audit will produce a list of measures for the

business where the greatest energy savings can be obtained for the least cost. In the cost conscious business environment we are experiencing, many businesses have already done energy audits and implemented measures which can create net savings. Saving energy saves money. Pacific Gas and Electric will provide businesses with detailed on- site energy audits.

http://www.pge.com/mybusiness/energysavingsrebates/analyzer/onsite/

The City, working with PG&E and the Chamber of Commerce can use their combined communication tools to educate businesses about the need for and availability of energy audits. Some energy efficiency improvements are clear and immediate money savers. Other improvements might make sense it the future as energy prices rise. PG&E rebates combined with Energy Efficiency Financing might make otherwise non-economic improvements cost effective.

Emission Reductions

Energy audits do not of themselves cause emission reductions. The audits provide the basis for energy efficiency improvements covered in other measures.

Costs and Additional Benefits

See costs and additional benefits under Energy Efficiency Financing Program above.

Encourage participation in Sacramento Sustainable Business Program.

Importance/Context

The Business Environmental Resources Center (BERC) was established in 1993 by Sacramento County. It is a Permit Assistance Center to help business navigate, understand and comply with Federal, State and local environmental regulations and processes. One of BESC's programs is the Sacramento Sustainable Business Program. http://sacramentosustainablebusiness.org/. This program allows business to assess their environmental practices in areas such as; energy conservation, water conservation, waste management and green buildings. Businesses which meet best practices criteria can be recognized as a certified sustainable business. Certified sustainable businesses are awarded a plaque and stickers which can be displayed in their windows. This certification could provide a marketing edge in dealing with environmentally minded customers. The program is open to Yolo County businesses and there are certified Yolo businesses.

Implementation Scenario

As this is an on-going program, implementation from the City's point of view would be using its contacts and communication tools to make West Sacramento businesses aware of the program.

Emission Reductions

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Due to the indirect nature of the City's involvement and unpredictability of results, no emission reduction is estimated from this measure

Costs and Additional Benefits

The costs of the City providing visibility and support for this program would be minimal.

The program provides additional networking and visibility for participating West Sacramento businesses. It is also an opportunity for the City to make positive contacts with its businesses.

Promote planting of shade trees on private and public property.

Importance/Context

The Sacramento Valley is hot in the summer. As urbanization replaces agriculture, that heat is magnified in the urban area by the increased absorption of sunlight into asphalt and concrete compared to vegetation. The planting of shade trees has long been a standard practice in the Sacramento Region. The City of Sacramento is known as the "City of Trees". Shade trees absorb sunlight and use it to grow and remove carbon dioxide from the air. They interrupt the sunlight from reaching the hard surfaces below. The Sacramento area is several degrees cooler in the summer than it would have been without the extensive tree canopy. Expansion and retention of the shade tree canopy is a vital program within the Climate Action process.

Implementation Scenario

The City of West Sacramento Zoning Ordinance has significant requirements for the planting of new street trees, parking lot shading trees and screening trees in new development projects. Spacing requirements are such that at maturity, much of the ground surface will be shaded.

The City also has a Tree Ordinance which protects existing trees and requires the planting of replacement trees or the payment of a fee into a Tree Mitigation Funds to allow those trees to be replaced elsewhere. The City has a full time person tasked with providing advice on trees, finding locations and implementing tree planting projects around the City. Originally capitalized by a mitigation payment for trees removed during the construction of the Lower North West Sewer Interceptor Line which connects West Sacramento to the Regional Sewer Treatment Plant in Elk Grove, the Tree Mitigation Fund Program has planted over 5,000 new trees in West Sacramento in the last 5 years.

As new development occurs, the first priority is to preserve as many existing trees on site as possible. In some cases the location or density of existing trees makes that impossible. Mitigation funds from the removal of trees will fund the planting of many more trees in the future.

Emission Reductions

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Assuming the Tree Program is successful in planting an additional 5,000 trees in the next 10 years, the CAPPA program estimates this will result in a reduction of 116 metric tons of CO2 per year. Tree planting requirements should result in the planting of an additional 40,000 trees in the community by 2050 with a resulting 408 metric tons of CO2e eliminated..

Costs and Additional Benefits

The cost of planting a new 15 gallon tree, including the tree, labor, and providing irrigation is about $400 per tree. Most of that cost is irrigation so trees in areas already served by irrigation are much less.

- The planting of a shade tree in West Sacramento provides many benefits:
- The direct carbon removal from the atmosphere as the tree grows.
- Reduction of the heat island effect from sun shining on concrete and asphalt.
- Reduction of air conditioning costs when trees are planted to provide shade on houses or offices.
- Making the outdoor environment more livable and enjoyable in the summer.
- Providing habitat for birds and small animals.
- They are just nice to look at.

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4.2.2.B. Municipal Operations

Table (4.7): Proposed Municipal Energy Efficiency Emissions Reduction Measures

Energy Efficiency Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO_2e Reduction by 2050 (tons)
• Conduct energy retrofits in municipal buildings; reduce energy use 20% in older buildings staying in service.	2011	44	20
• Build all future City buildings to LEED Silver standards at least.	2010	36	40
• Monitor economics of replacing street lights with LED lights, implement when feasible.	2015	199	87
• Where feasible, use drainage/irrigation water to water park, retention basin and corridor landscaping.	2010	NQ	NQ
• Complete installation of irrigation centralized computer control system.	2011	NQ	NQ
•			

Source: CACP Model output

Proposed Municipal Energy Efficiency Descriptions

Conduct energy retrofits in municipal buildings; reduce energy use 20% in older buildings staying in service.

Importance/Context

Up to one third of the energy used to run typical government buildings goes to waste. This translates into a significant amount of taxpayer money that is wasted due to inefficient energy use. It is for this reason that government buildings are good candidates for energy efficiency retrofits that save the jurisdiction money, reduce maintenance burdens, improve comfort, and reduce greenhouse gas emissions. Cost savings will begin to accrue immediately due to reduced electricity and natural gas consumption. Building retrofits also reduce the emissions of air pollution such as particulate matter, nitrogen oxides and volatile organic compounds.

While retrofitting City building would seem to be an obvious step, it is important that the City be smart about the life cycle status of the buildings.

City Buildings fall generally into three categories.

New, Highly Energy Efficient Buildings

City Hall, West Capitol Avenue. (Built 2000)

Recreation Center, Jefferson Blvd. (2008)

Community Center, West Capitol Avenue (under construction 2010)

Bryte Bend Water Plant Control/Admin, River Road (2006)

Fire Station 41, Westacre Road (2006)

Fire Station 45, Lake Washington (2006)

Main Drain Pump Station, Marshall Road (2010)

Old Buildings which should be replaced at the soonest available opportunity.

Public Works and Parks Admin., South River Road

Club West, Riverbank Rd.

Fire Station 43, Industrial Blvd.

Old Buildings which are likely to be in service for many more years

Police Department, Jefferson Blvd.

Water Plant Lab Building, River Road

Sam Coombs Park Building, Stone Blvd.

Fire Station 44, Fremont Blvd.

Various pump and control stations in the sewer, water and storm drain systems.

Implementation Scenario

Most all City facilities have had energy audits prepared on them. Many energy efficiency improvements have been made at existing buildings as a result. The improvements have been made primarily on a reaction basis, if a light bulb burns out it is replaced with a CF. The next stage would be to develop a pro-active plan for making improvements.

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The New Buildings have limited opportunity for improvement. They are at state of the art and should be maintained and managed correctly to maximize the efficiency of the systems they have and upgrade as the systems age in the future.

Old buildings which should be replaced should be evaluated for low cost, high return energy improvements such as appliance replacements, weatherization and energy management.

Priority for action should be Old Buildings which are likely to be in service for many years. The Police Department in particular is the prime candidate for a significant retrofit. This thirty year old converted warehouse needs near complete replacement of HVAC systems and appliances. The Water Plant Lab and Sam Coombs Park building have similar needs. Improvements to Fire Station 44 would need to be tempered by the fact that it too should eventually be replaced, though this is unlikely to happen in the next 20 years.

The City should achieve a 20% reduction in energy use in the old buildings which will remain in service from 2005 by 2015. No additional post 2020 improvements are assumed.

The jurisdiction has the option of selling bonds to finance the retrofits and using the energy savings to pay back the bonds. ENERGY STAR provides valuable information on financing government energy projects at:

www.energystar.gov/index.cfm?c=government.bus_government.

Emission Reductions

The emissions reduction achieved through energy efficiency retrofits will vary, but promise to be significant. A savings of one million kWh reduces emissions by over 245 tons CO_2e. For every 1,000 Therms of natural gas that is saved, the jurisdiction is achieving an emissions reduction of 6 tons CO_2e. Retro fitting the approximately 30,000 square feet of older buildings identified above to achieve a 20% reduction in electrical and natural gas use would result in the elimination of 44 metric tons of CO2 annually.

Costs and Additional Benefits

Costs to retrofit the buildings identified are likely to be in the vicinity of $100,000.

Build all future City buildings to at least LEED Silver standards.

Importance/Context

A major part of the City's role in reducing Greenhouse Gases is serving as a leader and example for the community. A Community Center is currently under construction to LEED Silver standards, and may qualify for gold. The city will grow substantially over the next 40 years and will need many new civic facilities.

Implementation Scenario

The Community Center is likely to be the last city building built for a number of years. In the longer run, probably beyond 2020, an additional Community Center, 3 Fire Stations, a Police station, and a Corporation Yard and Building will be needed.

Emission Reductions

The Community Center's construction as a LEED Silver Building will reduce GHG emissions by 36 metric tons CO2. Construction of 65,000 square feet of new City buildings after 2020 at LEED Silver levels will result in the elimination of 68 metric tons of CO2e in 2050.

Costs and Additional Benefits

Construction Costs for a LEED Silver Building are believed to be 5-10 % more than a standard Title 24 compliant building.

There is every reason to believe that a LEED building will pay for its increased construction costs within a few years in energy cost savings. It is vital that the City organization show leadership in its commitment to green buildings. Green Buildings are also believed to be healthier working environments for employees.

Monitor economics of replacing street lights with LED lights, implement when feasible

Importance/Context

LED (light emitting diode) technology is available for street lights. LED Street Lights are estimated to use an average of 70% less power for the same light level compared to conventional street lights (source PG&E). In 2007, the power used to run street lights in West Sacramento generated 1,793 tons of CO2.

Pacific Gas and Electric owns most of the street lights in the pre-1990 neighborhoods of the City. The City owns most of the street lights in subdivisions built after 1990.

Implementation Scenario

City staff has been monitoring developments in this area for several years. At this time the potential power savings are insufficient to finance a program to replace existing street lights with LED. As more LED street lights are manufactured, costs are coming down. It can also be expected that the cost of power will continue to go up At some point a replacement program changing existing street lights to LED street lights will be cost feasible. At that time, staff will work with PG&E to initiate that replacement.

Emission Reductions

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If the 3,167 City owned street lights and the 1,436 P.G. &E. owned street lights were replaced with LED street lights, 199 metric tons of CO2e emissions would be eliminated.

Costs and Additional Benefits

The primary obstacle to this replacement project is the roughly $3,000 per street light capital cost of installing a LED street light head.

LED street lights are also likely to have a longer useful life than conventional street lights and would need to be replaced less.

Where feasible, use drainage/irrigation water to water park, retention basin and corridor landscaping

Importance/Context

All new municipal parks and landscapes designed and built over the past two years have used the "purple pipe" irrigation pipe standards promulgated by the Sacramento Regional County Sanitation District for use of non-potable water for irrigation. Use of the "purple pipe" standards enables the City to discontinue use of costly treated water when alternative water supplies are available. The first example of non-potable water supply for irrigation went on-line in 2008, when trees planted around the MC-10 Storm water Detention Ponds were irrigated by water pumped from the north basin.

There are several future opportunities for similar solutions as parks, retention basins and corridors are landscaped. The Main Drain Trail and the Clarksburg Line Trail are adjacent to drainage canals. These trails are minimally developed at this time but eventually will be landscaped. A future private golf course is proposed which will be adjacent to several proposed man-made lakes which are part of the drainage system. A future community park and open space corridor is proposed in another village in Southport which will be connected to the drainage system.

Implementation Scenario

The most likely projects to occur in the next 10 years would be the introduction of landscaping along the Main Drain and Clarksburg line. There is also the potential to convert the irrigation of the Summerfield and Patwin Parks from potable to non-potable water. A key to being able to develop this system is the need to replace the Reclamation District 900 water input pump by the Sacramento River near the end of Linden Road. This pump died several years ago and has not been replaced because it was originally to provide water to the canal system in the summer for agricultural irrigation. The amount of agricultural irrigation needed today does not necessitate this pump. In the future, use of canal water for parks and landscaping irrigation will require replacement of the pump to supply water in the summer.

Emission Reductions

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The amount of water which would be diverted from the treatment system for these projects is not currently known.

Costs and Additional Benefits

The primary cost factor for the expansion of this system is the replacement river supply pump. That cost has been estimated at $10,000.

The use of non-potable water for irrigation purposes frees up capacity in the water treatment system and can help postpone any need to expand the plant in the future.

Complete installation of irrigation centralized computer control system

Importance/Context

In the early days of the City after incorporation, irrigation controller for parks, street landscaping and other irrigation in public areas were manually controlled or mechanically controlled. These systems were highly inefficient in adjusting watering to changing weather conditions. Over the years the City has connected these controllers to a central computer control. Over 92 acres of street landscaping and 140 acres of parks are under central control.

Implementation Scenario

The City will be developing at least an equal acreage of street landscaping and parks in the future. Most of this new development will probably occur after 2020. The City will continue to operate computer controlled irrigation and will evolve and improve its system as technology allows.

Emission Reductions

Due to the small volume of irrigation water involved, GHG reductions are fairly minimal.

Costs and Additional Benefits

Most street landscaping and most existing parks will remain irrigated by the treated potable water system. The treatment requires significant energy which creates Greenhouse Gases. Using just the right amount of water minimizes energy use. Using the right amount of water is also better for the health of the landscaping.

4.2.3. Renewable Energy Measures

Currently available sources of renewable energy include solar, wind, biomass and geothermal. Hydrogen fuel cells and tidal current power are renewable energy sources that hold promise but require further research and innovation before they are as practical and possible to implement as other options.

Renewable energy sources offer the potential for a clean, decentralized energy source that can significantly impact the municipality's greenhouse gas emissions. City of West Sacramento will work to build on current efforts to integrate alternative energy into the community's power scheme.

4.2.3.A Community Measures

Table (4.8): Proposed Community Renewable Energy Emissions Reduction Measures

Renewable Energy Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO_2e Reduction by 2050 (tons
• Encourage development of local renewable energy projects.	2010	NQ	NQ
• Offer incentives for the installation of solar hot water heaters and solar pool heaters	2011	362	1,068
• Offer incentives for the installation of solar photovoltaic projects.	2011	229	0
• Lobby for the establishment of a goal of a zero carbon electrical grid by 2050	2010	NQ	NQ

Source: CAPPA Model output

Encourage development of local renewable energy projects.

Importance/Context

Renewable, non GHG producing energy generation is one of the most powerful and effective methods for reducing Greenhouse Gases. Local renewable energy projects have the advantage of putting electrical energy directly into the grid near where it will be used, minimizing line losses. West Sacramento has already had some success at local renewable energy projects. Toni's Fine Foods, a West Sacramento refrigerated warehouse business has installed the largest solar powered project owned by a business in California. The 1 megawatt facility cost $7 million and with rebates, tax credits and

incentives is expected to pay for itself in 7 years. The photovoltaics are most effective in powering the food storage refrigeration units in the heat of the summer days. The Port of Sacramento has also recently activated a 637 Kw photovoltaic facility installed on the rood of two warehouses on the Port which will provide all the electrical power the Port needs for the next 20 years.

Implementation Scenario

A specific project is underway in West Sacramento which demonstrates clearly how the City/Port can encourage local renewable energy projects. A private company Otras Producciones de Energia Fotovoltaica (OPDA) is (as of March 2010) nearing the beginning of construction of a 24 million watt solar array project. The project will be built on Port of West Sacramento owned land on the west levee of the Deep Water Ship Channel just south of the Port of Sacramento Industrial Park. The Port has entered into an Exclusive Negotiating Agreement to draft a land lease for the project. Environmental review is Final engineering is being completed with the hope of a summer 2010 construction start. Power from the solar array would be sold to the P.G. & E grid. The project will produce 48 gigawatt hours of renewable, clean energy annually, enough to power approximately 6,000 homes.

The City can encourage local renewable energy projects through rapid handling of permitting requirements, providing land and public building roofs as sites, financing and education.

Emission Reductions

Emission reductions from the project are estimated at 34,472 metric tonnes of CO2 annually. The project will be a step towards PG&E meeting its requirement to generate 33% of its power from renewable uses. That reduction is reflected in Measures Implemented External to the City of West Sacramento later in this Chapter. . This plant therefore cannot be counted as a West Sacramento specific reduction measure.

Costs and Additional Benefits

The project will provide lease payments to the Port of West Sacramento.

Offer incentives for the installation of solar hot water heaters and solar pool heaters

Importance/Context

Solar hot water heaters for heating tap water in buildings and for warming pools are a proven technology which can reduce the use of natural gas for heating. Solar heaters would reduce the use of natural gas for the heating of water.

Implementation Scenario

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The City should also look to not charging the City portion of the plan check and inspection fee for building permits for solar facilities. The lost revenues would be relatively minor and it would send an important message to the community regarding the City's commitment. Informational handouts should also be made available at the building public counter.

Emission Reductions

If 500 solar water heaters were installed in the community, the result would be a reduction of 362 metric tons of CO2.

If an additional 1,000 solar water heaters are installed from 2020 to 2050, the result would be a reduction of an additional 724 metric tons of off-set natural gas for a total of 1,068 metric tons.

Costs and Additional Benefits

A solar water heater installed will cost one to two thousand dollars.

Lost plan check revenue would be probably less than a thousand dollars per year.

Offer incentives for the installation of solar photovoltaic projects

Importance/Context

Solar photovoltaic (PV) systems generate energy by harnessing sunlight. Technologies that can convert solar energy into electricity can be installed at the point of use. Solar energy is a clean source of electricity that does not produce greenhouse gas emissions. Installing PV panels on homes can also save residents money by offsetting the need for power from the grid, and increase local energy security and reliability.

Cost savings will begin to accrue after a payback period of 10-15 years. Other benefits include reduced emissions of criteria air pollutants from power plants, development and local demonstration of renewable energy technology, and increased residential energy reliability, security, and cost certainty. Further, while a PV system will not increase a resident's property taxes, it will increase the property value.

Implementation Scenario

Launch a "City of West Sacramento Solar Program" that serves to provide background information on solar PV systems, financing resources, information on rebates and incentives, and information on solar contractors. Work to eliminate barriers to residential and business solar installations, by offering information at building permit counters, expediting or streamlining permitting requirements, and reducing or eliminating permitting fees. Roll out a consumer awareness campaign to demystify the process for installing solar energy on rooftops. Target new home buyers, realtors, lenders, business owners, and current homeowners.

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Local and state rebates, incentives, and tax credits will reduce this cost for residents by at least 30 percent. Businesses can benefit even more from tax credits and accelerated depreciation of the PV system cost. The California Solar Initiative (http://www.gosolarcalifornia.ca.gov/) provides rebates and information for small and large solar systems. Also see the Database of State Incentives for Renewables and Efficiency (DSIRE) at http://www.dsireusa.org/.

Emissions Reductions

For every kW of installed capacity, PV panels can generate approximately 2,000 kWh of electricity per year. For every kW of installed capacity, PV-generated electricity savings translate to an annual emissions reduction of about 0.5 ton CO_2e. If 1000 KWs of solar PV capacity is installed by private installations as a result of the program 229 metric tons of CO2 emissions would be eliminated.

Any solar Photo Voltaic capacity after 2020 is assumed to be part of PG&E s move to a zero carbon grid by 2050.

Costs and Additional Benefits

PV panel installations cost $7-10 per Watt, depending on system size and availability of product.

Lost plan check revenue would be probably less than a thousand dollars per year.

Lobby for the goal of a zero carbon electrical grid by 2050.

Importance/Context

The State has established a mandate that the large public power suppliers in the State, including P.G. & E., achieve the goal of generating 33% of their power from "qualified renewable sources". In the case of P.G.& E., this will result in a reduction of the percentage of power generated from natural gas from 40% of the total to 20% of the total. There is currently no goal established beyond the 2020 timeline. To realistically reach the goal of reducing GHG emissions state wide to 80% of 1990 levels a zero carbon electrical grid will need to be in place.

Implementation Scenario

The City has no direct control over the establishment of standards for statewide electrical generation. The State of California has the authority to establish a higher and longer term goal for renewable power generation. What the City can do is add its voice to political support for the establishment of a long range, zero carbon electrical grid and use its lobbying effort to encourage the State.

Emissions Reductions

In the case of West Sacramento, a zero carbon grid would result in the reduction of 260,000 metric tons of CO_2.e per year from Business as Usual in 2050. Because this is not an issue under City control, no credit is taken for its accomplishment.

Costs and Additional Benefits

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The costs of achieving a zero carbon grid would be considerable. Establishing a goal for 2050 would mean that many of the natural gas power plants currently in use would be reaching the end of their natural life anyway. Technology improvements over the next 40 years should help reduce the cost.

In addition to the GHG reductions there would be improvements in other regulated emissions and a resulting general improvement in air quality. The society would benefit from the health related improvements which would result.

Establishment of a zero carbon mandate for 2050 would provide utilities and investors with the certainty needed to invest in new technologies to accomplish the goal. Such a goal would put California in a lead role in the development of clean energy technology.

4.2.3.B. Municipal Operations

Table (4.9): Proposed Municipal Renewable Energy Emissions Reduction Measures

Renewable Energy Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO_2e Reduction by 2050 (tons
• Consider alternative energy generation options (e.g., solar PV and heat) in any future municipal buildings	2011	50	50
• Purchase green tags/renewable energy certificates	2015	NQ	NQ

Source: CAPPA Model output

Municipal Renewable Energy Measures

Consider alternative energy generation options (e.g., solar and wind) in any future municipal buildings

Importance/Context – Solar photovoltaic (PV) systems generate energy by harnessing sunlight. Technologies that can convert solar energy into electricity can be installed at the point of use. Solar energy is a clean source of electricity that does not produce greenhouse gas emissions. Installing PV panels on municipal buildings can also save money by offsetting the need for power from the grid, and increase local energy security and reliability. Cost savings will begin to accrue after a payback period of 10-15 years. Other benefits include reduced emissions of criteria air pollutants from nearby power plants, development and local demonstration of renewable energy technology, increased energy reliability, security, and cost certainty.

Implementation Scenario – PV panel installations cost about $5-10 per Watt in most municipal building settings. Install PV systems on the roof of City Hall and use power generated on-site to meet electricity demand for that facility. The State of California offers a rebate of $2,800 per kW or $2.80/Watt, for systems under 30kW, which covers about 30% of the total system cost. PG&E's Self-Generation Incentive Program offers a rebate of $2,800 per kW for systems larger then 30kW. For more information: www.pge.com/selfgen. Additionally, the federal government offers tax incentives for installing photovoltaic panels on commercial-zoned buildings. Cities cannot generally take advantage of these tax incentives, but entities exists that can aggregate tax credits for cities. These entities essentially lease the rooftop from the city and pass along the energy savings to the city.

The City should also examine the potential to heat the pools at the high school recreation center using solar water heaters and the potential to heat water for domestic use in City buildings.

Emissions Reductions –

A 100 KW PV installation on the roof of City Hall would result in the reduction of 50 metric tons of CO_2e.

Costs and Additional Benefits

The cost of a 100 KW system for the roof of City Hall would be about $600,000.

Purchase green tags/renewable energy certificates

Importance/Context

Renewable Energy Certificates (RECs) allow an institution or home to claim ownership of renewable energy sources such as solar, wind, and biomass generation, without having to generate that energy themselves or be directly connected to it. RECS sell the environmental benefits of renewable energy separately from the electricity itself. The renewable energy generation may be in a different part of the country from the energy user, but each REC bought requires that a certain amount of renewable electricity must be produced, avoiding burning fossil fuels and the greenhouse gases they would have produced.

Governments can set an example by purchasing RECs for a percentage of their operation. They can also encourage residential and commercial customers to sign up for RECs

Implementation Scenario

The first focus for reducing municipal emissions should be local to obtain the other air quality benefits that go hand in hand with carbon reductions. The REC might be a mechanism for closing the last gap toward meeting a reduction goal after all feasible local measures have been tried.

Emission Reductions

If the City of West Sacramento purchased an additional 10% of its roughly 16.8 million KH per year as renewable power, it would reduce emissions by 176 metric tons of CO2. Because the City appears to be able to meet its goal without this purchase, no credit is taken in the City totals.

Costs and Additional Benefits

A Renewable Energy Certificate costs about $.091 per KH. Ten percent additional renewable power would cost approximately $31,000. Such a commitment would serve as an example for other government entities and the private sector.

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4.2.4. Solid Waste Management Measures

All cities in California, including the City of West Sacramento, have a requirement to reduce waste sent to the landfill by 50% from 1990 levels. The City of West Sacramento is committed to this and strategies to achieve this goal are already set in motion. This section of the action plan illustrates additional measures that should be taken immediately. Such measures include expanding existing commercial and residential recycling, adding composting programs, and expanding community education and outreach initiatives. Further, City of West Sacramento is placing increasing emphasis on achieving emissions reductions through promoting sustainable landscaping practices such as those outlined in River Friendly Landscape Guidelines

As is demonstrated in this document, many of the City of West Sacramento's own solid waste diversion programs dovetail nicely with municipal efforts to reduce greenhouse gas emissions. While the City of West Sacramento's charge to reduce the waste stream may seem external to traditional emission reduction strategies such as energy and transportation, ICLEI has illustrated the emissions benefits of waste reduction, recycling and composting and these are contained within this report.

Recycling and waste prevention programs make a significant contribution to reducing the energy and transportation needed to manufacture and ship virgin products and packaging. Composting makes a significant contribution to reducing methane production in the landfill and reduces the need for energy intensive fertilizers and pesticides. Indeed, the EPA 2000 report states:

Results from research conducted by ICLEI provided in this report, show that practices such as residential and commercial recycling and composting, buying recycled products, green building and water efficient landscaping play an important role in a local government's emission mitigation strategy. In fact, climate change mitigation can be seen as an umbrella under which a jurisdiction's waste diversion programs play a substantial role.

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4.2.4.A. Community Measures

Table (4.10): Proposed Community Solid Waste Management Emissions Reduction Measures

Solid Waste Management Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO_2e Reduction by 2050 (tons
▪ Raise recycling target to 70% diversion from landfill for construction and demolition waste..	2011	442	442
▪ Increase participation in multi-family dwellings in recycling program.	2010	NQ	NQ
▪ Increase participation in commercial recycling/reuse programs for paper, cardboard, and plastics. .	2010	NQ	NQ
▪ Encourage on site composting of food and yard waste.	2010	NQ	NQ
▪ Increase participation in residential curbside recycling programs	2010	NQ	NQ
▪ Reduce Landscape Waste by Adopting a River Friendly Landscaping Ordinance	2011	NQ	NQ
▪			
▪ Encourage backyard composting and grass recycling.	2010	NQ	NQ
▪			

Source: CACP Model output

Raise recycling target to 70% diversion from landfill for construction and demolition waste.

Importance/Context

The current target of the City's recycling policy is to divert 50% of waste from the landfill. The City has consistently diverted approximately 60% of its waste stream from the land fill in recent years. The 50% target was a minimum established beginning in the year 2000 by the Integrated Waste Management Board (now CalRecycle). Though Climate Action and Sustainability efforts, many Cities are establishing higher targets.

Implementation Scenario

Currently, residential recycling participation is above 50%; however, commercial participation is much less. The first efforts to reach 70% diversion should focus on commercial business participation in

recycling mainly in the construction and demolition waste category. Demolition and construction waste is regulated as part of the building permit process. The City's current 50% requirement would need to be amended to 70%. This change would require Council action to amend the recycling ordinance.

Emissions Reductions

Achieving an increase in diversion of construction waste from 50% to 70% would result in the reduction of 442 tons CO_2e based on a 2007 level of development.

Costs and Additional Benefit

Enforcing this standard would add costs to a construction environment which is underwater in 2010 to begin with. Enforcement might need to wait for a stronger economy.

Increase participation in multi-family dwellings in recycling program

Importance/Context

There are 3,434 units in 100 multi-family complexes of 5 or more units each. In addition there are 17 mobile home parks containing 1,387 mobile homes in West Sacramento. These represent of the housing stock. Multi-family complexes are eligible to receive free mixed recycling bins for the use of tenants. The current participation rate in the program is 44% of complexes. This low participation rate is in many cases due to a lack of additional space in garbage collection enclosures built before recycling became common. Multi-family and mobile home park units show a 24% diversion rate of recyclables out of total collection. This relatively low participation rate shows significant potential to improve the rate closer to the 50% city wide standard.

Implementation Scenario

Implementation of this measure would involve dual marketing efforts. One program would be oriented to multi-family property owners to allow placement of collection bins and an on-going educational effort to tenants to encourage recycling. The provision of small internal collection bins for units might also encourage participation. These marketing efforts are likely to be included in broader marketing efforts such as the program on energy efficiency education.

Emissions Reductions

Emission reductions for this measure are assumed to be included in the energy efficiency education program.

Costs and Additional Benefits.

Costs would include additional bins provided and additional collection time for Waste Management. Property owners might incur some additional costs to modify garbage collection areas to accommodate recycling bins.

Increase participation in commercial recycling/reuse programs for paper, cardboard, and plastics.

Importance/Context

The commercial sector generates two-thirds of the jurisdiction's total waste. Expanding recycling, waste prevention and composting programs for jurisdiction's businesses will reduce global warming emissions. Recycling and waste reduction saves resources and reduces the emissions that cause global warming. Recycling reduces greenhouse gas emissions because manufacturing products from recovered materials avoids emissions from the energy that would have been used during extraction, transport and processing of virgin raw materials. The reuse and recycling of organic materials (such as paper, cardboard, and food) also keeps waste out of the landfill where it breaks down and releases methane, a powerful greenhouse gas. Such practices also have the potential to reduce the transportation of waste materials to the landfill, thereby conserving fuel.

Implementation Scenario

An initial effort has been made to encourage commercial recycling through the Recycle Rewards Program which was implemented last year. This program will be repeated every year in the future and will focus on either businesses or multi-family dwelling complexes. However, additional outreach needs to occur to get their participation. This could also be coupled with a municipal ordinance requiring commercial recycling as is currently required for construction and demolition waste. In addition to commercial recycling, some form of mandatory recycling should be explored in the industrial community.

Other diversion opportunities could be found through food waste composting at restaurants and in the residential sector

Participate in the regional green business program by recruiting area businesses to sign on.

Provide the necessary facilities and services to make such practices as convenient as possible through participation from the City's waste hauler, Waste Management.

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Emissions Reductions

i. Increase the reuse and recycling of cardboard boxes: In West Sacramento, about 1,007 tons of cardboard enter the waste stream every year. If 50 percent of the cardboard was reused and/or recycled, the City would reduce emissions by 1,950 tons CO_2e annually. For every 1 ton of corrugated cardboard boxes that is kept from entering the landfill, about 3.87 tons of CO_2e are avoided.

ii. Increase the recycling of plastic film: Recycling plastic film such as that used to make plastic bags, reduces emissions by avoiding the upstream energy necessary to produce new products. For every ton of plastic film (in the form of Low Density Polyethylene LDPE) that is recycled, about 1.9 tons of CO_2e are avoided annually.

iii. Recycling paper: Recycling paper reduces emissions by avoiding the upstream energy necessary to produce new units of paper, and by avoiding emissions at the landfill since paper is an organic material that decomposes to form methane. For every ton of mixed general paper recycled about 4.3 tons of CO_2e are avoided.

iv. Increase the utilization of reusable transport packaging: Plastic pallets are more durable and last about 50 times longer than wood pallets and therefore produce less waste. For every reusable plastic pallet utilized in place of a wooden one, the community is achieving an emissions reduction of approximately 830 pounds CO_2e. Similar benefits are realized by replacing limited or one-time use cardboard boxes with durable totes and containers.

Cost and Additional Benefits

There could be a small increase in charges to cover additional outreach to get commercial and industrial customers to recycle. If a recycling ordinance was in place, an employee would need to be assigned to enforcement; however, that person could cover other jobs as well.

Increase participation in residential curbside recycling programs

Importance/Context

The residential curbside recycling program is the City's primary recycling effort. Every home is provided a recycling bin in addition to a garbage bin and a yard waste bin. Bins are emptied weekly with no additional charge to the home owner.

Implementation Scenario

The infrastructure is in place for complete recycling from the residential community. Increasing participation will be a result of on-going educational and marketing efforts to increase the amount of potentially recyclable material going into the recycling container rather than the garbage container. Recycling educational efforts are likely to be incorporated and done with the energy efficiency educational efforts.

Emissions Reductions

Emission reductions for this measure are assumed to be included in the energy efficiency education program.

Costs and Additional Benefits.

The only costs for implementing this measure would be the staff time and materials involved in on-going educational efforts.

Reduce Landscape Waste by Adopting a River Friendly Landscaping Ordinance

Importance/Context

River-Friendly landscaping is an integrated solution that fosters soil health, conserves water, reduces waste, and reduces the emissions that cause global warming. Through the River Friendly Landscaping Program, the River Friendly Landscape (RFL) Coalition provides training, landscape design assistance and grant funding to local governments in the Sacramento Region.

. (http://www.msa.saccounty.net/sactostormwater/RFL/coalition.asp)

The objective of the resources that RFL provides is to assist local governments to design public landscapes and encourage the design of private landscaping that cost less to maintain, consume fewer resources, send less waste to the landfill and do not negatively impact the River.

River-Friendly Landscaping practices described below not only serve to reduce the emissions that cause global warming, but provide many additional benefits as well. Trees, for example, provide habitat for birds, beautify urban areas, increase property values, and help to control storm water runoff. Shade trees also reduce the need for air conditioning thereby cutting energy costs.

Selecting appropriate plants that require less shearing reduce the need for running various pieces of equipment. This not only reduces greenhouse gas emissions, but reduces local air and noise pollution as well.

Additionally, keeping lawn and plant clippings on site improve soils. Grass-cycling, mulching and using compost creates healthier landscapes without the use of synthetic pesticides and fertilizers, all of which can help reduce water pollution.

Implementation Scenario –

Adopt an integrated River Friendly Landscaping ordinance that requires new landscapes and buildings to be designed and built in a resource-efficient manner. Apply River Friendly Landscaping techniques to all public green spaces. In partnership with the RFL Coalition, encourage residents and landscape professionals to do the same by placing educational resources on the local government website and by giving recognition to River-Friendly Landscapes in the community. Build municipal capacity to use sustainable landscaping techniques by sending public landscape maintenance professionals to River-Friendly Landscaping maintenance training. Modify the Landscape Development Guidelines to emphasis River Friendly principals.

A River-Friendly Landscape can reduce labor and fuel costs as well as waste disposal fees and ongoing maintenance and water costs.

Emissions Reductions –

River-Friendly Landscaping reduces greenhouse gas emissions in the following ways:

i. By reducing yard trimmings being sent to the landfill.

ii. By keeping yard trimmings on site, thereby eliminating the need to transport waste to the landfill.

iii. By avoiding fuel consumption due to running trimming and mowing equipment, which necessitates the burning of gasoline.

iv. By requiring less irrigation. Reducing water usage reduces that amount of energy it takes to irrigate lawns.

v. By reducing the need for nitrogen fertilizers and pesticides.

vi. By strategically using trees to moderate temperatures rather than having to rely on electricity and/or natural gas for cooling and heating.

Encourage backyard composting and grass recycling.

Importance/Context

The City currently provides pickup service for yard waste. The green waste is brought to an area at the Yolo County landfill where it is composted. While avoiding the filling of landfill space and making the compost available as fertilizer, this approach still involves the creation of greenhouse gases from the gasoline used by the yard waste trucks to carry the waste to the landfill site. An alternative is composing and grass recycling on site at each home. Composting bins are available which organize and simplify composting. Also, while food waste and yard waste generally cannot be mixed in a commercial operation, not such restrictions apply to backyard composting. Backyard composting also eliminates the GHG creation involved in producing commercial fertilizer for use in the garden.

Implementation Scenario

The City can encourage backyard composting through its green educational efforts. The City could also consider providing composting bins or vouchers for discounts at local stores for composting bins.

Emissions Reductions

Greenhouse gas reductions from this program are likely to be negligible.

Costs and Additional Benefits.

Costs of bins are less than $100. The composting does take up some space in what are increasingly small backyards in new development.

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4.2.4.B. Municipal Measures

Table (4.11): Proposed Municipal Solid Waste Management Emissions Reduction Measures

Solid Waste Management Emissions Reduction Measures	Year to be Initiated	Annual CO_2e Reduction by 2020 (tons)	Annual CO_2e Reduction by 2050 (tons)
▪ Reduce Landscape Waste.Include practices such as: • Increase on-site composting and mulching of municipal plant debris • Incorporate River-Friendly Landscaping practices into new or renovated medians and parks[4]	2010	NQ	NQ
▪ Increase recycling in municipal facilities	2010	NQ	NQ
▪ Include language in City contracts that maximizes diversion (see StopWaste.Org for best practices)	2010	NQ	NQ

Source: CAPPA Model output

4.2.4.B. Municipal Solid Waste Management Measures

Reduce Landscape Waste.Include practices such as:

- **Increase on-site composting and mulching of municipal plant debris**
- **Incorporate River-Friendly Landscaping practices into new or renovated medians and parks.**

Importance/Context

A significant part of wastes generated by the City organization are plant wastes from the maintenance of parks, medians, and other public landscaping.

Implementation Strategy

The City does now use composting mowers for mowing City Parks. The City also uses tree chippings as mulch on City parks.

The City could extend that practice into contract landscape maintenance on medians and collector landscaping.

Emissions Benefits
Use of grass cycling, composting and mulching on site has some minor reduction in fertilizer use avoided.

Costs and Other Benefits
These methods actually reduce costs compared to removal of the material.

Increase recycling in municipal facilities

Importance/Context
As the leader and champion for greenhouse gas reduction and energy conservation, the City organization needs to set the example in its recycling effort. The City currently recycles 38% of the material that is disposed of via the City contract with Waste Management Inc. At a minimum, the City organization should match the 50% that the community as a whole is achieving.

Implementation Strategy
Implementing this measure is predominately a matter of on-going education and emphasis to City employees.

Information on what and how much is recycled by the City is not detailed. A more complete analysis by facility would help direct recycling efforts.

The City can insure that recycling collection containers are included at all garbage collection bins on City properties. This approach was followed at City Hall but has not been accomplished at all City Parks.

Emissions Benefits
Emission benefits would be small and difficult to predict at this time.

Costs and Other Benefits
Costs would include the staff time and materials spent encouraging City employees to do more recycling, any additional collection bins and additional costs to pick up recycled materials.

Include language in City contracts that maximizes diversion (see StopWaste.Org for best practices)

Importance/Context
The City contracts with third party vendors for many things including garbage pickup, landscape maintenance, capital projects, supplies, and janitorial services. As virtual extensions of the City organization, these contracts are another place to show leadership and commitment.

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Implementation Strategy
The City can include language in its requests for services, bids and franchise agreements requiring contractees to use best practices to maximize diversion of waste from the landfill.
Emissions Benefits
Emission benefits would be small and difficult to predict at this time.

Costs and Other Benefits
It is possible that costs for services, goods or projects could be higher as a result of this requirement if other organizations are not requiring these practices. The amount of increased cost is too speculative to predict at this time.

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4.2.5. Measures Implemented External to City of West Sacramento

In addition to emissions reduction measures implemented within our community, the effects of measures recently implemented at the state level also deserve consideration in the context of our greenhouse gas emissions inventory. These measures have not been integrated into the estimated emissions reductions for *City of West Sacramento* above because they are imposed from outside of the community and their creation and enforcement is beyond our control. *City of West Sacramento* is committed to meeting our emissions reduction target without relying on externally imposed policies. However, we feel it is appropriate to have a sense for how emissions reductions achieved due to external policies may compare with the work we are engaging in within our community.

In California, numerous policies have been adopted by the state legislature or governor that currently or are projected to significantly reduce greenhouse gas emissions.

Solid Waste

In 1989, AB 939 established the current organization, structure and mission of the California Integrated Waste Management Board (CIWMB). The purpose was to direct attention to the increasing waste stream and decreasing landfill capacity, and to mandate a reduction of waste being disposed. Jurisdictions were required to meet diversion goals of 25% by 1995 and 50% by the year 2000. A disposal reporting system was established with CIWMB oversight, facility and program planning was required, and cities and counties began to address their waste problems.

Renewable Energy Standard

In 2002, the California Senate passed SB1078 requiring public utilities to gradually increase the percentage of their energy supply generated from renewable sources, reaching 20 percent renewable content by 2017. In November 2008, Governor Schwarzenegger signed Executive Order #S-14-08 increasing this target to 33% by 2020. This means that, over time, a larger and larger share of the energy electrifying homes and businesses in City of West Sacramento will be generated with clean power.

Emission Reduction

Based on calculations in other Climate Action Plans in the Pacific Gas & Electric service area, achieving the 33% target will result in a 50% reduction in greenhouse gas emissions from electrical use compared to the 2005 baseline. The impact of achieving this target would be a reduction in West Sacramento's greenhouse gas emissions from electrical use by 50,980 tons. (Residential CO2e 32,444 tons, Commercial CO2e 67,517 tons, total 99,961 times .51 = 50,980 tons). Reaching the target for PG & E would be accomplished by reducing the percentage of electricity generated for PG&E using natural gas from 40% of its total to 20% of its total. If this policy is fully enacted, we expect this change to decrease community emissions by approximately 9 percent.

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In 2007, the City organization total electrical use was 16,821,680 kilowatt hours which resulted in the generation of 3,482 metric tons of CO2e. A 50% reduction of that due to increased use of renewable sources by PG & E would result in a reduction of City emissions of 1,741 tons of CO2e or 9 percent from baseline levels.

If PG&E can reduce its use of natural gas by half from 2005 to 2020, it should be able to replace the other half with renewable sources by 2050 resulting in a zero carbon electrical grid. Rather than assume complete elimination of natural gas, this report assumes that PG&E retains 10% of its' generation from natural gas. Achieving this level would result in the savings of 181,973 metric tonnes of CO2e community wide.

Fuel Efficiency Standards

Nationwide, automobile manufacturers are bound by fuel efficiency standards set by the Department of Transportation. These standards, known as the Corporate Average Fuel Economy (or "CAFE") standards, require that the fleet of passenger cars sold by any single manufacturer have an average fuel economy of 27.5 mpg – the same standard that was in place in 1985, despite technical progress and increased understanding of the environmental impacts of fossil fuel combustion. The CAFE standards are adopted at the federal level, and states are prevented from passing laws addressing vehicle fuel economy. In response to these stagnant federal standards, the California Assembly passed AB 1493 (Pavley) , which allows the California Air Resources Board to create carbon dioxide emissions standards for cars sold in California. They argue that a greenhouse gas emissions standard is distinct from a fuel economy standard, despite the fact that it would necessitate improved gas mileage. The Air Resources Board Scoping Plan has identified a number of strategies that it will implement to improve fuel efficiency in California. These include the Pavley bill, Pavley 2, which sets an even higher standard beginning in 2016, a tire inflation service check program, a tire rolling resistance standard, a low friction oil requirement, a solar resistant paint and window tint requirement and a requirement for low carbon fuels.

Emission Reduction

Based on implementation of all of the strategies outlined by the Air Resource Board, by the year 2020 the reduction in fuel consumption will reduce community transportation emissions in City of West Sacramento by 35 percent (57,055 tons) and municipal emissions (employee commute and City vehicles) by 1,830 tons CO2e or 9 percent compared to the base year.

Achievement of an average fleet fuel efficiency of 60 miles per gallon by 2050 would result in savings of 348,279 metric tonnes of CO2e.

Other

Executive Order S-20-04 was signed July 27, 2004 and directs the state to commit to aggressive actions to reduce state building electricity usage by implementing cost-effective energy efficiency and green

building strategies. To this end, the Order directs all facilities owned, funded or leased by the state (and encourages cities, counties and schools as well) to take measures to reduce grid-based energy purchases for state-owned buildings by 20% by 2015. This is to be done through cost-effective efficiency measures and distributed generation technologies. These measures include designing, constructing and operating all new and renovated state-owned facilities paid for with state funds as "LEED Silver" or higher certified buildings, seeking out office space leases in buildings with a U.S. EPA ENERGY STAR rating, and purchasing or operating ENERGY STAR electrical equipment whenever cost-effective.

In 2006, Governor Schwarzenegger signed AB 32 – the Global Warming Solutions Act – into law. AB 32 institutes a mandatory limit on greenhouse gas emissions. The limit will be set to achieve the target of reducing statewide emissions to 1990 levels by the year 2020. The bill directs the California Air Resources Board (CARB) to establish a mandatory emissions reporting system to track and monitor emissions levels and to develop a wide range of compliance options and enforcement mechanisms.

Senate Bill 97 (Dutton), enacted in 2007, amends the California Environmental Quality Act (CEQA) to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs the Governor's Office of Planning and Research to develop CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009 and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010. OPR did draft and summit guidelines and they were approved and became effective in March 2010. The Guidelines spell out how State and local agencies can set standards to determine in a GHG emissions impact is significant, discusses general types of GHG emissions mitigation measures, and under what conditions, one environmental document may "tier" off the GHG analysis of a prior environmental document such as a General Plan or Climate Action Plan environmental review.

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4.2.6. Summary of Emissions Reduction Measures

Based on the emissions reductions estimated to be achieved since 2007 through the above proposed measures, and the contribution of the existing measures City of West Sacramento will have to reduce 160,117 tons of CO_2e emissions in the community, including at least 2,820 tons of CO_2e emissions from municipal operations, in order to achieve our emissions reduction target.

Table (4.13) : City of West Sacramento Emissions Summary

City of West Sacramento Emissions Summary		
	Community Analysis	**Municipal Operations Analysis**
Base year	2007	2007
Quantity of CO_2e emissions in base year (tonnes)	410,682	18,801
Target year	2020	2020
Business-as-usual projection of CO_2e emissions in 2020 (tonnes)	533,726	21,245
Percent CO_2e reduction targeted by target year relative to base year (%)	30%	15%
Quantity of CO_2e reduction targeted relative to base year (tonnes)	160,117	2,820
Quantity of CO_2e reduction to be achieved through proposed City of West Sacramento measures (tonnes)	52,554	543
Quantity of CO2e reduction to be achieved through measure external to West Sacramento	108,035	3,571
Percent of CO_2e reduction to be achieved through all existing and proposed measures (%)	100%	130%

Conclusions and Summary

2020 Conclusion

Implementation of measures by the City of West Sacramento as identified in this document, together with measures being implemented by the State and Federal government do give the City of West Sacramento the potential for reaching its greenhouse gas reduction goals for 2020 at both the Municipal and Community Level. As shown in the table above, the measures identified reduce emissions to 30% below Business as Usual for the Community and 130% below the 2007 baseline for the Municipal organization.

The measures identified will reduce the per capita emissions in West Sacramento from 8.7 metric tonnes CO_2e in 2007 to 6.3 metric tonnes CO_2e in 2020, a 27% reduction.

2050 Conclusion

The identified Federal, State and local measures show achievement of 66% of the 2050 goal of 91% below Business as Usual. With the growth expected in West Sacramento over the next 40 years (population growing from 48,000 to over 100,000) achievement of the 91% goal will require technology improvements beyond anything we currently know. The level of reduction called for in 2050 will realistically require achievement of a zero carbon electrical grid and a near zero carbon transportation system as well as significant reductions in the use of natural gas for heating. Ironically, these system improvements greatly diminish the effectiveness in terms of GHG reductions of most of the measures which the City has ability to impact. The City's efforts to reduce per capita kilowatt hour use and vehicle miles traveled will be more effective in reducing costs and the need for the construction of more energy generation capacity than in reducing GHG emission.

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Chapter 5 – Review and Implementation

5.1. Climate Action Plan Review and Adoption

(Preliminary Draft – This section will be amended to past tense after adoption as a history of the adoption process)

Outreach to Commissions

Early in the drafting of the Climate Action Plan document, presentations were made to the Planning Commission, Economic Development Advisory Commission, Youth Commission, Housing Advisory Commission and Agricultural and Natural Resources Commission. These presentations talked about the science and political background of global warming and Greenhouse Gas emission reduction efforts. The presentations explained what a Climate Action Plan might look like, what topics would be addressed and what some of the most likely major reduction measures would be.

Roughly two months after the initial presentation a follow up presentation was made. At that time, in March and April 2010, an incomplete, preliminary draft of the Climate Action Plan was provided to each Commission for early review. The intent was to give the Commissions a chance to see and provide feedback on the document as it was being drafted and to allow ample time to read and absorb what the document might look like and say.

Upon completion of the first complete preliminary draft a third round of presentations will be made to the Commissions. After a period to encourage and receive public input on the draft, hearings will be scheduled at each of the Commissions to make final recommendations to the City Council for future adoption.

Public Outreach

Early outreach was made to the Chamber of Commerce Governmental Affairs Committee. This group was presented with an early draft of the Executive Summary at a meeting of the committee. The Committee indicated is desire to be involved early in the drafting of the Plan. A sub-committee consisting of John Tallman and Todd Chambers was established to review and comment on the draft. These two members of the Committee have planning and development backgrounds. This sub-committee was provided with the same early draft Climate Action Plan that was shared with the Commissions. The sub-committee provided comments and suggestions on the draft.

With the availability of a complete preliminary draft in June 2010, the broader public outreach program was begun. A press release was issued announcing the availability of the Climate Action Plan document. E-mail notices were sent to all persons in the General Plan update e-mail list. An article in “City Lights”, the City’s newsletter sent to all residents was published summarizing the Plan and inviting comment. Notice was placed on the City web site and copies of the draft were made available via the web site. Notice was run on the City cable channel.

A similar notice process will be followed with the schedule of Commission hearings leading to recommendations to the City Council.

Hearings and Recommendation from Commissions

Hearings and recommendations will be provided by the Commissions with jurisdiction in the subject matter area (Planning Commission, Agriculture and Natural Resources, Housing Advisory, Economic Development Advisory, and Youth). These hearings are expected in the fall of 2010.

Hearings and Adoption by Council

After the first round of presentations of the completed preliminary draft Climate Action Plan, that draft will be presented to the City Council for workshop and comments. Any Council direction will be incorporated into the document as part of the preparation of a hearing draft.

After receiving recommendations from the Commissions, the City Council will hold initial hearings on the document. Final changes will be made to incorporate Council direction. Formal adoption of the Climate Action Plan will take place with the adoption of the General Plan update, currently expected in early 2011.

Environmental Review

The Climate Action Plan is an integral part of the mitigation measures for the General Plan update Environmental Impact Report. The General Plan update proposes increases in the build out population and employment of West Sacramento over the original 1990 build out levels. Most of that increase is located in urban, transit and pedestrian oriented neighborhoods along the north east riverfront. Those neighborhoods should be extremely Greenhouse Gas friendly compared to standard development. In fact, with the implementation of the measures in the Climate Action Plan and the continuing evolution of technology, those neighborhoods have the potential to be carbon neutral. Regardless of that possibility, comprehensive environmental review of the General Plan update, including the Climate Action Plan which proposes many new policies in the General Plan, must be done and publicly reviewed. The Climate Action Plan cannot be finally adopted until the General Plan/Climate Action Plan EIR is approved.

5.2. Administration and Staffing

Green and Sustainable Strategy Team

In 2008, the City established the Green and Sustainable Strategy Team (Green Team). This team consists of City staff with responsibilities and interests which impact on creating a sustainable community and reducing Greenhouse Gases. This group has and will continue to provide the leadership and effort on a City organization basis for sustainability. The Green Strategy does not clearly fall into one City Department. The measures proposed impact every department in the City. A multi-departmental team is the logical organization for implementing the Plan.

Team Leader

The Team Leader is a department head level executive with primary responsibility for seeing that the Green Team is achieving its goals. The Team Leader is responsible for seeing that annual goals are set and met and that the Climate Action Plan is monitored and updated on schedule. The Team Leader is the contact between the Green Team and the Executive Team of department heads to insure that all departments are participating in implementation of the Plan. A Department Head level manager is preferred to give the Team Leader the ability to contact as an equal the other Department Heads to get support for green activities. The Department Head selected should have a personal interest in and commitment to the goals of the team and the Climate Action Plan.

Team Manager

The Team Manager is responsible for the week to week operation of the Green Team. The manager will schedule meetings, make sure agendas and minutes are prepared, chair the team meeting and follow up on the performance of assigned tasks by team members. The Team Manager will generally be at the Division manager level of the City organization. The Team Manager may bring in clerical support to help with the responsibilities.

Core Members

The core team consists of City staff with responsibilities and interests related to greenhouse gas reduction activities. Areas represented should include such responsibilities as: alternative transportation, purchasing, fleet management, water conservation, planning, green buildings, City building operation and maintenance, funding, business retention, housing rehabilitation, solid waste, and recycling. The core team should meet regularly to update each other on activities, accomplishments and news relevant to climate change issues. Core team members should expect to step in to assist or back up other team members on projects, presentations or activities.

Extended Membership

In addition to the core team which will meet regularly, other staff members will have occasional involvement with the Green Team. The Parks Manager, Tree Coordinator, Development Civil Engineer, Port Manager, Facilities Manager and Development Manager could have specific but limited involvement with the Green Team on specific projects or measures.

City Manager

The City Manager selects the Team Leader for the Green Team. It is critical to the success of the Team that the City Manager is clearly in support of the achievement of the Climate Action Plans goals and emphasizes to all Departments the level of commitment of the City Council and the City organization to implementing the Plan.

5.3. Financing and Budgeting

Budgeting for Plan Administration

The primary cost of plan administration will be the hours of existing City staff. The primary tasks of plan administration will be preparation of the annual report and the 5 year update of the Plan. Most of the staff assigned to the Green Team are budgeted in various funds (General, Water, Port, Community Development). There is no specific budget line item for Green Team activities. Each member of the Green Team has other duties which are their primary focus. The budget for plan administration is more a matter of hours.

The preparation of annually report will involve approximately 15 hours of staff time for one primary author and minor hours for several other contributors.

The preparation of a 5 year update will involve approximately 600 hours of staff time. The municipal inventory will need to be re-done, which is a substantial amount of work for a number of people. The Community inventory will need to be re-done, which is a smaller number of hours. While the current plan is a good starting point, 5 years will see changes in technology and the political environment which will require a full review of each Chapter and measure to re-assess the viability and effectiveness of the effort over the first 5 years of implementation.

Budgeting for Plan Implementation

As with Plan Administration, implementation costs for the Climate Action Plan are not likely to show up as specific budget line items. Much of the cost will be City staff time spent writing or presenting educational materials for placement in City Lights and other communication tools. Staff time is required to coordinate with other agencies on greenhouse gas reduction efforts regionally. As departments prepare their budgets the climate action activities and responsibilities of those departments/divisions should be described in the Work Plan section of the budget with some description of the level of effort.

Budgeting for Plan Implementation should be reflected in a policy for considering the environmental and life cycle aspects of buying Green products. A policy to buy hybrid vehicles when ever appropriate should be shown in a higher cost estimate for the purchase or lease of a replacement vehicle and a lower estimate for the amount of gasoline use which may result. The purchase of high electrically efficiency computers, monitors, appliances, equipment, lights, etc. needs to reflect a slightly higher initial purchase price under capital replacement and a lower estimate for electrical useage.

One area of direct budgeting is for alternative transportation incentives for City employees through the Yolo Transportation Management Association. An annual commitment in the vicinity of $30,000 per year is likely to be needed.

Significant Cost items which might be budget line items would be replacement of street lights with LED bulbs.

Construction of the Street Car system and the infrastructure for the urban riverfront is and/or will be reflected in the City's Capital Improvement Budget.

5.4. Developing a Timeline

Many of the actions for implementing the Climate Action Plan are the continuation or expansion of efforts which are already being done. Others should be able to be implemented in the next few years. Some efforts may take a number of years to begin to actually show greenhouse gas reductions. Below are listed some of the most significant mesures for which quantified estimates of benefits have been projected by immediate, near term and long term time frames. Near term would be something started within the next year, long term within the next five years.

Immediate

Educational efforts

Transportation incentives

Green Purchasing

Near Term

Green Building Ordinance

Energy Efficiency Financing Program

Zoning Ordinance Amendments

Idling and throttle limits on City vehicles

Replace old or under used vehicles with hybrid/alt. Fuel

Long Term

Water Conservation through metered billing

Street Car

Conservation Ordinances

Urban Transit Oriented Development

Car Share Program

LED Street lights

Expansion of bus system

Purchase Renewable Energy Certificates

5.5. Public Involvement in the Implementation Process

To a large degree, it is the employers, employees and residents of West Sacramento who will ultimately implement this plan. Individual decisions on purchases, lifestyle changes and actions added together across the community will create the changes which reduce our greenhouse gas impact. While the City can be one of the leaders in this effort, leaders in the community will also be necessary. Employers and residents will not only need to reduce their own emissions, but they can serve as messengers to the people with whom they live and work, and provide incentives for further emissions reductions. As part of its marketing effort, the City should seek to reach out to, find and work with businesses and residents interested in participating in implementing the plan. A stakeholder task force to compliment the Green Team could be formed to help guide the development, review and implementation of the plan. As part of this process, the City should carefully monitor and document successes and lessons learned as part of the community outreach and education campaign.

5.6. Monitoring/Reporting

Annual Progress Report

The Green Team shall prepare an annual report on Implementation of the Climate Action Plan. The report should summarize prior accomplishments with an emphasis on accomplishments during the last year. The report should lay out the goals and proposed actions in the upcoming year. The City Manager shall determine if the report is to be provided to the City Council only in written form or if it should be presented publically at a Council meeting. An appropriate time for the report might be the end of the year preceding the Council's goal setting process at the beginning of the year.

Residential, Commercial/Industrial, and Municipal building energy use/ greenhouse gas emissions can easily be monitored on an annual basis from information PG&E can provide each year. While there may be a one year lag in reporting energy use, the annual report should include a report on the trend of energy use and related greenhouse gas emissions for the prior years. An identification of key indicators such as square footage of Green Building Ordinance

compliant new construction, or number of participants in the Yolo County Transportation Management Association should be tracked

The vehicle miles travelled data from the Caltrans Highway Performance Monitoring System is also available annually. While this sampling based method might not be the most accurate method for determining or projecting vehicle miles travelled, it could be a reasonable way to monitor vehicle miles travelled and vehicle miles traveled divided by population and employment to see year to year trends with a small amount of effort.

The City should develop methods for including in the annual report easily obtained key indicators for monitoring the success of moving the City organization towards the Climate Action Plan goals. Basic data such as number of gallons of gasoline and desiel used by City Vehicles, amount of electricity used in City Buildings, amount of water use billed to City parks, number of City employees participating in YTMA programs, can provide trend indications on how much success is being achieved.

A summary of the annual report could be included in City Lights after it has been reviewed by the City Council.

5.7. Re-Inventory

Municipal

A full municipal inventory is a time and staff intensive effort. A municipal inventory should be done every five years. As the first was done in 2008 based on 2007 data, the next should be in 2013 based on 2012 data. A re-inventory should include a re-assessment of success in moving towards the 2020 goals and were appropriate re-identification of measures to achieve more success in reducing greenhouse gas goals. Technologies and practices will change over time. A mid course review will help refine progress.

Community

While the Community Inventory is actually less research intensive, major changes and results in the Community are likely to occur slower. A re-inventory and Climate Action Plan update done in 2013 will provide an opportunity to refine specific measures and implement more directive measures if necessary. A re-inventory every five years is sufficient only with the implementation of annual key indicator measures presented and analyzed in the annual report.

5.8. Coordination

The City is but one of many organizations with a role in greenhouse gas emission reduction. As discussed in many of the measures, the City's role in implementing many measures is the use of the City's communication tools with its citizens to promote knowledge and interest in programs run by other organizations.

PG&E

As the energy supplier for this area, Pacific Gas and Electric is perhaps the main force in greenhouse gas emission reductions. PG&E's success in developing renewable sources of electrical energy will be one of the most critical factors in achieving the goals set by the State and the Climate Action Plan.

PG&E has significant programs in terms of incentives, credits and rebates for reducing energy use. The City has communication tools which can inform its citizens and businesses of those programs and encourage their use. The City needs to remain well informed of the status of PG&E programs.

CalFirst

CalFirst will be administering the AB 811 Energy Conservation Loan Program. This program offers loans for energy efficiency and alternative energy to homes and business which can be repaid through the property tax bill. Close coordination with PG & E's incentive programs will strengthen the attractiveness of this program. Combined and coordinated marketing efforts from CalFirst, PG & E and the City will maximize the effectiveness of the program.

Yolo

Yolo County, West Sacramento, and the other cities in Yolo County are members of the Climate Action Compact. Representatives of each of the members meet regularly to coordinate climate action efforts. This group has worked together with other areas to create the CalFirst program.

Sacramento

Sacramento County, Sacramento City and the other cities in Sacramento County commissioned a joint Greenhouse Gas Inventory for all of those agencies. Representatives of all those agencies, plus SMUD, PG&E, special agencies such as the Air District, Sacramento County Sanitation District plus West Sacramento and occasional representatives from Yolo County, meet quarterly as the Sacramento Area Green Partnership. The meeting is an opportunity to have presentations on specific climate action issues by parties such as ICLEI, the Air Resources Board, consultants and others. The meeting is also an opportunity to exchange information and discuss the status of climate action efforts.

SACOG

The Sacramento Area Council of Governments, as the metropolitan transportation planning agency, plays a major role in climate action efforts in the region. SACOG's philosophy of funneling grant funds under its' discretion to higher density, transit and alternative transportation oriented projects will make a major difference in the GHG emissions in the region. West Sacramento in particular has benefited from that philosophy.

SACOG is also active in climate action planning in the region. SACOG serves as a coordinating agency and a supporting resource to its member agencies.

5.9. Implementation through the CEQA Process.

Senate Bill 97 (Dutton), enacted in 2007, amends the California Environmental Quality Act (CEQA) to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs the Governor's Office of Planning and Research to develop CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009 and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010. OPR did draft and summit guidelines and they were approved and became effective in March 2010. The Guidelines spell out how State and local agencies can set standards to determine in a GHG emissions impact is significant, discusses general types of GHG emissions mitigation measures, and under what conditions, one environmental document may "tier" off the GHG analysis of a prior environmental document such as a General Plan or Climate Action Plan environmental review.

The City's implementation of these Guidelines through its CEQA review process provide a mechanism for mitigating the GHG impacts of all new development in the future. The City can impose mitigation measures which will reduce the GHG impacts of specific development projects.

This Climate Action Plan is written with the intent of being consistent with CEQA Guidelines Section § 15183.5 which describes the contents of a "Qualified Plan" for the reduction of GHG emissions that can be used in tiering future CEQA analysis.

Part of the General Plan update being done in 2010 will include new and amended General Plan policies which address GHG emissions and the reduction of those emissions. Those new and amended General Plan policies are included in Chapter 3 of this Climate Action Plan. The environmental review of the General Plan update will include a review of the GHG impacts of the General Plan and the development that would be allowed under that Plan. The Environmental Impact Report for the General Plan will include the setting of standards of significance and the identification of mitigation measures, many of which will come from this Climate Action Plan.

In the future, all major development projects will have their GHG emissions analyzed and mitigation measures proposed to reduce those impacts.

List of Appendix

A. Inventory Summary Reports,

Data Sources, Assumptions and Notes for the Municipal, Community Inventory and Forecast of your Jurisdiction

B. List of Proposed GHG Emission Reduction Measures

D. Assumptions and Calculations

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