CHAPTER

1 INTRODUCTION

OUR VISION

City Council Statement

We are pleased to introduce the Citrus Heights Greenhouse Gas Reduction Plan (GGRP). City government can provide leadership in efforts to reduce our community's carbon footprint. Recognizing this in 2008, the City of Citrus Heights joined other Sacramento County communities in preparing a greenhouse gas (GHG) emissions inventory. The City has completed a baseline emissions inventory, which indicated that the Citrus Heights community released 543,727 metric tons of carbon dioxide equivalent (MT CO_2e) in 2005. In 2010, the City Council adopted a target to reduce community-wide greenhouse gas emissions by 10% to 15% below 2005 levels by 2020.

At recent meetings and workshops, Citrus Heights residents and businesses have made it clear that climate change and the impact it will have on the quality of life of future generations is an important issue. Many of you have contributed your thoughts and ideas concerning steps that can reduce GHG emissions while also promoting a healthy lifestyle, improving air quality, restoring habitat, making neighborhoods more walkable and creating local jobs. This valuable input from the community has informed the GGRP so that it is unique to our City and describes our common interests.

With the guidance provided within this plan, City government and Citrus Heights community members can, together, make meaningful changes in our everyday lives and operations to reduce our carbon footprint. We look forward to working together toward a more sustainable future for Citrus Heights and for all of us!

Public Input

Citrus Heights residents have actively participated in the development of the GGRP. From the early stages of the planning process, City leaders have recognized the pivotal role of public engagement and input in the plan. A variety of outreach methods were used to make the contents of the plan available to all interested parties. Citrus Heights residents and businesses were involved in various ways through the City's General Plan Update website, E-notifiers to mailing list members, three community outreach meetings (November 2009, January and June 2010), Planning Commission study sessions (January and June 2010), and City Council study sessions (February and June 2010), and through social networking websites (such as Facebook). All meeting agendas, minutes, and draft GHG reduction measures were published online to allow easy access, review and participation by the community. Comments received at public meetings and study sessions have been considered and included within the GGRP and General Plan environmental review process.

It became evident through the public workshops that residents and businesses in Citrus Heights preferred approaches to educate residents and businesses to "do the right things" regarding energy and water conservation, solid waste reduction, and alternative transportation modes, as opposed to additional regulation. Conducting regular workshops to promote sustainable life choices will help the community make better decisions to reduce its contribution to the greenhouse effect. As a result, the recommended GHG reduction measures within the plan are directly related to the success of a strong public outreach and education program within the community.

"California has set ambitious goals (AB 32) to address climate change and reduce greenhouse gas emissions. Because of the diversity of California's topography and different local climates, the effects of a changing climate on California communities are complex and will differ from community to community. And, because California communities themselves are different, reducing greenhouse gas emissions will also vary from community to community, as will adapting to climate change."

Source: How to Harness the Power of Your Community to Address Climate Change, California Air Resources Board and Institute for Local Government

Purpose

The City of Citrus Heights GGRP addresses major sources of GHG emissions in the community that cumulatively contribute to global climate change. The GGRP performs three primary functions:

- outlines various strategies and measurable implementation actions to meet the City's General Plan goal of reducing GHG emissions by 10% to 15% below 2005 levels by 2020,
- inspires residents and businesses to participate in community efforts to reduce GHG emissions,
- demonstrates Citrus Heights' ability to respond to and comply with California's GHG reduction legislation and regulatory guidance, and
- improves overall quality of life in the community by promoting smart growth and mobility principles that better connect the community, reduce air pollution and urban heat island effects, and encourage healthy lifestyles.

Scope

This plan includes strategies and performance indicators to reduce GHG emissions from both municipal and communitywide activities within the City. The strategies address seven major GHG emission sources in Citrus Heights and set forth actions to achieve GHG reductions through community engagement and leadership, land use and community design, transportation choices, energy and water conservation techniques, solid waste reduction and building green infrastructure.

Acronyms Used in this Document

AB	Assembly Bill
ARB	California Air Resources Board
BERC	Business Environmental Resource Center
BRT	Bus Rapid Transit
CEC	California Energy Commission
CFL	Compact Fluorescent Light
CH_4	Methane
CHWD	Citrus Heights Water District
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
EPA	U.S. Environmental Protection Agency
EO	Executive Order
GBC	California Green Building Code
GHG	Greenhouse gas
GGRP	Greenhouse Gas Reduction Plan
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
HVAC	Heating, ventilating, and air conditioning
ICLEI	International Council of Local Environmental Initiatives, renamed to "ICLEI – Local Governments for Sustainability"
IPCC	Intergovernmental Panel on Climate Change
ITS	Intelligent Transportation System
LCFS	Low Carbon Fuel Standard
LED	Light-emitting diode
LEED	Leadership in Energy and Environmental Design
LID	Low impact development
MT	Metric tons
PG&E	Pacific Gas and Electric
RT	Sacramento Regional Transit
RPS	Renewable Portfolio Standard
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SJUSD	San Juan Unified School District
SMUD	Sacramento Municipal Utility District
SSB	Sacramento area Sustainable Business
TDM	Transportation demand management
USGBC	U.S. Green Building Council
VMT	Vehicles miles traveled
WSUD	Water Sensitive Urban Design

Organization

The GGRP is organized into the following chapters:

Introduction – discusses opportunities and challenges in view of increased GHG effects at a global, regional and local level and related legislation and policy. This chapter also describes City actions underway to reduce GHG emissions and how actions by individual community members can strengthen the community-wide power to combat climate change.

The Planning Process – provides an overview of the planning process to achieve the GHG reduction target of 10% to 15% below 2005 levels by 2020. This chapter summarizes the concept of GHG emission sectors, the City's baseline GHG inventory and projections for 2020, and the process of selecting an emission reduction target. Finally, this chapter explains how each emission reduction measure has been selected on the basis of its GHG reduction potential, financial effectiveness and community acceptability, and includes a graphic Layout Guide for the recommended measures.

GHG Reduction Measures – organizes the recommended GHG reduction measures within seven strategy areas. Each measure includes an implementation table, identifying responsible parties for action and performance indicators to track progress.

Conclusion – compares the recommended emission reduction measures to the adopted reduction target for 2020.The chapter also includes performance indicators for each primary GHG reduction measure to allow the City to monitor implementation of the plan.

Challenges and Opportunities

What is the Greenhouse Effect?

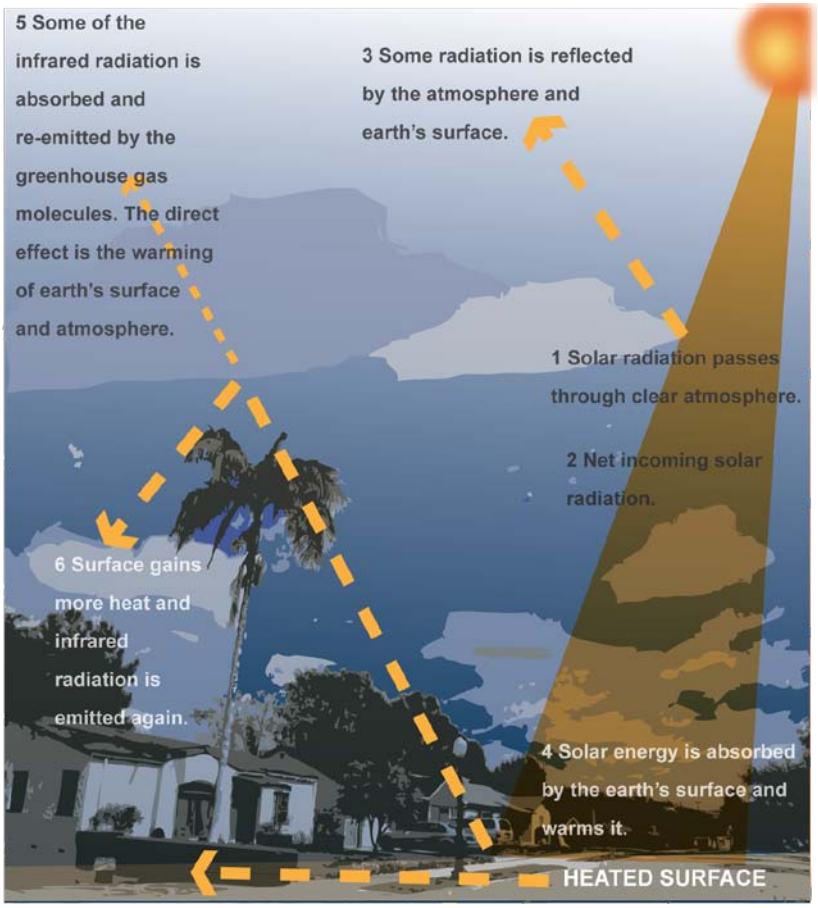
The greenhouse effect is a natural process. Without naturally occurring GHGs in the atmosphere – such as water vapor, carbon dioxide, nitrous oxide and methane, our planet's surface temperature would be rather cold and unpleasant. However, increased concentrations of GHGs in the atmosphere can also cause dangerous global warming and climate change consequences by magnifying the greenhouse effect, trapping excessive solar heat.

Although GHG concentrations have fluctuated with the natural cycle of ice ages, since the beginning of the industrial era concentrations of these gases have risen substantially. The main sources of GHG emissions, particularly carbon dioxide, methane and nitrous oxide, are the combustion of large amounts of fossil fuel used to produce energy and transport people and goods, deforestation and intensive farming methods.

When this plan refers to the greenhouse effect, it refers to the enhanced greenhouse effect caused by increasing GHGs resulting from human activity.

"We basically have three choices: mitigation, adaptation, and suffering. We're going to do some of each. The question is what the mix is going to be. The more mitigation we do, the less adaptation will be required and the less suffering there will be."

John Holdren
President of the American Association for the Advancement of Science; Harvard University



State Legislation

WHAT IS THE DIFFERENCE BETWEEN THE GREENHOUSE EFFECT, GLOBAL WARMING AND CLIMATE CHANGE?

These terms are often used to describe the same problem, but actually relate to cause and effect, or problem and consequence. The greenhouse effect is the cause and global warming and climate change are the consequences.

The greenhouse effect causes an accumulation of heat (or energy) in the atmosphere. The global climate must then adjust to deal with that extra accumulation of energy, and these adjustments result in global warming and climate change.

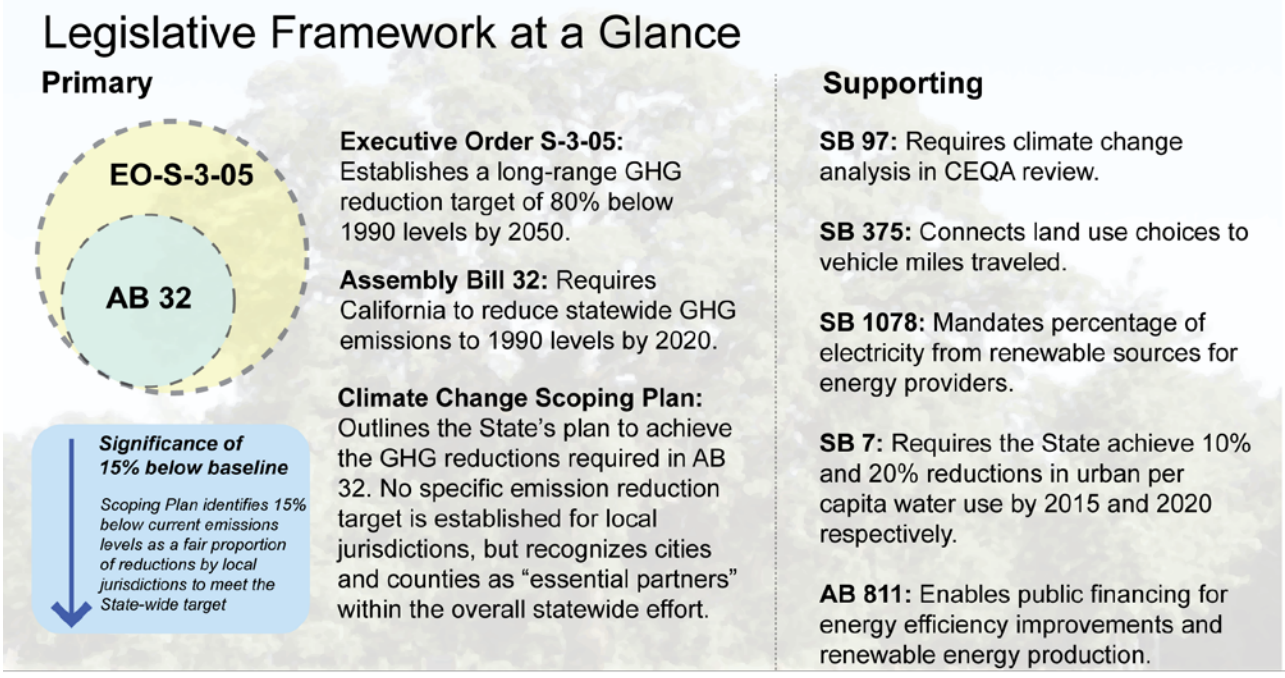
Global warming results from an increase in the temperature of the Earth's lower atmosphere. Climate change results from alterations to regional climatic events such as rainfall patterns, evaporation and cloud formation.

In 2005, Executive Order S-3-05 proclaimed that California is vulnerable to the effects of climate change. To combat those concerns, the Executive Order established a long-range GHG reduction target of 80% below 1990 levels by 2050.

Subsequently, Assembly Bill (AB) 32, the *California Global Warming Solutions Act of 2006* was signed. AB 32 requires California to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 directed the California Air Resources Board (ARB) to develop and implement regulations that reduce statewide GHG emissions.

The *Climate Change Scoping Plan* (Scoping Plan) approved by ARB in December 2008, outlines the State's plan to achieve the GHG reductions required in AB 32. Though the Scoping Plan does not define the specific role local governments will play in meeting the State's GHG reduction goals, it identifies cities and counties as "essential partners" within the overall statewide effort.

Additionally, Senate Bill (SB) 375 (2008) established a process whereby regional targets for reduced VMT and GHG emissions will be established by ARB, in collaboration with Metropolitan Planning Organizations (MPOs) throughout the state, including the Sacramento Area Council of Governments (SACOG). Once determined, these targets will apply to the transportation emissions sector.



Moving Forward

City Actions

The City of Citrus Heights has already taken various actions to reduce GHG emissions since the 2005 baseline inventory. Some of the City actions that are making a difference in creating a sustainable future include the following:

- High-quality design that results in energy and water efficiency in the new Community Center
- 4.6 miles of City streets now have synchronized traffic signals, reducing emissions caused by idling cars
- 6 miles of rubberized asphalt on City streets, providing noise attenuation and using recycled materials
- 16 traffic signals have been converted to light emitting diodes (LEDs) as part of an ongoing conversion of City street lights to LED
- Installation of photovoltaic systems on City Hall and the Community Center
- Installation of LED street lights on Antelope Road
- Reduction of speed limits on some streets to promote walking and biking
- Ongoing increased recycling efforts

The projected effects of climate change will vary geographically. Projected effects within the Sacramento region include:

1. *Variable Precipitation - Reduced Sierra snowpack, earlier snow melt, higher stream and river flows, intense storms each season, or extended drought periods punctuated by intense precipitation events.*
2. *Heat Waves - More frequent, longer, and more-extreme heat waves and associated health effects.*
3. *Wildfires - Increased wildfire risk and associated air quality and health problems.*
4. *Air Quality - Increased production of smog. The higher the temperature, the more rapid is the production of air pollutants, especially in the ozone layer.*
5. *Water Supply - Decreased water supply with implications for agriculture and community residents.*
6. *Flooding - Greater risks of flooding due to more extreme storm events and levee stress from rising sea levels.*
7. *Water Quality - Potential water quality problems associated with sea level rise (e.g., increased salinity in receiving waters) and higher river and stream flows.*
8. *Agriculture - Decreased production from livestock and crops sensitive to temperature increases and decreased water supply and increase in various pests.*

Source: Sacramento County Climate Action Plan Phase 1 (Draft published May 2009)

Individual Actions

City actions alone cannot achieve Citrus Heights' adopted emission reduction target. Community involvement will be critical to successful implementation of the GGRP. Ultimately, an individual's everyday actions will guide the larger effort of community-wide GHG emissions reduction. As members of the Citrus Heights community, each step taken by an individual resident or business owner will be part of the solution.

As an individual, affecting a large-scale change in a global process may seem daunting, but breaking it down into a three-step process (as shown below) illustrates the cumulative significance of many smaller individual actions. In other words, if each individual can make a number of small changes in their everyday habits it will collectively make a big difference.

Ten Simple Ways to Make a Difference:

1. 

Drive Smart - Smart, smooth and safe driving techniques lead to average fuel savings of 5-10%. Switching off your engines if you have to stop for more than a minute saves fuel and reduces emissions. Check tire pressure at least once every two weeks to ensure adequate inflation and save money on fuel.

2. 

Drive Less - Bike, take public transit or walk for short daily trips. Leaving your car home twice a week can save fuel and reduce related emissions. Also, if you need to take your car, plan ahead to combine errands, instead of making multiple trips.

3. 

Dress for the Weather - Set your central thermostat at 68 degrees (65 at night) during winter days and at 78 degrees during summer. When indoors, dress warmly during winter months instead of turning up the heat and dress lightly in summer instead of turning up air conditioning. Use a fan to optimize air circulation.

4. 

Use Energy Wisely - Turn off lights and unplug appliances when not in use. Many appliances continue to draw a small amount of power when they are switched off. These "phantom" loads occur in most appliances that use electricity, such as VCRs, televisions, stereos, computers, and kitchen appliances.

5. 

Save Water - A leaky toilet can waste almost 200 gallons of water per day. Check for leaks regularly and fix them to save on water bills. Taking shorter showers and using less hot water saves both water and energy required for heating it. Wash only when you have a full load of clothes and dishes.

6. 

Plant Climate Appropriately - Plant a tree but choose climate appropriately, so that it uses less water and maintenance. Climate appropriate gardens also attract local birds and critters. Learn to create rainwater gardens to infiltrate stormwater and reduce potable water demand. Set irrigation controls to seasonal water needs.

7. 

Reduce and Reuse Before Recycling - Look for creative ways to reduce trash and reuse an item before simply tossing it off to the recycle bin. For example, use reusable mugs at coffee shops and reusable water bottles during travel to reduce the use of disposable and single-use items such as plastic bottles.

8. 

Create Your Own Reusable Shopping Bag - Reusing just one bag in your daily life (grocery/home shopping, trips to the beach/pool, gym, picnics, festivals, travel, etc.) can “eliminate” the use of approximately six plastic bags every week. Creating your own resusable bag can maintain your personal style and be durable for many uses.

9. 

Buy and Eat Locally - Buying locally helps to reduce emissions related to transportation of the goods (including food) from distant places. Locally grown healthy food helps to maintain a seasonal variety of produce and recipes while saving fuel and cleaning the air from unnecessary transport-related emissions.

10. 

Spread the Word - Learn about ways to reduce your carbon footprint and share information about the economic and environmental benefits of simple lifestyle changes with your friends, neighbors and co-workers. Take opportunities to encourage community leaders to establish environment-friendly policies and programs.