



City of Sacramento City Council

915 I Street, Sacramento, CA, 95814
www.CityofSacramento.org

Meeting Date: 1/31/2012

Report Type: Public Hearing

Title: Climate Action Plan (CAP) (Noticed on 1-13-12)

Report ID: 2012-00013

Location: Citywide

Recommendation: Conduct a public hearing and upon conclusion pass 1) a Resolution approving environmental review, and 2) a Resolution adopting the Climate Action Plan.

Contact: Tom Pace, Planning Manager, (916) 808-6848; Erik de Kok, Senior Planner, (916) 808-2022; Helen Selph, Assistant Planner, (916) 808-7852, Community Development Department

Presenter: Tom Pace, Planning Manager, (916) 808-6848, Community Development Department

Department: Community Development Dept / General Services, Utilities, Transportation, and Parks

Division: Long Range Planning

Dept ID: 21001222

Attachments:

- 1-Description/Analysis
- 2-Background
- 3-Final Comment Matrix 1.19.12
- 4-Resolution CEQA
- 5-Exhibit A Initial Study
- 6-Resolution CAP
- 7-Final Draft CAP

City Attorney Review

Approved as to Form
Sabina D. Gilbert
1/23/2012 10:39:25 AM

City Treasurer Review

Reviewed for Impact on Cash and Debt
Russell Fehr
1/17/2012 12:42:08 PM

Approvals/Acknowledgements

Department Director or Designee: Max Fernandez - 1/19/2012 12:42:24 PM

Description/Analysis

Issue: As directed by City Council on August 16, 2011, staff prepared a Draft Climate Action Plan (CAP) that was based on the greenhouse gas reduction targets, goals, and measures framework adopted by Council on that same date; released the Draft Climate Action Plan to the public on November 3, 2011; and prepared a Final Draft based on input received.

The Climate Action Plan includes strategies, implementation measures, and actions that would reduce community-wide greenhouse gas emissions from the transportation and land use, building energy, water and wastewater, and solid waste sectors; as well as strategies to help the City and the community adapt to the likely effects of climate change in the future.

The Climate Action Plan is consistent with the California Global Warming Solutions Act (AB32), and the performance goals and preliminary reduction measures framework approved by City Council in August, with additional enhancements. Specifically, staff worked closely with SMUD to identify new quantifiable actions which were added to close the gap between the adopted 2020 target and the expected effects of the preliminary emission reduction measures approved by Council.

Staff recommends that Council pass Resolutions 1) Approving the environmental review and 2) Adopting the Climate Action Plan.

Public Support for the CAP: The development of the Climate Action Plan has been shaped by public input, beginning with feedback from key stakeholder groups regarding the development of greenhouse gas reduction measures and alternatives, to soliciting public input online, and conducting public meetings. A summary of public outreach is included in Attachment 2 – Background. A complete list of comments on the Draft Plan and staff responses is included in Attachment 3 – Public Comments and Responses.

Policy Considerations: The Climate Action Plan is consistent with the City's goals and policies as established in the Sustainability Master Plan and 2030 General Plan.

Sustainability Master Plan Climate Protection Goals:

- Meet the intent of the Global Warming Solutions Act (AB32) or subsequent laws for City operations and the community of Sacramento.

2030 General Plan Goals and Policies:

- **Goal ER 6.1.7 Greenhouse Gas Reduction Goal.** The City shall work with the California Air Resources Board to comply with statewide greenhouse gas reduction goals as established in the Global Warming Solutions Act of 2006 for 2020 and any subsequent targets.
- **ER 6.1.8 Citywide Greenhouse Gas Assessment.** The City shall comply with pertinent State regulations to assess citywide greenhouse gas emissions for existing land uses and the adopted General Plan build-out.
- **ER 6.1.9 Greenhouse Gas Reduction in New Development.** The City shall reduce greenhouse gas emissions from new development by discouraging auto-dependent sprawl and dependence on the private automobile; promoting water conservation and recycling; promoting development that is compact, mixed use, pedestrian friendly, and transit oriented; promoting energy efficient building design and site planning; improving the jobs/housing ratio in each community; and other methods of reducing emissions.
- **ER 6.1.10 Climate Change Assessment and Monitoring.** The City shall continue to assess and monitor the effects of climate change.

Environmental Considerations: Approval of the Climate Action Plan by the City Council, as recommended by staff, is a project under the California Environmental Quality Act (CEQA) and subject to environmental review.

Staff prepared an Initial Study (see Attachment 5) to (a) review the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the 2030 General Plan Master EIR to determine their adequacy for the proposed approval of the Climate Action Plan (see CEQA Guidelines section 15178[b],[c]) and (b) determine if any potential new or additional project-specific significant environmental effects that were not analyzed in the Master EIR would occur and if any additional mitigation measures or alternatives that may avoid or mitigate the identified effects to a level of insignificance need to be discussed.

Based on the Initial Study, staff concluded that that approval of the Climate Action Plan was an anticipated subsequent project identified and described in the 2030 General Plan Master EIR, and would not result in any project-specific additional significant environmental effects not previously examined in the Master EIR. As required by the CEQA Guidelines, staff provided notice of the proposed action and

provided a public comment period of November 15, 2011 to December 16, 2011. A summary of public comments received on the Initial Study and staff responses is included in Attachment 2. No changes to the Initial Study are required.

One minor clerical error was noted: the NPDES Permit reference number is R5-2008-0142 instead of R5-2002-0206. This change does not affect the analysis or conclusions of the Initial Study.

Sustainability: The Climate Action Plan is anticipated to have a net positive environmental impact because its purpose is to reduce Sacramento's community-wide greenhouse gas emissions. Other environmental co-benefits, such as improved air quality, are associated with greenhouse gas emission reductions. The Climate Action Plan is also focused on strategies that are cost-effective and will result in cost savings to consumers, as well as create new job opportunities in the green economy. And finally, the Climate Action Plan includes strategies that address community engagement and empowerment in improving the sustainability and livability of the community.

Commission/Committee Action: On December 8, 2011 the City Planning Commission conducted a public hearing on the Climate Action and, upon conclusion, voted 8-1 to forward a recommendation of approval to City Council. A summary of the Planning Commission action is provided in Attachment 2-Background.

Rationale for Recommendation: The Climate Action Plan will achieve a number of important benefits, including the following:

- Help residents & businesses save energy and reinvest energy savings in the local economy;
- Stimulate investment and innovation in renewable energy, energy efficiency, and related technologies, thereby creating and retaining "green collar jobs";
- Provide a uniform approach to greenhouse gas mitigation for development projects, thereby improving the predictability and certainty of the development review process;
- Create a roadmap for the longer-term transition to zero-net energy use and carbon neutrality, thereby providing for a more secure energy future;
- Help the community as a whole begin to adapt to the likely effects of climate change in our region;
- Help the City prepare for pending changes to the State and Federal regulatory Environment; and
- Help position the City to compete for grant funding to implement the City's sustainability policies.

Financial Considerations: A generalized cost-benefit analysis for a limited set of the Primary Actions is provided in Appendix A of the Climate Action Plan. The cost-benefit analysis focused on actions that were anticipated to have quantifiable or substantial contributions to job creation, would result in substantial energy savings, and are mandatory or regulatory in nature and where data was available based on prior studies or similar projects in the past. The results are intended to demonstrate general, order-of-magnitude financial costs and benefits, as well as job generation potential, for this limited set of measures.

Emerging Small Business Development (ESBD): No goods or services are being purchased as part of this work program at this time.

Background

Project Overview

The purpose of a local government Climate Action Plan (CAP) is to provide a comprehensive plan for reducing greenhouse gas (GHG) emissions and adapting to climate change. A CAP typically applies communitywide, but can also focus on reduction of greenhouse gas emissions from an agency's internal operations. The International Council for Local Environmental Initiatives (ICLEI) has developed a standard process and methodology for setting and meeting climate protection goals. The City is generally following the ICLEI 5-Step Process for preparing a Climate Action Plan, which includes:

1. Conduct a baseline emissions inventory and forecast
2. Identify an emissions reduction target for the forecast year
3. Develop and adopt a Local Action Plan
4. Implement the policies and measures in the Plan
5. Monitor plan performance, verify results, and adjust the plan as necessary.

In addition to the ICLEI 5-Step Process, staff has conducted the work in a two-phased approach:

- Phase 1 of the Climate Action Plan addressed the City's internal operations, and was completed in February 2010. The Phase 1 CAP primarily addressed strategies and specific actions for reducing GHG emissions 15% below 2005 levels by 2020. These are actions and emissions which the City has direct control over, such as the City's fleet; emissions from the fossil fuel energy that runs City's buildings and facilities; streetlight and signal energy usage, etc. The Phase 1 CAP can be viewed at www.sacgp.org/cap.html.
- Phase 2 of the Climate Action Plan, which began in 2010, addresses communitywide GHG emissions from all sources within the city limits. The City does not directly control these GHG sources, but can influence them. Examples include emissions from private automobiles, heating, cooling and lighting private homes and businesses, management and disposal of waste generated by the community, etc.

Climate Action History/Timeline

The following is an overview of major actions taken by the City Council and staff to address the issue of climate change prior to initiation of the Climate Action Plan:

- The City joined ICLEI-Local Governments for Sustainability in 1998. Staff has used ICLEI as a resource since that time to address sustainability and climate change issues in policy development and planning.

- The City of Sacramento joined the California Climate Action Registry (CCAR) as a charter member in October 2002, and has been tracking and registering annual greenhouse gas emissions from the City's internal operations.
- On April 4, 2006, the City Council authorized Mayor Fargo to sign the United Nations Urban Environmental Accords, which identified a reduction target of 25% below 1990 levels by 2030.
- In December 2007, the City Council adopted the City's Sustainability Master Plan, including the goal of meeting the intent of the Global Warming Solutions Act (AB32) and subsequent legislation. This goal included City operations, the community of Sacramento, and collaboration with regional partners in the SACOG region to develop a regional climate action plan and climate adaptation plan.
- In early 2008, the County and City of Sacramento, along with other incorporated cities in the county, SMUD, SACOG, and SMAQMD, formed the Sacramento Area Green Partnership to begin developing a county-wide GHG inventory and collaborate on climate action planning efforts in the region. The inventory was completed in June 2009. The Sacramento Area Green Partnership has continued to meet quarterly to coordinate the development of regionally-consistent climate action planning strategies among all the participating jurisdictions. In late 2010, a study was initiated by SMUD on behalf of the Partnership of potential GHG reduction measures that could be applied throughout the county.
- On March 3, 2009, the City Council adopted the 2030 General Plan and directed staff to complete a Climate Action Plan (CAP) by July 2011. The General Plan Master EIR identified the CAP as key program that would mitigate climate change impacts under the buildout of the General Plan. In addition, the Council directed staff to adopt a mandatory Green Building Ordinance and update and enforce the existing Residential Energy Conservation Ordinance (Chapter 15.76) by July 2012, also as mitigation measures that would address climate change impacts.
- On August 16, 2011, the City Council adopted a resolution (1) adopting greenhouse gas reduction targets for 2020, 2030, and 2050; (2) adopting performance goals and specific greenhouse reduction measures identified to meet the 2020 target; and (3) directing staff to prepare a Draft Climate Action Plan for public review based on the adopted targets, goals and reduction measures framework.
- Staff released the Draft Climate Action Plan on November 3, 2011 and received public comments through December 9, 2011. During the public comment period, staff held a meeting for the general public on the Draft Climate Action Plan on November 16, 2011; conducted a brief online survey; and presented the Draft Climate Action Plan to the City Planning Commission for a public hearing on

December 8, 2011. Following the public comment period, specific responses to public comments were prepared, and the Draft Climate Action Plan was revised in response to input as appropriate.

Summary of Public Input on the Draft Climate Action Plan:

Since the CAP Framework was adopted by City Council on August 16, 2012, staff accepted comments on the Draft Climate Action Plan between November 3 and December 9, 2011, held a meeting for the general public on the Draft Climate Action Plan on November 16, 2011, and conducted a brief online survey on public attitudes about reducing greenhouse gas emission in their daily lives.

The following is a high-level summary of the larger issues or comments that resulted in the most substantial changes to the Draft Climate Action Plan. For a complete list of comments received and staff responses to those comments, see Attachment 3.

Comments on the Draft Climate Action Plan (CAP) were received from:

- The general public
- Environmental advocacy groups such Environmental Council of Sacramento (ECOS), 350 Sacramento, Sacramento Area Bicycle Advocates (SABA), Sierra Club, Breathe California, the League of Women Voters;
- Rental Housing Association and Sacramento Association of Realtors
- Partner Agencies: Sacramento Metropolitan Air Quality Management District and Sacramento Regional Transit District.

Comments/Issues/Response:

- Feedback was mostly positive: Some comments urged the City to do more and/or be more aggressive. When appropriate and feasible, supporting actions were added to the CAP related to the following:
 - Composting toilets standards and guidelines
 - Residential PACE program and other financing options.
 - Retrofitting options for historic structures
 - Bicycle mode share
 - Bike and pedestrian connections to transit
 - Bike infrastructure near transit
 - Transit funding
 - SACOG Sustainable Community Strategy
 - Recycled building materials
- Basic Energy Efficiency for Rental Housing: The Rental Housing Association was concerned about the proposed action to add basic energy and water efficiency requirements to City's existing Rental Housing Inspection Program.

- Staff response: The proposed action has been revised to start with a voluntary green labeling program for rentals, and consider mandatory requirements only if needed after monitoring program's performance in the next 2-3 years.
- ECOS, AQMD, others: Several commenters expressed concern that the Plan will not be enforceable or monitored properly. Some technical concerns were also raised about the CEQA process & level review required for CAP.
 - Staff responses
 - The CAP is enforceable because it is a required mitigation measure identified in General Plan Master EIR.
 - The CAP will serve as a CEQA streamlining tool for new development that is consistent with CAP and General Plan: clear path to mitigate greenhouse gas emissions, reduces uncertainty.
 - The CAP has been amended to clarify the monitoring & updating processes anticipated.
- Sacramento Association of Realtors: Constructive feedback was provided by SAR regarding collaboration opportunities.
 - Staff response: The Plan was revised to emphasize ongoing partnership with Realtors, AQMD, SMUD, & others to incentivize home energy audits & upgrades, financing, etc.
- Region Builders: No comments were submitted on Draft Plan. However, Regional Builders indicated to staff that they were supportive of the Green Development Code Update program.
- Calculating GHG Reductions: Clarifications were requested by the Sacramento Metropolitan Air Quality Management District with respect to how certain GHG reductions were calculated:
 - Staff Response: The CAP Appendix E has been revised to clarify how the calculations were performed for the two general methodologies employed: "top down" and "bottom up".

Summary of Planning Commission Comments on the Draft CAP:

On December 8, 2011 the City Planning Commission voted to forward a recommendation the City Council to approve the Climate Action Plan and the environmental review for the project. Commissioner Smira cast the single no vote.

Generally, Commissioners were supportive of the CAP, favoring the lesser-regulatory approach that has evolved since the first alternatives were explored by staff.

Exceptions to this were Commissioners Smira and Notestine. Commissioner Notestine ultimately voted to support the recommendation of approval, but strongly supported including point of sale option in the Plan for the Residential Energy Conservation Ordinance (RECO) update program. Commissioner Smira voted not to support the recommendation of approval, due to opposition to implementing the RECO update program at time of building permit for major remodels & additions.

Summary of Public Comments on the Initial Study:

The following four written comments were received regarding the Initial Study.

Comment: The Environmental Council of Sacramento (ECOS) expressed concern that the Climate Action Plan could be relegated to the status of optional guidelines. ECOS also referenced the actions of other agencies that have sought to achieve greater efficiencies than code-compliant design.

Response: The Climate Action Plan includes a discussion of the process leading to its preparation, its interrelationship with other City planning documents, including the 2030 General Plan, and procedures for implementation and enforcement of its various provisions. Notably, development and adoption of the Climate Action Plan is a General Plan implementation measure and a key Master EIR mitigation measure. The Climate Action Plan will be used in the environmental review of development projects to assess each project's contributions to greenhouse gas emissions, to determine if those emissions are "cumulatively considerable." A finding that a project complies with the requirements of the CAP may support a determination that the project's incremental contribution to cumulative greenhouse gas emissions and climate change is not cumulatively considerable. On the other hand, a finding that a project does not comply with the CAP would trigger additional environmental review and scrutiny and likely the need for additional mitigation measures. This approach is expressly recognized in CEQA Guidelines section 15183.5(b). For a climate action plan to qualify under section 15183.5, the plan should:

- Quantify greenhouse gas emissions in the relevant geographical area;
- Establish a level of greenhouse gas emissions below which such emissions would not be cumulative considerable;
- Identify greenhouse gas emissions from specific activities;
- Identify measures, including performance standards that, if implemented on a project-by-project basis, would achieve the specified emissions level; and
- Establish a mechanism to monitor the plan's progress.

The proposed Climate Action Plan, as explained in the Climate Action Plan and elsewhere in this staff report, satisfies each of these requirements. The additional

requirements of a public process and environmental review have, through various meetings and circulation of the Initial Study, also been satisfied.

The comment regarding code-compliant design relates to implementation measures, and would be considered as part of the process of creating strategies for reduction of emissions, but does not affect the analysis or conclusions of the Initial Study.

Comment: The Sacramento Metropolitan Air Quality Management District (SMAQMD) commented on the Initial Study. SMAQMD suggested the Initial Study reference to target reductions may have been incorrect. SMAQMD also commented regarding the relationship of the Initial Study and Master EIR, suggesting the conclusions of the Initial Study may not be supported by substantial evidence.

Response: Chapter 2 of the Climate Action Plan discusses the targets established by the City, and the Initial Study discussion is based on this information. This Plan sets a course of action for Sacramento to achieve a 15 percent reduction below its 2005 GHG emissions level by the year 2020. This is consistent with State expectations for Sacramento; ARB recommends a minimum 15 percent reduction target to maintain consistency with AB 32.

Specifically, according to the *Climate Change Scoping Plan* (December 2008):

“ARB encourages local governments to adopt a reduction goal for municipal operations emissions and move toward establishing similar goals for community emissions that parallel the State commitment to reduce greenhouse gas emissions by approximately 15 percent from current levels by 2020.”

The Initial Study analysis focused on whether the Climate Action Plan, which was prepared in response to 2030 General Plan Environmental Resources Implementation Program #12, was anticipated in the 2030 General Plan, and whether it would have any additional project-specific environmental effects that were not identified and evaluated as significant in the Master EIR. Staff concluded, based on the Initial Study, that the Climate Action Plan was anticipated in the General Plan, and would not result in any additional significant effects. This conclusion does not, however, change the conclusion reached in the Master EIR that development that could occur as a result of approval of the 2030 General Plan would result in significant and unavoidable effects regarding greenhouse gas emissions and global climate change.

The comments of SMAQMD are supportive of the process being followed by the City, and raise the issue as to whether the City would have substantial evidence to conclude that the significance determination in the Master EIR regarding general plan development would be less than significant. As noted above, this is not the conclusion of the Initial Study, which instead addresses specific activities that could occur if the Climate Action Plan is approved. No changes in the analysis or conclusions of the Initial Study are required.

Other comments:

Rick Bettis commented favorably on the Climate Action Plan and Initial Study.

The State Clearinghouse confirmed that the Initial Study had been circulated to state agencies as required, and that no comments had been received.

Summary of Online Survey on Attitudes about Reducing Household “Carbon Footprint”

A short 10-question survey was posted on the CAP webpage at www.sacgp.org/cap.html during the public comment period (Nov. 3-Dec. 9, 2011) to determine how residents, business owners, and others in the Sacramento community feel about taking various actions to reduce greenhouse gas emissions as part of their everyday lives. The survey methodology was not scientific (i.e. random selection of survey respondents, etc.), but merely represents a snapshot of the persons who visited the Climate Action Plan webpage.

One hundred and thirty-three people completed the survey. Most of the respondents (68%) are city residents, nearly 30% are employed within the city, and nearly 16% own a business in the city. Only 4.3% of the respondents neither live, work, nor own a business in the city.

Over 61% of the respondents rated climate change as an “extremely serious issue”.

The survey found that degree of willingness to take various actions to reduce one’s carbon footprint was generally inversely proportional to the inconvenience and/or cost of the action. The summary below shows the percentage ranges of respondents that were willing to take various actions. Most of the percentages fell in the high-moderate range between 50-70%. Generally, there was a small group between 5-9% who were unwilling to take any of the actions.

Strong willingness (75-100%):

- Improve fuel efficiency by keeping tires properly inflated and engines tuned.
- Sort and separate recyclables/yard waste into correct containers

High-moderate willingness (50-74%)

- Reduce driving by 10 miles per week.
- Walk or ride a bike to destinations within 2 miles.
- Maximize fuel efficiency using “eco-driving” practices.
- Purchase or lease a more fuel efficient vehicle
- Save energy by lowering thermostat heat settings and raising cooling settings
- Unplugging appliances/devices when not in use
- Replace at least 10 incandescent bulbs with CFLs or LEDs

- Weather-strip/caulk windows and doors
- Purchase only Energy Star appliances/electronics
- Reduce unnecessary consumption and choose reusable or recycled products
- Reduce waste by opting for products with less packaging

Low-moderate willingness (25-49%)

- Take public transit to work/school at least once per week.
- Improve energy efficiency by adding insulation to attic or walls
- Have a professional energy audit performed on house or business
- Compost yard or kitchen waste at home
- Compost fruit and veggie scraps in a worm bin at home or business

Low willingness (0-24%)

- Do a “deep retrofit” to improve energy efficiency of home at least 30%
- Install solar PV or solar water heating

Draft Climate Action Plan - Public Comments and City Responses

ID	Comment	City Response	Date Rec'd	Source
1	Funding should have been spent on tangible needs of property owners such as timely waste-pickup, maintaining public lighting, and protecting public safety.	Comment noted	11/8/2011	Wade Hobbs
2	Indicates that he has some ideas to save energy, but hasn't been able to find funding. Suggests that there needs to be funding to test ideas.	Comment noted	11/29/2011	Rick Bofinger
3	Develop a few standard designs & streamlined permitting process for passive solar construction & renovation.	This has potential to be developed as a part of passive solar design guidelines (see supporting actions for Action 3.3.2).	11/30/2011	Muriel Strand
4	Ban leaf blowers and other landscaping machines using engines or motors.	Comment noted	11/30/2011	Muriel Strand
5	Protect clotheslines and affordable housing from the "blight" label.	Comment noted	11/30/2011	Muriel Strand
6	Tax parking spaces.	City is in the process of preparing a Zoning Code Parking Update that will consider revised parking ratios (which affects price) and alternative ways of addressing transportation needs.	11/30/2011	Muriel Strand
7	Match people wishing to trade houses and reduce their commutes.	Comment noted	11/30/2011	Muriel Strand
8	More bike parking racks	This is already in the Climate Action Plan. See Action 2.3.1	11/30/2011	Muriel Strand
9	Require traffic calming devices to be bicycle-friendly too; never narrow the roadway.	The City always seeks ways to make conditions better for bicycling. If there is a particular traffic calming device that needs attention, we can work on making it more bicycle friendly.	11/30/2011	Muriel Strand
10	Lobby for bicycle-friendly traffic laws.	Comment noted. To the extent that the City is involved with changes to traffic laws, we will continue to work to make them more bicycle friendly.	11/30/2011	Muriel Strand
11	Truly visible street addresses to reduce confusion & needless driving.	Comment noted	11/30/2011	Muriel Strand
12	Convert parking lots to urban farms.	Urban agriculture is addressed in Supporting Actions under Measures 6.4 and 4.1.	11/30/2011	Muriel Strand
13	Actively support planting & use of tree crops such as pecans.	Urban agriculture is addressed in Supporting Actions under Measures 6.4 and 4.1	11/30/2011	Muriel Strand
14	Revise zoning codes to include inoffensive ways to keep rabbits & goats, as well as chickens in residential neighborhoods.	Urban agriculture is addressed in Supporting Actions under Measures 6.4 and 4.1	11/30/2011	Muriel Strand
15	Develop a low-cost community garden design option.	Urban agriculture is addressed in Supporting Actions under Measures 6.4 and 4.1.	11/30/2011	Muriel Strand
16	Ban non-recyclable plastic take-out food containers.	Comment noted	11/30/2011	Muriel Strand
17	Tax lawns and plastic bags.	Comment noted	11/30/2011	Muriel Strand
18	Recalibrate city utility billing to effectively reward and motivate conservation and waste reduction; charge by the pound.	City already rewards waste reduction by offering several different sizes of trash cans with discounts for smaller cans .	11/30/2011	Muriel Strand
19	Develop and support (more) classes in traditional crafts & skills.	Comment noted	11/30/2011	Muriel Strand
20	Revise building codes/develop a permitting process to allow composting toilets.	Sacramento County Environmental Management Department recently decided to support the use of composting toilets. A Supporting Action has been added to Measure 5.1 on page 4-67 as follows: "Develop guidelines and building standards for installation and use of composting toilets."	11/30/2011	Muriel Strand

Draft Climate Action Plan - Public Comments and City Responses

ID	Comment	City Response	Date Rec'd	Source
21	Loans for greywater systems in residential & commercial buildings.	Comment noted	11/30/2011	Muriel Strand
22	Develop biogas digester design for renewable fuel production.	See Supporting Actions under Measure 4.3	11/30/2011	Muriel Strand
23	Transfer certain authorities/responsibilities to neighborhood associations.	Comment noted	11/30/2011	Muriel Strand
24	Letter and e-mail from Rental Housing Association of Sacramento re: Action 3.2.3 requesting removal changes to the City's Rental Housing Inspection Program from the Climate Action Plan and supporting other modifications to proposed program changing the proposed program description as follows: <ul style="list-style-type: none"> - Changing mandatory program to voluntary - Extending timeline from 2013 to 2014 - Reducing the target number of units from 18,000 to 10,000/year - Continued collaboration with City staff to define the program 	Action 3.2.3 on page 4-47 has been modified to read as follows: "Work with community partners to develop and implement a voluntary rental housing energy efficiency program to improve the energy and water efficiency of existing rental units (both single-family and multi-family). If the voluntary program does not achieve an average energy savings of 15% per unit in at least 10,000 units/year by the end of 2014, the program may switch to mandatory energy efficiency improvements for rental housing."	12/6/2011	Cory Koehler
25	Incorporate the following into Measure 3.2 Increase Existing Building Energy Efficiency: The City of Sacramento will continue to evaluate other voluntary programs and strategies for improving the energy efficiency of existing buildings and work with other organizations including the Sacramento Association of REALTORS®, that have an interest in this area.	A Supporting Action has been added to Action 3.2.6 on page 4-48 as follows: "Continue to evaluate other voluntary programs and strategies for improving the energy efficiency of existing buildings and work with other organizations including the Sacramento Association of REALTORS®, the Air Quality Management District, SMUD and others that have an interest in this area. "	12/6/2011	Caylyn Brown, Sacramento Association of Realtors
26	Action 3.1.1: "Launching an "energy efficiency challenge" campaign for city residents that challenges communities and neighborhoods to achieve the highest energy efficiency in return for pooled resources that could be applied to improvements or amenities." A comprehensive social marketing campaign is fine, but passive marketing with emails, tweets, Facebook pages and flyers tends to be ignored. What are the practical steps involved in issuing a "neighborhood challenge" and how will it be issued? What is the mechanism for neighbors to meet over this issue? How can the City help facilitate communication? Would meetings be coordinated by our council members? Can these neighborhood groups form a city-wide coalition to share ideas and resources, or can neighborhood groups and vendors and resources be brought together to educate residents on their options? Suggestions: Donate a city venue space once or twice a year for a residential energy fair and seminars on energy conservation. Children could be included to learn about energy conservation in an entertaining way. Could be a nice family event with some serious learning and action potential.	The specific details of how to implement Action 3.1.1 are still to be determined. The City will work with community partners to explore ways to implement this action after the Climate Action Plan is adopted.	12/7/2011	Mark Huck

Draft Climate Action Plan - Public Comments and City Responses

ID	Comment	City Response	Date Rec'd	Source
27	<p>Measure 3.2 Increase Existing Building Energy Efficiency (Introduction):</p> <p>Statistics are given for the number of existing buildings built before 1970, 1990 and 2000. If you were to include the number of buildings built before 1960, you would have the number of potentially eligible or contributing historic buildings in Sacramento. As is pointed out in this document, "increasing the energy efficiency of existing homes and buildings will substantially reduce overall energy consumption." Historic buildings, being older and character-defining for Sacramento's valued historic districts, need more attention to their energy efficiency and installation practices. As such, I would suggest two additional Actions:</p> <p>Action 3.2.x: Encourage historic districts and contributing or eligible historic structures to review their energy efficiency needs and assist in planning appropriate retrofits. Responsibility: Planning Department Target: Commensurate with the number of housing units built before 1960</p> <p>Action 3.2.y: Provide (Continue) expedited permitting for energy efficiency and conservation projects, including any discretionary reviews. Responsibility: Planning Department Target: Perhaps this is not a strategy for this document if a target cannot be assigned, but timely permitting is an incentive towards construction and could be worked into another strategy. Expedited permitting may already be policy, in which case it can be a continued policy.</p>	<p>The following Supporting Action has been added to Action 3.2.6 on page 4-48 as follows:</p> <p>"Identify funding to develop planning and design documents to assist property owners with appropriate retrofit options for historic and potentially-eligible properties that will comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties."</p>	12/7/2011	Mark Huck
28	<p>Action 3.2.1: In addition to a commercial PACE program, make a residential PACE program intention explicit in this document. It may not be implemented right away, but it would provide a solid incentive for residential owners to plan for.</p>	<p>The following has been added as a Supporting Action under Action 3.2.6 on page 4-48: "Explore the feasibility of incorporating residential into the City's forthcoming property assessed clean energy financing (PACE) program."</p>	12/7/2011	Mark Huck
29	<p>Action 3.2.2: When updating and enforcing RECO, add the requirement to disclose a building's energy performance at the time of sale. This would provide an incentive and an enhanced value added at sales time for the owner if improvements were made. Berkeley enforced this aspect of their RECO and have improved the energy conservation of their existing buildings measurably.</p>	<p>Earlier this year, staff analyzed 3 possible regulatory trigger options for the proposed Residential Energy Conservation Ordinance (RECO) update. Those trigger options included point of sale, building permits, and a date-certain requirement. Significant concern about the point of sale trigger was raised by the Sacramento Association of Realtors and others. In August 2011, the preliminary GHG reduction measures framework approved by City Council included a RECO Update program that focused on the building permit trigger option for major remodels and additions, and not point of sale.</p>	12/7/2011	Mark Huck
30	<p>Action 3.2.6: Supporting SMUD's Home Energy Performance program is great, but it works well in conjunction with the CHF Loan program provided by the CA Energy Commission, and that fund is depleted. Sacramento should actively lobby and insist on continuing and active funding of the CHF loan program. Affordable funding will continue to be the only way most homeowners could begin to conceive of the energy upgrade projects needed, which can be expensive, and need to be adequately valued at the time of sale.</p>	<p>The following has been added as a Supporting Action under Action 3.2.6 on page 4-48: "Continue to explore and advocate for low-cost financing program options, such as the CHF Energy Upgrade Loan program, to assist homeowners and others in funding energy efficiency retrofits".</p>	12/7/2011	Mark Huck
31	<p>General Comment - The timeline goals seem to "far off" and do not set the tone of urgency. Why are there no interim near-term goals included? Is it a matter of manpower to track whether we are achieving the goals?</p>	<p>The 2020 timeframe is consistent with AB32. The City will monitor and update the CAP to make sure GHG reductions are on track. A new GHG inventory, evaluation of progress, and adjustments to CAP measures will be performed concurrent with the General Plan 5 year updates. The first of these will be 2014.</p>	12/8/2011	350.Sacramento
32	<p>General Comment - 350 Sacramento supports initiatives to reduce GHG emissions. As such, 350 Sacramento generally supports measures that seek to put a price on carbon--that attempt to more accurately reflect the true costs of GHG emissions on the community. At the same time, we support efforts to mitigate these costs, particularly with regards to low-income residents.</p>	<p>Comment noted.</p>	12/8/2011	350.Sacramento

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33	Section 2-5 - if you look at the pie chart, it is clear that the unincorporated Sacramento county is the majority contributor of GHG emissions. We assume similar plans are being developed for Sacramento County?	Sacramento County is also developing a Climate Action Plan. A "CAP Strategy and Framework Document" is available on the County's webpage at: http://www.sustainability.sacounty.net/ClimateActionPlan/default.htm	12/8/2011	350.Sacramento
34	Section 2-9 - the chart on population growth is very striking, yet there is nothing in the plan that talks about population growth control. It is very clear that there is a direct correlation between emissions and population growth. Education, health services and empowerment for vulnerable women would all help.	Comment noted.	12/8/2011	350.Sacramento
35	Section 4-29 - It mentions bicycle sharing - check out Denver's bike rental program. http://denver.bicycle.com/ It is easy, convenient and fun. Also could promote the American River Parkway as a tourist destination.	Comment noted. Bike sharing in Sacramento is in its early stages. Several other cities have implemented their programs, and the City will continue to look into finding the best model for a bikeshare system.	12/8/2011	350.Sacramento
36	Section 4-29 - general comment on biking - a big problem in Sacramento is getting your bike, or part of your bike, stolen. Any thoughts to how to change that situation to make it more secure for bikers? The locker rentals are a great idea if there is enough access.	Increasing the amount of secure bicycle parking is included as a Supporting Action under Action 2.3.1.	12/8/2011	350.Sacramento
37	Section 4-29 - Have you considered an ongoing "May is Bike Month" type of contest to encourage biking? Something to get Sacramentans into the ongoing routine of biking. Perhaps with substantial prizes as an incentive, perhaps donated from bike stores/gear suppliers (who will ultimately benefit from increased sales the more people bike). We've all done the contest and it is a lot of fun.	Comment noted. The Sacramento Transportation Management Associations are always looking for ways to increase the number of people riding bikes beyond the "May is Bike Month" events. Much of this can be seen in the online Commuter Club website.	12/8/2011	350.Sacramento
38	Section 4-31 - this is great, but again if it is only for city of Sacramento, how does this address the large amount of commuters who live outside of Sacramento City and commute into the city? Will regional transit be improved for all of Sacramento County?	The Regional Transit Action Plan includes three 2035 Transit Options: Scenario A: Base Case - Financially Constrained to Existing Resources Scenario B: Blue Print and MTP; and Scenario C+: Integrated Transit Solution Scenario A includes an extension of the rail service to Cosumnes College. and the 1st phase of the DNA line to Richards Boulevard, but no other improvements. Both Scenario B and Scenario C include further expanded rail and bus service outside of the Sacramento city. The outcome is dependent on funding and the delivery of land uses consistent with the Blueprint and MTP. More information is available on Regional Transit's webpage at: http://www.sacrt.com/tmpinfo.stm	12/8/2011	350.Sacramento
39	Section 4-42 would discourage use of additional paper (ex: bill stuffers) to educate about energy usage behavior change.	"Bill stuffers" will be stricken from the text of Action 3.1.1. on page 4-44.	12/8/2011	350.Sacramento
40	Section 4-42 - Regarding the provision of tools (e.g. online calculators) to residents to track their progress in reducing carbon: the planned provision of "normative comparisons to average in community" would be especially helpful to keep the comparisons tuned in to our local circumstances--our unusual situation with pro-active utilities such as SMUD, etc.	Comment noted.	12/8/2011	350.Sacramento
41	Section 4-60 - Promoting home composting and vermicomposting is great! Are there plans to help offset the costs of materials to set up the composting and vermiculture systems? there is cost involved (building the bins, buying the worms, etc) which might be prohibitive to homeowners.	Coupons for discounts on compost bins sold at local home improvement stores have been distributed to those attending City sponsored composting seminars. Information for home-made systems have also been included.	12/8/2011	350.Sacramento

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42	Section 4-60 - General solid waste comment - if it is inexpensive for consumers to continue to buy products with solid waste (ex: packaged food) then they will continue to do so. There needs to be financial ramifications to the producer, retailer and consumer for continuing to cycle high-waste products through the system. For the consumer, charges based upon how many home waste receptacles are emptied and by what type (trash most expensive, recycling next, green waste last) are great, though they can't be so high as to cause the consumer to dump their waste somewhere else to avoid the charge. If it were clearly indicated on the waste utility bill how much is being charged for each type of waste bin emptied, the consumer might become more aware, especially if there were some significant cost savings to them to reduce their waste. It is great that the plan is putting some of the responsibility on the businesses that supply the products to recycle the waste, and that will help to change the types of products they supply (hopefully shifting to less packaged products). Maybe charge the 20% who generate 80% of the waste higher rates?	The City of Sacramento has supported statewide legislation relating to Extended Producer Responsibility. The City utility bill currently breaks down the charges for garbage, recycling, yard waste and street sweeping and provides a sub-total for these Solid Waste services. There is not enough space on the bill to show all of the rate categories and options available.	12/8/2011	350.Sacramento
43	Section 4-64 - What are the plans for installing meters in older homes (pre-1992)? Could they be installed as a voluntary program (Climate-Smart program PGE, SMUD, etc.)? It is hard to keep track of water usage to attempt a 10% reduction challenge, for instance, when you don't know what the baseline is .	Per AB 2572, the City must install meters on all unmetered services by the year 2025. A program is already underway to install meters.	12/8/2011	350.Sacramento
44	Section 4-65 - Water meters are great, but if the financial pain is not enough, consumers will not change their habits. Maybe charge the 20% who use 80% of the water higher rates?	The City is beginning a process that develops a conservation pricing structure. That pricing structure needs to be consistent with the requirements of Proposition 218 and the California Urban Water Conservation Council Memorandum of Understanding while providing sufficient revenue to operate the Water Utility.	12/8/2011	350.Sacramento
45	Section 4-65 - Is there any plan to offer financial assistance to residents to convert lawn to native plantings? Removing sod is pricey and would be prohibitive to many.	There are no immediate specific incentive programs anticipated at this time for either turf replacement and/or subsidies for native plant installation. The City's efforts in these areas will be focused on customer outreach and education.	12/8/2011	350.Sacramento
46	Section 4-70- we feel the water reclamation systems/ rain barrels/ cisterns/ dual plumbing plans all be developed more	Rain Barrels and cisterns could be developed more and home owners could be encouraged to purchase them. However, there are other water conserving activities that are a higher priority for the City at this time, including the installation of meters and many of the best management practices outlined in the California Water Conservation Council Memorandum of Understanding	12/8/2011	350.Sacramento
47	Section 4-72 - Grey water system rebates are great! Are there any plans for financial assistance for homeowners to install whole house rainwater collection/treatment systems?	Greywater and rainwater collection/treatment systems could be developed more and home owners could be encouraged to purchase them. However, there are other water conserving activities that are a higher priority for the at this time, including the installation of meters and many of the best management practices outlined in the California Water Conservation Council Memorandum of Understanding	12/8/2011	350.Sacramento
48	General Question - Energy Makeover? - It would be interesting to have a case study of transforming a business, school and residence to be more sustainable. "Make over" one of each and document what the cost was and how to do it, and provide it as a guideline for others. Check out what the Blue Planet Foundation is doing in Hawaii http://www.blueplanetfoundation.org/makeover-tv-show.html	Comment noted.	12/8/2011	350.Sacramento
49	Community Section Comment - we support the City's plans to improve their website, so that everything related to reducing GHG emissions, promotion of sustainable practices, etc. is easily accessible in one place--and, hopefully, made more prominent/visible.	Comment noted	12/8/2011	350.Sacramento
50	General Comment - we support the idea of regional demonstration gardens proposed for each council district. We also support the idea of home tours. We strongly support making sustainable options more readily accessible/visible.	Comment noted.	12/8/2011	350.Sacramento

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51	General Comment - For businesses (or residences for that matter), it might be an incentive to award "Green Status" certification (like LEED certification) to participants who demonstrate they meet certain criteria for lower greenhouse emissions/solid waste etc. Businesses could use it in their marketing, so it would be a win/win.	See Strategy 7, Measure 7.2, page 4-87. The CAP contains a supporting action to support the ongoing efforts of the Sacramento Business Environmental Resource Center (BERC) to implement their Sustainable Business Certification Program. More information on the program is available at: http://sacberc.org/Web/programs/ssbp/index.php	12/8/2011	350.Sacramento
52	General Comment - 350 Sacramento would welcome having our website listed as a community support organization. www.350sacramento.org	Comment noted. Supporting organizations will be added to the City's Sustainability and Climate Action webpages where appropriate.	12/8/2011	350.Sacramento
53	General Comment - 350 Sacramento is especially interested in an energy efficiency challenge campaign	Comment noted.	12/8/2011	350.Sacramento
54	General Comment - We support Energy Upgrade California and SMUD's existing rebate program--it should be an ongoing initiative (rumor is that the money is running out soon.)	Comment noted.	12/8/2011	350.Sacramento
55	Executive Summary This statement is in the summary: "In 2005 Sacramento emitted over 4.1 million metric tons of CO2 equivalent (MMTCO2e), which is equal to the emissions produced by driving around the earth 740 times!" Driving around the earth 740 times at about 25,000 miles for each global circumnavigation would be approximately 185 million miles. It would require driving a little over 500,000 miles per day to accumulate 185 million miles in a year. With Sacramento's population approaching 500,000, can it be that the average miles driven for each Sacramento resident is only about one mile a day? If not, I think this statistic in the summary needs to be changed. Further, since transportation accounts for less than half of the existing CO2 inventory, the quoted statistic means Sacramento's per capita driving is far less than a mile a day.	This error, on pages ii in the Executive Summary, and on page 2-7 in Chapter 2, has been corrected to read: "In 2005 Sacramento emitted over 4.1 million metric tons of CO2 equivalent (MMTCO2e), which is equal to the emissions produced by driving around the earth almost 412,000 times!" <u>Calculated as follows:</u> Part 1: $22\text{miles/gallon} \div 8.81\text{ kg CO}_2/\text{gallon} \times 1000\text{kg CO}_2/\text{MTCO}_2 = 2,497\text{ miles/MTCO}_2$ Part 2: $4.1\text{ million MTCO}_2\text{e} \times 2,497\text{ miles/MTCO}_2 \div 24,859\text{ miles} = 411,814\text{ times around the earth (rounded to 412,000)}$ <u>Assumptions & Factors:</u> <ul style="list-style-type: none"> • Sacramento emitted 4.1 million MTCO2e greenhouse gas emissions in 2005 • The car driven gets 22 miles/gallon (equivalent to the average fuel economy for new cars in Sept. 2011) • The circumference of the earth is 24,859.82 miles • One gallon of gasoline yields 8.81 kg CO2 • There are 1000 kg in a metric ton (MT) 	12/8/2011	Walt Seifert
56	Section 4.2. It's exemplary that the seven strategies have specific, measurable goals.	Comment noted	12/8/2011	Walt Seifert

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57	<p>Section 4.3 Long-term Reduction Potential The plan suggests that uncertainties about climate science, political considerations and technology make addressing reaching 2030 and 2050 GHG reduction goals premature. As a result, the current plan does not put Sacramento on a path to reaching the 2030 and 2050 goals. Delay in addressing those "outyear" goals could make them much more difficult to reach. Technology improvements are quite possible, but speculative, even given the improvements related to increased fuel efficiency standards for vehicles.</p> <p>Consideration should be given to establishing a specific date or dates to measure results versus goals and to update the Climate Action Plan so that the plan charts progress and does reflect changes in science, politics and technology. Better yet would be including in the current plan at least the broad outlines for additional reasonable measures that would likely be needed to reach the 2030 and 2050 goals. Undoubtedly, it would be helpful if work on some of the long-term measures necessary to reach the 2030 and 2050 goals were started sooner, rather than later.</p>	<p>Chapter 2, Section 2.4, provides rationale for, based the underlying dynamic relationship between, the CAP's 2020 Target and the Longer-Term 2030 and 2050 Interim Goals. Consistent with this rationale, Section 4.3 shows that the Plan is expected to achieve a level of reduction in GHG emissions in excess of the 15% 2020 target, with some of the actions, if implemented beyond 2020, having longer-term benefits. (See Appendix E, which shows the longer-term benefits of implementing specific actions beyond 2020, particularly with land use and transportation related reductions.) In this regard, the Plan does move the City forward toward achieving the 2030 and 2050 goals. Chapter 1 and Chapter 4 of the document will be amended to further specify how the CAP will be evaluated. Regular evaluations, which include annual reporting on status of implementation of the actions, periodic updates to the GHG emissions inventory, and other monitoring activities, will provide on-going opportunities for the identification and development of additional reasonable measures, as needed and appropriate to the time, and will help to ensure that the CAP continues to make progress toward the interim goals.</p>	12/8/2011	Walt Seifert
58	<p>Section 4.4 EVERYONE CAN TAKE ACTION AGAINST CLIMATE CHANGE Suggest changing "Replace incandescent light bulbs with more efficient compact fluorescent light bulbs (CFL)." to "Replace incandescent light bulbs with compact fluorescent light (CFL), LED or other energy-efficient bulbs."</p>	<p>The bullet on page 4-8 will be revised to read: "Replace incandescent light bulbs with compact fluorescent light (CFL), LED or other energy-efficient bulbs."</p>	12/8/2011	Walt Seifert
59	<p>HERE ARE JUST SOME OF THE WAYS YOU CAN PARTICIPATE Suggest changing "Use a car-sharing program like Zipcar, rather than owning a car." to "Use a car-sharing program like Zipcar, rather than owning a car or owning more than one car."</p>	<p>The bullet on page 4-13 has been revised to read: "Use a car-sharing program like Zipcar, rather than owning a car or owning more than one car."</p>	12/8/2011	Walt Seifert
60	<p>Strategy 1 Suggest that the goal for Strategy 1 include reduction in VMT for both new development projects and areas and for already developed areas.</p>	<p>The Strategy 1 goal specifically addresses the transportation and location efficiency of new development. The Strategy 2 goal sets a communitywide VMT reduction goal, which is inclusive of both new and already developed areas of the city, and is consistent with the SB 375 reduction target assigned to the SACOG region.</p>	12/8/2011	Walt Seifert
61	<p>Measure 1.2 In order to have more complete neighborhoods and reduce trip lengths, the most common trips, such as for grocery shopping and the journey to school, would occur within the neighborhood. Ideally there would be smaller and more numerous grocery stores and smaller and more numerous schools. While having more schools and stores could increase costs for school districts and retailers, the cost savings they enjoy are offset by costs that the larger facilities impose on the public including greater transportation costs, lost travel time and the generation of greenhouse gases and air pollution. The city should craft support actions for the Climate Action Plan and work with retailers and school districts to consider and balance all the external costs.</p>	<p>While neighborhood grocery stores, schools, etc. are ideal, Sacramento's development process is private-market-based. For the most part, the City's role in the development of private property is regulatory. In other words, the City can regulate development through zoning and other plans/codes, but it normally isn't the developer and doesn't proactively develop uses such grocery stores on specific properties. There have been a few exceptions to this rule for high-profile projects (like the Arena) are developed by the City, or when SHRA has proactively purchased property and developed it.</p>	12/8/2011	Walt Seifert
62	<p>Measure 1.5 Add the following supporting actions. Reduce parking supply. Initiate a city wide effort to reduce "free" parking. Initiate a regional effort to reduce the availability of "free" parking so that commercial interests don't use the city of Sacramento's leadership on the pricing of parking to the city's disadvantage by relocating to areas where parking policies are less progressive. Rationale: The provision of "free parking" is a huge subsidy for driving and creates an incentive for the motor vehicle use that generates substantial greenhouse gases.</p>	<p>The City is in the process of preparing a Zoning Code Parking Update that will consider revised parking ratios and alternative ways of addressing parking needs. The City will continue to look for ways to reduce greenhouse gas emissions through parking alternatives.</p>	12/8/2011	Walt Seifert

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63	Measure 2.1 Suggest adding the additional co-benefit of reduced traffic crashes. Shorter automobile trips and more non-automobile trips will make the streets safer.	Comment noted.	12/8/2011	Walt Seifert
64	Action 2.1.1 This action addresses physical changes to achieve traffic calming, usually defined as the reduction of vehicle speeds and volumes. Instead of limiting the action to traffic calming, I suggest the action be defined more broadly as a reduction in vehicle speeds and volumes. Traffic calming would be one way to achieve those reductions. Increased traffic enforcement would be another way to reduce traffic speeds. I recommend traffic enforcement be added as a supporting action. The police department should have a role in the Climate Action Plan. There is a supporting action to "Conduct a study to analyze bike and pedestrian facilities on existing bridges to identify deficiencies and feasible improvements." Any study of bridge access should also address locations where additional bridges or overcrossings are needed to provide access across barriers such as rivers, other waterways, freeways and railroad tracks. Currently crossings can be miles apart. This distance between crossings can effectively eliminate walking trips and severely limit the number of bicycle trips. Construction of bicycle/pedestrian or bicycle/pedestrian/vehicle bridges and overcrossings could mitigate the impact of the barriers.	Agreed. Techniques to reduce vehicular speeds usually result in a more safer and friendlier environment for bicyclists and pedestrians. All methods to work to this end should be encouraged. With respect to studying bridge crossings, the more crossings we have in the City for bike and pedestrians, the better.	12/8/2011	Walt Seifert
65	Measure 2.3 Recommend using the term crashes instead of "accidents." I'm not aware of research that shows 70 percent of car/bike crashes are the fault of the bicyclists. Rather information I'm aware of indicates the fault is shared about 50-50 between drivers and bicyclists. The article at http://www.npr.org/blogs/health/2011/05/20/136462246/when-bikes-and-cars-collide-whos-more-likely-to-be-at-fault describes some research. The plan should state how bicycle mode share will be measured. Will the city conduct bicycle counts? Will the Census Bureau's American Community Survey mode share figures (which measure only Journey to Work rather than all bike trips) be used? Is some other means of measurement planned?	Comment re: terminology noted. The text below has been deleted from page 4-29 of the Climate Action Plan. Additionally, because 70 percent of bike/auto accidents are caused by bicyclists riding in violation of the vehicle code, educational programs can create safer riding conditions (Bikeway Master Plan). In addition, a Supporting Action has been added to Action 2.3.1 on page 4-32 to establish a bike mode share goal and establish a methodology for determining it.	12/8/2011	Walt Seifert
66	Action 2.3.1 Suggest adding the following supporting actions. Obtain recognition as a League of American Bicyclists' Platinum level Bicycle Friendly Community. Establish a network of Bicycle Boulevards and include that network in the Bikeway Master Plan. Conduct social marketing for transportation to encourage not only bicycling, but walking and transit use. (Social marketing is listed as an action for both energy and water conservation.) Increase city use of bicycles such as for parking enforcement, parks workers, police, inspectors and emergency medical technicians at events. Consider establishing a robust bike-sharing program.	With respect to attaining a platinum level, the decision to award the level is determined by the League of American Bicyclists. The City can continue to apply with hopes of getting Platinum level, but since there is no set criteria to reach this level, it is not something we can say we can do with certainty. With respect to establishing Bicycle Boulevards, the City will be looking into ways to establish a more complete bikeway system, which will likely involve implementing new features. Since there is no set criteria to make a Bike Boulevard, it is hard to say if that is what we will call them. Social marketing for transportation is an interesting concept that could be better started with the Transportation Management Associations. The City will work closely with the TMA's on these new concepts. Increasing bicycle usage by city workers is a good idea, however it would likely have a fairly small effect on climate change. Bike sharing is being considered, however the exact system still needs to be developed.	12/8/2011	Walt Seifert
67	Measure 3.4 The city controls a large quantity of real estate that could be used for solar energy generation. This real estate includes city buildings, parks, parking structures and street rights-of-way. The energy produced from using this real estate for energy generation could be valuable financially. The shade provided by solar panels could be beneficial as well. Recommend adding a supporting action to develop this resource for energy generation.	As noted in the Phase 1 Climate Action Plan document, significant projects have been undertaken recently to add solar to City facilities. Under a Power Purchase Agreement approved by City Council in 2011, over 2 megawatts of solar will be installed at 4 City-owned locations, both on existing roofs and ground-mounted/carport facilities. Additional studies are underway to add solar at the City's water intake & treatment facilities, and other locations are still being explored.	12/8/2011	Walt Seifert

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68	<p>Appendix A Cost Benefit Analysis Actions 2.1.1., 2.2.1., 2.3.1., 2.4.1.</p> <p>This section (and the following chart) provides cost ranges for Class I and Class II bike lanes. The terminology for Class I facilities is incorrect. Class I bikeways are bike paths, not bike lanes. Only Class II bikeways are bike lanes. Both the chart and the text should be corrected.</p>	<p>The chart and text on page 10 of Appendix A has been revised to reflect correct terminology as suggested: Class 1 facilities (bikepaths), which are exclusive non-motorized pathways. Class 2 facilities (bikeways), are striped bike lanes. Class 3 facilities are shared roadways indicated by signage.</p>	12/8/2011	Walt Seifert
69	<p>In Measure 4.3, additional actions needed: Establish utility rates that reflect the true cost savings of containerized greenwaste as compared to loose in the street pick up. City Utility dept's own study shows it costs at least 3 times as much to pick up loose in the street, but this is not reflected in utility rates. Greenwaste container users are subsidizing the loose in the street pick up, which is the opposite of the incentive needed to reduce GHG.</p>	<p>Solid Waste has hired a consultant to work with the division to develop a business plan that will provide Council with sustainable and cost effective solid waste residential service options. Included for their consideration will be changes to the City's green waste program to coincide with a ballot measure next November to repeal Measure A. Based on the outcome of the ballot measure and Council's direction on future service options, Solid Waste will recommend the appropriate rate changes to reflect the true cost of service for its new residential service options.</p>	12/8/2011	<p>Anthony DeRiggi, MD City of Sacramento SWAC Representative, 2002-2008 Chair, ECOS Solid Waste and Recycling Committee</p>
70	<p>In Measure 4.3, additional actions needed: Immediately change greenwaste container labels and City website instructions for Greenwaste containers, to encourage that all compostables, such as fruits, vegetables, flowers, and clean wood, be discarded in greenwaste containers instead of trash container.</p>	<p>The development of a food waste recycling program is included as a Supporting Action under Measure 4.3 - Greenwaste and Composting.</p>	12/8/2011	<p>Anthony DeRiggi, MD City of Sacramento SWAC Representative, 2002-2008 Chair, ECOS Solid Waste and Recycling Committee</p>
71	<p>In Measure 4.3, additional actions needed: While waiting for funding for recycling containers at city parks and public areas, establish that all future public trash containers will have adjacent or attached recycling container.</p>	<p>There are two challenges related to providing recycling services in parks and public areas:</p> <p><u>Funding shortfall:</u> Prior to the passage of California Proposition 26 (The Supermajority Vote to Pass New Taxes and Fees Act) in November 2010, recycling containers and collection services were subsidized by the Solid Waste Fund, an Enterprise Fund based on fees for solid waste services. Because of the new restriction on how solid waste fees can be used, these services must now be provided from the General Fund portion of the City's budget.</p> <p><u>Contamination of recycling materials:</u> The City used to provide recycling containers in Parks, disposal analysis showed they were just used as another garbage can.</p> <p>Currently, the City does not have a plan for overcoming both of these obstacles.</p>	12/8/2011	<p>Anthony DeRiggi, MD City of Sacramento SWAC Representative, 2002-2008 Chair, ECOS Solid Waste and Recycling Committee</p>
72	<p>In Measure 4.3, additional actions needed: Study options for reducing the amount of methane gas that is currently burned off by flaring at the closed city landfill at 28th and B streets. Much of this gas used to be used by Blue Diamond, but they stopped taking it several years ago, and now all of it is burned off at large flares in the landfill. As of 2005, over 140 million cubic feet of methane was flared each year by the city. About 120 pounds of CO2 is produced for every 1000 cf of methane burned, so the city needs to evaluate methods to containerize and transport the gas to be used for energy production.</p>	<p>A gas curve analysis was completed confirming there is not enough methane gas to justify alternative use to avoid flaring.</p>	12/8/2011	<p>Anthony DeRiggi, MD City of Sacramento SWAC Representative, 2002-2008 Chair, ECOS Solid Waste and Recycling Committee</p>
73	<p>I fear that what I have read of the city's proposed Climate Action Plan seems like same-old-same-old, the extremely familiar litany of marginal conservation that I have been hearing for decades. I am sure staff worked hard, but I predict that effectively arresting climate change will require far more than marginal changes.</p> <p>One measure that would not be marginal but would also not threaten anyone's survival is – banning leaf blowers and other internal-combustion gardening machines. (Hint: electric leaf blowers and lawnmowers are also responsible for greenhouse gas emissions.)</p>	<p>Comment noted.</p>	12/8/2011	<p>Muriel Strand</p>

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74	The following comments are based on recognition that the CAP is a working document, which can and should be updated at any time when it is recognized that the GHG emission goals may not be met or the adaptation measures may not be adequate. This is especially important in recognition that the implementation of the strategies, if successful, will only accomplish the necessary goals through the year 2020 and that there will be a major gap of more than 3.2 million MTCO2e per year by the year 2050. The report indicates that implementation of the CAP will reduce the per capita GHG emissions from the 2005 level of 8.92 MT to 6.16 annually, while it will be necessary to reduce the per capita emissions to 0.97 MT annually to meet the 2050 goals.	Please see Chapter 2, Section 2.4, which addresses the CAP's 2020 Target and Longer-Term 2030 and 2050 Interim Goals. Additionally, information contained in Appendix E shows some of the longer-term benefits of the benefits of implementing specific actions beyond 2020.	12/8/2011	Rick Bettis Breathe California –Sacramento Policy Committee Co-chair League of Women Voters- Sacramento County – Natural Resources Director Sierra club- Mother Lode Chapter Climate Change Chair, Sacramento County –Conservation Co-Chair
75	The CAP correctly refers to, and acknowledges the importance of the IPCC studies. However it does not appear to address and reflect the reports released by the IPCC this past month. These studies indicate that the concentration of GHG in the atmosphere is accelerating beyond previous determination and the impact of climate change such as weather irregularity including the frequency more severe storms and the melting of ice and snow packs These findings indicate that it is probably necessary to enhance and accelerate the implementation of the CAP.	The City's GHG reduction goals are based on the performance standards recommended in ARB's AB 32 Scoping Plan, which was originally drafted and adopted in 2008 and readopted in 2011. ARB's work (i.e., the current GWP's used to develop the GHG inventory), for which the CAP is tied to, are based on IPCC's 2nd Assessment. It is essential for the CAP to be consistent with ARB's work to ensure the City is also consistent with the Scoping Plan and, thus, consequently AB 32. The important work of the IPCC will be considered in future updates by ARB that can then be considered by the City; however, the latest IPCC reports will not affect the City's GHG reduction goal of 15% below 2005 levels by 2020 at this time.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
76	The CAP does not clear to reflect the consideration of a "Lifecycle Analysis" of the proposed action. Such an analysis has been commonly used for many years as part of the feasibility analyses of significant public works project. It is also commonly part of the Engineering curricula at most universities. It would provide important guidance in the selection and prioritization of strategies and actions.	While sometimes desirable for significant public works projects, lifecycle analysis is time consuming and costly, and is outside the scope and budget of the CAP.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
77	I believe that potential water supply impacts due to climate change are understated. As a member of the Sacramento Water Forum I have learned that it is clear that the available water supplies in the Sacramento area are already over. –Subscribed. The reduction of snow-packs, which are the major storage for Sacramento water supplies both surface and groundwater. The California Department of Water Resources has estimated that up 75% of the normal snow pack storage could be lost due to climate change.	Comment noted. Staff believes that Chapter 3 adequately describes potential adverse impacts to water supply. Ongoing monitoring of research and coordination with local and state agencies will be critical in determining the full extent, scope and timing of impacts to these supplies.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
78	The risk of flooding due to climate change also appears to be understated. The entire City of Sacramento is protected by levees which are being upgraded to accommodate a 0.5% probability event based on analyses of historic events. However current studies by such agencies as the US Geological Survey, US Corps of Engineers, and California Department of Water Resources indicate the future storm events, influenced by climate change, will be must more severe than the current "design storm. This could result in levee failure and billions of dollars in property damage and substantial loss of life.	Comment noted. Staff believes that Chapter 3 adequately describes potential adverse impacts on flooding risk. Ongoing monitoring of research and coordination with local and state agencies will be critical in determining the full extent, scope and timing of changes in flooding risk.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
79	The sustainable development strategy refers to SB 375 but does not appear to discuss the Sacramento Area Council of Governments Sustainable Communities Strategy. As part of the SACOG studies they will evaluate two proposed projects within the City- the R Street Corridor and the Stockton-Fruit ridge infill development.	The following Supporting Action has been added under Measure 1.1 on page 4-18: "Support the implementation of the SACOG Sustainable Communities Strategy through implementation of the 2030 General Plan and encouraging infill development in Transit Priority Project areas." Staff is aware of SACOG's efforts and the Draft Metropolitan Transportation Plan and SCS, and has participated in the development of the specific Transit Priority Areas that are being analyzed. The City's 2030 General Plan already contains goals and policies that support the SACOG Sustainable Communities Strategy.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
80	The CAP should consider the benefits of restoration and reuses of existing buildings and homes as compared to demolition and replacement. Lifecycle Analyses will provide a clear indication of the significance of this benefit.	While lifecycle analysis is outside of the scope of this CAP, Measure 3.2 recognizes that there is a great need to retrofit existing buildings to improve energy efficiency.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club

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ID	Comment	City Response	Date Rec'd	Source
81	The use of recycled building materials should also be recognized	Measure 1.4 - Supporting Action on page 4-22 has been revised to explicitly include recycled building materials as follows: "Encourage development projects to use sustainable building materials that are sourced and processed locally and/or contain recycled materials."	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
82	In addition to cooperating with Sacramento Regional Transit potential City projects such as the proposed Trolley system should be considered.	Supporting Action under Measure 2.4 includes the streetcar study currently underway by City DOT.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
83	As a measure to enhance the use of alternative modes of transportation the Level of Service criteria for roads should be modified. The LOS for cars should be reduced and a new multi-modal LOS should be developed.	Agreed. The 2030 General Plan, adopted in 2009, includes new goals and policies to develop multi-modal level of service and reduce LOS standards in certain areas of the city.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
84	Parking requirements for developments and public parking should be reduced. In some Cities such as Frieberg Germany auto parking lots have been converted to bike parking. This could be modified to include shuttles and shared vehicles.	City is in the process of preparing a Zoning Code Parking Update that will consider revised parking ratios and alternative ways of addressing parking needs	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
85	In some Cities such as San Francisco Street parking has been replaced by a linear mini-public parkway.	Comment noted.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
86	Parking should not be considered as an income source to subsidized other projects. Parking revenues should be used a public mobility needs.	Comment noted.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
87	Specific Plans for developments should always include affordable housing and mixed uses compatible with the use of public transit. Housing-Job Fit should be used in future development planning.	Comment noted.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
88	The use of recently developed light colored pavements to reduce heat buildup as well as pervious pavements should be included in the CAP.	Cool pavements are addressed in Supporting Actions, Measure 6.1.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
89	It is recognized that the CAP considers the 20 percent water conservation required by State Law. However it is also noted that the city was a signatory to the Sacramento Water Forum Agreement which included a commitment to water conservation element. The Environmental Impact Report for the Water Forum Agreement indicates that the savings from this element will be 25.6%	The Water Forum Agreement and SBx7 7 use different methods to calculate water reduction targets. The Water Forum Agreement anticipated a consumption of 2.47 acre feet per acre by the year 2030, or approximately 158,000 acre feet annually. The City now anticipates demands to be approximately 145,000 acre feet annually assuming the City meets the requirements of SBx7 7	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
90	Water Recycling should be considered. The City has agreed to be a member of the Water Recycling Coalition formed by the Sacramento Regional County Sanitation District. The SCRCD has identified several potential used for landscape irrigation with recycled water in the City, including parks such as Land Park; golf courses such as Bart Cavanaugh, and proposed development. such as Delta Shores. The potential energy savings can significant if part of the planned Tertiary Treatment process is bypassed such as is being done in the city of Lodi.	The City has considered recycled water and included it in Supporting Actions under Measure 6.2. While recycled water may reduce greenhouse gasses in many areas of the state, we have found that implementing recycled water locally increases greenhouse gas generation. Recycled water may be a good adaption strategy, and as such the recommendations are included in the adaption chapter.	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club

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91	<p>Greater emphasis should be given the benefits of trees. The Sacramento Greenwise Initiative has endorsed the Sacramento Tree Foundation effort. It appears that the CAP only considers the benefit of the SMUD shade program. However the Tree foundation Greenprint includes the benefit of GHG Sequestration. The US Forest Service urban forest program also includes sequestration and has been recognized by the California Air Resources Board as part of the implementation of AB 32.</p>	<p>The GHG emissions associated with sequestration were not quantified at this time due to the fact that methods for calculating sequestered CO2 are still under development by the ARB. Sequestered CO2 would be eligible for consideration under ARB's Urban Forestry Protocol, but would require additional information not available at the CAP level. This measure was addressed qualitatively in the CAP at this time, but will be monitored for potential to quantify GHG sequestration benefits. Also, if such programs were to be given offsets using ARB's protocol this would be associated with the Cap-and-Trade Regulation and giving similar credit in the CAP could result in double counting. Also, please note that Urban Forestry is addressed in the Phase 1 CAP.</p> <p>The Final Gap Analysis Memo in Appendix E has been revised to reflect the fact that Sacramento Tree Foundation trees are provided by SMUD Shade Tree Program. The following have been revised to read "SMUD and Tree Foundation Shade Trees: Figure 1 on page 4, Table 4 on page 5, and Action 3.1.3 on page 11</p> <p>In addition to the benefits of the SMUD shade tree program (GHG reduction from energy savings), the benefits of trees are addressed in Measures 6.1 and 6.7.</p>	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
92	<p>Most importantly greater the CAP should give greater emphasis to development of Renewable Energy and especially utility scale facilities that will more rapid reduction of GHG emissions. The development of these facilities, on disturbed City owned lands should be expedited. An example is the proposed 20 MW solar facilities on the former City landfill at Sutter's Landing. Generate income to the City during the 20-year period before it is converted to a park. The City's own website for this project it would reduce GHG emissions by 631 million pounds per year of 287,000 metric tons per year which is greater than the CAP estimate of approximately 156,000 metric tons per year for renewable energy.</p>	<p>See Supporting Actions under Measure 3.4. The City continues to work with and support SMUD and others on Renewable Energy program development, which will increase utility-scale renewables as well as distributed generation.</p>	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
93	<p>The CAP should include requirements for net zero energy use for all new projects of substantial size within the city.</p>	<p>Strategy 3 includes several measures and actions that will move new development towards the stated goal of achieving net zero in all new construction by the year 2030. These include increasing energy efficiency standards (Action 3.3.2), and phasing in requirements for on-site renewables for residential and commercial projects over a certain project sizes (Actions 3.4.1 and 3.4.2).</p>	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
94	<p>The CAP waste reduction strategy should consider an ordinance that would substantially reduce the use of plastic bags as has been done by the City of San Francisco.</p>	<p>Comment noted.</p>	12/8/2011	Rick Bettis - Breathe California/ League of Women Voters & Sierra Club
95	<p>CAP Strategy 2, Mobility and Connectivity, is projected to reduce community-wide vehicle-miles-traveled (VMT) per capita by a minimum of 7 percent by 2020 (Chapter 4). GHG reductions projected for each of the 7 measures within this strategy are calculated in the Gap Analysis memo (Appendix E). However, the descriptions of the 7 measures do not show how their individual projected reductions add up to the 7 percent reduction projected for the strategy.</p>	<p>The Goals of reducing regional VMT/capita by 7% by 2020 and 16% by 2035 were issued by the ARB to SACOG. The City intends to support this goal by implementing its mobility and connectivity strategies in combination with the work SACOG is doing in its Regional Transportation Plan/Sustainable Communities Strategy. The individual measures evaluated in the gap analysis memo and listed under the broader Mobility and Connectivity Strategy are intended to support the strategy and goals in a quantitative way, but may not line up exactly with the performance standard that is being implemented at a regional level. However, the sum of the GHG reductions estimated for individual measures does line up with the City's 2020 GHG reduction target.</p>	12/9/2011	SABA (Jordan Lang)

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96	<p>In CAP Chapter 4, Measure 2.1 is titled "Multi-Modal Travel Options" but its title in the Gap memo is "Traffic Calming Measures." In both places, it is solely described as traffic-calming measures that will "encourage pedestrian and bicycle trips." The memo description concludes "Given that traffic calming measures have been completed in the majority of eligible neighborhoods, the estimated VMT reduction for any further measures is 0.05%" but Chapter 4 states its "target indicator" is a 0.25-1 percent reduction in VMT. These seemingly conflicting statements need to be explained.</p>	<p>Page 4-26 of the CAP will be revised to reflect a target indicator of 0.05% reduction in VMT.</p>	<p>12/9/2011</p>	<p>SABA (Jordan Lang)</p>
97	<p>Measure 2.3, "Increased Bicycle Mode Share," has a target indicator of 1.5 percent reduction in VMT (per capita or overall?) based on increasing bicycle facilities by 5% annually. The Gap memo description states that this annual increase in facilities "would likely result" in an additional VMT reduction of 1.5%. Neither the memo nor Chapter 4 explains how "bicycle facilities" will be quantified to measure whether or not a 5% increase has occurred. Such quantification will require a reliable inventory of what facilities exist in Sacramento now (i.e. the measurement baseline) and definition of what would constitute an increase (e.g. miles of bike lanes, number of bike bridges, number of bike parking lockers). How this quantification will be done needs to be described.</p> <p>Instead, we request that the City substitute actual bike mode share as the target indicator for this measure. Bike mode share is currently being estimated (see SACOG MTP 2035) and is more directly related to VMT levels than simply miles or numbers of bike facilities. Adding facilities (e.g. miles of bike lanes) will not necessarily result in additional bike mode share unless those facilities are designed and linked to create a safe and desirable bicycle network between key destinations (e.g. to schools, jobs, etc) for bicyclists of all ages and abilities. For example, adding a mile of bike lane along Freeport Blvd will not increase bike mode share unless bicyclists are able to access that bike lane from surrounding neighborhoods and comfortably use it to get to schools and businesses nearby.</p>	<p>A Supporting Action has been added to Measure 2.3 on page 4-32 as follows: "Work with community partners to establish a bicycle mode share goal and methodology." Please note that a 1.5% reduction is expected in overall VMT.</p>	<p>12/9/2011</p>	<p>SABA (Jordan Lang)</p>
99	<p>Quantification of Reductions: Appendix E consists of two memorandums produced by Ascent Environmental, Inc. The first Final Memo, dated October 25, 2011, discusses the City's GHG future year projections, the role of reductions from state legislation and the City's reduction target. The second Final Memo, also dated October 25, is a "gap analysis" which analyzes the assumptions and effectiveness of the GHG reduction strategies. It is this section (pg 6-22) that the District believes needs more explanation. With many of the measures, it is difficult to determine how the emissions reductions claimed were calculated. Because of that, the document could be said to lack the substantial evidence to justify reductions. We recommend that descriptions of the calculation methodologies for the GHG reduction strategies in this memo be expanded to more clearly describe how the reduction was determined and more clearly show the math behind the calculations. This would make the justification document as reader-friendly as the rest of the document.</p> <p>For example:</p> <ul style="list-style-type: none"> Action 3.1.1 (pg 6, Final Memo) claims that 5,594 MT CO₂e will be reduced because of a comprehensive social marketing campaign" about energy consumption reduction. The table for the measure displays the "top-down" factors used in a calculation which is not shown. The District believes the document should show the calculation in order to make the results more understandable. Fully identifying the values, multipliers, what each represents and how they were multiplied would provide the needed transparency in showing how the 5,594 MTCO₂e was derived. Also, in this example, there needs to be a discussion as to why 1% (then scaled to .1%) was seen as a reasonable performance rate. It's noted in the footnote to the table that a report for the Spare the Air Program was used to provide the "measure performance" but no explanation was given to justify the use of this factor. How is the Spare the Air program similar to a "comprehensive marketing program for energy efficiency? These comments apply to every action's table listed in this section. Another example: Action 3.2.2 (pg 6, Final memo), Building Permit trigger: Again, it's unclear how the 3,193 MTCO₂e was calculated despite the fact the factors are arrayed in the table. Also, the footnotes are abbreviated and far too cryptic, thus making it very difficult to provide adequate and meaningful review. 	<p>The gap analysis memo in Appendix E has been revised for further clarification. City staff and the consultant team met with SMAQMD and provided details and explanations were requested. There were two methods employed for calculating GHG reduction effectiveness of the identified CAP strategies, known as "top-down" and "bottom-up". The top-down method applies scaling indicators to the City's GHG emissions inventory to determine the quantity of emissions that would be affected by a strategy. For example, improvements to the City's bicycle infrastructure would reduce emissions from the transportation sector (i.e., 45% of the GHG inventory in 2020) by 1.5%. Thus, 45% x 1.5% would reduce the City's 2020 GHG emissions by 0.7%. In this equation, please note that the 45% serves as the scaling mechanism (e.g., an adjustment made to ensure the reduction is only applied to the applicable portion of the emissions inventory). The other method of calculating GHG reduction effectiveness, termed "bottom-up", uses an activity and emissions factor to determine the amount of GHG reduction. For example, installation of solar panels on new residential development would result in savings of approximately 4,500 kilowatt-hours per year (KWh/yr) per home. The Sacramento Municipal Utilities District (SMUD) generates electricity with an emission factor of 0.616 pounds (lb) CO₂e per KWh. Therefore, each photovoltaic system would eliminate approximately 2,783 lb CO₂e/year or 1.3 MT CO₂e/yr. City staff and the consultant team met with SMAQMD and provided more detail were requested.</p>	<p>12/9/2011</p>	<p>Sacramento Metropolitan AQMD</p>

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100	<p>Explanation and Implementation of Action 1.1.1. (35% VMT/capita)</p> <p>"This measure would require new development within the City to demonstrate that it would generate VMT/capita 35% below the statewide average VMT/capita. "</p> <p>The District applauds the use of a specific VMT requirement for new development called out by Action 1.1.1. However, nowhere in the CAP can we find reference to what the statewide average VMT/capita is. If a subsequent project attempts to tier off of this CAP and its CEQA document, how will the 35% reduction from an unstated state VMT number be required? Also, in line with the comments in bullet #1 above, it's unclear how the 51,507 MT CO2e/yr was derived. More explanation for the table on pg. 17 is needed.</p>	<p>The information supporting this calculation is provided in the Gap Analysis Spreadsheet (currently contained in CAP Appendix). Measure Performance = 35% - BAU % below statewide average. The Statewide VMT/year (2009)= 324,486,000,000, Statewide population (2009)=36,308,527, Statewide VMT/capita (annual)=8,937 (Sources as stated in spreadsheet are shown in the adjacent cell). For 2020, the portion of the affected inventory=179,954, the projected City AMT/capita for 2020=8,367, percent below 2009 statewide average VMT/capita=6.4%, Measure Performance=28.6% (35%-6.4%), Equivalent GHG reduction=51,507 Co2e/yr (179,954 * 28.6%). Not exact due to rounding.</p>	12/9/2011	Sacramento Metropolitan AQMD
101	<p>Fehr & Peers analysis: Several of the transportation/land use GHG reduction strategies cite a report conducted by Fehr & Peers in 2011 using the SACSIM Travel Demand Forecasting Model. Please include this report in an Appendix for reference.</p>	<p>The memo cited "Subject: City of Sacramento 2035 VMT Forecast" from Fehr & Peers will be contained in the appendix of the final CAP.</p>	12/9/2011	Sacramento Metropolitan AQMD
102	<p>GHG Inventory: The Sacramento County 2005 GHG Inventory is referenced in Chapter 2 and in Appendix D. According to that original inventory document, The City of Sacramento's emissions accounted for 32.8% of the emissions for the County. However, according to pg 2-5 of the CAP, the City's 2005 contribution is 30.4% of the entire County's emissions. This discrepancy could be confusing to readers who want to check this source material. It's our understanding that the original County inventory was subsequently revised by some revisions to jurisdictional VMT estimates done by Fehr and Peers (6/2/2010) and a GHG analysis done by ICF Jones and Stokes (11/19/2010). We believe there should be a brief explanation of the revisions to the original County GHG inventory in the appendix concerning the inventory.</p>	<p>Page 3, section "Jurisdictional Control" of the October 25, 2011 memo titled "City of Sacramento Greenhouse Gas Emissions Reduction Target and Goals-Final" located in Appendix E of the CAP explains the modifications made to the inventory. A footnote has been added on pages 2-5 and 2-7 to provide clarification.</p>	12/9/2011	Sacramento Metropolitan AQMD
103	<p>Monitoring and Implementation of the CAP: Section 4.5 on page 4-7 outlines the City's strategy for guiding and implementing the plan. The District recommends that this section be expanded to include specific benchmarks and implementation deadlines, as well as more detailed performance objectives. In addition, we believe the City's monitoring commitment is unclear. For example, what are the "target indicators" for the measures and how often will they be evaluated? How might the "annual Sustainability Implementation Plan... be used to track and monitor progress in implementing the Climate Action Plan?" (pg 1-16 CAP)</p>	<p>Chapter 4 has been revised to more fully describe how the CAP will be monitored and updated. On an annual basis, the City will review status of all CAP action items, and report on them qualitatively in conjunction with General Plan and Sustainability annual reporting. Some of the target indicators in the CAP (see Section 4.7 for a full explanation of "target indicators") will be reported annually as well, to the extent that data area available, as part of the General Plan's Livability Index in the General Plan annual report. Concurrent with the 5-year updates to the General Plan, staff will perform communitywide GHG inventory updates, and any necessary updates to the CAP measures & actions will be considered to ensure that the CAP is on track to meet the overall GHG emission target for 2020. More frequent updates to the GHG inventory may be possible if budget and staff resources are available.</p>	12/9/2011	Sacramento Metropolitan AQMD
104	<p>When designing traffic calming features into roadways, consideration must be given to the operations of buses using the road in order to maintain efficient and safe service. Some features may slow the buses down, may make operation of the bus on the road prohibitive or make sharing the road unsafe for other users. Close coordination with RT staff is suggested for these measures.</p>	<p>Agreed. Standard City protocol for the design and operation of city streets with transit is to keep the transit operators involved with decisions to change the street. [Comment addressed. See page 4-32.]</p>	12/9/2011	Regional Transit
105	<p>Another action that should be considered for the multi-modal travel option measure is providing bus-only lanes where there is frequent bus service (such as in the central city) or heavy congestion (to make public transit more attractive to travelers). Bus-only lanes will also make the service more efficient.</p>	<p>Agreed. The City already has granted exclusive right of way for light rail, and if bus rapid transit or the like are proposed, the City will work with transit providers to accommodate them. Bus only lanes have been used in limited situations, and would likely be used as the need arises. [Comment addressed. See page 4-32.]</p>	12/9/2011	Regional Transit

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106	Please consider adding, "Improve connections to transit, thereby extending a pedestrian's/cyclist's potential trip length" as a benefit for both Measures 2.2 and 2.3.	The following Supporting Action has been added under Action 2.2.1 on page 4-30: "Improve connections to transit, thereby extending a pedestrian's/cyclist's potential trip length" .	12/9/2011	Regional Transit
107	Please consider locating bicycle racks, lockers and share programs near transit stops to help cyclist lengthen their trip potential as well as facilitate the start and completion of the transit-riders trip.	The following Supporting Action will be added under Action 2.3.1 on page 4-32: "Continue to work with community partners to locate bicycle racks, lockers, and bike-share programs in or near transit stops to help cyclists lengthen their trip potential as well as facilitate the start and completion of the transit-rider's trip."	12/9/2011	Regional Transit
108	Measure 2.4 should acknowledge all the transit operators providing service in the City for a complete picture. In addition, analysis could be performed on the buses not using alternatives fuels and how much emissions can be reduced if they were able to switch fuels (this may apply more appropriately to Measure 2.5). Consideration may also want to be given to school buses and their role in reducing green house gas emissions.	The following sentence has been added after the second sentence in the first paragraph in the Measure 2.4 introduction on page 4-33: "In addition to RT, numerous other transit operators provide service in the city."	12/9/2011	Regional Transit
109	As a planning document, the Climate Action Plan should emphasize the role of the City encouraging appropriate land uses near existing transit service that will make the transit more productive and accessible to the City's residents. Suggesting that more transit service be added within the City when there is limited funding available for transit service is not as attainable of a goal for the City as would suggesting actions the City has more control over in accomplishing (such as directing transit-supportive land uses and designs.) The City's General Plan has established quite a few transit-supportive land use policies that, if enforced properly, will make the existing transit service more productive. With such support from the City, RT would be more able to adjust its service to cater to neighborhoods that will prove to make RT's service more productive.	See Strategy 1: Sustainable Land Use, which includes a number of measures and specific actions that emphasize infill, transit-oriented development, mixed use, and complete neighborhoods. Strategies 1 and 2 are intended to work together to achieve the measurable VMT reduction goals stated in both sections of Chapter 4. Transit-supportive land uses are a priority for the CAP, the 2030 General Plan, and other planning documents, and the City will continue to implement these policies.	12/9/2011	Regional Transit
110	Consider adding the Transportation Department as another responsible party in implementing actions in Measure 2.4. This will illustrate the cooperation between land use and transportation planning that is necessary to make Measure 2.4 successful.	Text on page 4-34 has been modified to add Transportation Department as a secondary responsible department for Measure 2.4 Increased Transit Mode Share.	12/9/2011	Regional Transit
111	There are actions in Measure 2.4 that say the City will help transit partners expand affordable transit service. This sounds more like an objective than an attainable action. A suggested action that would meet this type of goal would be to help transit partners identify and obtain funding to expand affordable transit coverage.	The following has been added to Supporting Actions under Action 2.4.1 on page 4-34: "Work with transit operators and community partners to identify funding to expand affordable transit coverage."	12/9/2011	Regional Transit
112	Was consideration given to the impact of freight train movement through the City (specifically in the central city) and its impact on congestion? Are there actions that can be taken to alleviate those impacts?	Freight train movement was not considered. Actions to alleviate congestion caused by freight trains is outside of the scope of this Plan.	12/9/2011	Regional Transit
113	Has alternative fuels been considered for solid waste trucks? RT operates a CNG fueling facility and is in the process of building a second one in the north area, which could possibly be made available to other users.	Yes, alternative fuels for solid waste trucks and other City vehicles was analyzed in the Phase I Climate Action Plan (City Internal Operations). Currently, most of the City's solid waste collection trucks operate on Liquefied Natural Gas (LNG).	12/9/2011	Regional Transit

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114	Continuing to furlough City employees is not a long-term solution to reduce commuting miles. RT recommends encouraging the use of transit (discounted transit passes, etc.) as an alternative solution.	Action 2.7.1 does not suggest that the continuation of City employee furloughs is the only solution to reducing commuting miles. The intent of including this action was to quantify the beneficial GHG reductions from current furloughs and continuation of similar VMT reductions that could be met by ongoing furloughs, telecommuting, or alternate schedules. City employees have been provided with discounted transit passes for a number of years (prior to the 2005 baseline), and this program is expected to continue.	12/9/2011	Regional Transit
115	Reviewing the highly technical CAP is difficult and clarifications are needed to make it understandable and credible.	The CAP includes some technical information and calculations in order to substantiate the City's GHG reduction efforts. Technical information is provided in Appendix E and summarized in a more user-friendly way throughout the CAP document. It is often challenging to share technical information with the public, however, the City has chosen to do so in the form of the appendix for transparency purposes. Since no specific clarifications were requested in this comment, it cannot be determined where further clarification is being requested.	12/9/2011	SABA (Jordan Lang)
116	The draft CAP offers an optimistic projection that the strategies and actions described in the plan can reduce the City's GHG emissions by more than the City's 15% reduction target by 2020. At the same time, the actions described in this plan are projected to fall far short of the City's 2030 and 2050 emission reduction goals. We believe that the draft CAP must be revised and enhanced, first, because the CAP's emission-reduction projections and the likelihood of the City implementing the many actions on which the projections depend are both highly uncertain, and secondly, because the CAP needs to identify and commit to implementing additional measures and actions to assure that the GHG reduction target can be met by 2020. These points are discussed in more detail below. In Appendix E of the CAP, a consultant memo dated October 25, 2011 (Gap Analysis) discusses the emission projection methodology and the projection results. The memo is highly technical but seems to caution that the projections for GHG reductions should be considered uncertain because of the many assumptions about land use changes and model input variables that are used to make the projections. We believe that these uncertainties are a key reason that much more must be done to reduce GHG emissions in this plan. Also, the CAP's strategy to implement "Sustainable Land Use" depends on many intended actions by the City to implement its 2030 General Plan. In turn, execution of these actions depends on many political and site-specific factors that can not be predicted in any confident way at this time. This doubtfulness about robust General Plan implementation also makes achieving the CAP's target GHG emission reductions highly uncertain.	Chapter 2, Section 2.4, provides rationale regarding the CAP's 2020 Target and Longer-Term 2030 and 2050 Interim Goals. Additional information contained in Appendix E shows some of the longer-term benefits of the benefits of implementing specific actions beyond 2020, particularly with land use and transportation related reductions. As far as measuring results versus goals and updating the Plan, staff have added a section in Chapter 1 of the document that specifies how the CAP will be evaluated. Annual reporting on status of implementation of the actions, periodic updates to the GHG emissions inventory, and other monitoring activities will help to ensure that the CAP is making progress. Also, please see response to comment 103 above. There is always some amount of uncertainty in GHG emissions forecasting, long-range land use planning, and GHG reduction strategy development. Importantly for the City's CAP, reasonable and conservative assumptions were used and documented in order to provide the best available information to the public and decision makers possible at this time. Thus, the information contained in the CAP is based on reasonable assumptions and can be relied upon as evidence that the CAP would foreseeably reduce GHG emissions from activities within the City. See changes made on Page 1-7.	12/9/2011	SABA (Jordan Lang)
117	Measure 4.2 Source reduction Suggest this additional supporting action. Consider a ban on plastic shopping bags	Comment noted.	12/9/2011	Walt Seifert
118	Measure 4.2 Source reduction This supporting action is in the draft plan. "As funding becomes available, expand availability of public recycling containers in public parks, along commercial corridors and public right-of-ways, and reduce the waste generated from public events." Recommend that supporting action indicate recycling containers should be of a design that minimizes contamination and provides security. Containers should be color coded to match household waster container colors.	Comment noted.	12/9/2011	Walt Seifert

Draft Climate Action Plan - Public Comments and City Responses

ID	Comment	City Response	Date Rec'd	Source
119	<p>Measure 4.2 Greenwaste and composting</p> <p>Establish utility rates that do not subsidize loose-in-the-street collection of greenwaste. Loose-in-the-street collection has a great many drawbacks; several are related to GHG generation. It requires two vehicles for collection. It discourages adoption of river friendly landscaping and selection of the most sustainable landscaping that minimizes yard waste.</p>	<p>Solid Waste has hired a consultant to work with the division to develop a business plan that will provide Council with sustainable and cost effective solid waste residential service options. Included for their consideration will be changes to the City's green waste program to coincide with a ballot measure next November to repeal Measure A. Based on the outcome of the ballot measure and Council's direction on future service options, Solid Waste will recommend the appropriate rate changes to reflect the true cost of service for its new residential service options.</p>	12/9/2011	Walt Seifert
120	<p>Measure 4.2 Greenwaste and composting</p> <p>Include kitchen plant waste and all compostables in containerized green waste collection.</p>	<p>The development of a food waste recycling program is included as a Supporting Action under Measure 4.3 - Greenwaste and Composting.</p>	12/9/2011	Walt Seifert
121	<p>Measure 4.2 Greenwaste and composting</p> <p>Offer more sizes in waste containers.</p>	<p>Comment noted - the Solid Waste Division will evaluate this as it moves forward with the business plan project referenced above.</p>	12/9/2011	Walt Seifert
122	<p>Section 4-56- We support the junk mail prevention outreach program--it would be great if the City could help solve this problem</p>	<p>The development of a junk-mail prevention outreach program that helps residents to voluntarily opt out of receiving junk mail is included as a Supporting Action under Measure 4.1 - Sustainable Production and Consumption. There is currently a Recycling Pledge at www.cityofsacramento.org/recycle that includes a link to a Junk Mail Tool Kit.</p>		350.Sacramento



RESOLUTION NO. XXXX-

Adopted by the Sacramento City Council

**APPROVING ENVIRONMENTAL REVIEW FOR THE
CLIMATE ACTION PLAN**

BACKGROUND

- A. At its regular meeting on December 8, 2011, the City Planning Commission received and considered public testimony concerning the Draft Climate Action Plan (“Project”), and forwarded to the City Council a recommendation to adopt the Climate Action Plan.

- B. At its regular meeting on January 31, 2012, the City Council received and considered public testimony concerning the Climate Action Plan.

**BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL
RESOLVES AS FOLLOWS:**

Section 1. The City Council finds that the Master Environmental Impact Report for the 2030 General Plan was certified on March 3, 2009 and the 2030 General Plan was adopted on that date.

Section 2. The City of Sacramento was the Lead Agency for the Master EIR.

Section 3. An initial study has been prepared for the Project, and concluded that the Project was described in the Master EIR and that the Project would not cause any additional significant environmental effects that were not examined in the Master EIR. No new additional mitigation measures or alternatives are required, and the Project is within the scope of the Master EIR.

Section 4. The City has incorporated all feasible mitigation measures and feasible alternatives appropriate to the Project as set forth in the Master EIR. The City has provided notice of its intended action by publishing the required notice in a newspaper of general circulation in the area affected by the project, and by posting the notice in the office of the county clerk for a period of thirty days from November 15, 2011 through December 16, 2011, as required by CEQA Guidelines Section 15177 and 15087.

Section 5. The City Council directs that, upon approval of the Project, the City’s Environmental Planning Services shall file a notice of determination with the County Clerk of Sacramento County and, if the Project requires a discretionary approval from

any state agency, with the State Office of Planning and Research, pursuant to the provisions of CEQA section 21152.

Section 6. Pursuant to Guidelines section 15091(e), the documents and other materials that constitute the record of proceedings upon which the City Council has based its decision are located in and may be obtained from, the Office of the City Clerk at 915 I Street, Sacramento, California. The City Clerk is the custodian of records for all matters before the City Council.

TABLE OF CONTENTS:

Exhibit A – CEQA Initial Study



CITY OF SACRAMENTO CLIMATE ACTION PLAN INITIAL STUDY

This Initial Study has been prepared by the City of Sacramento, Community Development Department, located at 300 Richards Boulevard, Third Floor, Sacramento, CA 95811, pursuant to the California Environmental Quality Act (Public Resources Code Sections 21000 *et seq.*), CEQA Guidelines (Title 14, Section 15000 *et seq.* of the California Code of Regulations) and the Sacramento Local Environmental Regulations (Resolution 91-892) adopted by the City of Sacramento.

The Initial Study has been prepared pursuant to the State CEQA Guidelines procedures for a subsequent project within the scope of the Master Environmental Impact Report (Master EIR), as described in CEQA Guidelines sections 15177 and 15178. The City of Sacramento 2030 General Plan Master EIR addressed goals, policies, and implementation measures in the General Plan, including greenhouse gas (GHG) reduction and climate action planning. The Climate Action Plan (CAP) is being prepared to implement the applicable provisions of the 2030 General Plan. The City has developed and will review and implement the CAP in a manner that satisfies the requirements of CEQA Guidelines section 15183.5, dealing with streamlining of analysis of greenhouse gas emissions.

ORGANIZATION OF THE INITIAL STUDY

This Initial Study is organized into the following sections:

SECTION I - BACKGROUND: Provides summary background information about the project name, location, sponsor, and the date this Initial Study was completed.

SECTION II - PROJECT DESCRIPTION: Includes a detailed description of the proposed project.

SECTION III - ENVIRONMENTAL CHECKLIST AND DISCUSSION: Reviews proposed project and states whether the project would have additional significant environmental effects (project-specific effects) that were not evaluated in the Master EIR for the 2030 General Plan.

SECTION IV - ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: Identifies which environmental factors were determined to have additional significant environmental effects.

SECTION V - DETERMINATION: States whether environmental effects associated with development of the proposed project are significant, and what, if any, added environmental documentation may be required.

REFERENCES CITED: Identifies source materials that have been consulted in the preparation of the Initial Study.

SECTION I - BACKGROUND

- Project Name:** City of Sacramento Climate Action Plan
- Project Location:** City-wide. Generally consistent with the Policy Area identified in the City's 2030 General Plan.
- Project Applicant:** The City of Sacramento is the project proponent.
- Project Planner:** Helen Selph, Associate Planner (hselph@cityofsacramento.org)
- Environmental Planner:** Scott Johnson, Associate Planner (srjohnson@cityofsacramento.org)
- Date Initial Study Completed:** November 14, 2011
- Date 30-day Public Comment Period Closes:** December 16, 2011

This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000 *et seq.*) and CEQA Guidelines (California Code of Regulations [CCR] Section 15000 *et seq.*). The Lead Agency is the City of Sacramento.

The City of Sacramento, Community Development Department, has reviewed the Proposed Climate Action Plan (CAP) and, on the basis of the whole record before it, has determined that it is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR. See CEQA Guidelines section 15176 (b) and (d).

The City has prepared the attached Initial Study to (a) review the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the 2030 General Plan Master EIR to determine their adequacy for the project (see CEQA Guidelines section 15178[b],[c]) and (b) determine if any potential new or additional project-specific significant environmental effects that were not analyzed in the Master EIR would occur and if any additional mitigation measures or alternatives that may avoid or mitigate the identified effects to a level of insignificance need to be discussed, if any.

As part of the Master EIR process, the City is required to incorporate all feasible mitigation measures or feasible alternatives appropriate to the project as set forth in the Master EIR (CEQA Guidelines section 15177[d]). The Master EIR mitigation measures that are identified as appropriate are set forth in the applicable technical sections below.

This analysis incorporates by reference the general discussion portions of the 2030 General Plan Master EIR (CEQA Guidelines section 15150[a]).

SECTION II - PROJECT DESCRIPTION

INTRODUCTION

Adoption and implementation of the City of Sacramento's (City's) Proposed Climate Action Plan (CAP) is a project under the California Environmental Quality Act (CEQA). The City has prepared this Initial Study checklist to assess the environmental effects of implementing the CAP. This Initial Study consists of a project description, followed by a description of various environmental effects that may result from implementation of the Proposed CAP.

PROJECT BACKGROUND

In 2007, the City of Sacramento adopted a Sustainability Master Plan, which set formal sustainability goals and objectives for the City. In 2008, the City, Sacramento County, the Sacramento Municipal Utilities District (SMUD), and the other incorporated cities within the County formed the Sacramento Green Area Partnership, which coordinated efforts to develop a County-wide greenhouse gas (GHG) emissions inventory, and share information regarding GHG reduction efforts. The City's 2030 General Plan, adopted in 2009, includes numerous policies that address climate change and GHG emissions, including direction for the City to prepare a CAP.

Preparation of a CAP was identified as a priority implementation measure and a key mitigation measure in the City's 2030 General Plan Master Environmental Impact Report (Master EIR). In 2010, the City completed Phase 1 of the CAP, which examined GHG emissions from, and developed a GHG reduction strategy for, City government activities (e.g., municipal buildings, City-owned vehicles, streetlights and signals, park maintenance, and other operations that are under direct City control). As part of the effort to complete the CAP and its extension to the private sector, the City has gathered input from residents and businesses and has prepared a Proposed CAP for public review and comment.

California has adopted a wide variety of regulations aimed at reducing the State's GHG emissions. Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, requires California to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 directs the California Air Resources Board (CARB) to develop and implement regulations that reduce statewide GHG emissions. The CARB Climate Change Scoping Plan (Scoping Plan) was approved by CARB in December 2008, and readopted in August 2011, and outlines the State's plan to achieve the GHG reductions required in AB 32. In the Scoping Plan, CARB encourages local governments to adopt a reduction goal for municipal operations emissions and move toward establishing similar goals for community-wide emissions that parallel the State's commitment to reduce GHGs. Though the specific role local governments will play in meeting the State's AB 32 goals is still being defined, they will nonetheless be a key player in implementing GHG reduction strategies.

The City's Proposed CAP articulates the City's intentions with respect to reducing community-wide GHG emissions in a manner consistent with AB 32. Based on the City of Sacramento's GHG inventory, the AB 32 reduction of 20 percent by 2020 would be achieved by a 15 percent reduction of City-wide GHGs below 2005 levels. Throughout the Proposed CAP, the City outlines strategies, implementation measures, and actions that would reduce GHG emissions from transportation and land use, energy consumption, water consumption, and solid waste sectors. Many of the actions contained within the CAP were derived from policies and programs already evaluated and adopted as part of the City's 2030 General Plan.

PROJECT DESCRIPTION

The proposed project is the adoption of the CAP, a document that provides an organized framework of goals, strategies, and implementation measures intended to reduce GHG emissions from activities within the City by a minimum of 15 percent from 2005 levels by the year 2020 (which is used as a proxy for the AB 32-statewide-mandated reduction of returning to 1990 emission levels by 2020). The CAP builds upon and supports the goals, policies, and implementation measures of the 2030 General Plan through definition of specific implementation mechanisms such as roles and responsibilities of City departments and partnerships with other agencies, funding sources, and timing. The Proposed CAP provides general background information about climate change, current and future (business-as-usual) GHG emissions from sources located within the City, the anticipated effects of State and federal legislation on future GHG emissions within the City, as well as an analysis of the potential effects of climate change on the City. The strategies, measures, and actions proposed in the CAP, and their relationship to the 2030 General Plan Master EIR are described in more detail in the sections that follow.

PROJECT OBJECTIVES

The purpose of the proposed project is to establish a single comprehensive framework for the City's climate action and sustainability programs, initiatives, and policies, and to demonstrate how these programs would achieve the City's GHG reduction target of 15 percent below 2005 emissions by 2020. The overarching goal of the CAP is to reduce GHG emissions and prepare for climate change. Other desired objectives associated with adoption and implementation of the City's Proposed CAP would include:

- Providing clear direction for City staff and assigned responsibilities to City departments for strategy implementation;
- Taking a community-wide leadership role in emissions reduction efforts, which aims to inspire residents and businesses to participate;
- Promoting compliance with State GHG emissions reduction mandates in AB 32;
- Providing CEQA streamlining benefits for future proposed projects that are consistent with the CAP;
- Creating jobs in the community, cost savings to residents on utility bills, and increased quality of life associated with sustainable neighborhood design, less reliance on motor vehicle travel, improved air quality, and other environmental and socioeconomic co-benefits; and
- Creating a more resilient community that is more capable of adapting to climate change impacts.

POTENTIAL PHYSICAL CHANGES

The Measures and Actions in the Proposed CAP build upon and support the goals and policies of the City's 2030 General Plan, providing more specific actions for GHG reduction. These actions cover a broad spectrum of municipal processes, including urban planning and development, building inspection, transportation planning, code enforcement, economic development, fiscal process, agency coordination, etc. In many cases, the specific actions of the Proposed CAP relate to processes, strategies, analyses, and coordination efforts that would not result in any physical changes to the environment. However, the Proposed CAP does include actions that involve increasing and improving transit and other infrastructure, requiring and promoting energy efficiency upgrades to structures, increasing renewable energy facilities, localizing utilities and services, etc. that could directly or indirectly result in physical changes to the environment. For example, several actions in the Proposed CAP promote installation of solar photovoltaic panels on residential and commercial structures, as well as other locations such as parking lots. The placement of solar panels where solar panels did not previously exist is a direct physical change in the environment.

The environmental checklist that follows will focus on these potential physical changes and will evaluate whether the physical change is adverse with respect to each environmental issue area, and, if so, whether the adverse change is substantial by comparing the level of change to the threshold of significance.

SECTION III – ENVIRONMENTAL CHECKLIST AND DISCUSSION

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
1. <u>LIGHT AND GLARE</u> Would the proposal:			X
A) Create a source of glare that would cause a public hazard or annoyance?			
B) Create a new source of light that would be cast onto oncoming traffic or residential uses?			X

ENVIRONMENTAL SETTING

As stated in the City of Sacramento 2030 General Plan, the City (policy area) is located on a valley floor characterized by flat terrain in a predominately built-out environment. The average elevation is 25 feet above sea level. Long-range views within the City are generally expansive because of the flat terrain throughout the City. However, due to the flat terrain, existing mature trees and buildings often block views. The western portion of the City lies at an elevation of about 20 feet and the terrain slopes upward to the east. Gentle topographical changes are occasionally present, sometimes originating as natural banks of the Sacramento and American rivers. The American River, Morrison Creek, and other local drainages have downcut through the plain, forming low near-vertical stream banks from place to place. With the exception of these stream banks, ground slope within the City does not exceed eight percent and is most often between zero and three percent.

Views onto and across the City to the east include views of the foothills and mountains. The Sierra Nevada mountain range can be seen directly behind the City skyline driving east across the Sacramento-Yolo Causeway on Interstate 80 (I-80).

The City includes large portions of developed areas, ranging from single-family residential homes to high-rise office buildings in the downtown area. The areas where homes dominate the viewshed are generally areas with more green space, less artificial light meaning darker nighttime views, and less glare due to the limited amount of reflective materials.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, aesthetics impacts may be considered significant if the proposed project would result in one or more of the following:

Glare. Glare is considered to be significant if it would be cast in such a way as to cause public hazard or annoyance for a sustained period of time.

Light. Light is considered significant if it would be cast onto oncoming traffic or residential uses.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR described the existing visual conditions in the general plan policy area, and the potential changes to those conditions that could result from development consistent with the 2030 General Plan. See Master EIR, Chapter 6.13, Urban Design and Visual Resources.

The Master EIR identified potential impacts for glare (Impact 6.13-1). Mitigation Measure 6.13-1, set forth below, was identified to reduce the effect to a less-than-significant level.

Light cast onto oncoming traffic or residential uses was identified as a potential impact (Impact 6.13-2). The Master EIR identified Policy LU 6.1.14 (Compatibility with Adjoining Uses) and its requirement that lighting must be shielded and directed downward as reducing the potential effect to a less-than-significant level.

Mitigation Measures from 2030 General Plan Master EIR that Apply to Project

Master EIR Mitigation Measure 6.13-1: The City shall amend the Zoning Code to prohibit new development from:

- 1) using reflective glass that exceeds 50 percent of any building surface and on the ground three floors;
- 2) using mirrored glass;
- 3) using black glass that exceeds 25 percent of any surface of a building; and,
- 4) using metal building materials that exceed 50 percent of any street-facing surface of a primarily residential building.

The Zoning Code has not yet been amended to include the restrictions identified in Mitigation Measure 6.13-1. The restrictions will be applied to the project, if applicable, to ensure that the potential impact identified in the Master EIR is less than significant.

ANSWERS TO CHECKLIST QUESTIONS

Question A

The Measures and Actions identified in the Proposed CAP are consistent with the Goals and Policies of the City of Sacramento 2030 General Plan. However, the Actions in the CAP are more specific than the Goals, Policies, and Implementation Measures in the 2030 General Plan. Several of the Actions encourage incorporation of solar photovoltaic panels into existing structures, facilities, and new developments. Examples include allowing solar panels as substitutes for trees to meet shading requirements (third Supporting Action under Action 3.4.3), adding solar panels to rooftops to increase residential and commercial energy efficiency (Actions 3.4.1, 3.4.2, and Supporting Actions under 3.4.3.). Solar panels are generally placed on rooftops or mounted on other structures and typically point skyward, so solar reflection would not be cast in such a way as to cause public hazard or annoyance for a sustained period of time. The only foreseeable instance in which viewers would be exposed to glare or glint from photovoltaic panels would be if the viewers were located above the panels (i.e. driving on a nearby elevated section of freeway or living/working within a nearby high rise). While the terrain

in the City would allow extended visibility of light and glare from these elevated vantage points, the presence of mature trees and buildings reduces this effect. Solar panels are designed to absorb, rather than reflect light. Modern solar panels reflect substantially less light than standard glass; therefore, the surfaces are not highly reflective. Note that the California Legislature recently signed SB 226, which exempts solar energy systems installed on rooftops or existing parking lots (and meeting specified conditions) from the requirements of CEQA.

The CAP also includes Actions (Supporting Actions under Measure 6.1) that promote “cool roofs” and “cool pavement.” Cool roofs do not cast glare but are merely light in color. Light colors are high albedo (reflective power of a surface) and therefore reflect light and reduce heat absorption. They do not cause harsh glare like a mirrored surface (such as mirrored glass or polished metal).

All of the design features promoted/required in the CAP to reduce GHG emissions would be required to comply with Master EIR Mitigation Measure 6.13-1 stated above. Impacts associated with glare are considered less than significant.

Question B

The Proposed CAP would not allow any development that would not be allowed under the 2030 General Plan. The Measures and Actions identified in the CAP would enhance the energy efficiency of existing and future development, as well as public facilities such as streets and parks. Actions in the CAP (Supporting Action under Measure 3.3) promote the conversion to more energy efficient lighting technology, and consideration of reduced of lighting levels currently allowed under the existing General Plan and Zoning Ordinance. For example the Proposed CAP encourages lighting along the urban-rural edge not to exceed one-half the current maximum lighting standard; balancing public safety with limits on continuous all-night outdoor lighting in parks, sport facilities, construction sites, and other relevant areas; and exploring options for the use of bi-level/sensor-activated outdoor lighting or low-level security lighting with photo sensors (See Supporting Actions under Action 3.3.2). Therefore, implementation of the Proposed CAP would result in fewer impacts than analyzed in the 2030 General Plan Master EIR.

MITIGATION MEASURES

No Mitigation Measures are required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Aesthetics.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>2. AGRICULTURAL RESOURCES Would the proposal:</p> <p>A) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</p>			X
<p>B) Conflict with existing zoning for agricultural use or a Williamson Act contract?</p>			X
<p>C) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?</p>			X

ENVIRONMENTAL SETTING

As stated in the City of Sacramento 2030 General Plan, the City is built upon soil that is among the most fertile in California. As the City has grown, agricultural lands have been converted to non-agricultural uses. Today, the City of Sacramento is mostly urbanized, with limited amounts of active commercial agricultural lands remaining that support large-scale operations. The commercial agricultural activity is located, to a large extent, in the northwestern and southernmost portions of the city. Remaining agricultural land within the city limits is located in the southern area of the city and the northern area located within the North Natomas Community Plan area. No parcels within the city limits are currently under Williamson Act contract (although several adjacent parcels are under Williamson Act contract).

The City supports approximately 22 community gardens in which city residents grow produce, flowers, and other plants.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, impacts to agricultural resources may be considered significant if the proposed project would:

- Affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses, or premature conversion of Williamson Act contracts).

)

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR described the existing acreage of Important Farmland within the general plan policy area, and the potential changes to those conditions that could result from development consistent with the 2030 General Plan. See Master EIR, Chapter 6.2, Agricultural Resources.

The Master EIR identified potential impacts to agricultural resources or operations (Impacts 6.2-1 and 6.2-1) and indicated that the city's contribution to the state's inventory of Important Farmland is insubstantial. Projected growth would be focused within the Policy Area and not on surrounding agricultural areas outside the city. The remaining agricultural land within the Policy Area is not considered viable or suitable for large scale agricultural operations. Goals and policies included in the Environmental Resources section of the 2030 General Plan encourage the continued productivity and preservation of existing local agricultural lands and operations in areas outside of the city. The Master EIR concluded that impact on agricultural resources and operations would be less than significant.

The Master EIR evaluated potential impacts associated with uses incompatible with agriculture (Impacts 6.2-2 and 6.2-5). The Master EIR includes several Policies that address potential incompatibilities between urban land uses and adjacent agricultural operation. (Policy ER 4.2.2 requiring agricultural buffers, Policy ER 4.2.4 requiring buffers, and Policy ER 4.2.5 requiring disclosure to home owners of agricultural operations). The Master EIR concluded that this impact is less than significant.

The Master EIR analyzed potential conflicts with agricultural zoning (Impact 6.2-3). The Master EIR concluded that due to General Plan policies promoting agriculture buffers and the need for future approval for any change in zoning, the impact is less than significant.

Mitigation Measures from 2030 General Plan Master EIR that Apply to Project

The Master EIR did not identify mitigation measures related to agricultural resources.

ANSWERS TO CHECKLIST QUESTIONS

Questions A and C

The City does not contain forest land zoned or used for commercial forest activities, and the project would have no impact on such resources.

The Proposed CAP identifies Measures and Actions that, although more specific than many of the Goals and Policies of the City of Sacramento 2030 General Plan, are consistent with the General Plan Goals and Policies. With respect to conversion of Important Farmland, the Proposed CAP does not allow development that would not be allowed under the City's General Plan, and would therefore not result in conversion of farmland beyond the level evaluated in the Master EIR. Furthermore, consistent with General Plan Policies for preserving farmland, the Proposed CAP encourages preservation of Prime Farmland (seventh Supporting Action under Action 1.1.1). Consistent with the conclusion of the Master EIR, the impact associated with direct or indirect conversion of Important Farmland is less than significant.

Question B

As described in the Master EIR, any proposed development that would require a rezone from an agricultural zone to a non-agricultural zone would require City Council approval, and would be required to undergo CEQA review. The Master EIR also describes General Plan policies requiring agricultural buffers and disclosure of agricultural operations to purchasers of nearby homes (Policy ER 4.2.2, Policy ER 4.2.4, and Policy ER 4.2.5). The Proposed CAP would not allow development that would not be allowed under the City's General Plan. Rather, the Proposed CAP includes Actions that further preserve Prime Farmland and support local farms (seventh Supporting Action under Action 1.1.1 and the thirteenth Supporting Action under Measure 6.4), consistent with General Plan Goals, Policies, and Implementation Measures. The Proposed CAP would not result in zoning conflicts, and there would be no significant effects that were not identified and evaluated in the Master EIR.

MITIGATION MEASURES

No Mitigation Measures are required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Agricultural Resources.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
3. <u>AIR QUALITY</u>			
<i>Would the proposal:</i>			
A) Result in construction emissions of NOx above 85 pounds per day?			X
B) Result in operational emissions of NOx or ROG above 65 pounds per day?			X
C) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X
D) Result in PM10 concentrations equal to or greater than five percent of the State ambient air quality standard (i.e., 50 micrograms/cubic meter for 24 hours) in areas where there is evidence of existing or projected violations of this standard?			X
E) Result in CO concentrations that exceed the 1-hour state ambient air quality standard (i.e., 20.0 ppm) or the 8-hour state ambient standard (i.e., 9.0 ppm)?			X
F) Result in exposure of sensitive receptors to substantial pollutant concentrations?			X
G) Result in TAC exposures create a risk of 10 in 1 million for stationary sources, or substantially increase the risk of exposure to TACs from mobile sources?			X
H) Impede the City or state efforts to meet AB32 standards for the reduction of greenhouse gas emissions?			X

ENVIRONMENTAL AND REGULATORY SETTING

The Master EIR states that the General Plan Policy Area is located within the Sacramento Valley Air Basin (SVAB) which is a valley bounded by the North Coast Ranges on the west and the Northern Sierra Nevada Mountains on the east.

Air pollutant emissions within the SVAB are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources are usually subject to a permit to operate from the local air district, occur at specific identified locations, and are usually associated with manufacturing and industry. Examples of

point sources include refineries, concrete batch plants, and can coating operations. Area sources are widely distributed and produce many small emissions and do not require permits to operate from any air agency. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, and consumer products such as barbecue lighter fluid and hairspray. The wide-spread use of these items and operations contributes to local and regional air pollution.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources are those that are legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, racecars, and construction vehicles. Mobile sources account for the majority of the air pollutant emissions within the SVAB.

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health. The national and state ambient air quality standards have been set at levels at which concentrations could be generally harmful to human health and welfare and to protect the most sensitive persons from experiencing health impacts. The air pollutants for which national and state standards have been promulgated and which are most relevant to air quality planning and regulation in the air basins include ozone (of which reactive organic gases [ROG] and oxides of nitrogen [NOx] are precursors), carbon monoxide, suspended particulate matter, sulfur dioxide, and lead.

Regionally, some portions of the SVAB have fewer air quality problems than others. Only the southern portion of the SVAB is in nonattainment for federal ozone standards, and Sacramento County has not been redesignated to attainment for the federal PM₁₀ standard. The entire SVAB is in non-attainment for state standards for ozone and particulate matter under 10 and 2.5 micrograms (PM₁₀ and PM_{2.5}).

Toxic air contaminants (TACs) are airborne substances that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than the “criteria” pollutants previously discussed in that ambient air quality standards have not been established for them, largely because there are hundreds of air toxics and their effect on health tend to be local rather than regional.

The national and state ambient air quality standards have been set at a level designed to protect the most sensitive persons from illness or discomfort with a reasonable margin of safety. Air pollution regulatory agencies typically define sensitive receptors to include residences, schools, playgrounds, child care centers, athletic facilities, hospitals, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Each of these land use types is present in the city.

GENERAL PLAN POLICIES CONSIDERED MITIGATION

The Master EIR identified potentially significant impacts and mitigation measures for the following impacts:

Impact 6.1-6: Implementation of the 2030 General Plan could result in TAC emissions that could adversely affect sensitive receptors.

and

Impact 6.1-11: Implementation of the proposed 2030 General Plan, in conjunction with other development in the SVAB, would generate TAC emissions that could adversely affect sensitive receptors.

As stated in the Master EIR, the following General Plan policy would avoid or lessen environmental impact:

Mitigation Measure 6.1.6 - General Plan Policy ER 6.1.8 - Development Near TAC Sources:

The City shall ensure that new development with sensitive uses located adjacent to toxic air contaminant sources, as identified by the California Air Resources Board (CARB), reduces potential health risks. In its review of these projects, the City shall consider current guidance provided by and consult with the CARB and the Sacramento Metropolitan Air Quality Management District.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, air quality impacts may be considered significant if construction and/or implementation of the Proposed Project would result in the following impacts that remain significant after implementation of General Plan policies or mitigation from the General Plan Master EIR:

- construction emissions of NO_x above 85 pounds per day;
- operational emissions of NO_x or ROG above 65 pounds per day;
- violation of any air quality standard or contribute substantially to an existing or projected air quality violation;
- PM₁₀ concentrations equal to or greater than five percent of the State ambient air quality standard (i.e., 50 micrograms/cubic meter for 24 hours) in areas where there is evidence of existing or projected violations of this standard. However, if project emissions of NO_x and ROG are below the emission thresholds given above, then the project would not result in violations of the PM₁₀ ambient air quality standards;
- CO concentrations that exceed the 1-hour state ambient air quality standard (i.e., 20.0 ppm) or the 8-hour state ambient standard (i.e., 9.0 ppm); or
- exposure of sensitive receptors to substantial pollutant concentrations.

Ambient air quality standards have not been established for TACs. TAC exposure is deemed to be significant if:

- TAC exposures create a risk of 10 in 1 million for stationary sources, or substantially increase the risk of exposure to TACs from mobile sources.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR addressed the potential effects of the 2030 General Plan on ambient air quality and the potential for exposure of people, especially sensitive receptors such as children or the elderly, to unhealthful pollutant concentrations. See Master EIR, Chapter 6.1.

Policies in the Environmental Resources Element of the 2030 General Plan were identified as mitigating potential effects of development that could occur under the 2030 General Plan. For example, Policy ER 6.1.1 calls for the City to work with the CARB and the Sacramento Metropolitan Air Quality Management District (SMAQMD) to meet state and federal air quality standards; Policy ER 6.1.12 requires the City to review proposed development projects to ensure that the projects incorporate feasible measures that reduce construction and operational emissions; Policy ER 6.1.11 calls for coordination of City efforts with SMAQMD; and Policy ER 6.1.15 requires the City to give preference to contractors using reduced-emission equipment. The Master EIR concluded that implementation of the General Plan would result in significant and unavoidable impacts involving construction- and operations-related emissions of ozone precursors and PM₁₀.

The Master EIR identified exposure to sources of TACs as a potential effect. Policies in the 2030 General Plan would reduce the effect to a less-than-significant level. The policies include ER 6.1.5, requiring consideration of current guidance provided by the CARB and SMAQMD; requiring development adjacent to stationary or mobile TAC sources to be designed with consideration of such exposure in design, landscaping and filters; as well as Policies ER 6.11.1 and ER 6.11.15, referred to above. The Master EIR concluded that TAC emission would be less than significant.

The Master EIR found that GHG emissions that would be generated by development consistent with the 2030 General Plan would be a significant and unavoidable cumulative impact. The discussion of GHG emissions and climate change in the 2030 General Plan Master EIR are incorporated by reference in this Initial Study. (CEQA Guidelines Section 15150)

The Master EIR identified numerous policies included in the 2030 General Plan that addressed GHG and climate change. See Draft Master EIR, Chapter 8, and pages 8-49 et seq. The Master EIR is available for review at the offices of Development Services Department, 300 Richards Boulevard, 3rd Floor, Sacramento, CA during normal business hours, and is also available online at www.sacgp.org.

Policies identified in the 2030 General Plan include directives relating to sustainable development patterns and practices, and increasing the viability of pedestrian, bicycle and public transit modes. A complete list of policies addressing climate change is included in the Master EIR in Table 8-5, pages 8-50 et seq; the Final Master EIR included additional discussion of greenhouse gas emissions and climate change in response to written comments. See changes to Chapter 8 at Final Master EIR pages 2-19 et seq. See also Letter 2 and response.

ANSWERS TO CHECKLIST QUESTIONS

Question A through H

The Proposed CAP includes Measures and Actions that are consistent with the Goals, Policies, and Implementation Measures of the General Plan. The purpose of the Proposed CAP is to

reduce GHG emissions within the city to help contribute to global efforts to reduce the effects of climate change. The Measures and Actions that accomplish these reductions are included throughout the CAP and include reducing vehicle use, developing and enhancing bicycle and pedestrian facilities, enhancing public transit, increasing use of renewable energy, improving energy efficiency in buildings, improving energy management, increasing water conservation, and promoting green infrastructure and urban agriculture. In addition to reducing GHGs, each of these elements have the co-benefit of reducing criteria air pollutants and TACs and would therefore not conflict with or obstruct the SMAQMD's Air Quality Plan.

Implementation of the Proposed CAP would further reduce GHGs and criteria air pollutants beyond the reductions included in the 2030 General Plan and Master EIR. Therefore, the Proposed CAP would result in a less-than-significant impact.

MITIGATION MEASURES

No Mitigation Measures necessary beyond those identified in the Master EIR (See above).

FINDINGS

The project would have no additional project-specific environmental effects relating to Air Quality.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>4. <u>BIOLOGICAL RESOURCES</u> Would the proposal:</p> <p>A) Create a potential health hazard, or use, production or disposal of materials that would pose a hazard to plant or animal populations in the area affected</p>			X
<p>B) Result in substantial degradation of the quality of the environment, reduction of the habitat, reduction of population below self-sustaining levels of threatened or endangered species of plant or animal</p>			X
<p>C) Affect other species of special concern to agencies or natural resource organizations (such as regulatory waters and wetlands)?</p>			X

ENVIRONMENTAL SETTING

The Master EIR provided that biological resources in the City include plant and animal species listed as threatened or endangered, proposed for federal and/or state listing as threatened or endangered, or any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game (CDFG) or U.S. Fish and Wildlife Service (USFWS). Additionally, sensitive habitats, habitat for any of the listed or sensitive species described above, and wetlands or other waters under the jurisdiction of the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA) are considered significant biological resources. The 2030 General Plan contains policies to guide the location, design, and quality of development to protect important biological resources such as wildlife habitat, open space corridors, and ecosystems. Conservation and protection of important biological resources contribute to human health and nurtures a viable economy.

Generally, the City is bordered by farmland to the north, farmland and the Sacramento River to the west, the City of Elk Grove to the south, and developed unincorporated portions of Sacramento County to the east. Historically, the natural habitats within the City included perennial grasslands, riparian woodlands, oak woodlands, and a variety of wetlands including vernal pools, seasonal wetlands, freshwater marshes, ponds, streams and rivers. Over the last 150 years, development from agriculture, irrigation, flood control, and urbanization has resulted in the loss or alteration of much of the natural habitat within the Policy Area boundaries. Non-native annual grasses have replaced the native perennial grasslands, many of the natural streams have been channelized, much of the riparian and oak woodlands have been cleared, and most of the marshes have been drained and converted to agricultural or urban uses. (City of Sacramento 2009)

Though the majority of the City's land is committed to residential, commercial, and other urban development, the general plan also emphasizes the importance of habitat areas, parks and open space uses. Habitats that are present in the City and surrounding areas include annual grasslands, riparian woodlands, oak woodlands, riverine (rivers and streams), ponds, freshwater marshes, seasonal wetlands, and vernal pools. (City of Sacramento 2009)

GENERAL PLAN POLICIES CONSIDERED MITIGATION

The General Plan Master EIR identified the following potentially significant impacts and mitigation measures (policies):

Impact 6.3-2: Implementation of the 2030 General Plan could adversely affect special-status plant species due to the substantial degradation of the quality of the environment or reduction of population or habitat below self-sustaining levels.

and

Impact 6.3-3: Implementation of the 2030 General Plan could result in substantial degradation of the quality of the environment or reduction of habitat or population below self-sustaining levels of special-status invertebrates.

and

Impact 6.3-4: Implementation of the 2030 General Plan could result in substantial degradation of the quality of the environment or reduction of habitat or population below self-sustaining levels with special-status birds, through the loss of both nesting and foraging habitat.

and

Impact 6.3-5: Implementation of the 2030 General Plan could result in substantial degradation of the quality of the environment or reduction of habitat or population below self-sustaining levels of special-status amphibians and reptiles.

and

Impact 6.3-6: Implementation of the 2030 General Plan could result in substantial degradation of the quality of the environment or reduction of habitat or population below self-sustaining levels of special-status mammals.

and

Impact 6.3-10: Implementation of the 2030 General Plan could result in the loss of California Department of Fish and Game (CDFG)-defined sensitive natural communities such as elderberry savanna, northern claypan vernal pools, and northern hardpan vernal pools.

and

Impact 6.3-13: Implementation of the City's 2030 General Plan and regional buildout assumed in the Sacramento Valley could result in a regional loss of special-status plant or wildlife species or their habitat.

Mitigation Measure 6.3-2 - General Plan Policy ER 2.1.10 - Habitat Assessments: The City shall consider the potential impact on sensitive plants for each project requiring discretionary

approval and shall require preconstruction surveys and/or habitat assessments for sensitive plant and wildlife species. If the preconstruction survey and/or habitat assessment determines that suitable habitat for sensitive plant and/or wildlife species is present, then either (1) protocol-level or industry recognized (if no protocol has been established) surveys shall be conducted; or (2) presence of the species shall be assumed to occur in suitable habitat on the project site. Survey Reports shall be prepared and submitted to the City and the CDFG or USFWS (depending on the species) for further consultation and development of avoidance and/or mitigation measures consistent with state and federal law.

Impact 6.3-8: Implementation of the 2030 General Plan could result in the loss or modification of riparian habitat, resulting in a substantial adverse effect.

Mitigation Measure 6.3-8 – General Plan Policy ER 2.1.5 - Riparian Habitat Integrity: The City shall preserve the ecological integrity of creek corridors, canals, and drainage ditches that support riparian resources by preserving native plants and, to the extent feasible, removing invasive, non-native plants. If not feasible, adverse impacts on riparian habitat shall be mitigated by the preservation and/or restoration of this habitat at a 1:1 ratio, in perpetuity.

Impact 6.3-9: Implementation of the 2030 General Plan could result in a substantial adverse effect on state or federally protected wetlands and/or waters of the United States through direct removal, filling, or hydrological interruption.

Mitigation Measure 6.3-9 – General Plan Policy ER 2.1.6 – Wetland Protection: The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetland, to the extent feasible. If not feasible, the mitigation of all adverse impacts on wetland resources shall be required in compliance with State and Federal regulations protecting wetland resources, and if applicable, threatened or endangered species. Additionally, the City may require either on- or off-site permanent preservation of an equivalent amount of wetland habitat to ensure no-net-loss of value and/or function.

Impact 6.3-14: Implementation of the 2030 General Plan and regional buildout assumed in the Sacramento Valley could contribute to the cumulative loss of sensitive natural communities including wetlands and riparian habitat in the region.

Implement Mitigation Measures 6.3-8 and 6.3-9.

STANDARDS OF SIGNIFICANCE

For purposes of this environmental document, an impact would be significant if any of the following conditions or potential thereof, would result with implementation of the proposed project:

- Creation of a potential health hazard, or use, production or disposal of materials that would pose a hazard to plant or animal populations in the area affected;
- Substantial degradation of the quality of the environment, reduction of the habitat, reduction of population below self-sustaining levels of threatened or endangered species of plant or animal; or
- Affect other species of special concern to agencies or natural resource organizations (such as regulatory waters and wetlands).

For the purposes of this document, “special-status” has been defined to include those species, which are:

- Listed as endangered or threatened under the federal Endangered Species Act (or formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (Section 1901);
- Designated as fully protected, pursuant to California Fish and Game Code (Section 3511, 4700, or 5050);
- Designated as species of concern by U.S. Fish and Wildlife Service (USFWS), or as species of special concern to California Department of Fish and Game (CDFG);
- Plants or animals that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA).

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

Chapter 6.3 of the Master EIR evaluated the effects of the 2030 General Plan on biological resources within the general plan policy area. The Master EIR identified potential impacts in terms of degradation of the quality of the environment or reduction of habitat or population below self-sustaining levels of special-status birds, through the loss of both nesting and foraging habitat.

Policies in the 2030 General Plan were identified as mitigating the effects of development that could occur under the provisions of the 2030 General Plan. Policy 2.1.5 calls for the City to preserve the ecological integrity of creek corridors and other riparian resources; Policy ER 2.1.10 requires the City to consider the potential impact on sensitive plants for each project and to require pre-construction surveys when appropriate; and Policy 2.1.11 requires the City to coordinate its actions with those of the California Department Fish and Game, U.S. Fish and Wildlife Service, and other agencies in the protection of resources.

The Master EIR concluded that the cumulative effects of development that could occur under the 2030 General Plan would be significant and unavoidable as they related to effects on special-status plant species (Impact 6.3-2), reduction of habitat for special-status invertebrates (Impact 6.3-3), loss of habitat for special-status birds (Impact 6.3-4), loss of habitat for special-status amphibians and reptiles (Impact 6.3-5), loss of habitat for special-status mammals (Impact 6.5-6), special-status fish (Impact 6.3-7) and, in general, loss of riparian habitat, wetlands and sensitive natural communities such as elderberry savannah (Impacts 6.3-8 through 10).

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

Questions A through C

The Measures and Actions identified in the Proposed CAP are consistent with the Goals and Policies of the City of Sacramento 2030 General Plan. The Proposed CAP includes Actions and Measures intended to protect key habitat and wildlife corridors and incorporate climate change adaptation strategies into habitat conservation programs (seventh and eighth Supporting Actions under Action 1.1.1; Supporting Actions under Measure 6.7). These measures are similar to (albeit more specific than) the General Plan policies identified above. Also consistent with the 2030 General Plan, the Proposed CAP promotes enhancement of the urban forest and preservation of existing trees, including heritage trees (Supporting Actions under Measure 6.1). Furthermore, implementation of the CAP would not allow any development that would not be allowed under the General Plan. Implementation of the Proposed CAP would not result in impacts related to biological resources beyond those evaluated in the Master EIR.

MITIGATION MEASURES

No Mitigation Measures necessary.

FINDINGS

The project would have no additional project-specific environmental effects relating to Biological Resources.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p><u>5. CULTURAL RESOURCES</u> Would the project:</p> <p>A) Cause a substantial adverse change in the significance of a historical or archaeological resource as defined in § 15064.5?</p>			X
<p>B) Directly or indirectly destroy a unique paleontological resource?</p>			X

ENVIRONMENTAL SETTING

The 2030 General Plan states that the Sacramento Delta was one of the first regions in California to attract intensive archaeological fieldwork. The first settlements in the Sacramento Valley likely occurred during the late Pleistocene and early Holocene (14,000 to 8,000 B.P.) period. Sacramento’s location within a great valley and at the confluence of two rivers, the Sacramento River and the American River, shaped its early and modern settlements. It is highly likely that Paleo-Indian populations occupied the area with villages located near watercourses. However, the archaeological record of such use is sparse, probably due to recurring natural flood events. (City of Sacramento 2009)

The City of Sacramento contains areas of high sensitivity for archaeological resources; these generally occur adjacent to major waterways (i.e. American and Sacramento Rivers), which is where the Nisenan villages were primarily located. Creeks, other watercourses, and early high spots near waterways that seem likely to have been used for prehistoric occupation are areas of moderate sensitivity for the presence of archaeological resources. Even sites where waterways may have existed in the past but have now been developed could contain archaeological resources due to the presence of “significant historic activities.” (City of Sacramento 2009)

Other areas within the City are considered to have low sensitivity for potential archaeological resources (based on previous research); however, this does not rule out the possibility that a site could exist. (City of Sacramento 2009)

The 2030 General Plan Master EIR includes Figure 6.4-1, which identifies the areas of archaeological sensitivity described above.

According to the 2030 General Plan, the City of Sacramento has designated 29 Historic Districts, 10 historic district surveys in progress, one adopted survey, and two Special Planning Districts. The City Code provides for the compilation of Landmarks, Contributing Resources, and Historic Districts into the Sacramento Register of Historic and Cultural Resources (Sacramento Register). The Sacramento Register includes all listed or surveyed historic resources in the City of Sacramento. The Sacramento Register also includes listings or maps of the properties within two of the City’s Special Planning Districts that have been afforded preservation protection by ordinance, but are not designated as a Historic District. (City of Sacramento 2009)

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, cultural resource impacts may be considered significant if the proposed project would result in one or more of the following:

- Cause a substantial change in the significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5 or
- Directly or indirectly destroy a unique paleontological resource. Answers to Checklist Questions

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR evaluated the potential effects of development under the 2030 General Plan on prehistoric and historic resources. See Chapter 6.4. The Master EIR identified significant and unavoidable effects on historic resources and archaeological resources.

General plan policies identified as reducing such effects call for identification of resources on project sites (Policy HCR 2.1.1), implementation of applicable laws and regulations (Policy HCR 2.1.2 and HCR 2.1.15), early consultation with owners and land developers to minimize effects (Policy HCR 2.1.10 and encouragement of adaptive reuse of historic resources (Policy HCR 2.1.13). Demolition of historic resources is deemed a last resort. (Policy HCR 1.1.14)

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

Questions A and B

Development-related impacts to archaeological resources and paleontological resources generally occur as a result of ground disturbance, or providing access to locations containing such resources, such that human activity disturbs, destroys, or results in the removal of such resources. The Proposed CAP does not allow any development that is not currently allowed under the City's 2030 General Plan. Because no additional ground disturbance would be authorized under the Proposed CAP, and because the CAP would not provide new access not identified within the General Plan, no additional impacts to archaeological resources or paleontological resources would occur that were not analyzed within the Master EIR.

Regarding historic resources, the Proposed CAP promotes incorporation of energy efficiency features into existing buildings through programs such as Residential Energy Conservation Ordinance (RECO), Commercial Energy Conservation Ordinance (CECO), and Rental Housing Inspection Program (RHIP) (Actions 3.2.2, 3.2.3, and 3.2.4). Under these programs, priority is placed on the most cost-effective, energy-efficiency upgrades. As currently envisioned, the RHIP would be focused on basic weatherization of rental property, requiring only the most cost-effective improvements available, such as weather stripping and caulking windows and doors, insulating attics, sealing obvious ducting leaks, and insulating water heaters. RECO and CECO may be either prescriptive or performance based, and may trigger requirements beyond those of

the RHIP. Window and HVAC system replacements, which are not among the most cost-effective energy conservation strategies, are expected to be the least common energy-efficiency upgrades implemented under RECO and CECO. Because older structures would generally benefit more from increased energy efficiency than new buildings, it is likely that a portion of the structures that would undergo these minor energy upgrades would be within historic districts; some structures may be listed historic buildings. Under the programs promoted by the Proposed CAP, such as RECO and CECO, exterior energy efficiency upgrades, such as window replacement and upgraded HVAC would still require Design Review and/or Preservation approval, as applicable. It is important to note that RECO and CECO would generally be required as part of a major structural renovation or rehabilitation, which would almost certainly trigger the application process for Design Review or review by Preservation for structures located in those districts (or structure 50 years or older). The Design Review/Preservation staff (and Commissions, if applicable) would ensure that any exterior modifications to historic structures, or structures within a historic district or design review district would be tasteful and would be consistent with the design requirements of the district (or Secretary of the Interior Standards in the case of listed or “listable” historic structures). These review processes would ensure that impacts to historic structures and/or structures within an historic district would be less than significant. It should also be noted that, prior to codification, programs such as RECO, CECO, and RHIP will be required to comply with the Design Review and Preservation requirements of the Municipal Code and must be reviewed and approved by City Council.

MITIGATION MEASURES

No Mitigation Measures necessary.

FINDINGS

The project would have no additional project-specific environmental effects relating to Cultural Resources.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>6. <u>GEOLOGY AND SOILS</u></p> <p>Would the project allow a project to be built that will either introduce geologic or seismic hazards by allowing the construction of the project on such a site without protection against those hazards?</p>			X

ENVIRONMENTAL SETTING

According to the City’s 2030 General Plan Master EIR, the City of Sacramento is located in the Great Valley of California. The Great Valley is a flat alluvial plain approximately 50 miles wide and 400 miles long in the central portion of California. The City’s topography is relatively flat. There is a gradual slope rising from elevations as low as sea level in the southwest up to approximately 75 feet above sea level in the northeast. The predominant soil units in the City are the San Joaquin, Clear Lake, Galt, Cosumnes, and Sailboat soils, which account for over 60 percent of the total land area. The remaining soil units each account for only a few percent or less of the total. (City of Sacramento 2009)

Many of the soil units present within the City exhibit high shrink-swell potential. This hazard occurs primarily in soils with high clay content and can cause structural damage to foundations and roads that do not have proper structural engineering and are generally less suitable or desirable for development than non-expansive soils. (City of Sacramento 2009)

There are no known faults within the greater Sacramento region and Policy Area. Faults located closest to the City are the Bear Mountain and New Melones faults to the east, and the Midland Fault to the west. The Dunnigan Hills fault lies northwest of Sacramento. The Sacramento region has experienced ground shaking originating from faults in the Foothills fault zone. (City of Sacramento 2009)

According to the Master EIR, the City is in an area of relatively low severity, characterized by peak ground accelerations between 10 and 20 percent of the acceleration of gravity. This is primarily due the lack of known major faults and low historical seismicity in the region. The maximum earthquake intensity expected from this amount of ground shaking would be between VII and VIII on the Modified Mercalli Intensity Scale (MMI). (City of Sacramento 2009)

STANDARDS OF SIGNIFICANCE

For the purposes of this Initial Study, an impact is considered significant if it allows a project to be built that will either introduce geologic or seismic hazards by allowing the construction of structures on such a site without protection against those hazards.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

Chapter 6.5 of the Master EIR evaluated the potential effects related to seismic hazards, underlying soil characteristics, slope stability, erosion, existing mineral resources and paleontological resources in the general plan policy area. Implementation of identified policies in the 2030 General Plan reduced all effects to a less-than-significant level. Policies EC 1.1.1 through 1.1.3 require regular review of the City's seismic and geologic safety standards, geotechnical investigations for project sites and retrofit of critical facilities such as hospitals and schools.

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

QUESTION A

Impacts related to seismic and soil hazards generally occur when new structures or uses are placed within areas of high seismic risk or on unstable soils, such that human safety risks could occur. The Proposed CAP would not allow the construction of any structures that would not be allowed under the General Plan or that would be inconsistent with current City building requirements or State building code. Implementation of the Proposed CAP would not increase risk with respect to seismic hazard or soil instability. These issues were fully analyzed in the Master EIR, and the impacts related to implementation of the Proposed CAP would be consistent with those identified in the Master EIR.

MITIGATION MEASURES

No Mitigation Measures necessary

FINDINGS

The project would have no additional project-specific environmental effects relating to Geology and Soils.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>7. <u>HAZARDS</u></p> <p>Would the project:</p> <p>A) Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during construction activities?</p>			X
<p>B) Expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials or other hazardous materials?</p>			X
<p>C) Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater during dewatering activities?</p>			X

ENVIRONMENTAL SETTING

The City’s General Plan Master EIR states that hazardous materials are routinely used, stored, and transported within the City and are associated with industrial and commercial/retail businesses, as well as in educational facilities, hospitals, and households. Federal, state, and local agencies maintain comprehensive databases that identify the location of facilities using large quantities of hazardous materials, as well as facilities generating hazardous waste. Some of these facilities use certain classes of hazardous materials that require accidental release scenario modeling and risk management plans to protect surrounding land uses. (City of Sacramento 2009)

The Sacramento County Environmental Management Department (SCEMD) maintains a database of all businesses in the City of Sacramento using hazardous materials in excess of the threshold quantities (55 gallons for a liquid, 200 cubic feet for a compressed gas, and 500 pounds for a solid). The “Master List of Facilities within Sacramento County with Potentially Hazardous Materials” is downloadable from the County’s website (www.emd.saccounty.net/Documents/lists/mstr.pdf) and is readily available to the public. Businesses that use and store hazardous materials in quantities subject to federal and state regulations that require community notification are required to prepare and submit a Hazardous Materials Management Plans (or “Business Plan”) and/or Risk Management Plans (RMPs), as appropriate, to the SCEMD. (City of Sacramento 2009)

There are also existing hazardous waste treatment, storage, and disposal (TSD) facilities in the City. The County’s Hazardous Waste Management Plan (HWMP) identifies the need for any potential future locations of TSD facilities and includes policies and potential impacts for the management of hazardous waste within the County. Activities at such facilities could include transfer and storage, aqueous treatment, organics recycling, solidification and stabilization, incinerators, or residuals repositories. (City of Sacramento 2009)

The City contains properties that were once contaminated and are now clean, as well as some properties that are contaminated with a clean-up process underway. Federal and state agencies responsible for hazardous materials management, along with the County of Sacramento, maintain databases of such sites. Appendix I of the City's Master EIR contains a compilation of information from the databases. (City of Sacramento 2009)

REGULATORY SETTING

Federal regulations and regulations adopted by the SMAQMD apply to the identification and treatment of hazardous materials during demolition and construction activities. Failure to comply with these regulations respecting asbestos may result in a Notice of Violation being issued by the SMAQMD and civil penalties under state and/or federal law, in addition to possible action by EPA under federal law.

Federal law covers a number of different activities involving asbestos, including demolition and renovation of structures (40 CFR section 61.145).

SMAQMD Rule 902 and Commercial Structures

The work practices and administrative requirements of Rule 902 apply to all commercial renovations and demolitions where the amount of Regulated Asbestos-Containing Material (RACM) is greater than:

- 260 lineal feet of RACM on pipes, or
- 160 square feet of RACM on other facility components, or
- 35 cubic feet of RACM that could not be measured otherwise.

The administrative requirements of Rule 902 apply to any demolition of commercial structures, regardless of the amount of RACM.

Asbestos Surveys

To determine the amount of RACM in a structure, Rule 902 requires that a survey be conducted prior to demolition or renovation unless:

- the structure is otherwise exempt from the rule, or
- any material that has a propensity to contain asbestos (so-called "suspect material") is treated as if it is RACM.

Surveys must be done by a licensed asbestos consultant and require laboratory analysis. Asbestos consultants are listed in the phone book under "Asbestos Consultants." Large industrial facilities may use non-licensed employees if those employees are trained by the U.S. EPA. Questions regarding the use of non-licensed employees should be directed to the AQMD.

Removal Practices, Removal Plans/Notification and Disposal

If the survey shows that there are asbestos-containing materials present, the SMAQMD recommends leaving it in place.

If it is necessary to disturb the asbestos as part of a renovation, remodel, repair or demolition, Cal OSHA and the Contractors State License Board require a licensed asbestos abatement contractor be used to remove the asbestos-containing material.

There are specific disposal requirements in Rule 902 for friable asbestos-containing material, including disposal at a licensed landfill. If the material is non-friable asbestos, any landfill willing to accept asbestos-containing material may be used to dispose of the material.

STANDARDS OF SIGNIFICANCE

For the purposes of this Initial Study, an impact is considered significant if the proposed project would:

- expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during construction activities;
- expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials or other hazardous materials; or
- expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater during dewatering activities.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR evaluated effects of development on hazardous materials, emergency response and aircraft crash hazards. See Chapter 6.6 of the Master EIR. Implementation of the General Plan may result in the exposure of people to hazards and hazardous materials during construction activities, and exposure of people to hazards and hazardous materials during the life of the General Plan. Impacts identified related to construction activities and operations were found to be less than significant. Policies included in the 2030 general Plan, including PHS 3.1.1 (investigation of sites for contamination) and PHS 3.1.2 (preparation of hazardous materials actions plans when appropriate) were effective in reducing the identified impacts.

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

Questions A through C

The Proposed CAP is consistent with the Goals, Policies, and Implementation Measures of the City's 2030 General Plan. The Proposed CAP promotes energy efficiency and reduced vehicle trips in order to reduce the City's GHG emissions. None of the Measures or Actions identified in the CAP would result in any increased use or transport of hazardous materials beyond the level analyzed in the General Plan Master EIR. Furthermore, no additional construction activities involving asbestos removal, groundwater dewatering, or contaminated soils remediation would occur as a result of the CAP that were not anticipated in the General Plan and evaluated in the

General Plan Master EIR. The potential impacts resulting from the CAP are consistent with the impacts analyzed in the General Plan Master EIR.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Hazards.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>8. <u>HYDROLOGY AND WATER QUALITY</u> Would the project:</p> <p>A) Substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the project?</p>			X
<p>B) Substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood ?</p>			X

ENVIRONMENTAL SETTING

Precipitation in the City occurs mostly as rain during the months of November through March. Climate data collected from 1941 through 2003 shows that annual rainfall averaged 17.22 inches, but is variable. Recorded annual rainfall has ranged from a low of 6.25 inches in 1976 to a high of 33.44 inches in 1983. (City of Sacramento 2009)

Primary surface water resources in the City include the Sacramento River and the American River. These rivers provide municipal, agricultural, and recreational water supply, as well as freshwater habitat, spawning grounds, wildlife habitat, navigation on the Sacramento River, and industrial uses on the American River. Local surface water drainages and creeks include Chicken Ranch and Strong Ranch sloughs, Florin Creek, and Rio Linda Creek. Man-made drainage canals provide drainage for a large portion of the urbanized areas that are not served by the City’s combined sewer system (CSS) or the City’s storm drainage collection system. These canals include the Natomas East Main Drain Canal and the East, West, and Main Drainage Canals. (City of Sacramento 2009)

The reaches of the Sacramento and American rivers that flow through the Sacramento urban area are considered impaired for certain fish consumption and aquatic habitat and are listed on the EPA approved 2006 section 303(d) list of water quality limited segments (mercury and unknown toxicity). However, based on current water quality reports, the American and Sacramento rivers are both excellent supplies for drinking water. (City of Sacramento 2009)

Other major creeks, drainage canals, and sloughs in the City boundaries are also listed for pesticides and copper. The Natomas East Main Drainage Canal is listed for the pesticide diazinon and polychlorinated biphenyls (PCBs). (City of Sacramento 2009)

In general, stormwater runoff within the City of Sacramento flows into either the City’s CSS or into individual drainage pump stations located throughout the Policy Area which discharge to creeks and rivers. The CSS is considered at or near capacity and requires all additional inflow into the system to be mitigated. (City of Sacramento 2009)

GENERAL PLAN POLICIES CONSIDERED MITIGATION

The following General Plan policy would avoid or lessen environmental impacts as identified in the Master EIR and is considered a mitigation measure for the following project-level and cumulative impacts.

Impact 6.7-3: Implementation of the 2030 General Plan could increase exposure of people and/or property to risk of injury and damage from a localized 100-year flood.

and

Impact 6.7-6: Implementation of the 2030 General Plan, in addition to other projects in the watershed, could result in increased numbers of residents and structures exposed to a localized 100-year flood event.

Mitigation Measure 6.7-6 - General Plan Policy ER 1.1.5 - No Net Increase: The City shall require all new development to contribute no net increase in stormwater runoff peak flows over existing conditions associated with a 100- year storm event.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, impacts to hydrology and water quality may be considered significant if construction and/or implementation of the Proposed Project would result in the following impacts that remain significant after implementation of General Plan policies or mitigation from the General Plan Master EIR:

- substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the Specific Plan or
- substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

Chapter 6.7 of the Master EIR evaluates the potential effects of the 2030 General Plan as they relate to surface water, groundwater, flooding, stormwater and water quality. Potential effects include water quality degradation due to construction activities (Impacts 6.7-1, 6.7-2), and exposure of people to flood risks (Impacts 6.7-3, 6.7-4). Policies included in the 2030 General Plan, including a directive for regional cooperation (Policies ER 1.1.2, EC 2.1.1, EC 2.1.1), comprehensive flood management (Policy EC 2.1.14), and construction of adequate drainage facilities with new development (Policy U 4.1.1) were identified that reduced all impacts to a less-than-significant level.

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

Question A

The Proposed CAP is consistent with the Goals, Policies, and Implementation Measures of the City's 2030 General Plan. Consistent with General Plan Policies to enhance stormwater quality (Policies ER 1.1.3 Stormwater Quality, ER 1.1.4 New Development, ER 1.1.5 No Net Increase, and ER 1.1.6 Post-Development Runoff), the Proposed CAP includes actions to further enhance stormwater quality. For example, the CAP requires development and adoption of regional Low Impact Development (LID) standards, including policies and updated codes and ordinances to require LID to reduce stormwater runoff and landscape water demands (eighth Supporting Action under Measure 5.1). In addition to reducing the rate and volume of stormwater runoff, LID practices also enhance the quality of stormwater runoff by incorporating features such as bioswales, bioretention facilities, rain gardens, vegetated rooftops, and permeable pavements. The Proposed CAP includes other measures that specifically promote the use of rain gardens and green roofs (sixth Supporting Action under Action 6.2.1; and sixth Supporting Action under Measure 6.1). The Proposed CAP would not allow development that is not allowed under the City's General Plan and would not result in construction activities not anticipated in the City's General Plan. Because the Proposed CAP is consistent with the Policies of the General Plan and would not increase development or construction beyond what was analyzed in the General Plan EIR, the Proposed CAP would not result in any impacts related to stormwater quality beyond what was analyzed in the General Plan Master EIR.

Question B

As mentioned under Question A above, the Proposed CAP promotes the existing requirement for development and adoption of regional LID standards, in part to reduce stormwater runoff. This is consistent with General Plan Policies for reduction of peak flow rates and velocities of runoff (Policies ER 1.1.4 New Development, ER 1.1.5 No Net Increase, and ER 1.1.6 Post-Development Runoff). Consequently, the Proposed CAP would further reduce the rate of stormwater runoff, which would reduce the potential for flooding. The Proposed CAP is consistent with the Policies of the General Plan and would not allow any development that was not identified in the General Plan and analyzed in the General Plan Master EIR, including development within floodplains. Therefore, the Proposed CAP would not result in impacts beyond what was analyzed in the General Plan Master EIR.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Hydrology and Water Quality.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>9. <u>LAND USE AND PLANNING</u> Would the proposal:</p> <p>A) Physically divide an established community?</p>			X
<p>B) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?</p>			X

ENVIRONMENTAL SETTING

Existing land uses in the City include a mix of high-density office buildings and retail, office and commercial areas concentrated in the downtown/Central City. Adjacent to the Central City to the east is a mix of higher density apartments, lofts, single-family residential intermixed with local-serving retail and commercial uses. Further to the east, the land uses transition to more low-density single-family residential with areas of commercial development and light industrial uses along major roadway corridors. To the south of the Central City, the land uses include a mix of low-density residential, neighborhood-serving retail, and pockets of undeveloped land. To the north of the Central City is the 240-acre Union Pacific railyards, recently approved for new residential, office, and commercial uses. Further north includes low-density single-family residential, including the North Natomas community as well as large regional retail centers and smaller neighborhood-serving commercial areas. Large areas of undeveloped land still exist in the northern portion of the General Plan Policy Area. (City of Sacramento 2009)

The 2030 General Plan designates land uses for properties within the Policy Area. The 2030 General Plan also includes Goals, Policies, and Implementation measures that guide the function and growth of the City.

STANDARDS OF SIGNIFICANCE

For the purposes of this Initial Study, an impact is considered significant if the proposed project would:

- physically divide an established community;
- conflict with applicable land use plans, policies, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

Regarding potential physical division of an established community, the General Plan Master EIR indicates that the policies contained within the ten Community Plans are consistent and compatible with the 2030 General Plan policies. Therefore, the 2030 General Plan has been designed as a cohesive plan that builds upon existing neighborhoods and developed areas and would not physically divide an existing established community.

The General Plan Master EIR indicates that because the General Plan includes implementation measures requiring timely revision of the Zoning Code to bring the Code into consistency with the 2030 General Plan, there would be no conflict with Zoning. The Master EIR further indicates that building of the General Plan would not conflict with the SMF (Sacramento International Airport) Master Plan. In addition, the 2030 General Plan includes the development assumptions included in the Sacramento Area Council of Government's (SACOG's) Blueprint allocated for the City of Sacramento in terms of population, housing units, and employment.

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

Question A

The Proposed CAP is consistent with the Goals, Policies, and Implementation Measures of the City's General Plan. The Proposed CAP would not allow development that is not allowed under the General Plan. Therefore, consistent with the conclusion of the General Plan Master EIR, implementation of the Proposed CAP would not result in development that could physically divide an existing community and the impact would be less than significant.

Question B

The Proposed CAP is designed to be consistent with the Goals and Policies of the General Plan, and, in many cases, provides more specific actions for Policies already identified in the General Plan, which were evaluated in the Master EIR. Because the Proposed CAP is consistent with the General Plan Goals and Policies, the Proposed CAP would not result in conflicts. In addition, the Proposed CAP would not allow any development that would not be consistent with land use designations specified by the General Plan and evaluated in the General Plan Master EIR. This impact is less than significant.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Land Use and Planning.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>9. NOISE</p> <p>Would the project:</p>			
<p>A) Result in exterior noise levels in the project area that are above the upper value of the normally acceptable category for various land uses due to the project's noise level increases?</p>			<p>X</p>
<p>B) Result in residential interior noise levels of 45 dBA L_{dn} or greater caused by noise level increases due to the project?</p>			<p>X</p>
<p>C) Result in construction noise levels that exceed the standards in the City of Sacramento Noise Ordinance?</p>			<p>X</p>
<p>D) Permit existing and/or planned residential and commercial areas to be exposed to vibration-peak-particle velocities greater than 0.5 inches per second due to project construction?</p>			<p>X</p>
<p>E) Permit adjacent residential and commercial areas to be exposed to vibration peak particle velocities greater than 0.5 inches per second due to highway traffic and rail operations?</p>			<p>X</p>
<p>F) Permit historic buildings and archaeological sites to be exposed to vibration-peak-particle velocities greater than 0.2 inches per second due to project construction and highway traffic?</p>			<p>X</p>

ENVIRONMENTAL SETTING

According to the City’s 2030 General Plan, land uses within the City include a range of residential, commercial, institutional, industrial, recreational, and open space areas. Although there are many noise sources within the City, the primary noise source is traffic. Motor vehicles commonly cause sustained noise levels in the vicinity of busy roadways or freeways. Several major freeways run through the Policy Area, including Interstate 5 (I-5), Interstate 80 (I-80), Capital City Freeway (SR 51), US 50, State Route (SR) 99, and SR 160. The City also has many local roads that experience high traffic volumes and contribute traffic noise. (City of Sacramento 2009)

Noise is also generated by airplane traffic, railroads, and various stationary sources. Five airports serve the City: Sacramento International Airport, Executive Airport, Mather Airport, McClellan Air Field and Rio Linda Airport. Union Pacific trains and light rail trains traverse the City, including through downtown. (City of Sacramento 2009)

A wide variety of stationary sources are also present in the City including heating and cooling equipment, landscape maintenance activities such as leaf-blowing and gasoline-powered lawnmowers, shipping and loading facilities, concrete crushing facilities, and recycling centers. Outdoor sporting facilities that can attract large numbers of spectators, such as high school or college football fields, can also produce noise that can affect nearby receptors. (City of Sacramento 2009)

Sensitive noise receptors in the City generally include residences, schools, child care centers, hospitals, long-term health care facilities, convalescent centers, and retirement homes. (City of Sacramento 2009)

GENERAL PLAN POLICIES CONSIDERED MITIGATION

The following General Plan policies would avoid or lessen environmental impacts as identified in the Master EIR and are considered mitigation measures for the following project-level and cumulative impacts.

Impact 6.8-4: Implementation of the 2030 General Plan could permit existing and/or planned residential and commercial areas to be exposed to vibration-peak-particle velocities greater than 0.5 inches per second due to project construction.

and

Impact 6.8-9: Implementation of the 2030 General Plan could result in cumulative construction vibration levels that exceed the vibration-peak-particle velocities greater than 0.5 inches per second.

General Plan Policy EC 3.1.5 – Interior Vibration Standards: The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.

Impact 6.8-5: Implementation of the 2030 General Plan could permit adjacent residential and commercial areas to be exposed to vibration peak particle velocities greater than 0.5 inches per second due to highway traffic and rail operations.

and

Impact 6.8-10: Implementation of the 2030 General Plan could result in cumulative impacts on adjacent residential and commercial areas being exposed to vibration peak particle velocities greater than 0.5 inches per second due to highway traffic and rail operations.

General Plan Policy EC 3.1.6 – Vibration Screening Distances: The City shall require new residential and commercial projects located adjacent to major freeways, hard rail lines, or light rail lines to follow the Federal Transit Administration (FTA) screening distance criteria.

Impact 6.8-6: Implementation of the 2030 General Plan could permit historic buildings and archeological sites to be exposed to vibration-peak-particle velocities greater than 0.25 inches per second due to project construction, highway traffic, and rail operations.

General Plan Policy EC 3.1.7 – Vibration: The City shall require an assessment of the damage potential of vibration-induced construction activities, highways, and rail lines in close

proximity to historic buildings and archeological sites and require all feasible mitigation measures be implemented to ensure no damage would occur.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, impacts due to noise may be considered significant if construction and/or implementation of the Proposed Project would result in the following impacts that remain significant after implementation of General Plan policies or mitigation from the General Plan Master EIR:

- result in exterior noise levels in the project area that are above the upper value of the normally acceptable category for various land uses due to the project's noise level increases;
- result in residential interior noise levels of 45 dBA Ldn or greater caused by noise level increases due to the project;
- result in construction noise levels that exceed the standards in the City of Sacramento Noise Ordinance;
- permit existing and/or planned residential and commercial areas to be exposed to vibration-peak-particle velocities greater than 0.5 inches per second due to project construction;
- permit adjacent residential and commercial areas to be exposed to vibration peak particle velocities greater than 0.5 inches per second due to highway traffic and rail operations; or
- permit historic buildings and archaeological sites to be exposed to vibration-peak-particle velocities greater than 0.2 inches per second due to project construction and highway traffic.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR evaluated the potential for development under the 2030 General Plan to increase noise levels in the community. New noise sources include vehicular traffic, aircraft, railways, light rail and stationary sources. The general plan policies establish exterior (Policy EC 3.1.1) and interior (EC 3.1.3) noise standards. A variety of policies provide standards for the types of development envisioned in the general plan. See Policy EC 3.1.8, which requires new mixed-use, commercial and industrial development to mitigate the effects of noise from operations on adjoining sensitive land use, and Policy 3.1.9, which calls for the City to limit hours of operations for parks and active recreation areas to minimize disturbance to nearby residences. Notwithstanding application of the general plan policies, noise impacts for exterior noise levels (Impact 6.8-1) and interior noise levels (Impact 6.8-2), and vibration impacts (Impact 6.8-4) were found to be significant and unavoidable.

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

Questions A through C

Consistent with General Plan Policies requiring new development to reduce operational emissions (Policies ER 6.1.2 and 6.1.3), the Proposed CAP includes Action 1.1.1 that requires new development to reduce VMT per capita to below 35 percent of the statewide average. The Proposed CAP also includes actions promoting increased transit availability and accessibility (Action 2.4.1 and Supporting Actions; Supporting Actions under Action 1.1.1;), as well as enhanced bicycle and pedestrian facilities (Action 2.1.1 and Supporting Actions; Action 2.3.1 and Supporting Actions; fifth Supporting Action under Measure 1.4). These requirements would reduce vehicle traffic generated by existing and future development and would subsequently reduce traffic noise further than the levels anticipated in the General Plan and analyzed in the General Plan Master EIR. The Proposed CAP would not allow any development to occur that would not be allowed under the General Plan. Therefore, implementation of the Proposed CAP would not generate new traffic noise and no new impact would occur beyond impacts evaluated in the General Plan Master EIR.

As mentioned above, the Proposed CAP actions promote expansion of transit, including increased frequency and number of lines and stops, above and beyond what is already planned in the Metropolitan Transportation Plan (Action 2.4.1). Proposed new light rail lines are identified in the City's 2030 General Plan. Adding light rail lines, trains, and stops to the existing system could result in additional rail-related noise generation along existing and future passenger and light rail corridors. Sacramento Regional Transit or the Public Utilities Commission (PUC) would be responsible for approving any expansion to light or passenger rail facilities (respectively) within the City. Any such approval for transit expansion would first require CEQA review, which would require noise-related impacts to be mitigated to the extent feasible. Therefore, although the CAP promotes the additional transit facilities, implementation of the CAP would not authorize their construction, and the Proposed CAP results in a less-than-significant impact related to noise.

Questions D through F

The Proposed CAP would not allow any development to occur that is not allowed under the City's 2030 General Plan. Impacts associated with construction-related vibration were evaluated in the General Plan Master EIR, and implementation of the Proposed CAP would not result in any vibration-related impacts above and beyond those evaluated in the General Plan Master EIR.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Noise.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p><u>10. POPULATION AND HOUSING</u></p> <p>Would the project:</p>			
<p>A) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?</p>			X
<p>B) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?</p>			X
<p>C) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?</p>			X

ENVIRONMENTAL SETTING

According to the City’s General Plan Master EIR, population within the City of Sacramento is forecasted to reach 641,000 by 2030. Based on historical trends in the region, it is highly unlikely that the City’s population would exceed the General Plan 2030 dial-down assumption. Buildout under the General Plan’s Preferred Land Use Diagram would, based on these assumptions, accommodate the projected population growth.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, impacts population and housing may be considered significant if implementation of the Proposed CAP would:

- directly or indirectly induce substantial population growth;
- displace substantial numbers of existing housing necessitating construction of new housing; or
- displace substantial numbers of people necessitating construction of replacement housing;

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The General Plan Master EIR includes a general discussion of the various policies and implementation measures that ensure consistency with population, housing, and employment projections.

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTION

Questions A through C

The Proposed CAP includes Measures and Actions that are consistent with the Goals, Policies, and Implementation Measures of the City's 2030 General Plan. The Proposed CAP does not include any Measures or Actions that would directly or indirectly result in population growth beyond what was evaluated in the General Plan Master EIR. In addition, the Proposed CAP does not allow development (or demolition) that would not be allowed under the General Plan; therefore, the Proposed CAP would not result in displacement of housing or people beyond what was evaluated in the General Plan Master EIR.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Population and Housing.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>11. <u>PUBLIC SERVICES</u></p> <p>Would the project result in the need for new or altered services related to fire protection, police protection, school facilities, roadway maintenance, or other governmental services beyond what was anticipated in the 2030 General Plan?</p>			X

ENVIRONMENTAL SETTING

According to the City’s 2030 General Plan Master EIR, the Sacramento Police Department (SPD) is principally responsible for providing police protection services for areas within the City. In addition to the SPD, the Sacramento County Sheriff’s Department, California Highway Patrol (CHP), University of California, Davis (UC Davis) Medical Center Police Department, and the Regional Transit Police Department support the SPD to provide police protection within the General Plan Policy Area.(City of Sacramento 2009)

The Sacramento Fire Department (SFD) provides fire protection services to the entire City, which includes approximately 98 square miles within the existing City limits as well as three contract areas that include 47 square miles immediately adjacent to the City boundaries within the unincorporated county. (City of Sacramento 2009)

The City of Sacramento and County of Sacramento both implement programs to facilitate emergency preparedness. Specifically, the City of Sacramento Multi-Hazard Emergency Plan addresses the City’s planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and nuclear defense operations for areas within the City’s jurisdictional boundaries. (City of Sacramento 2009)

The Sacramento City Unified School District (SCUSD) is the primary provider of primary and secondary education within the City. Other districts serving residents within the City include the North Sacramento School District (NSSD), Robla School District (RSD), Del Paso Heights School District (DPHSD), Grant Joint Union High School District (GJUHSD), Natomas Unified School District (NUSD), San Juan Unified School District (SJUSD), Rio Linda Union School District (RLUSD), and the Elk Grove Unified School District (EGUSD). Some of these districts have schools outside the City limits but within the General Plan Policy Area. (City of Sacramento 2009)

STANDARDS OF SIGNIFICANCE

For the purposes of this Initial Study, an impact would be considered significant if the project resulted in the need for new or altered services related to fire protection, police protection, school facilities, roadway maintenance, or other governmental services beyond what was anticipated in the 2030 General Plan.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR evaluated the potential effects of the 2030 General Plan on various public services. These include parks (Chapter 6.9) and police, fire protection, schools, libraries and emergency services (Chapter 6.10).

The general plan provides that adequate staffing levels for police and fire are important for the long-term health, safety and well-being of the community (Goal PHS 1.1, PHS 2.1). The Master EIR concluded that effects would be less than significant.

General plan policies that call for the City to consider impacts of new development on schools (see, for example, Policy ERC 1.1.2 setting forth locational criteria, and Policy ERC 1.1.5 that encourages joint-use development of facilities) reduced impacts on schools to a less-than-significant level. Impacts on library facilities were also considered less than significant (Impact 6.10-8).

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTION

The Proposed CAP is consistent with the Goals, Policies, and Implementation Measures of the City's 2030 General Plan. The Proposed CAP would also not allow any development that is not currently allowed under the General Plan. The Measures and Actions identified in the CAP do not directly affect any of the public services evaluated in the General Plan Master EIR. Therefore, implementation of the Proposed CAP would not result in impacts to public services beyond those analyzed in the General Plan Master EIR.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Public Services.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
12. <u>RECREATION</u> Would the project: A) Cause or accelerate substantial physical deterioration of existing area parks or recreational facilities?			X
B) Create a need for construction or expansion of recreational facilities beyond what was anticipated in the 2030 General Plan?			X

ENVIRONMENTAL SETTING

The Parks Department maintains more than 2,400 acres of developed parkland, and manages more than 212 parks, 79 miles of road bikeways and trails, 17 lakes, ponds or beaches, over 20 aquatic facilities and provides park and recreation services at City-owned facilities within the City of Sacramento. Several facilities within the City of Sacramento are owned or operated by other jurisdictions, such as the County of Sacramento and the State of California. The City of Sacramento Parks and Recreation Master Plan (PRMP) guides park development in the City. (City of Sacramento 2009)

The City maintains a service level of approximately 8.7 acres per 1,000 residents. With the existing trails and bikeways located throughout the City, the current service level is 0.2 miles of trails/bikeways per 1,000 residents. (City of Sacramento 2009)

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, impacts to recreational resources are considered significant if the proposed project would do either of the following:

- cause or accelerate substantial physical deterioration of existing area parks or recreational facilities; or
- create a need for construction or expansion of recreational facilities beyond what was anticipated in the 2030 General Plan.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

Chapter 6.9 of the Master EIR considered the effects of the 2030 General Plan on the City's existing parkland, urban forest, recreational facilities and recreational services. The general plan identified a goal of providing an integrated park and recreation system in the City (Goal ERC 2.1). New residential development will be required to dedicate land, pay in-lieu fees or otherwise contribute a fair share to the acquisition and development of parks and recreation facilities.

(Policy ERC 2.2.4) Impacts were considered less than significant after application of the applicable policies. (Impacts 6.9-1 and 6.9-2)

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None required.

ANSWERS TO CHECKLIST QUESTIONS

Questions A and B

The Measures and Actions identified in the Proposed CAP are consistent with the Goals, Policies, and Implementation Measures of the City's General Plan. Implementation of the Proposed CAP would not result in development that is not currently allowed under the City's General Plan. Therefore, the Proposed CAP would not result in increased residential development that would increase demand for parks such that new parks would be necessary or increase the use of parks and recreational facilities such that physical deterioration would occur. Further, the Proposed CAP includes actions promoting preservation of existing open space (fourth Supporting Action under Action 6.2.1; third Supporting Action under Measure 6.7). Consistent with the conclusion of the General Plan Master EIR, the Proposed CAP would result in a less-than-significant impact related to parks and recreation.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Recreation.

Issues:	Effect remains significant with all identified mitigation	Effect can be mitigated to less than significant	No additional significant environmental effect
13. <u>TRANSPORTATION AND CIRCULATION</u>			
Would the project:			
A) Roadway segments: degrade peak period Level of Service (LOS) from A,B,C or D (without the project) to E or F (with project) or the LOS (without project) is E or F, and project generated traffic increases the Volume to Capacity Ratio (V/C ratio) by 0.02 or more.			X
B) Intersections: degrade peak period level of service from A, B, C or D (without project) to E or F (with project) or the LOS (without project) is E or F, and project generated traffic increases the peak period average vehicle delay by five seconds or more?			X
C) Freeway facilities: off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway; project traffic increases that cause any ramp's merge/diverge level of service to be worse than the freeway's level of service; project traffic increases that cause the freeway level of service to deteriorate beyond level of service threshold defined in the Caltrans Route Concept Report for the facility; or the expected ramp queue is greater than the storage capacity?			X
D) Transit: adversely affect public transit operations or fail to adequately provide for access to public?			X
E) Bicycle facilities: adversely affect bicycle travel, bicycle paths or fail to adequately provide for access by bicycle?			X
F) Pedestrian: adversely affect pedestrian travel, pedestrian paths or fail to adequately provide for access by pedestrians?			X

ENVIRONMENTAL SETTING

The 2030 General Plan Master EIR states indicates that the highway network serving the City plays an important role in regional travel by connecting to and complementing the local street network. The larger highway and arterial classifications predominantly serve “through travel” rather than local trips. (City of Sacramento 2009)

The City's roadway network consists of local, collector, and arterial roadways. The most common type of major roadway within the City is a four-lane arterial, although six and eight-lane arterials are also provided in areas with high traffic volumes. (City of Sacramento 2009)

The Sacramento RT District provides local bus and light rail service within the City and greater Sacramento area. RT operates 97 bus routes with 256 compressed natural gas powered buses and 16 shuttle vans and provides approximately 37 miles of light rail service with 76 vehicles within the greater Sacramento area. (City of Sacramento 2009)

Greyhound provides regional transit service to the City and operates a newly constructed 24-hour station on Richards Boulevard. Amtrak provides passenger train service and has a station in downtown Sacramento on I Street. Amtrak offers round-trip train service from downtown Sacramento to the San Francisco Bay Area and to Placer County. (City of Sacramento 2009) Amtrak also offers connecting bus service to locations throughout the Central Valley.

The City adopted the 2010 Sacramento City/County Bikeway Master Plan in 1995. The plan identifies existing and planned bicycle trails and routes within the City, the needs of recreating and commuting bicyclists, and the appropriate bikeway design features. Bikeways are classified into the following three types.

- Class I—off-street bike paths
- Class II—on-street bike lanes marked by pavement striping and signage
- Class III—on-street bike routes that share the road with motorized vehicles

The City of Sacramento has 2,300 miles of sidewalks. However, over 400 miles of roads in Sacramento do not have sidewalks or pedestrian facilities. The City has implemented community programs and adopted guidelines over the past several years to enhance the pedestrian environment within Sacramento. (City of Sacramento 2009)

GENERAL PLAN POLICIES CONSIDERED MITIGATION

The following General Plan policy would avoid or lessen environmental impacts as identified in the Master EIR and is considered a mitigation measure for the following project-level and cumulative impacts.

Impact 6.12-1: Implementation of the 2030 General Plan could result in roadway segments located within the Policy Area that do not meet the City's current Level of Service (LOS) standard or the LOS D – E goal.

and

Impact 6.12-8: Implementation of the 2030 General Plan could result in a cumulative increase in traffic that would adversely impact the existing LOS for City roadways.

Mitigation Measure 6.12-1 - General Plan Policy M 1.2.2 - LOS Standard: The City shall allow for flexible Level of Service (LOS) standards, which will permit increased densities and mix of uses to increase transit ridership, biking, and walking, which decreases auto travel, thereby reducing air pollution, energy consumption, and greenhouse gas emissions.

a. Core Area Level of Service Exemption-LOS F conditions are acceptable during peak hours in the Core Area bounded by C Street, the Sacramento River, 30th Street, and X Street. If a Traffic Study is prepared and identifies a LOS impact that would otherwise be considered significant to a roadway or intersection that is in the Core Area as described above, the project would not be required in that particular instance to widen roadways in order for the City to find project conformance with the General Plan. Instead, General Plan conformance could still be found if the project provides improvements to other parts of the citywide transportation system in order to improve transportation-system-wide roadway capacity, to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. The improvements would be required within the project site vicinity or within the area affected by the project's vehicular traffic impacts. With the provision of such other transportation infrastructure improvements, the project would not be required to provide any mitigation for vehicular traffic impacts to road segments in order to conform to the General Plan. This exemption does not affect the implementation of previously approved roadway and intersection improvements identified for the Railyards or River District planning areas.

b. Level of Service Standard for Multi-Modal Districts-The City shall seek to maintain the following standards in the Central Business District, in areas within 1/2 mile walking distance of light rail stations, and in areas designated for urban scale development (Urban Centers, Urban Corridors, and Urban Neighborhoods as designated in the Land Use and Urban Form Diagram). These areas are characterized by frequent transit service, enhanced pedestrian and bicycle systems, a mix of uses, and higher-density development.

- Maintain operations on all roadways and intersections at LOS A-E at all times, including peak travel times, unless maintaining this LOS would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. LOS F conditions may be acceptable, provided that provisions are made to improve the overall system and/or promote non-vehicular transportation and transit as part of a development project or a City-initiated project.

c. Base Level of Service Standard-the City shall seek to maintain the following standards for all areas outside of multi-modal districts.

- Maintain operations on all roadways and intersections at LOS A-D at all times, including peak travel times, unless maintaining this LOS would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. LOS E or F conditions may be accepted, provided that provisions are made to improve the overall system and/or promote non-vehicular transportation as part of a development project or a City-initiated project.

d. Roadways Exempt from Level of Service Standard-The above LOS standards shall apply to all roads, intersections or interchanges within the City except as specified below. If a Traffic Study is prepared and identifies a significant LOS impact to a roadway or intersection that is located within one of the roadway corridors described below, the project would not be required in that particular instance to widen roadways in order for the City to find project conformance with the General Plan. Instead, General Plan conformance could still be found if the project provides improvements to other parts of the City wide transportation system in order to improve transportation-system-wide roadway capacity to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. The improvements would be required

within the project site vicinity or within the area affected by the project's vehicular traffic impacts. With the provision of such other transportation infrastructure improvements, the project would not be required to provide any mitigation for vehicular traffic impacts to the listed road segment in order to conform to the General Plan.

- 12th/14th Avenue: State Route 99 to 36th Street
- 24th Street: Meadowview Road to Delta Shores Circle
- 65th Street: Folsom Boulevard to 14th Avenue
- Alhambra Boulevard: Folsom Boulevard to P Street
- Arcade Boulevard: Marysville Boulevard to Del Paso Boulevard
- Arden Way: Capital City Freeway to Ethan Way
- Blair Avenue/47th Avenue: S. Land Park Drive to Freeport Boulevard
- Broadway: 15th Street to Franklin Boulevard
- Broadway: 58th to 65th Streets
- El Camino Avenue: Stonecreek Drive to Marysville Boulevard
- El Camino Avenue: Capitol City Freeway to Howe Avenue
- Elder Creek Road: 65th Street to Power Inn Road
- Florin Perkins Road: 14th Avenue to Elder Creek Road
- Florin Road: Greenhaven Drive to 1-5; 24th Street to Franklin Boulevard
- Folsom Boulevard: 34th Street to Watt Avenue
- Freeport Boulevard: Broadway to Seamas Avenue
- Fruitridge Road: Franklin Boulevard to SR 99
- Garden Highway: Truxel Road to Northgate Boulevard
- Howe Avenue: American River Drive to Folsom Boulevard
- J Street: 43rd Street to 56th Street
- Mack Road: Meadowview Road to Stockton Boulevard
- Martin Luther King Boulevard: Broadway to 12th Avenue
- Marysville Boulevard., 1-80 to Arcade Boulevard
- Northgate Boulevard: Del Paso Road to SR 160
- Raley Boulevard: Bell Avenue to 1-80
- Roseville Road: Marconi Avenue to 1-80
- Royal Oaks Drive: SR 160 to Arden Way
- Truxel Road: 1-80 to Gateway Park

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, impacts resulting from changes in transportation or circulation may be considered significant if construction and/or implementation of the Proposed Project would result in the following impacts that remain significant after implementation of General Plan policies or mitigation from the General Plan Master EIR:

Roadway Segments

- the traffic generated by a project degrades peak period Level of Service (LOS) from A,B,C or D (without the project) to E or F (with project) or
- the LOS (without project) is E or F, and project generated traffic increases the Volume to Capacity Ratio (V/C ratio) by 0.02 or more.

Intersections

- the traffic generated by a project degrades peak period level of service from A, B, C or D (without project) to E or F (with project) or
- the LOS (without project) is E or F, and project generated traffic increases the peak period average vehicle delay by five seconds or more.

Freeway Facilities

Caltrans considers the following to be significant impacts.

- off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway;
- project traffic increases that cause any ramp's merge/diverge level of service to be worse than the freeway's level of service;
- project traffic increases that cause the freeway level of service to deteriorate beyond level of service threshold defined in the Caltrans Route Concept Report for the facility; or
- the expected ramp queue is greater than the storage capacity.

Transit

- adversely affect public transit operations or
- fail to adequately provide for access to public transit.

Bicycle Facilities

- adversely affect bicycle travel, bicycle paths or
- fail to adequately provide for access by bicycle.

Pedestrian Circulation

- adversely affect pedestrian travel, pedestrian paths or
- fail to adequately provide for access by pedestrians.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

Transportation and circulation were discussed in the Master EIR in Chapter 6.12. Various modes of travel were included in the analysis, including vehicular, transit, bicycle, pedestrian and aviation components. The analysis included consideration of roadway capacity and identification of levels of service, and effects of the 2030 General Plan on the public transportation system. Provisions of the 2030 General Plan that provide substantial guidance

include Goal Mobility 1.1, calling for a transportation system that is effectively planned, managed, operated and maintained, promotion of multimodal choices (Policy M 1.2.1), identification of level of service standards (Policy M 1.2.2), development of a fair share funding system for Caltrans facilities (Policy M 1.5.6) and development of complete streets (Goal M 4.2).

While the general plan includes numerous policies that direct the development of the City's transportation system, the Master EIR concluded that the general plan development would result in significant and unavoidable effects. See Impacts 6.12-1, 6.12-8 (roadway segments in the City), Impacts 6.12-2, 6.12-9 (roadway segments in neighboring jurisdictions), and Impacts 6.12-3, 6.12-10 (freeway segments).

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None.

ANSWERS TO CHECKLIST QUESTIONS

Questions A through C

One of the most effective strategies for reducing the City's GHG emissions is to reduce traffic generation and, therefore, vehicle miles traveled (VMT). The Proposed CAP therefore includes several Actions aimed at reducing auto trips and increasing use of transit and other alternate modes. The most noteworthy single Action to reduce auto trips is the requirement that new development reduce VMT per capita 35 percent below the statewide annual average of approximately 9,000 VMT/capita in 2009 (Action 1.1.1) (FHWA 2009 and US Census Bureau 2009). This Action represents a substantial reduction in VMT, and would reduce traffic generation below what was analyzed in the General Plan Master EIR. Reduced traffic generation generally translates into increased roadway and intersection levels of service (LOS) (including improved LOS on freeway mainlines and on- and off-ramps) than the LOS identified under the General Plan Master EIR. Other Measures and Actions included in the CAP would also reduce VMTs, such as promoting transit oriented development, working with local partners to increase transit availability and access, enhancing bicycle and pedestrian facilities, etc (Action 2.4.1 and Supporting Actions; Supporting Actions under Action 1.1.1; Action 2.1.1 and Supporting Actions; Action 2.3.1 and Supporting Actions; fifth Supporting Action under Measure 1.4). These actions are consistent with Goals, Policies, and Implementation measures identified in the General Plan. The Proposed CAP would not result in impacts related to vehicular traffic beyond what was analyzed in the General Plan EIR.

Questions D through F

As mentioned above, the CAP promotes reduction of VMTs in part by promoting alternative modes, such as transit, bicycling, and walking. Although implementation of the Proposed CAP would substantially increase demand for transit, bicycle, and pedestrian facilities, the Proposed CAP includes several Actions for enhancing these facilities to accommodate their additional use (Action 2.4.1 and Supporting Actions; Supporting Actions under Action 1.1.1; Action 2.1.1 and Supporting Actions; Action 2.3.1 and Supporting Actions; fifth Supporting Action under Measure 1.4). In fact, the enhancement of these features is designed to attract users. Therefore, although implementation of the CAP would increase demand for alternative modes, the increased demand would result in large part from, and would simultaneously be accommodated by, the proposed enhancement of the facilities. This impact is considered less than significant.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Transportation and Circulation.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
<p>14. <u>UTILITIES AND SERVICE SYSTEMS</u></p> <p>Would the project:</p> <p>A) Result in the determination that adequate capacity is not available to serve the project's demand in addition to existing commitments?</p>			X
<p>B) Require or result in either the construction of new utilities or the expansion of existing utilities, the construction of which could cause significant environmental impacts?</p>			X

ENVIRONMENTAL SETTING

The City of Sacramento provides municipal water service to the area within the City limits and to several small areas within the county of Sacramento. The City's water facilities also include water storage reservoirs, pumping facilities, and a system of transmission and distribution mains. The City possesses surface water rights to divert both Sacramento and American river water. The Fairbairn Water Treatment Plant (FWTP) and the Sacramento River Water Treatment Plant divert water from the American and Sacramento rivers, respectively. The City also currently operates 33 permitted municipal groundwater supply wells within the City limits that pump from the North American and South American Groundwater basins. (City of Sacramento 2009)

The City provides wastewater collection to about two-thirds of the area within the City limits. Within the City, there are two distinct areas: areas served by a separate sewer system, and an area served by a combined sewer system. The Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Area Sewer District (formerly County Services District [CSD-1]) provide both collection and treatment services within their service area for the portions of the City served by the separate sewer system. The older Central City area is served by a system in which sanitary sewage and storm drainage are collected and conveyed in the same system of pipelines, referred to as the Combined Sewer System (CSS). The Sacramento Regional Wastewater Treatment Plant (SRWTP), which is located just south of the City Limits, is owned and operated by SRCSD and provides sewage treatment for the entire Policy Area. Sewage is routed to the wastewater treatment plant by collections systems owned by SRCSD and the cities of Sacramento and Folsom. (City of Sacramento 2009)

The City's separate storm drainage system includes conveyance of storm water and dry weather urban runoff to the adjacent creeks and rivers. The separate drainage system consists of street drains, conveyance systems, and usually a pump station to discharge into either the Sacramento or American River. These discharges are regulated for water quality by the Regional Water Quality Control Board NPDES permit R5-2002-0206. (City of Sacramento 2009)

Solid waste in the City of Sacramento is collected by City and permitted private haulers. The City offers both commercial and residential solid waste collection services. Construction and demolition waste is collected by the City and private companies. Commercial solid waste is

transported to either the Sacramento Recycling and Transfer Station owned by BLT Enterprises or the North Area Transfer Station. From the City's transfer stations the commercial solid waste is then transported to the Lockwood Regional Landfill located in Sparks, Nevada. If residential and municipal solid waste is taken to the North Area Recovery Station (NARS)/County Facility for processing the waste is then transported to the Sacramento County (Kiefer) Landfill, operated by the County's Solid Waste Management and Recycling Department (the primary solid waste disposal facility in Sacramento County). Kiefer Landfill, categorized as a Class III facility, also accepts waste from the general public, businesses, and private waste haulers. (City of Sacramento 2009)

The City also provides residential curb-side recycling pick-up. Following collection, recyclables are transferred to the Sacramento Transfer Station for processing. The City also offers a commercial recycling program in which businesses are provided containers for co-mingled recyclable materials. (City of Sacramento 2009)

The Sacramento Municipal Utility District (SMUD) is responsible for the generation, transmission, and distribution of electrical power to its 900 square mile service area, which includes most of Sacramento County and a small portion of Placer County. SMUD is a publicly owned utility governed by a board of seven directors that make policy decisions and appoint the general manager, the individual responsible for the District's operations. SMUD obtains its electricity from a variety of sources, including hydro-generation, cogeneration plants, advanced and renewable technologies (such as wind, solar, and biomass/landfill gas power) and power purchased on the wholesale market. (City of Sacramento 2009)

Natural gas service is provided to the City of Sacramento by PG&E. PG&E provides electrical and natural gas services through state regulated public utility contracts. The utility company is bound by contract to update its systems to meet any additional demand. (City of Sacramento 2009)

STANDARDS OF SIGNIFICANCE

For the purposes of this Initial Study, an impact would be considered significant if the project resulted in the need for new or altered services related to fire protection, police protection, or school facilities beyond what was anticipated in the 2030 General Plan:

- result in the determination that adequate capacity is not available to serve the project's demand in addition to existing commitments or
- require or result in either the construction of new utilities or the expansion of existing utilities, the construction of which could cause significant environmental impacts.

Summary of Analysis under the 2030 General Plan Master EIR, Including Cumulative Impacts, Growth Inducing Impacts, and Irreversible Significant Effects

The Master EIR evaluated the effects of development under the 2030 General Plan on water supply, sewer and storm drainage, solid waste, electricity, natural gas and telecommunications. See Chapter 6.11.

The Master EIR evaluated the impacts of increased demand for water that would occur with development under the 2030 General Plan. Policies in the general plan would reduce the impact generally to a less-than-significant level (see Impact 6.11-1) but the need for new water supply

facilities results in a significant and unavoidable effect (Impact 6.11-2). The potential need for expansion of wastewater treatment facilities was identified as having a significant and unavoidable effect (Impacts 6.11-4, 6.11-5). Impacts on solid waste facilities were less than significant (Impacts 6.11-7, 6.11-8). Implementation of energy efficient standards as set forth in Titles 20 and 24 of the California Code of Regulations for residential and non-residential buildings, would reduce effects for energy to a less-than-significant level.

Mitigation Measures from 2030 General Plan Master EIR that apply to the Project

None available.

ANSWERS TO CHECKLIST QUESTIONS

Questions A and B

The Proposed CAP is consistent with the Goals, Policies, and Implementation Measures identified in the City's 2030 General Plan. In some instances, the Proposed CAP identifies more specific measures for reducing the City's overall emission of greenhouse gases. Several Measures and Actions identified in the Proposed CAP include water conservation and wastewater minimization to effectively reduce emission of greenhouse gases (Action 3.2.2, 3.2.3, and 3.2.4; Supporting Actions under Measure 5.1). The Proposed CAP also encourages utilization of LID practices (eighth Supporting Action under Measure 5.1), which reduces demand for drainage facilities. The Proposed CAP generally results in further reduction of the demand for water, wastewater, and drainage facilities than implementation of the Policies and Implementation Measures of the General Plan and would therefore result in fewer impacts than were analyzed in the General Plan Master EIR.

Regarding electricity and natural gas, reduction in overall energy demand is one of the key strategies of the Proposed CAP. Implementation of the Proposed CAP would not result in an increased demand for electricity or natural gas, but would result in a decrease in demand from levels that would occur upon buildout of the General Plan and from what were analyzed in the General Plan Master EIR.

Likewise, on the topic of solid waste, the Proposed CAP encourages increased recycling and reduced waste generation (Supporting Actions under Measure 4.1; Action 4.2.1 and Supporting Actions; and Supporting Actions under Measure 4.3). However, the Proposed CAP also encourages the use of more local landfills (and reduce waste sent to Lockwood in Nevada) to reduce the City's total VMT (Action 2.5.1). This raises the question of whether local landfills would have capacity to accept the solid waste that is currently transported to Lockwood (800 tons per day according to the General Plan Master EIR). Using Kiefer as an example, according to CalRecycle's Solid Waste Information System (SWIS) database, Kiefer's permitted capacity is 117,400,000 cubic yards (10,815 tons/day) and, as of 2005, the landfill had a remaining capacity of 112,900,000 cubic yards. (CalRecycle 2011) Therefore, even if the entire tonnage of solid waste currently disposed of at Lockwood was transferred to Keifer, the additional 800 tons per day would represent only 7 percent of the Kiefer's total daily capacity. Implementation of this Action of the Proposed CAP would not affect capacity of local landfills such that new facilities would be required. This impact is less than significant.

MITIGATION MEASURES

No mitigation measures required.

FINDINGS

The project would have no additional project-specific environmental effects relating to Utilities and Service Systems.

MANDATORY FINDINGS OF SIGNIFICANCE

Issues:	Effect remains significant with all identified mitigation	Effect can be mitigated to less than significant	No additional significant environmental effect
15. MANDATORY FINDINGS OF SIGNIFICANCE			
A.) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X
B.) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X
C.) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

ANSWERS TO CHECKLIST QUESTIONS

Questions A through C

As described in the biological resources analysis of this Initial Study, the Proposed CAP promotes preservation of open space and wildlife habitat and improvement of water quality and would not result in impacts beyond those evaluated in the General Plan Master EIR. The Proposed CAP would result in a less-than-significant impact related to quality of the environment, reduction of wildlife habitat or population, elimination of plant or animal community, or reduction in number or restriction in range of special-status species.

Also, as indicated in the cultural resources analysis of this Initial Study, the Proposed CAP would not result in development or other ground disturbing construction activities beyond those anticipated under the 2030 General Plan; therefore, subsurface archaeological resources would not be affected beyond what was evaluated under the General Plan Master EIR. The project

would result in a less-than-significant impact related to elimination of important examples of the major periods of California history or prehistory.

The Master EIR evaluated cumulative impacts associated with implementation of the 2030 General Plan. The Proposed CAP is consistent with the Goals, Policies, and Implementation Measures identified in the General Plan and would not allow development that is not allowed under the General Plan. Therefore, as described throughout this Initial Study, impacts resulting from the Proposed CAP, including cumulative impacts, would not be greater than the impacts analyzed in the Master EIR.

Implementation of the Proposed CAP would reduce the City's overall emission of greenhouse gases, which would not only help curb global climate change, but would also result in improved air quality due to the reduction of air pollutants associated with emission of greenhouse gases. Implementation of the Proposed CAP would not result in direct or indirect adverse effects related to human health that were not addressed in the General Plan Master EIR.

SECTION IV - ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would potentially be affected by this project.

- | | |
|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Hazards |
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Energy and Mineral Resources | <input type="checkbox"/> Transportation/Circulation |
| <input type="checkbox"/> Geology and Soils | <input type="checkbox"/> Utilities and Service Systems |
| <input type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> None Identified | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

SECTION V - DETERMINATION

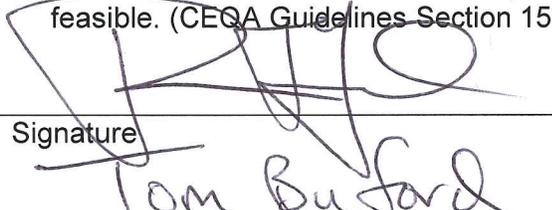
On the basis of the initial study:

X I find that (a) the proposed project is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR; (b) the proposed project is consistent with the 2030 General Plan land use designation and the permissible densities and intensities of use for the project site; and (c) the proposed project will not have any project-specific additional significant environmental effects not previously examined in the Master EIR, and no new mitigation measures or alternatives will be required. Mitigation measures from the Master EIR will be applied to the proposed project as appropriate. Notice shall be provided pursuant to CEQA Guidelines Section 15087. (CEQA Guidelines Section 15177(b))

I find that (a) the proposed project is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR; (b) the proposed project is consistent with the 2030 General Plan land use designation and the permissible densities and intensities of use for the project site; (c) that the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the Master EIR are adequate for the proposed project; and (d) the proposed project will have additional significant environmental effects not previously examined in the Master EIR. A Mitigated Negative Declaration will be prepared. Mitigation measures from the Master EIR will be applied to the project as appropriate, and additional feasible mitigation measures and alternatives will be incorporated to revise the proposed project before the negative declaration is circulated for public review, to avoid or mitigate the identified effects to a level of insignificance. (CEQA Guidelines Section 15178(b))

I find that (a) the proposed project is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR; (b) the proposed is consistent with the 2030 General Plan land use designation and the permissible densities and intensities of use for the project site; (c) that the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the Master EIR are adequate for the proposed project; and (d) the proposed project **will** have additional significant environmental effects not previously examined in the Master EIR. A focused EIR shall be prepared which shall incorporate by reference the Master EIR and analyze only the project-specific significant environmental effects and any new or additional mitigation measures or alternatives that were not identified and analyzed in the Master EIR. Mitigation measures from the Master EIR will be applied to the project as appropriate. (CEQA Guidelines Section 15178(c))

I find that (a) the proposed project is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR; (b) the proposed project is consistent with the 2030 General Plan land use designation and the permissible densities and intensities of use for the project site; (c) that the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the Master EIR are not adequate for the proposed project; and (d) the proposed project will have additional significant environmental effects not previously examined in the Master EIR. An EIR shall be prepared, which shall tier off of the Master EIR to the extent feasible. (CEQA Guidelines Section 15178(e))



Signature

Printed Name
Tom Buford

November 14, 2011

Date

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RESOLUTION NO. XXXX-

Adopted by the Sacramento City Council

ADOPTING THE CLIMATE ACTION PLAN

BACKGROUND

- A. The California Global Warming Solutions Act of 2006 (AB 32) set a statewide goal of reducing greenhouse gas emissions to 1990 levels by the year 2020.
- B. The AB 32 Scoping Plan, adopted in 2008 by the California Air Resources Board, recommended that local governments take action to reduce communitywide greenhouse gas emissions to at least 15% below current levels by the year 2020, which is estimated to be equivalent to achieving 1990 levels by 2020 at the local level.
- C. The 2030 General Plan was adopted on March 3, 2009, and a Climate Action Plan was identified by City Council as a priority General Plan implementation program and mitigation measure to be completed by July 2011.
- D. The City Council adopted Phase 1 of the Climate Action Plan on February 16, 2010, which identified strategies to reduce greenhouse gas emissions from the City's internal municipal operations 15% below 2005 levels by the year 2020.
- E. On August 16, 2011, the City Council adopted greenhouse gas emission reduction targets as follows: 15% below 2005 levels by 2020, consistent with CA Air Resources Board guidance to local governments in the AB 32 Scoping Plan; and interim communitywide targets of 38% below 2005 levels by 2030, and 83% below 2005 levels by 2050, consistent with policies established in the Sustainability Master Plan. City Council also approved measurable performance goals and a draft emissions reduction measures framework, and directed staff to prepare a Draft Climate Action Plan for public review.
- F. On November 3, 2011, the Draft Climate Action Plan was completed and circulated for public review.
- G. At its regular meeting on December 8, 2011, the City Planning Commission received and considered public testimony concerning the Draft Climate Action Plan, and forwarded to the City Council a recommendation to adopt the Climate Action Plan.

H. At its regular meeting on January 31, 2012, the City Council received and considered public testimony concerning the Climate Action Plan.

BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:

Section 1. Environmental Determination: The City has approved the environmental review for the Climate Action Plan, and has determined that it is within the scope of the 2030 General Plan Master EIR by Resolution No. _____.

Section 2. The City Council finds that the Climate Action Plan is consistent with the 2030 General Plan, the intent of the Global Warming Solutions Act of 2006 (AB 32), and the Sustainability Master Plan. The City Council further finds that the Climate Action Plan is a plan for the reduction of greenhouse gas emissions within the meaning of CEQA Guidelines section 15183.5, and may be used in the cumulative impacts analysis for later projects as appropriate.

Section 4. The City Council hereby adopts the Climate Action Plan and directs staff to implement the strategies, measures and actions identified in the Plan.



CITY OF SACRAMENTO
creating a sustainable city

SACRAMENTO CLIMATE ACTION PLAN

Final Draft

JANUARY 13, 2012

Prepared by
The City of Sacramento

In consultation with
Ascent Environmental, Inc.
Mintier Harnish
Fehr & Peers
The Energy Alliance Association



CITY OF SACRAMENTO CLIMATE ACTION PLAN

FINAL DRAFT

January 13, 2012



Prepared by

City of Sacramento

In consultation with

Ascent Environmental, Inc.

Mintier Hamish

Fehr & Peers

The Energy Alliance Association

ACKNOWLEDGMENTS

MAYOR AND CITY COUNCIL

Kevin Johnson, Mayor
 Angelique Ashby, District 1
 Sandy Sheedy, District 2
 Steve Cohn, District 3
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 Anna Molander, Commissioner
 Michael Notestine, Commissioner
 Michelle Smira, Commissioner
 Bill Wong, Commissioner

CITY OF SACRAMENTO STAFF

Community Development Department

David Kwong, Planning Director
 Tom Pace, Principal Planner
 Erik DeKok, Senior Planner
 Jamie Cutlip, Associate Planner
 Helen Selph, Associate Planner
 Dana Allen, Associate Planner
 Jim McDonald, Senior Planner

Department of Utilities

Chris Thoma, Program Analyst
 Doug Huston, Waste Reduction Coordinator
 Julie Friedman, Water Conservation Administrator
 Jim Peifer, Senior Engineer
 Cristina Lupercio, Student Intern
 Marty Strauss, Integrated Waste Planning Superintendent

Department of Transportation

Ed Cox, Alternate Modes Coordinator

Economic Development Department

Maurice Chaney, Media Communications PIO

Department of General Services

Yvette Rincon, Sustainability Program Manager
 Reina Schwartz, Director of General Services

Parks and Recreation Department

JP Tindell, Park Planning and Development Manager

City Attorney's Office

Sabina Gilbert, Senior Deputy City Attorney

SMUD

Kathleen Ave, Project Manager
 Obadiah Bartholomy, Climate Change Program Manager
 Daniel Hamilton, Senior Energy Efficiency Planner
 Art Starkovich, Local Government Relations

CONSULTANTS

Ascent Environmental, Inc.
 Curtis Alling, AICP, Principal
 Honey Walters, Principal
 Heather Phillips, Air Quality and Climate Change Specialist
 Mike Parker, AICP, Environmental Planner

Mintier Harnish

Larry Mintier, Principal
 Ted Holzem, Project Manager
 Chelsey Norton, Associate
 Alexandra Holmqvist, Research Assistant

Fehr & Peers

Ronald Milam, Principal
 David Carter, Senior Transportation Planner

The Energy Alliance Association

Sam Pierce, Principal

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PHOTO CREDITS

Michael Zwahlen
City of Sacramento
Sean Savage
California Air Resources Board
Robert Couse-Baker
Pacific Southwest Region U.S. Fish
and Wildlife Service
NASA
How I See Life (Kari)
Heller Pacific
www.pvpower.com
Ascent
www.photoshow.com
Wayne National Forest
Taylor and Ayumi
www.todaysbusinessreport.com
Will Powell
Sacramento Tree Foundation
Michael Grindstaff
Naystin (Taneli)
Jeffrey Payne
Mintier Harnish
Sacramento Press
Climate Change Science Program and
the Subcommittee on Global Change
Research
www.sfweekly.com
Chalmers Butterfield
Angelo DeSantis
John Pastor
Sacramento Regional Transit
Charlie Brewer
Jess O
Alan Stark
www.wordpress.com
Samuel M. Livingston
www.istockphoto.com
Port of San Diego
National Oceanic and Atmospheric
Administration
Chris Brown
Colonel Wildturkey

EXECUTIVE SUMMARY

Over the past decade our understanding of global climate change and the role that communities can play in addressing it has grown tremendously. There is large scientific consensus that recent increases in global temperatures are associated with corresponding increases of greenhouse gasses (GHGs). This temperature increase is beginning to affect regional climates and is expected to result in impacts to our region and the world. Climate change has profound implications for the availability of the natural resources on which economic prosperity and human development depend. Closer to home, the changing climate has potentially severe economic, health, social, and environmental consequences.

While climate change poses a threat to our community, our response to this challenge presents opportunities to create a more sustainable Sacramento that is livable, equitable, and economically vibrant. Beyond the benefits of local climate action, the impacts associated with climate change make action at all levels an urgent and absolute necessity.

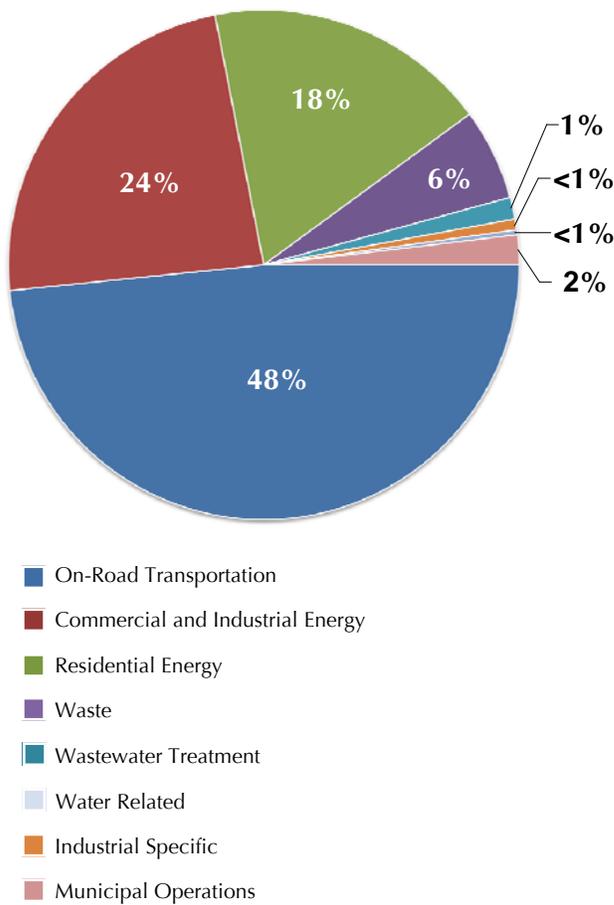
The guiding vision of the 2030 General Plan affirms that *Sacramento will be the most livable city in America*. The Climate Action Plan will implement this vision and help Sacramento become a model of sustainable development and a leader in the conservation of energy, water, and natural resources. The overarching goal of the Climate Action Plan, however, remains the same: to reduce our GHG emissions and prepare for climate change.

The Climate Action Plan represents an important step in identifying locally-based strategies, measures, and actions to reduce GHG emissions and plan for climate change impacts. However, more action is needed on a broader scale if we are going to have a real impact. Through community support for the Plan, the 2030 General Plan, and other sustainability initiatives, Sacramento residents and businesses can inspire other communities throughout California and the nation to take action.

The Climate Action Plan details steps that the City – in coordination with residents, businesses, and partners – will use to address the challenges of a changing climate and to reduce Sacramento’s contribution to GHGs. Everyone in Sacramento has a role to play in implementing the Climate Action Plan.



SACRAMENTO'S 2005 GREENHOUSE GAS EMISSIONS INVENTORY



Source: ICF Jones & Stokes. 2009. GHG Emissions Inventory for Incorporated and Unincorporated Sacramento County. June 2009. (ICF J&S 00310.08.) Sacramento, CA. Prepared for: Sacramento County Department of Environmental Review and Assessment.

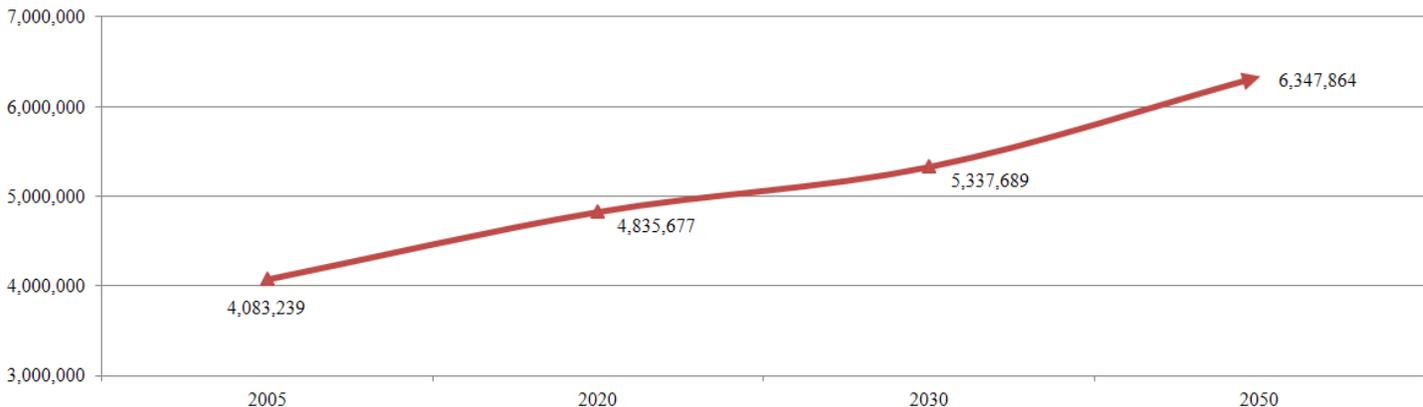
MEASURING AND FORECASTING EMISSIONS

One of the main objectives of the Climate Action Plan is to identify and reduce our contribution to GHG emissions. As part of the process to develop the Plan, the City prepared a 2005 GHG emissions inventory. The GHG emissions inventory can be thought of as a point-in-time estimate of emissions. It provides a baseline to begin the process of figuring out what we need to do to help stabilize and reverse climate change. The inventory also plays a role in ensuring that we stay on course to meet GHG reduction targets and goals.

In 2005 Sacramento emitted over 4.1 million metric tons of CO₂ equivalent (MMTCo₂e), which is equal to the emissions produced by driving around the earth almost 412,000 times! Gasoline and diesel consumption by on-road vehicles driven in Sacramento was the single largest source of GHG emissions, accounting for just over 48 percent of the city's total emissions. Electricity and natural gas used to operate, heat, and cool commercial and industrial buildings and residential dwellings accounted for another 42 percent.

If no action is taken to reduce GHG emissions, our contributions to climate change would continue to grow leading to more severe climate change impacts. As part of the GHG inventory, the City prepared a "business as usual" scenario that forecasted GHG emissions to the year 2050. Forecasts provide insight into the scale of reductions needed to change our behaviors and perspective on what it will take to achieve GHG reduction targets and goals. Without action it is estimated that our emissions would rise to over 6.3 MMTCo₂e by 2050.

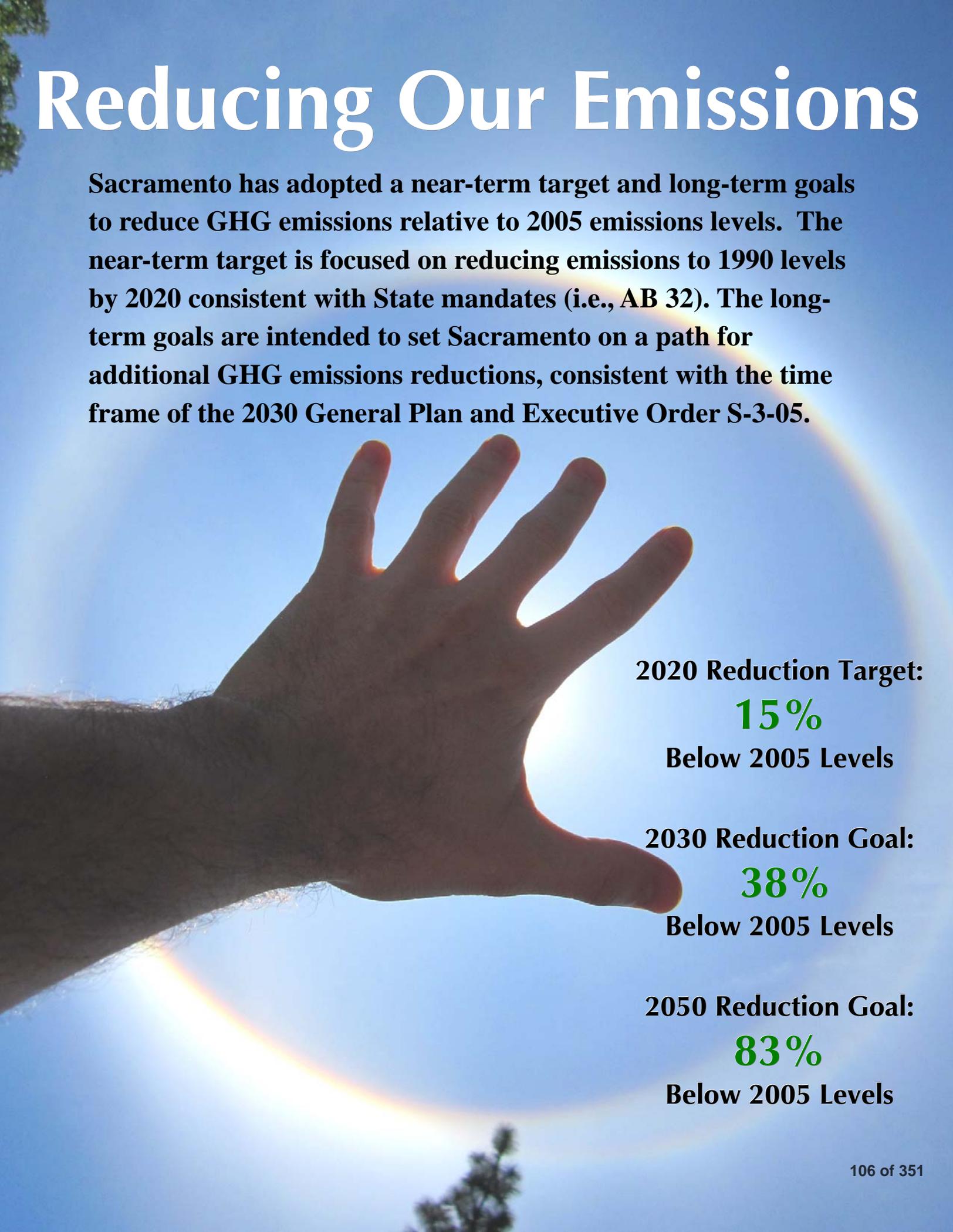
BUSINESS-AS-USUAL GHG EMISSION FORECASTS (MTCO₂e/YEAR)



Source: ICF International 2011; Fehr & Peers 2011; data compiled by Ascent in 2011.

Reducing Our Emissions

Sacramento has adopted a near-term target and long-term goals to reduce GHG emissions relative to 2005 emissions levels. The near-term target is focused on reducing emissions to 1990 levels by 2020 consistent with State mandates (i.e., AB 32). The long-term goals are intended to set Sacramento on a path for additional GHG emissions reductions, consistent with the time frame of the 2030 General Plan and Executive Order S-3-05.

A hand is shown in silhouette, reaching out from the left side of the frame. The background is a bright blue sky with a faint rainbow arc visible. The sun is partially obscured by the hand, creating a lens flare effect.

2020 Reduction Target:

15%

Below 2005 Levels

2030 Reduction Goal:

38%

Below 2005 Levels

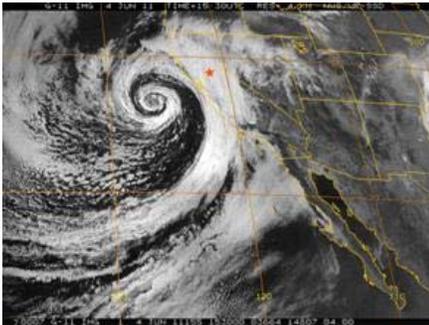
2050 Reduction Goal:

83%

Below 2005 Levels



Poor Air Quality



Extreme Storm Events



Habitat Loss



Increased Average Temperatures

CLIMATE CHANGE EFFECTS AND IMPACTS

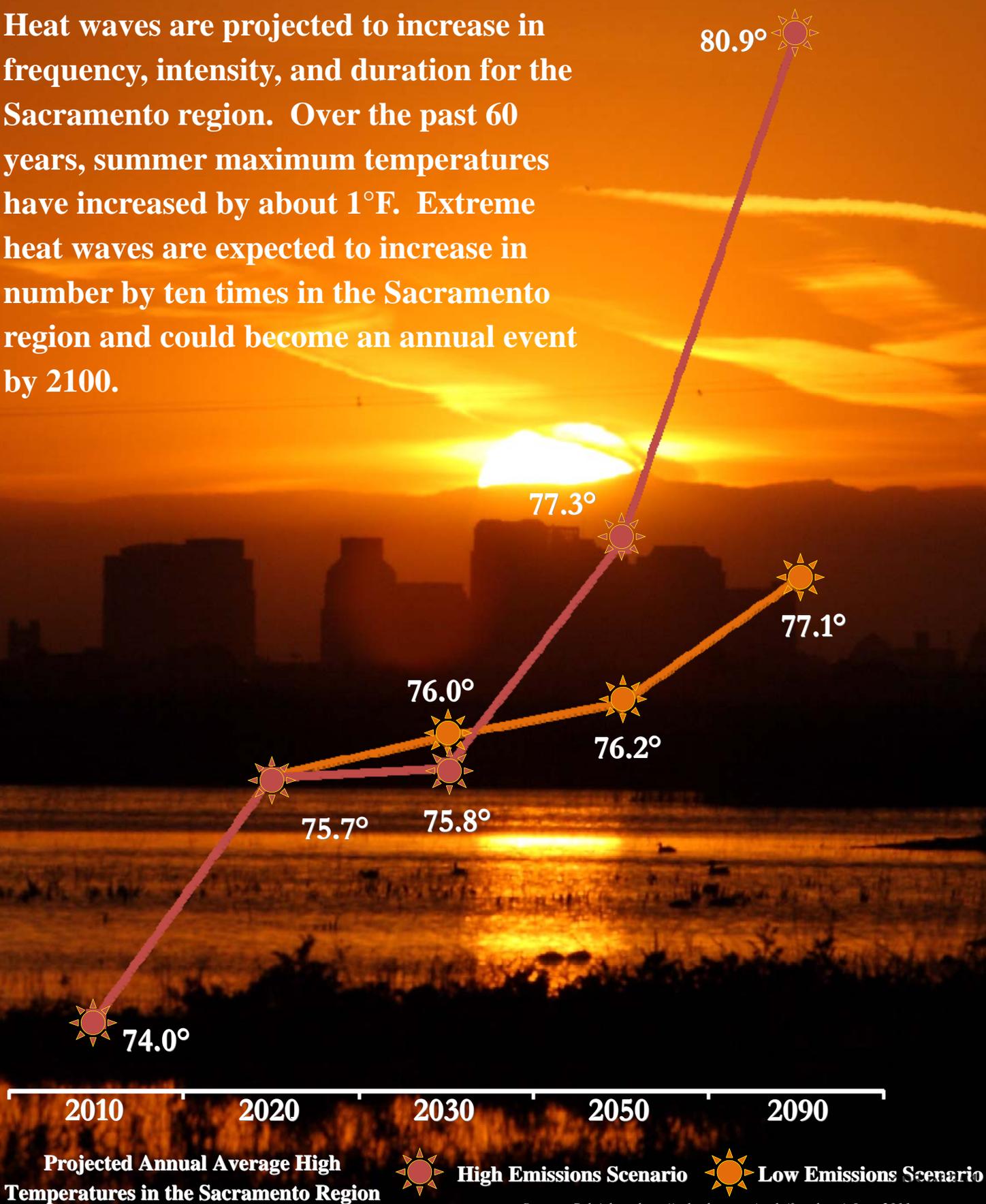
Even with significant GHG reductions, climate change is expected to affect us all, threatening to harm our health and safety, economic stability, and overall quality of life. According to the U.S. Global Change Research Program, climate change is already affecting regions in the United States, and it warns that climate change could have serious consequences for how we live and work; access to and quality of basic goods and services such as water, shelter and food; and how we manage other key priorities for well-being such as education and employment. The potential costs to California, if no action is taken, could exceed tens of billions of dollars annually and place trillions of dollars of real estate at risk.

The Climate Action Plan identifies the following climate change effects and impacts that Sacramento may experience in the coming decades:

- Up to 100 additional days per year with temperatures above 95°F, and by 2090 average July temperature reaching over 104°F.
- Higher temperatures and increased ultraviolet rays that facilitate the formation of more air pollutants and lower air quality.
- More intense, warmer storm events and higher peak river flow patterns that make flood conditions more frequent and severe.
- Up to 80 percent decrease in Sierra Nevada snowpack by 2100.
- Increased pressure on and competition for water resources, further exacerbating already stretched water supplies.
- Increases in residential electricity demand by up to 55 percent by 2100 due to higher average temperatures and longer, more intense heat waves.
- Increases in costs for energy, food, services, and insurance.
- Damage to infrastructure caused by more intense storms, floods, heat waves, and sea-level rise.
- Increases in resident risks for respiratory illness, heat-related illness, and vector-borne diseases.
- Changes to habitats that currently support local wildlife, forcing plants and animals to adapt to the new environment, move to more hospitable areas, or risk extinction.

Experiencing Change

Heat waves are projected to increase in frequency, intensity, and duration for the Sacramento region. Over the past 60 years, summer maximum temperatures have increased by about 1°F. Extreme heat waves are expected to increase in number by ten times in the Sacramento region and could become an annual event by 2100.



Source: Cal-Adapt, <http://cal-adapt.org/tools/factsheet/>, June 2011.



**STRATEGY 1
SUSTAINABLE LAND USE**

**STRATEGY 2
MOBILITY AND CONNECTIVITY**

**STRATEGY 3
ENERGY EFFICIENCY AND RENEWABLE ENERGY**

**STRATEGY 4
WASTE REDUCTION AND RECYCLING**

**STRATEGY 5
WATER CONSERVATION AND WASTEWATER
EFFICIENCY**

**STRATEGY 6
CLIMATE CHANGE ADAPTATION**

**STRATEGY 7
COMMUNITY INVOLVEMENT AND EMPOWERMENT**

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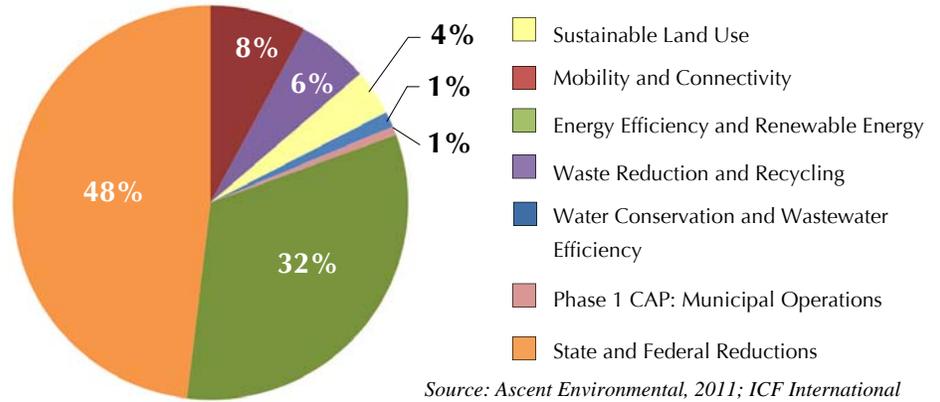
STRATEGIES

TAKING ACTION

The Climate Action Plan is organized by seven overarching strategies that represent the primary ways we will reduce GHG emissions and adapt to expected climate change impacts. Within each strategy are a series of measures that define the programs, policies, and regulations that the City will implement to achieve its climate action objectives. These are grounded in actions directly influenced by the City, but are reliant on partnerships with the business community and participation by community members. Through partnerships among the City, residents, businesses, and other organizations, these strategies will provide net benefits for everyone, such as cost savings, a strengthened economy, and greater quality of life, while also making a difference in the world.

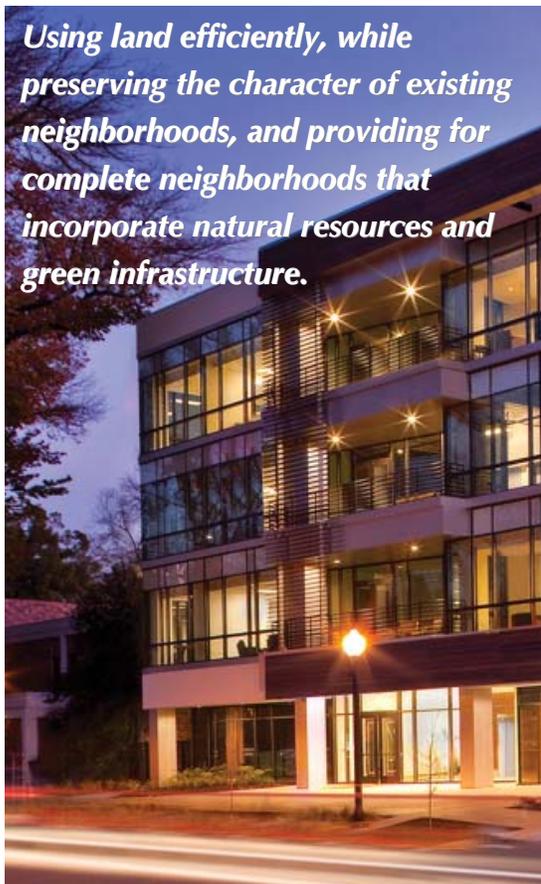


2020 GHG REDUCTIONS

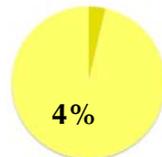


Source: Ascent Environmental, 2011; ICF International 2011; Fehr & Peers 2011; data compiled by Ascent in 2011.

Using land efficiently, while preserving the character of existing neighborhoods, and providing for complete neighborhoods that incorporate natural resources and green infrastructure.



STRATEGY 1 SUSTAINABLE LAND USE



of total 2020 GHG reduction
51,507 MMTCO₂e

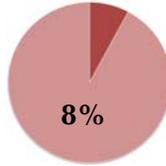
MEASURES

1. Promote Sustainable Growth Patterns and Infill Development
2. Create More Complete Neighborhoods
3. Encourage Mixed-use Development Projects
4. Require Sustainable Development Practices
5. Ensure Quality Development and Design

The Sacramento 2030 General Plan provides the foundation for Sacramento’s overall approach to achieve sustainable land use. The places we live, the methods used to construct our homes, and where we work dictate how far and by what means we travel and how much energy we use. This strategy builds upon and supports the goals and policies of the 2030 General Plan to design more compact development patterns, infill and reuse underutilized properties, intensify development near transit and mixed-use activity centers, and locate jobs closer to housing. Similarly, “green” buildings and development projects, as part of a broader sustainability plan, will consume less energy, produce fewer emissions, protect occupant health, minimize waste, and create jobs.



STRATEGY 2
MOBILITY AND
CONNECTIVITY



of total 2020 GHG reduction
107,894 MMTCO₂e

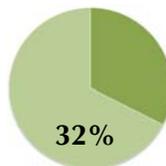
MEASURES

1. Multi-modal Travel Options
2. Improved Pedestrian Environment
3. Increased Bicycle Mode Share
4. Increased Transit Mode Share
5. Low Emission Vehicles/Efficient Goods Movement
6. Connected Transportation System
7. Transportation Demand Management

The City of Sacramento is committed to establishing an efficient multi-modal transportation network that minimizes impacts to natural resources and improves the quality of life for city residents. Reducing vehicle miles traveled (VMT) by increasing the availability, efficiency, and appeal of sustainable forms of transportation, such as walking, bicycling, and riding public transit, will not only reduce GHG emissions, but will improve public health and quality of life and lead to cleaner air, more recreation space, and opportunities for exercise. Land use and transportation are inextricably linked. Sacramento’s transportation network will include well connected neighborhoods, centers, and corridors with complete streets that provide infrastructure and facilities for pedestrians, bicycles, transit, and vehicles.



STRATEGY 3
ENERGY EFFICIENCY
AND RENEWABLE
ENERGY



of total 2020 GHG reduction
445,590 MTCO₂e

MEASURES

1. Energy Demand Management and Conservation
2. Increase Existing Building Energy Efficiency
3. Increase Energy Efficiency in New Buildings
4. Increase Renewable Energy Generation and Use

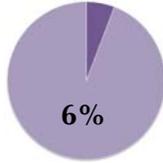
The City of Sacramento recognizes that energy is an essential part of our everyday lives, from the lights that illuminate our homes to the machines and computers that operate our businesses. Increasing energy efficiency in existing and new homes and buildings, generating renewable energy, and motivating individuals to make choices that conserve energy will significantly reduce energy demand. The City will support SMUD efforts to increase the generation and use of renewable sources of electricity, such as hydro, wind, geothermal, and solar power. Finally, emissions reductions will be achieved by using less natural gas and electricity in our daily lifestyle choices and business practices, and by improving the energy efficiency of our household appliances and industrial processes.



Reducing the production, consumption, and disposal of waste materials, while encouraging reuse, recycling, and composting.



STRATEGY 4
WASTE REDUCTION AND RECYCLING



of total 2020 GHG reduction
79,404 MMTCO₂e

MEASURES

1. Sustainable Production and Consumption
2. Source Reduction, Diversion, Recycling, and Reuse
3. Greenwaste and Composting

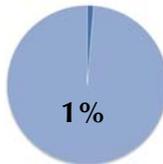
The City of Sacramento is committed to helping its residents and businesses reduce waste and increase recycling of materials that would otherwise end up in a landfill. Our decisions about the goods we consume and how we dispose of them can greatly impact emissions. Reusing and recycling materials will save energy required for production and disposal of materials and products and reduce the amount of solid waste that emits GHG gasses in landfills. The City will support commercial and industrial sectors in their efforts to reduce the amount of emissions related to manufacturing new products. Residents will also be encouraged to consume less and reduce the number of products consumed.



Increasing water conservation and management and wastewater treatment practices that reduce energy demand and promote efficient use of this limited resource.



STRATEGY 5
WATER CONSERVATION AND WATER EFFICIENCY



of total 2020 GHG reduction
17,267 MTCO₂e

MEASURES

1. Water Conservation
2. Wastewater Treatment

The City of Sacramento recognizes the importance of water conservation and efficient management and treatment of wastewater. Increasing the efficiency of water distribution and reducing consumption will help reduce the energy needed to treat and transport water. It will also help to conserve this important resource. Conservation measures will encourage the use of water-efficient appliances, landscaping, and practice that improve water quality in the American and Sacramento Rivers and the Delta and improve the long-term reliability of the region’s water supply. Finally, they will lower the cost of water service and associated energy costs to water and wastewater customers.



STRATEGY 6
CLIMATE CHANGE
ADAPTATION

GHG reductions for the measures and actions in this strategy could not be measured at this time, but are still expected to help reduce emissions.

MEASURES

1. Prepare for Increases in Average Temperatures
2. Preserve Water Sources and Respond to Variable Supplies
3. Respond to Energy Demands and Variable Supplies
4. Protect Public from Health Risks and Safety Hazards
5. Promote a Climate-Resilient Economy
6. Respond to Potential Impacts on Public Infrastructure
7. Protect Natural Ecosystems and Migration Routes

While other strategies focus on reducing GHG emissions to prevent further climate change, the City of Sacramento also recognizes the importance of preparing Sacramento to deal with the expected impacts of climate change and creating a more climate-resilient community. By monitoring climate change impacts, staying up to date on climate change science, and incorporating climate change thinking into normal activities, the City and its residents and businesses will be better prepared to deal with likely future climate change effects and impacts.



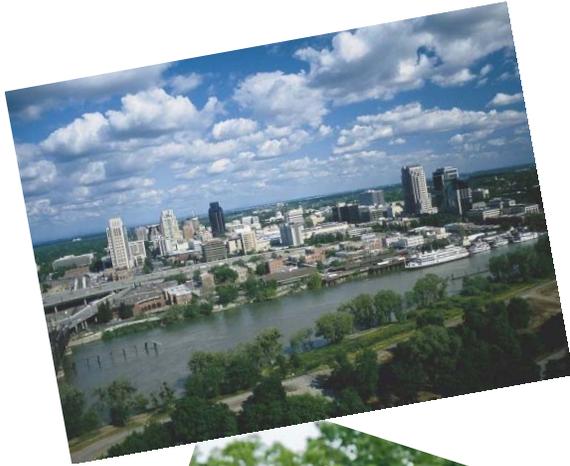
STRATEGY 7
COMMUNITY
INVOLVEMENT AND
EMPOWERMENT

MEASURES

1. Education and Community Involvement
2. Recognize Community Accomplishments
3. Build Businesses and Community Organization Partnerships

Most of the GHG reductions for the measures and actions in this strategy could not be measured at this time, but are still expected to help reduce emissions.

The City of Sacramento is committed to engaging the public and encouraging residents to actively participate in planning a more sustainable future. Everyone in the community has a role to play in addressing climate change and participation by residents and businesses in climate action programs will increase the likelihood of success. Residents will have the opportunity to work with the City as a partner in facilitating a climate action movement, while the City will lead by example, giving residents and businesses the means to take action. Outreach programs will involve residents and businesses in various GHG-reducing activities and acknowledge the accomplishments of individuals, businesses, and neighborhoods to reduce GHG emissions.



CO-BENEFITS OF ACTION

While the measures and actions included in the Climate Action Plan are generally oriented towards reducing GHG emissions and adapting to expected climate change impacts, many will also achieve important “co-benefits.”

For example, the Plan emphasizes sustainable development, complete neighborhoods, and green building practices to help reduce emissions. These types of actions will have co-benefits of increasing equity in and resale value of homes and buildings and allow people to live closer to jobs, schools, and services. Driving less and using sustainable modes of transportation will reduce emissions. It will also reduce traffic congestion, lower commute times, and improve air quality. Finally, more compact forms of development and infill development will prevent the conversion of open space and natural habitats, which will preserve farmland, increase access to recreation areas, and ensure habitat is available for plants and animals. These types of actions will allow us to drive less, save money, spend more time with family and friends, and enjoy a better quality of life.

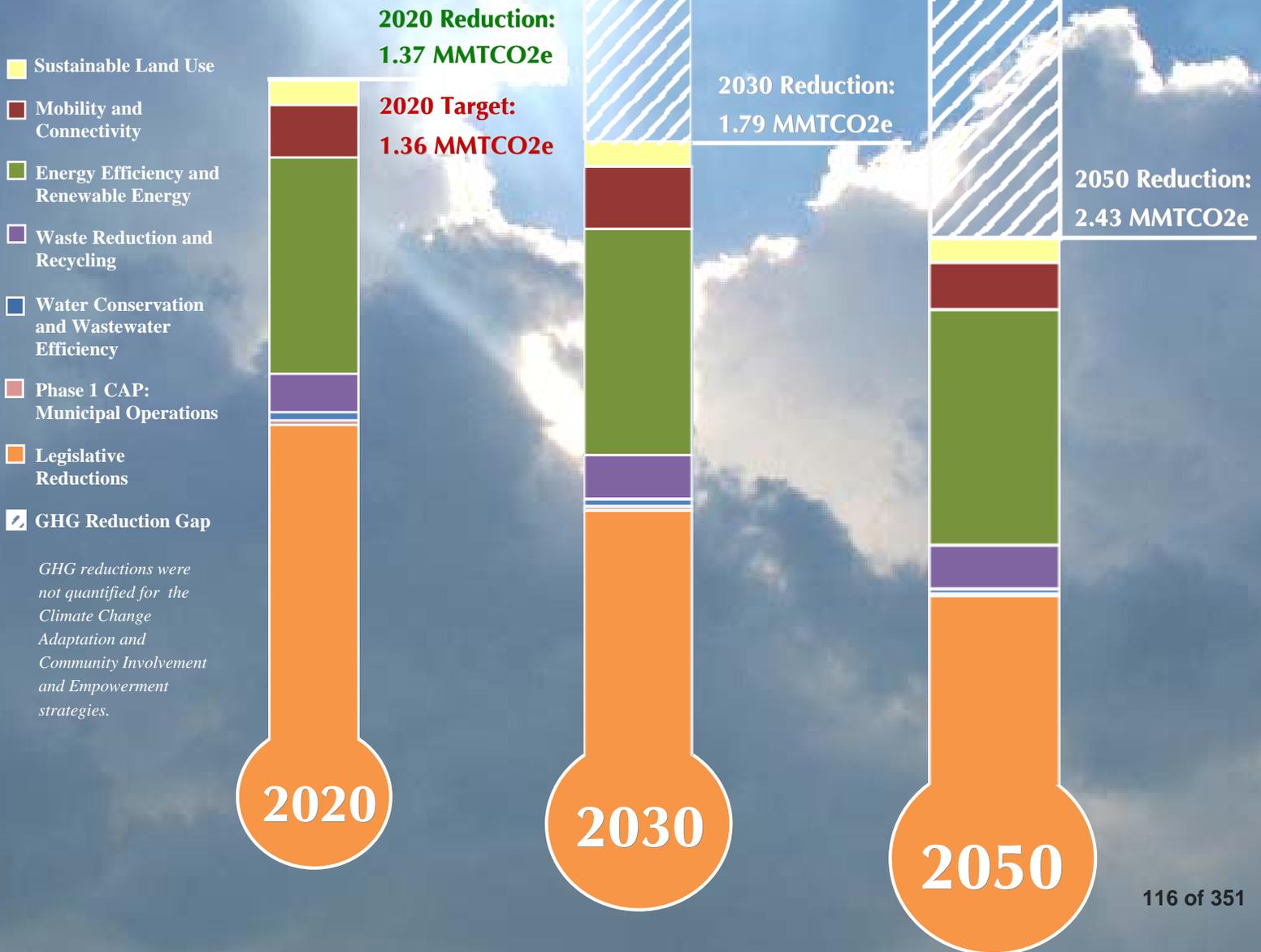
Two other key Climate Action Plan strategies will increase energy and water efficiency in existing and new buildings and generate renewable energy within Sacramento. Generating renewable energy and using energy more efficiently will lower energy demand and increase our energy independence. Conserving water will also help ensure that this limited resource is available in the future. Energy efficiency, renewable energy, and water conservation will save residents and businesses money, and lower our housing and business operating costs.

Many actions that reduce GHG emissions also provide climate change adaptation co-benefits that will help create a climate-resilient community. Creating a multi-modal transportation network will reduce our dependence on oil and prepare Sacramento for possible future gasoline shortages. Conserving water will also prepare us for potential droughts and lower water supplies in the summer. Finally, rooftop gardens and a robust urban forest will help reduce energy demand and the urban heat-island effect and prepare Sacramento for hotter summers and longer heat waves.

Beyond helping to solve a global problem and protect our community, residents, and businesses can benefit from the efforts outlined in the Climate Action Plan.

Reaching Our Goals

The strategies included in the Climate Action Plan exceed the 2020 reduction target adopted by the City. However, while further emissions reductions will be achieved by 2030 and 2050 using the measures and actions in this Plan, the gap between reduction potential and our reduction goals will increase. Over the coming years and decades, the Climate Action Plan will need to be updated with additional measures and actions in order to meet our long-term goals.



COMMUNITY ACTION

Climate change planning encompasses more than just reducing GHG emissions and adaptation planning – it is also about sustainability and quality of life. The City of Sacramento will take the lead in turning policy into action; however, everyone will need to be involved in the activities outlined in the Climate Action Plan in order to be successful. To do this, the City, residents, and businesses must work together and actively participate in planning the future of Sacramento.

Climate change is an avenue that offers a unique opportunity to partner for collective action, while fostering individual empowerment. Enlisting the ideas and energy of residents, businesses, and other partners in the ongoing implementation of the Climate Action Plan will not only give the community the opportunity to work with the City to facilitate a climate action movement, it will also create climate action and sustainability leaders. Outreach and education programs will increase social interaction, increase public awareness of climate change, and improve participation in City governance.

The City of Sacramento encourages the community to get involved in policy development, program planning, implementation, and assessment. The Climate Action Plan acts as a tool for creating dialog and calling people to action. The Plan includes education and outreach actions that involve the public in climate change strategies. Residents have the opportunity to work with the City as an equal partner in facilitating this movement. The City's role will be to inspire others in leading by example and to give residents, businesses, and other partners the means to take action and influence their peers.

Although it may seem that an individual cannot have much impact on global processes, individual actions can collectively make a big difference. Everyone in the community has a role to play in addressing climate change. Effective climate action will require new behaviors and ways of thinking. Individuals and businesses can consume less energy and produce less waste by recycling, composting, conserving water, using public transit, and making homes and businesses more energy efficient. Small steps can make a difference for the future of our city and our planet. Everyone stands to benefit from the results of effective climate action.

The Climate Action Plan serves as a resource that supports the efforts of government, individuals, and businesses. Together we can create a safer, more sustainable Sacramento, while increasing the number of jobs and business opportunities and achieving energy independence.





CHAPTER

1

Introduction

CHAPTER 1

INTRODUCTION

1.1 CLIMATE ACTION PLAN OVERVIEW

Over the past decade our understanding of global climate change and the role that communities can play in addressing it has grown tremendously. There has been a rise in temperatures associated with global climate change that has profound implications for the availability of the natural resources on which economic prosperity and human development depend. The changing climate also has potentially severe economic, health, social, and environmental consequences for us close to home.

This Climate Action Plan (Plan) presents information demonstrating that climate change poses real risks to Sacramento's economy and to the health and safety of its residents. While climate change is a threat to our community, our response to this challenge presents opportunities to create a more sustainable Sacramento that is livable, equitable, and economically vibrant. Beyond the benefits of local climate action, the impacts associated with climate change make action at all levels an urgent and absolute necessity.

This Plan details steps that the City – in coordination with its residents, businesses, and partners – will use to address the challenges of a changing climate and to reduce Sacramento's contribution. Everyone in Sacramento and beyond has a role to play in implementing the Plan.

While based on extensive research and analysis, this Plan is a snap-shot in time. It uses the best information available today. As new technologies, markets, and options emerge, roles may change. A strategy identified today may become obsolete in light of the development of new technologies that are not currently available, or State and Federal laws may be enacted that were not conceivable at this time. The overarching goal of this Plan, however, remains the same: to reduce our greenhouse gas (GHG) emissions and prepare for climate change.



I strongly believe Sacramento can be the national leader in the green movement.
- Mayor Kevin Johnson

1.2 INTRODUCTION TO CLIMATE CHANGE SCIENCE

Scientists, business leaders, and heads of government around the world agree that climate change is one of the most serious issues facing the Earth today. There is strong consensus that most of the changes in the world's climate during the last 50 years are a result of man-made GHG emissions. According to the Intergovernmental Panel on Climate Change, "most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in human GHG concentrations." Climate change has resulted in increasing air and ocean temperatures, melting polar ice, shrinking mountain snow packs, and rising sea levels. These trends represent serious threats to the health of people, economies, and environments across the globe.

The Greenhouse Effect and Global Warming

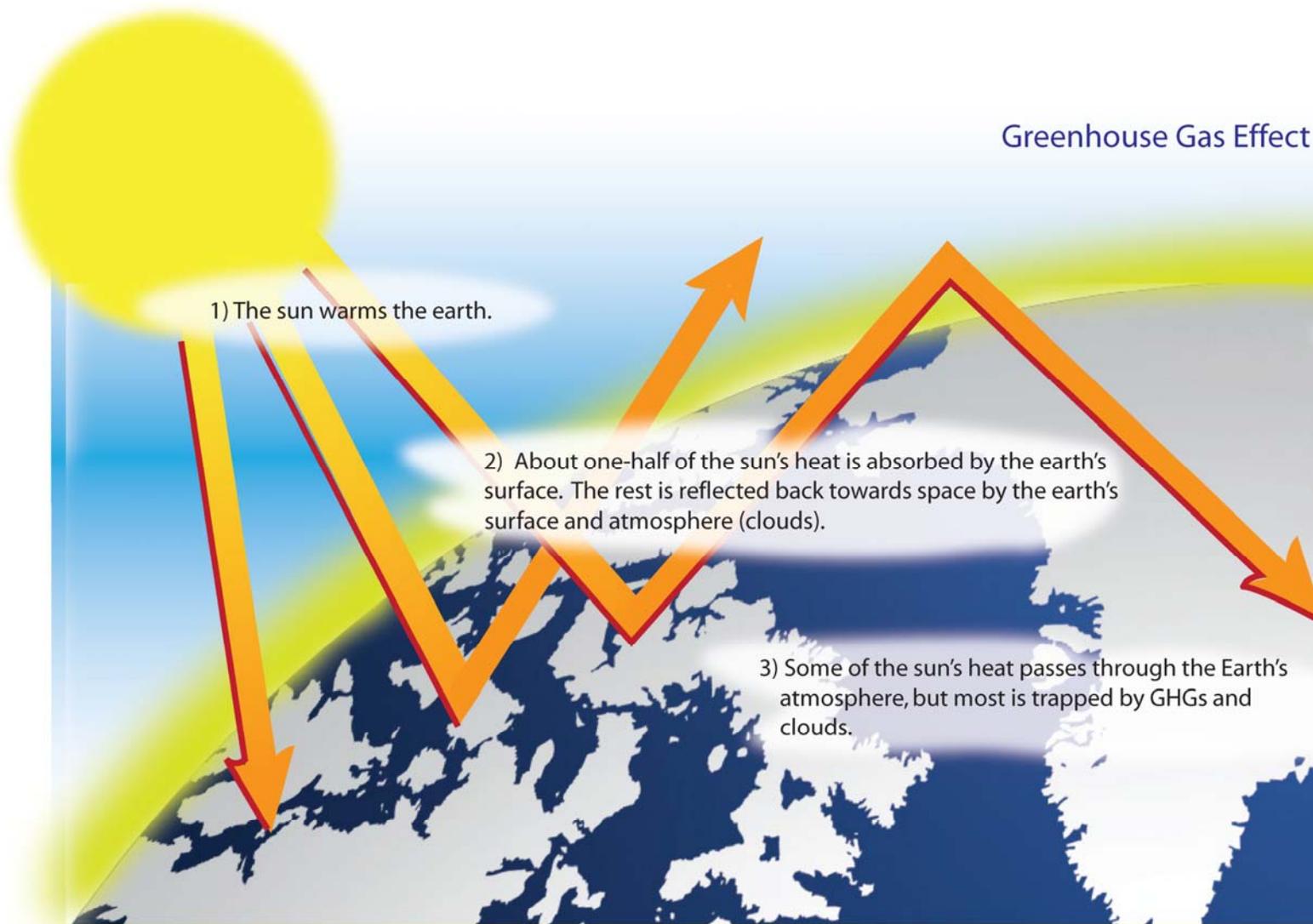
The greenhouse effect is a natural phenomenon that helps regulate the Earth's temperature. Naturally occurring levels of GHG emissions keep temperatures on Earth stable. As the Sun warms the earth, about half its solar radiation is absorbed by the Earth's surface, warming it. The rest is reflected back toward space by the Earth's surface and atmosphere (e.g., clouds). Some of this reflected radiation passes through the Earth's atmosphere back into space, but most is trapped by GHGs and clouds. Naturally, the solar radiation absorbed by the Earth and the atmosphere warms the planet. In fact, this absorbed radiation, or heat, keeps the earth's average temperature almost 60 degrees (F) warmer than it would be otherwise.

However, the unnatural increase of GHGs intensifies the greenhouse effect. The burning of fossil fuels for transportation and energy and increasing rates of deforestation and development increase the amounts of carbon dioxide (CO₂), methane (CH₄), and other heat-trapping gases in our atmosphere. As the amount of GHGs in the atmosphere increase, less heating radiation from the sun and Earth can pass through the atmosphere back into space. As more GHGs are trapped in the atmosphere, the Earth's average temperature increases above what it would normally be. Compounding this trend is the rapid rate at which human-generated GHG increases have occurred. The resulting effect is global warming that creates major climatic changes. Chapter 2 of this Plan summarizes Sacramento's GHG emissions that are contributing to global warming in California and the city of Sacramento.

Global Climate Change

Left unchecked, global warming can lead to significant fluctuations in regional climates, which can lead to detrimental impacts on the Earth's systems. The magnitude of these changes, however, is uncertain. Virtually all published estimates of how the climate could change in the future are produced by computer models of the Earth's climate system. However, we are already seeing some effects of global warming.

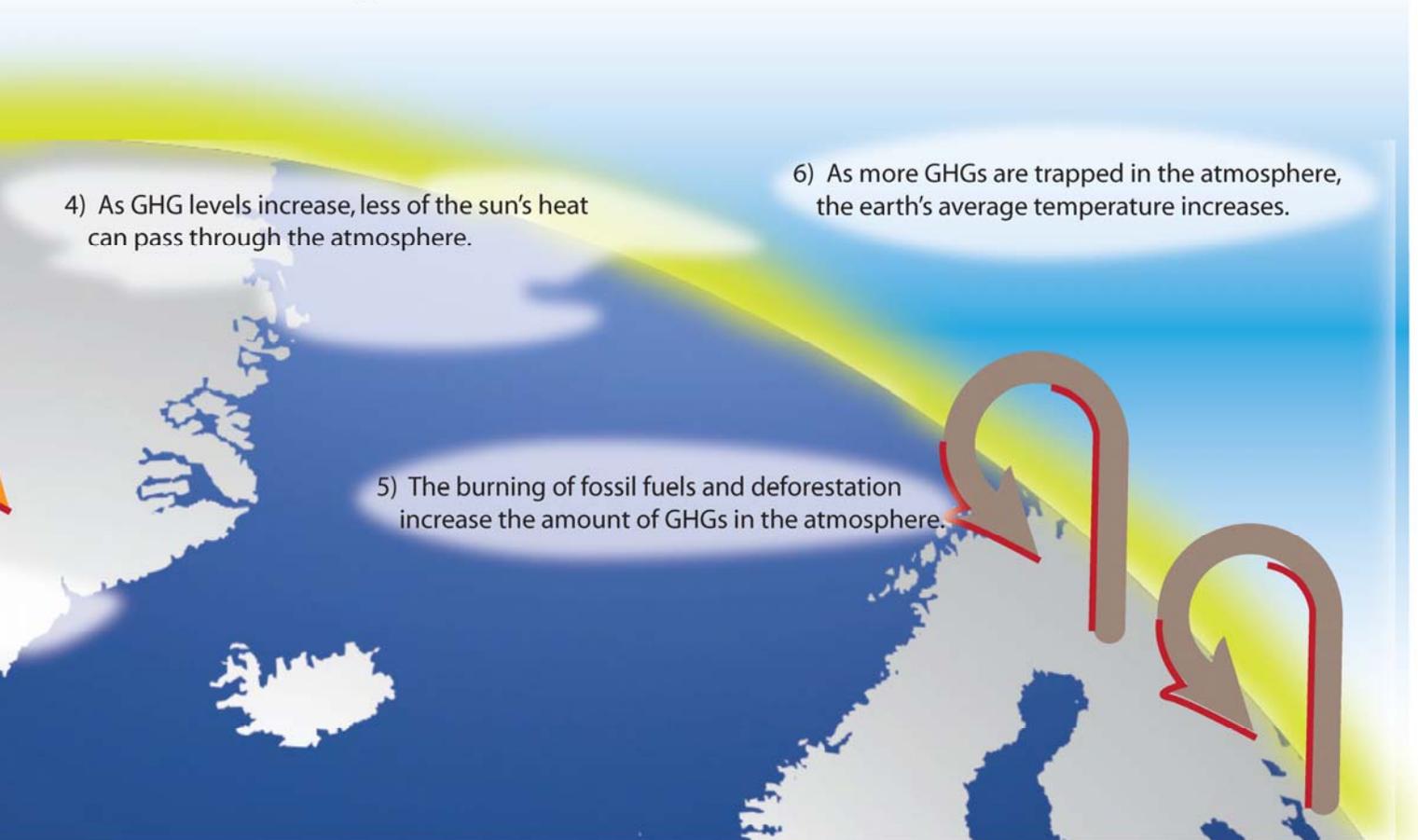
*Scientists,
business leaders,
and heads of
government
around the world
agree that climate
change is one of
the most serious
issues facing the
Earth today.*



For example, the Arctic ice cap is melting at a rate faster than scientists predicted, a process that is expected to raise sea levels enough to have devastating impacts on coastal communities. Globally, millions of people and thousands of species of plants and animals are expected to be affected. Closer to home, scientists expect that over this century climate change trends will continue and intensify, threatening California's valuable land, water, and other natural resources. Shorter, warmer winters, for example, are likely to decrease the Sierra snowpack, a major source of annual water supply on which many Californians depend for drinking water and other purposes. Longer, hotter summers in the semi-arid southern part of California could upend agricultural production and create ideal conditions for wildfires. Chapter 3 of this Plan summarizes the regional and local impacts that are expected to occur due to climate change.



& Global Climate Change



Addressing the Climate Change Challenge

This Plan represents an important step in changing the trends that are warming the Earth's atmosphere. Chapter 4 of this Plan includes strategies, measures, and actions to reduce GHG emissions and plan for climate change impacts. However, more action is needed, and must be on a broader scale if we are going to have a real impact. Through community support for the Plan, the 2030 General Plan, and other sustainability initiatives, Sacramento residents and businesses can inspire other communities throughout California and the nation to take action.



THERE IS NO TIME TO LOSE!

The technical analysis conducted as part of this Plan makes one thing clear: there is no time to lose. If Sacramento continues producing GHG emissions as it has in the past, emissions could increase 19 percent by the year 2020 and 57.1 percent by the year 2050. If the world continues on its present path, Sacramento residents can expect to experience more extreme heat in the summer, more heavy rain storms, less snowpack in the winter, heightened flood risks, public health impacts, and threats to the economy.

1.3 PURPOSE OF THE CLIMATE ACTION PLAN

In 2006 the State of California passed the Global Warming Solutions Act (Assembly Bill [AB] 32), which established a goal of reducing statewide GHG emissions to 1990 levels by the year 2020. AB 32 set a mid-term GHG emissions reduction target, which seeks to move California toward achieving an even more aggressive, long-term reduction goal. Executive Order S-3-05, signed by Governor Arnold Schwarzenegger in 2005, directed California to reduce GHG emissions to 80 percent below 1990 levels by 2050. As part of its implementation of AB 32 and Executive Order S-3-05, the California Air Resources Board (ARB) identified local governments as a key partner in achieving statewide GHG emissions reduction targets and goals. Since 2006 communities throughout California have been preparing climate action plans to do their part to help meet State GHG emissions reduction targets.

However, GHG emissions are not the only concern that climate change poses to our communities. Scientists agree that, regardless of the reasons, our global climate is changing. Seasons are shifting, temperatures are fluctuating, and sea levels are rising. Without efforts to reduce emissions by communities throughout the U.S. and other countries throughout the world, we can expect climate change impacts in and around Sacramento and the globe to continue to escalate. Even if GHG emissions were significantly reduced today, the emissions that have already been put into the atmosphere are expected to continue global warming trends through the end of this century. To help guide efforts to adapt to expected statewide climate change impacts, the State prepared the California Climate Adaptation Strategy (2010). Regionally, however, climate change impacts pose specific risks and threats to Sacramento's economy, residents, and ecosystems. Local and regional actions are needed to plan for these risks and mitigate potential impacts that are expected to occur.

Recognizing its role in this effort, the City of Sacramento 2030 General Plan (2009) included goals and policies directing the City to be proactive in addressing climate change. General Plan policies and programs direct the City to develop, adopt, and maintain a climate action plan for municipal operations and the community. In February 2010 the City prepared Phase 1 of its Climate Action Plan to address GHG emissions from its internal municipal operations. The second phase of the City's Plan focuses on communitywide climate change issues for areas within the City limits. It is a dual-purpose plan that addresses two major climate change challenges: reducing global warming-causing GHG emissions resulting from human activities; and planning for the expected impacts from climate change resulting from global warming.

This Plan sets a course of action for Sacramento to achieve a 15 percent reduction below its 2005 GHG emissions level by the year 2020. This is consistent with State expectations for Sacramento; ARB recommends a minimum 15 percent reduction target to maintain consistency with AB 32. Specifically, according to the *Climate Change Scoping Plan* (December 2008):

“ARB encourages local governments to adopt a reduction goal for municipal operations emissions and move toward establishing similar goals for community emissions that parallel the State commitment to reduce greenhouse gas emissions by approximately 15 percent from current levels by 2020.”

The 2020 target is far enough in the future to allow time for development and behavioral changes, but close enough to ensure we are on the right course to achieve longer-term GHG reduction goals to avoid the worst impacts from climate change. Beyond the mid-term target, this Plan sets us on a path to continue reducing GHG emissions consistent with longer-term goals for 2030 and 2050. The Plan also identifies strategies and actions that we can take to prepare for and mitigate the expected impacts from climate change. These efforts are timely because we are only now beginning to experience the effects of a warming climate and still have time to prepare. These adaptation efforts will position Sacramento to be more resilient to climatic changes and protect the health and safety of residents and businesses.

To achieve these objectives, this Plan identifies the following:

- Main sources of GHG emissions and the expected regional impacts from climate change.
- Baseline GHG emissions and the potential growth of these emissions over time.
- GHG emission targets and goals to reduce the community’s contribution to global warming.
- Strategies, measures, and actions to comply with statewide GHG reduction targets and goals and to adapt to climate change impacts.
- Areas in which to strategically direct funding and investment opportunities, while positioning the City to compete for grant funding.

EVALUATING THE CLIMATE ACTION PLAN

As part of Climate Action Plan evaluation, each strategy, measure, and action must be continually assessed and monitored. Annual reporting on the status of implementation of the actions, periodic updates to the GHG emissions inventory, and other monitoring activities will help to ensure that the CAP is making progress. See Sections 4.5 and 4.6 for more information on administering, implementing, and monitoring the Plan.

This Plan addresses two major climate change challenges: reducing global warming-causing GHG emissions and planning for the expected impacts from climate change.



Major Sustainability and

Sacramento becomes a member of the ICLEI-Local Governments for Sustainability to promote climate protection, sustainable development, and GHG emissions reductions.			City adopts 14 "Principles for Smart Growth" as part of the 1988 General Plan to promote more sustainable development patterns.	City joins, as a charter member, the California Climate Action Registry, an organization promoting early actions to reduce GHG emissions.			City adopts the Vision and Guiding Principles that provide a framework for the 2030 General Plan Update process and sets the city on a path to be a model of sustainable development.	City Council authorizes Mayor Heather Fargo to sign the United Nations Charter Urban Environmental Accords to achieve urban sustainability, promote healthy economies, advance social equity, and protect the world's ecosystems.
1998	1999	2000	2001	2002	2003	2004	2005	2006
							Executive Order S-3-05 establishes goals to reduce statewide GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.	The California Global Warming Solutions Act of 2006 (AB 32) requires that statewide GHG emissions be reduced to 1990 levels by 2020 and directs CARB to prepare a plan to achieve the target.

When I sign AB 32 we will begin a bold new era of environmental protection here in the State of California that can change the course of history.

- Governor Arnold Schwarzenegger

1.4 ACTIONS BEING TAKEN TO ADDRESS CLIMATE CHANGE

The City has already demonstrated its commitment to addressing climate change and reducing GHG emissions. Over the past decade the City has proactively participated in a series of partnerships and formal agreements with other jurisdictions in California and the rest of the nation. With the passage of the Global Warming Solutions Act (AB 32) in 2006 and prior and subsequent legislation and implementing guidelines, new focus was placed on local governments addressing GHG emissions reductions and climate change through focused programs and efforts, including climate action plans.

Many other Federal, State, and regional laws and regulations are relevant to Sacramento's climate change planning. They support the intent and purpose of the City actions and climate change legislation discussed above and indirectly influence implementation of the Plan. However, they will result in furthering efforts to reduce GHG emissions and mitigate climate change impacts. A complete list of California Legislation and Governor's Executive Orders on climate change can be found online on the California Climate Change Portal (<http://www.climatechange.ca.gov/publications/legislation.html>).



Climate Change Initiatives

<p>City signs the United States Conference of Mayors Climate Protection Agreement to reduce carbon emissions consistent with the Kyoto Protocol international agreement.</p>			<p>City adopts Phase 1 of the City of Sacramento Climate Action Plan to reduce GHG emissions from the City's internal government operations.</p>	
<p>City adopts the Sustainability Master Plan to guide future operational and policy decisions to create a more sustainable city. Every year since adopting the Plan, the City has prepared and adopted Sustainability Implementation Plans.</p>	<p>City adopts the Parks and Recreation Sustainability Plan to manage and operate parks and recreation facilities and programs in a more sustainable manner</p>	<p>City adopts the 2030 General Plan, which includes goals and policies that guide the City's approach to comprehensively address sustainability and climate change.</p>	<p>Mayor Kevin Johnson launches the Greenwise Sacramento initiative that results in a Regional Action Plan that includes goals to create a self sustaining section; become the greenest region in the country; and brand the Sacramento region as the "Emerald Valley."</p>	<p>City initiates Phase 2 of the Sacramento Climate Action Plan to reduce GHG emissions from communitywide actions.</p>
<p>2007</p> <p>SB 97 directed the Governor's Office of Planning and Research (OPR) to update the California Environmental Quality Act (CEQA) Guidelines to include guidance on addressing GHG emissions in environmental review documents.</p>	<p>2008</p> <p>SB 375 requires MPOs to prepare Sustainable Communities Strategies that plan regional transportation systems to reduce vehicle miles traveled and GHG emissions for cars and light trucks.</p> <p>Executive Order S-13-08 requires development of a Climate Adaptation Strategy that directs statewide management of climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events.</p>	<p>2009</p> <p>The Air Resource Board adopts the Climate Change Scoping Plan outlining the State's plan to achieve GHG reductions required by AB 32 and provides direction for local governments.</p> <p>The Natural Resources Agency adopts the California Climate Change Adaptation Strategy.</p>	<p>2010</p> <p>The Natural Resources Agency adopts updated CEQA guidelines that provide direction on addressing GHG emissions in environmental review documents.</p>	<p>2011</p>



Our vision is to transform Sacramento into the Emerald Valley. We want to make this the greenest region in the country.
 - Mayor Kevin Johnson



Beyond helping to solve a global problem and protect our community, residents and businesses can benefit from the efforts outlined in the Plan.

1.5 CO-BENEFITS OF IMPLEMENTATION

Beyond helping to solve a global problem and protect our community, residents and businesses can benefit from the efforts outlined in the Plan. While the actions included in the Plan are generally oriented towards reduction of GHG emissions, many of them will achieve important “co-benefits.” For example, a major co-benefit of implementing the Plan will be fewer toxic emissions, leading to better air quality and improved health for everyone. Two other key strategies identified in the Plan are to raise the energy and water-use efficiency of buildings and reduce the amount of time we spend traveling in cars. Energy and water efficiency will save residents and businesses money, and lower our housing and operation costs. Additional money available to residents and businesses will boost our local and regional economy and help to create jobs, especially for local businesses. Finally, the plan emphasizes opportunities for people to live closer to our jobs, schools, and services, which will allow us to drive less, save money, spend more time with family and friends, and enjoy a better quality of life. Each Strategy included in Chapter 4 of this Plan contains a list of co-benefits that can be achieved as we implement each measure and action. Appendix A includes for several actions the economic cost and benefits of implementation.

Streamlined Process for Sustainable Development

While the current development review process provides an approach for determining the significance of cumulative project impacts on climate change, it lacks clear, quantifiable solutions for development projects to reduce GHG emissions and mitigate for climate change impacts. The Plan will provide the basis for a streamlined approach to demonstrate project compliance with CEQA.

The City will also develop a Green Development Code that will serve as a key implementation vehicle for the 2030 General Plan, Sustainability Master Plan, and Climate Action Plan. The Green Development Code will benefit the development community by clarifying and simplifying regulations and improving the transparency and consistency of decision-making, while promoting and streamlining infill development that is consistent with the 2030 General Plan.

The Climate Action Plan will be used as part of the development review process to ensure that developers who follow City guidelines to produce more sustainable, compact, mixed-use, and efficient development have the benefit of a more streamlined development review process. It will provide strategies, measures, and actions that the development community can use to reduce their projects GHG emissions. Developers who use the Plan are likely to spend less time in review by the City and require fewer revisions and modifications.

ECONOMIC CO-BENEFITS

Implementation of the Climate Action Plan will provide many economic co-benefits to residents and businesses within the city. The following examples highlight some of the cost savings and job creation potential that can be achieved by implementing the actions in the Plan:

- The Residential Energy Conservation Ordinance (Action 3.2.2) will provide an annual energy savings of \$330 to \$420 for every household that participates and create 2-4 public jobs.
- The Commercial Energy Conservation Ordinance (Action 3.2.4) will provide an annual average utility savings of \$0.33 per square foot. It is anticipated that participating buildings could recover their upfront renovation costs in about five years.
- The Commercial Property Assessed Clean Energy Financing program (Action 3.2.1) will create up to 126 public jobs and 106 private jobs during the first five years of its implementation. Furthermore, building owners who participate in the PACE program are not required to front the initial capital costs.
- The Rental Housing Water and Energy Efficiency Program (Action 3.2.3) will create up to 13 public jobs and 207 private jobs during the first five years of its implementation.
- Action 3.4.1, which requires new residential developments of 10 units or more to install photovoltaic systems, will provide an annual average energy savings of about \$630 per household per year and create over 2,000 jobs.
- Action 3.4.2, which requires solar to be installed in new commercial developments over 25,000 square feet and industrial developments over 100,000 square feet, will provide an annual average energy savings of about \$10,800 per participating building and create about 69 private jobs.
- The SMUD Smart Grid program (Action 3.1.2) will result in a annual savings of \$11.5 million dollars for residential SMUD customers and \$25 million for non-residential SMUD customers. The infrastructure costs associated with the program will be recovered in about five years and create up to nine jobs for every \$1 million dollars invested.
- Implementation of the California Green Building Code Tier 1 provisions (Action 3.3.2) will result in energy savings for residential dwellings ranging from \$0.77 to \$2.01 per square foot. For office buildings savings are expected to range from \$0.59 to \$3.13 per square foot.
- The SMUD Home Performance Program (Action 3.2.6) will result in annual energy savings of \$330 to \$420 per household and create one public and eight private jobs.

The specific actions included here can be found in Chapter 4, Greenhouse Gas Reduction and Adaptation Policies and Measures. Details on the economic analysis conducted to develop these co-benefits can be found in Appendix A.

1.5 COMMUNITY ACTION

Although it may seem that an individual cannot have much of an impact on global processes, individual actions can collectively make a big difference. The key to effectively addressing climate change includes active, ongoing partnerships between residents, businesses, and City government.

Everyone in the community has a role to play in addressing climate change. Individuals and businesses can consume less energy and produce less waste by recycling, composting, conserving water, using public transit, and making homes and businesses more energy efficient. Small steps can make a difference for the future of Sacramento and our planet.

Everyone stands to benefit from the results of an effective climate action. Effective climate action will require new behaviors and ways of thinking, which can only be sustained in the long term by communitywide efforts to reduce waste and use resources more sustainably. The Plan serves as a resource that supports the efforts of government, individuals, and businesses. Together we can create a safer, more sustainable Sacramento, while increasing the number of jobs and business opportunities and energy independence.



1.6 HOW THE CLIMATE ACTION PLAN WAS PREPARED

The City's Plan was developed in two phases. Phase 1, adopted in February 2010, addresses the City's internal government operations and identifies strategies to reduce GHG emissions in a cost effective manner in the City's municipal buildings, vehicle fleet, streetlights and signals, parks maintenance, water and drainage pumping, and other facilities and operations that are under the City's direct control. Chapter 4 of this Plan includes a summary of the results of Phase 1 Plan results and a complete copy of the Phase 1 report is included in Appendix B.

This Plan is Phase 2 of the City's climate action planning efforts. It focuses on reducing communitywide GHG emissions from activities within the City limits, as well as strategies to adapt to the effects of climate change. In partnership with the County of Sacramento, Sacramento Municipal Utility District (SMUD), and other incorporated cities within Sacramento County, the City of Sacramento commissioned a joint study to develop a countywide GHG inventory, which was used as the baseline GHG emissions for this Plan.

The process used by the City for setting communitywide climate protection goals included the following steps, based on the 5-Step model framework for climate action planning developed by the International Council for Local Environmental Initiatives (ICLEI):

1. Confirm existing GHG emissions inventories for municipal operations and communitywide emissions for the baseline year of 2005.
2. Forecast future "business-as-usual" GHG emissions levels that would occur in the absence of the climate action plan for 2020, 2030, and 2050.
3. Calculate a GHG reduction target for 2020 and goals for 2030 and 2050, consistent with State laws, goals, and guidelines.
4. Identify expected regional impacts due to climate change.
5. Identify and quantify draft GHG emissions reduction and climate change adaptation strategies, measures, and actions.
6. Conduct a "gap-analysis" to determine if the draft strategies, measures, and actions achieve the preliminary GHG emissions reduction target. Adjust the target or the draft strategies, measures, and actions based on community input and direction from City Council.
7. Draft a Climate Action Plan that includes GHG emissions reduction and climate change adaptation strategies, measures, and actions and programs for ongoing monitoring and adjustment over time.
8. Conduct outreach and participation efforts at key milestones in the process to engage community and interested stakeholders.
9. Present the draft Climate Action Plan to City commissions and to the City Council for adoption.

The process used by the City was based on the 5-Step model framework for climate action planning developed by the International Council for Local Environmental Initiatives (ICLEI).

The Climate Action Plan Work Program kicked off in 2009. Phase 1 was completed and approved by the City Council in February 2010. Phase 2 of the CAP process initiated in April 2010 with an initial public workshop. By the following year, staff and consultants had finalized the GHG inventory and identified draft emission reduction targets and reduction measures. Stakeholder outreach meetings were conducted in Summer 2011, along with hearings at the Planning Commission and City Council. A Draft Climate Action Plan was released for public review on November 3, 2011. Staff held a public meeting on the Draft Plan on November 16, 2011, and a number of written comments were received from the public through the close of the comment period on December 9, 2011. The Planning Commission held a public hearing on the Draft Plan on December 8, 2011 and voted forward a recommendation of approval to the City Council. The final Climate Action Plan was adopted January 31, 2012.

Environmental Review of the Climate Action Plan

Climate Action Plans are considered a “project” subject to compliance with the California Environmental Quality Act (CEQA) because they are activities undertaken by a public agency that are subject to discretionary approval and may cause a direct or indirect effects on the environment. Senate Bill (SB) 97 clarified that GHG emissions are within the scope of environmental review. Climate action plans include

measures that can change the physical environment and influence land use and development patterns that affect GHG emissions.

The environmental review process requires local governments to identify and evaluate GHG emissions, assess the significance of the impacts of GHG emissions on the environment as compared to the existing conditions, and identify feasible alternatives and mitigation measures to reduce significant impacts. Local governments should also identify measures to monitor program progress and adopt the approved plan in a public process following completion of environmental review.

The Climate Action Plan implements policies in the Sacramento 2030 General Plan, approved in March 2009. The General Plan includes goals, policies, and actions addressing GHG emissions, sustainability, and climate change. This Climate Action Plan builds on the policies outlined in the General Plan; its preparation was called for in Environmental Resources Implementation Program #12. The Master EIR (MEIR) prepared for the 2030 General Plan adequately describes the impacts of the Climate Action Plan for the purposes of CEQA. Accordingly, a separate EIR for the Climate Action Plan is not necessary.

Environmental Review of Projects Under the Climate Action Plan

In response to the mandate of SB 97, the CEQA Guidelines (Section 15183.5) establish standards for the

contents and approval process of plans to reduce GHGs. The Climate Action Plan has been prepared consistent with those standards.

As a CEQA Section 15183.5-qualified plan, the Climate Action Plan affords development applicants the opportunity to use CEQA streamlining tools for analysis of GHG emission and related impacts for projects that are consistent with the Plan. Details on how projects can achieve consistency with the Plan can be found in Section 4.6.

1.7 RELATIONSHIP TO OTHER CITY PLANS AND DOCUMENTS

Over the last decade, the City has adopted several key planning documents that promote sustainability and directly or indirectly address climate change. These prior plans provided background and resources for the development of the Climate Action Plan. Ongoing implementation of these plans will further the objectives of the Climate Action Plan. In many instances, specific programs and initiatives from these plans are included as actions in the Climate Action Plan.

In addition to the plans outlined below, the City has adopted several other planning documents and implemented dozens of programs and initiatives that are guiding Sacramento to a more sustainable future. A complete list of these can be found in the City's annual Sustainability Implementation Plans.

The following plans illustrate major efforts the City has established to further the objectives of the Climate Action Plan.

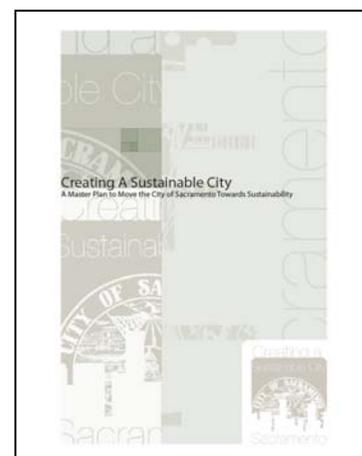
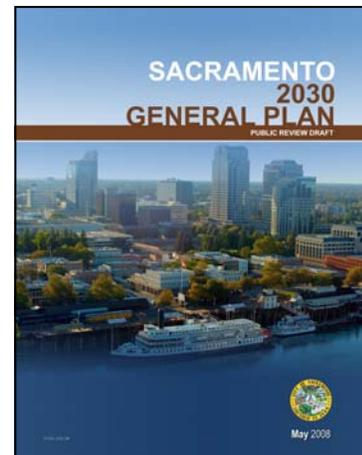
Sacramento 2030 General Plan

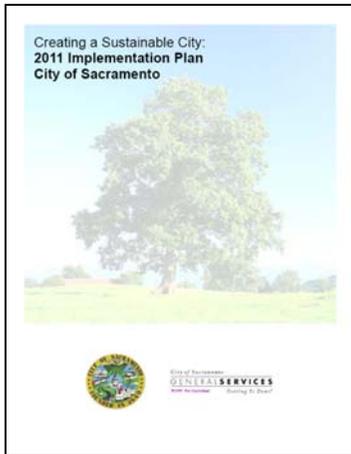
The 2030 General Plan provides the foundation upon which all future land use and public investment decisions are based. It is a guide for the development of the Climate Action Plan and all other planning documents, which must be consistent with General Plan policies. The General Plan includes goals and policies that guide the City's approach to addressing sustainability and climate change. The General Plan specifically identified the Climate Action Plan as an implementation program and a key mitigation measure for addressing and adapting to climate change. The existing General Plan goals and policies that are implemented by the Climate Action Plan can be found in Appendix C.

The Climate Action Plan is not part of the General Plan. Similar to other City-adopted plans and ordinances, the Plan is under the policy umbrella of the General Plan and must be maintained consistent with the General Plan. This structure allows the City to update the Climate Action Plan on an ongoing, as-needed basis without amending the General Plan. This approach ensures that Sacramento's climate action efforts can be more easily adjusted over time to effectively administer programs and policies and to reflect new legislation and emerging best practices.

Sustainability Master Plan

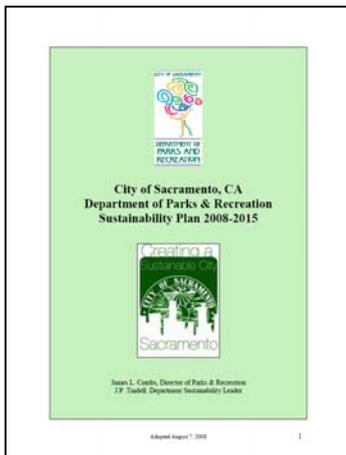
In December 2007 the City adopted the Sustainability Master Plan. The Sustainability Master Plan is a tool to guide future operational and policy decisions to create a more sustainable Sacramento. This Master Plan provides the policy framework to ensure that sustainability concerns are incorporated into the City's decision-making processes. It sets forth goals and long-term targets to guide the City and community toward reducing GHG emissions and promoting a greener path for doing business and for living. The Master Plan included the City goal of creating a Climate Action Plan as a tool to comply with the Global Warming Solutions Act (AB 32, 2006).





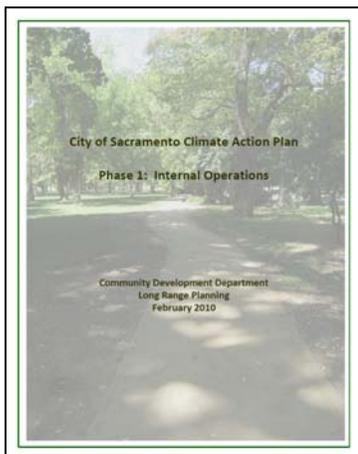
Sustainability Implementation Plans

Every year since adopting the Sustainability Master Plan, the City has annually prepared and adopted Sustainability Implementation Plans. These Implementation Plans are the City’s action plan for the next 12 months to move toward long-term sustainability targets. These Plans include previous year successes, short- and long-term actions for the next year’s actions, and 2030 goals. The Implementation Plans organize these actions according to the nine focus areas, identified in the original Sustainability Master Plan, which include: Energy Independence; Climate Protection; Air Quality; Material Resources; Public Health and Nutrition; Urban Design, Land Use, Green Building, and Transportation; Parks, Open Space, and Habitat Conservation; Water Resources and Flood Protection; and Public Involvement and Personal Responsibility. Because many of the Climate Action Plan strategies, measures, and actions address core sustainability issues, it is expected that the annual Sustainability Implementation Plan will be used to track and monitor progress in implementing the Climate Action Plan.



The Department of Parks and Recreation Sustainability Plan

In 2008 the City adopted the Department of Parks and Recreation (DPR) Sustainability Plan to guide the Department’s efforts to implement the 2007 Sustainability Master Plan, City Parks & Recreation Master Plan 2005-2010, 2030 General Plan, and issues identified during the 2008 Parks & Recreation Master Plan Update. The DPR Sustainability Plan focuses on policies and actions to protect natural resources, open space, water corridors, and parkways, and to operate and maintain these resources in a more sustainable manner. The DPR Sustainability Plan functions as a supplement to the Parks & Recreation Master Plan, providing added focus on sustainability of the Department of Parks and Recreation programs.



Climate Action Plan, Phase 1: Internal Operations

Phase 1 of the City of Sacramento’s Climate Action Plan examines the City’s internal government operations and identifies strategies to reduce GHG emissions in a cost-effective manner in the City’s municipal buildings, vehicle fleet, streetlights and signals, parks maintenance, water and drainage pumping, and other facilities and operations that are within the City’s immediate control. This Climate Action Plan (Phase 2) focuses on reducing communitywide GHG emissions within the City limits, as well as strategies to adapt to the effects of climate change.



CHAPTER 2

Greenhouse
Gas Emission
Inventories,
Forecasts, and
Targets



GHG EMISSION INVENTORIES, FORECASTS, AND TARGETS

CHAPTER 2

2.1 INTRODUCTION

This chapter summarizes our community's contribution to global warming by offering a rigorous accounting of greenhouse gas (GHG) emissions within Sacramento. It includes a discussion of the sources of GHG emissions for 2005 (i.e., inventory); describes likely trends if emissions are not reduced for 2020, 2030, and 2050 (i.e., forecasts); and sets a path forward to reduce our emissions for 2020, 2030, and 2050 (i.e., near term target and interim future goals). Emissions from communitywide activities are discussed first (Sections 2.2 through 2.4), followed by emissions from the City's internal municipal operations (Section 2.5).

Why Prepare a Greenhouse Gas Emissions Inventory?

As described in the Introduction, recent increases in global temperatures are highly correlated with elevated GHG emissions resulting from human activities. One of the main objectives of a climate action plan is to identify and reduce contributions to GHG emissions. The GHG emissions inventory can be thought of as a point-in-time estimate of emissions for a given year. This point-in-time estimate provides a baseline to begin the process of figuring out what we need to do to help stabilize global warming trends in the near term, and set a course to reverse them in the long term.

According to the scientific community, in order to avoid “dangerous climate change” in the Earth's climate system, we will need to stabilize GHG emissions so that global temperatures do not increase more than 3.6° F above pre-industrial levels. In order to achieve this, carbon dioxide (CO₂) emissions must be stabilized globally between 350 and 300 parts per million (ppm). This chapter is intended to serve as a foundation for the strategies, measures, and actions that will implement Sacramento's commitment to reducing GHG emissions.

Measuring GHG emissions is a critical first step in developing the Plan for several reasons. First, the GHG inventory identifies major sources and quantities of GHG emissions associated with the activities and choices made by residents, businesses, and public institutions. Second, the inventory provides the baseline that is used to forecast emissions trends and to develop an accurate near-term reduction target and interim goals consistent with State objectives. Finally, the inventory sets the baseline for the City to develop, evaluate, and implement strategies, measures, and actions to achieve its near-term target and interim goals.

The GHG emissions inventory also plays a role in ensuring that we stay on course to meet the City's GHG reduction near-term target and interim goals. After the Plan is adopted, the City will prepare regular GHG emissions inventories that will be compared to the baseline inventory and be used to track our progress in reducing emissions as we move forward with implementation.

GHG Emissions Inventory versus Carbon Footprint

Two common terms used when discussing climate change are “carbon footprint” and “GHG emission inventories.” While related, these concepts are not synonymous.

A GHG emissions inventory is an estimate of a defined set of gases (e.g., CO₂, methane [CH₄], nitrous oxide [N₂O]) that contribute to climate change. This Plan’s emissions inventory is limited to gases that are generated due to activities within Sacramento from a defined set of sources (e.g., transportation, electricity use, waste). These include gases that can be readily monitored and reduced by City actions and efforts that support the efforts of residents and businesses. However, this means that the GHG emissions inventory is limited and does not comprehensively address everyone’s contribution to GHG emissions on a global scale (e.g., purchasing imported goods or traveling outside Sacramento).

Unlike a GHG emissions inventory, a carbon footprint is not limited to a defined geography or to a set of activities and sources that the City can influence. A carbon footprint includes all of the GHG emissions that result from each of our daily choices or the activities of a business or organization, such as the energy required to grow and ship our food; the energy we use to travel (e.g., car, bus, train, plane); or the embodied energy to make, market, and dispose of the products we use. As a result, not all of the GHG emissions we generate (i.e., our carbon footprint) are included in the City’s GHG emissions inventory.

The Sacramento 2030 General Plan outlines a number of strategies for living lightly and reducing our carbon footprint both within Sacramento and beyond. As an implementing tool of the 2030 General Plan, this Climate Action Plan includes strategies, measures, and actions that will further the City’s objectives to reduce GHG emissions, and in turn help residents, businesses, and organizations reduce their carbon footprint.

It should be noted that residents, businesses, and organizations make choices on a daily basis that produce GHG emissions that may be beyond the influence of the City and this Plan. This does not mean that we should limit our efforts to only those actions which affect the inventoried emissions. Rather, it means that we can make climate-friendly choices, such as buying locally grown foods and manufactured products that reduce electricity and energy use, that will reduce our carbon footprint and help reverse global warming trends on a global scale.

MEASURING OUR CARBON FOOTPRINT

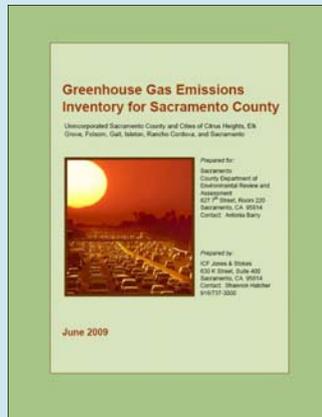
The average American household produces approximately 20 metric tons of CO₂ every year, which is five times as much as the global per-capita average.



You can measure your carbon footprint using the online calculator found here:

www.carbonfootprint.com/calculator.aspx

Details on the methodology for the City of Sacramento GHG inventory can be found in the June 2009 Greenhouse Gas Emissions Inventory for Sacramento County report.



http://www.dera.saccounty.net/Portals/0/docs/Final_SACCTY_GHG_June09_stacked_small.pdf

2.2 CITY OF SACRAMENTO GHG EMISSIONS INVENTORY

The first step in addressing our contribution to global warming is to understand the sources and amounts of GHG emissions we generate from activities within Sacramento. In 2008 and 2009 both the County and the City, in partnership with the six other incorporated cities located in the county, completed an integrated countywide GHG emissions inventory for the baseline year of 2005, as well as a specific inventory for each individual jurisdiction within the county. For each jurisdiction a specific breakdown of GHG emissions by sector was provided for communitywide activities, along with emissions from internal municipal operations as a subset of each communitywide profile.

The countywide inventory of communitywide GHG emissions was broken down into the following 11 sectors:

- On-road transportation emissions associated with gasoline consumption from driving that occurred on roadways.
- Off-road transportation emissions associated with gasoline consumption from the operation of off-road equipment such as boats, industrial and construction equipment, lawn and garden equipment, and rail operations.
- Residential emissions associated with electricity and natural gas consumption and other alternative means of heating (e.g., fireplaces).
- Commercial and industrial emissions associated with the consumption of electricity and natural gas to power and heat commercial buildings and industrial processes.
- Industrial specific emissions associated with fuels used to power large industrial processes, such as boilers, incinerators, and internal combustion engines.
- Waste emissions associated with waste already located within landfills and garbage produced during 2005.
- Wastewater treatment emissions associated with the energy consumed and emissions produced to process domestic sewage and industrial wastewater.
- Water-related emissions associated with energy and fuel used to treat and deliver water for domestic, irrigation, and industrial purposes.
- Agricultural emissions associated with cattle, swine, and dairy cows, and the application of fertilizer.
- High global warming potential (GWP) GHGs produced by refrigerants and transmission lines.
- Sacramento International Airport emissions associated with aircraft, ground support equipment, and parking facilities.

While unincorporated areas were by far the largest contributor to the region's GHG emissions – accounting for almost half – Sacramento accounted for nearly one-third of GHG emissions produced in the county. Further details on the methodology for the inventory can be found in the June 2009 “Greenhouse Gas Emissions Inventory for Sacramento County” report.





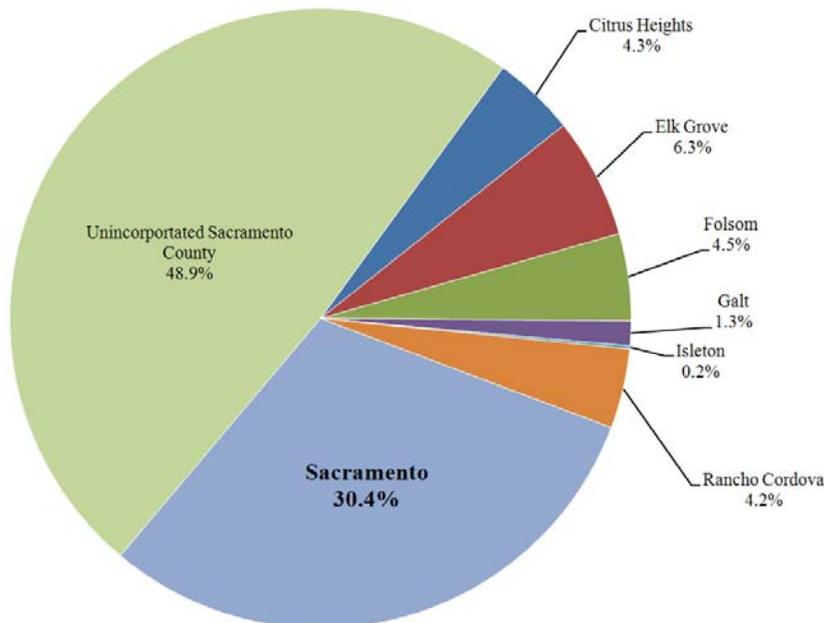
While the GHG inventory included the 11 sectors described on the previous page, the City cannot influence reductions for all sectors studied. There are four sectors in the GHG emissions inventory over which the City has very limited control: off-road equipment, agricultural emissions, high GWP GHG emissions, and the Sacramento International Airport.

The City retains discretionary authority over most land use decisions within its incorporated limits that are known to influence vehicle miles traveled (VMT). It also has the ability to implement energy efficiency standards by ordinance for buildings constructed in Sacramento. However, the City has no jurisdiction over fuel economy standards, which are determined by the Federal government. Similarly, the City does not have authority over tail-pipe emissions from off-road vehicles and California Air Resources Board (ARB) programs address GWP GHGs. The City also does not control the composition of Sacramento Metropolitan Utilities District’s (SMUD) energy portfolio, which is regulated at the State level, nor does the City have control over the operations of the Sacramento International Airport. Finally, there is very little agricultural land within City limits and agriculture-related emissions within Sacramento would actually be expected to decrease as development replaces agricultural lands.

For these reasons, these four sectors were separated from the inventory described on the proceeding pages and not included in the analysis to develop GHG emissions forecasts or during the development of the GHG emissions reduction near-term target and interim goals.

A DYNAMIC INVENTORY
While based on extensive research and analysis, the City’s GHG inventory represents a snapshot in time, using the best information available today. As technologies and markets change, and as the City implements the measures and actions included in the Plan, new inventories will be prepared to track progress. As a result, the GHG inventory will be updated regularly (e.g., every three years) with new data and assumptions.

SACRAMENTO COUNTY 2005 GHG EMISSIONS*



* The Sacramento County 2005 GHG Inventory in Appendix D shows Sacramento’s emissions accounting for 32.8 percent of the countywide emissions inventory. The original County inventory was subsequently revised to reflect changes to jurisdictional VMT estimates prepared by Fehr & Peers and analysis by ICF Jones and Stokes. The updated share of GHG emissions shown for the city of Sacramento in the figure to the left is 30.4 percent.

Source: ICF Jones & Stokes. 2009. GHG Emissions Inventory for Incorporated and Unincorporated Sacramento County. June 2009. (ICF J&S 00310.08.) Sacramento, CA. Prepared for: Sacramento County Department of Environmental Review and Assessment. Data compiled by Fehr & Peers and Ascent in 2011.

Communitywide versus Municipal Operations Emissions?

Communitywide emissions include emissions resulting from the activities of residents that live in the city and businesses and organizations that operate within the city. Communitywide emissions are created when we use gasoline to drive our cars, use electricity in our homes and businesses, and create garbage. Municipal operations emissions come from the operation of City facilities and services. Municipal operations emissions are created when City employees use gasoline to drive police cars, fire trucks, or other municipal fleet vehicles, use electricity-run public facilities and buildings, and create garbage in City buildings.

City of Sacramento's 2005 GHG Emissions

An important aspect of GHGs is the unit of measurement used to inventory and estimate emissions. CO₂ is the largest contributor to global warming and the most recognized GHG; however, there are five other primary GHGs that must be addressed to meet State-mandated reduction targets, including: CH₄, N₂O, sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). To simplify discussion of these emissions collectively, climate action plans use a measurement known as a carbon dioxide equivalent (CO₂e).

CO₂e measurement translates each GHG emissions gas to CO₂ by weighting it by its relative global warming potential. For example, CH₄ is 21 times more potent than CO₂ in its ability to trap heat in the atmosphere. Converting these gases into “carbon dioxide equivalents (CO₂e)” allows us to consider all the gases in comparable terms and makes it easier to communicate how various sources and types of GHG emissions contribute to global warming. A metric ton of CO₂e (MTCO₂e) is the standard measurement of the amount of GHG emissions produced and released into the atmosphere.

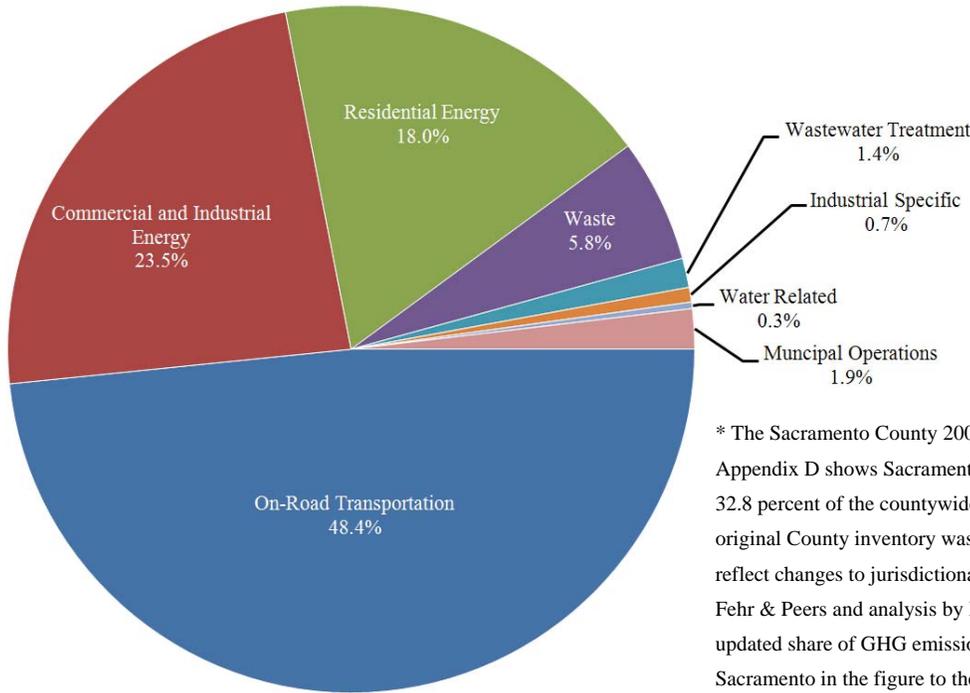
The City's 2005 communitywide activities accounted for 98 percent (4.08 million metric tons of CO₂e/year [MMTCO₂e]) of GHG emissions, while the City's 2005 municipal operations accounted for the remaining 2 percent (78,500 MTCO₂e/year) for a total of 4.08 MMTCO₂e. Gasoline and diesel consumption by vehicles driven in Sacramento (i.e., on-road transportation sector) is the single largest source of GHG emissions, accounting for just over 48 percent of the city's total emissions. Electricity and natural gas used to operate, heat, and cool commercial and industrial (including industrial specific) buildings and residential dwellings account for another 24 percent and 18 percent of emissions, respectively.

The total 4.08 MMTCO₂e GHGs emitted in Sacramento in 2005 equaled about 9.09 MTCO₂e for each of Sacramento's 457,837 residents or 23.30 MTCO₂e for each of Sacramento's 178,699 household. To put this in more understandable terms, one MTCO₂e is produced from using about 112 gallons of gasoline. The City's 4.08 MMTCO₂e is equal to using over 498 million gallons of gasoline. Assuming an average car gets about 25 miles to the gallon, that would be like driving over 18.4 million miles, or driving around the earth 740 times.

A detailed technical analysis of the City's 2005 emissions inventory can be found in Appendix D, GHG Emissions Inventory for Sacramento County, June 2009.



CITY OF SACRAMENTO 2005 GHG EMISSIONS*



* The Sacramento County 2005 GHG Inventory in Appendix D shows Sacramento’s emissions accounting for 32.8 percent of the countywide emissions inventory. The original County inventory was subsequently revised to reflect changes to jurisdictional VMT estimates prepared by Fehr & Peers and analysis by ICF Jones and Stokes. The updated share of GHG emissions shown for the city of Sacramento in the figure to the left is 30.4 percent.

1) See Section 2.5 for a detailed breakdown of the City’s emissions from municipal operations.
Source: ICF Jones & Stokes. 2009. GHG Emissions Inventory for Incorporated and Unincorporated Sacramento County. June 2009. (ICF J&S 00310.08.) Sacramento, CA. Prepared for: Sacramento County Department of Environmental Review and Assessment.

EMISSIONS SECTOR	MTCO ₂ e	PERCENT
On-Road Transportation	2,013,962	48.4%
Commercial and Industrial Energy	979,777	23.5%
Residential Energy	748,792	18.0%
Waste	241,862	5.8%
Wastewater Treatment	57,380	1.4%
Industrial Specific	28,656	0.7%
Water Related	12,810	0.3%
Municipal Operations	78,584	1.9%
Total Emissions	4,161,823	100%

The greenhouse gases included in the Sacramento 2005 GHG emissions inventory are equal to the emissions of a car driving around the earth 412,000 times!



GROWING THE CITY SUSTAINABLY

The business-as-usual GHG emissions forecasts in the Climate Action Plan assume a continued increase in population, housing units, and employment. Projections in the Plan are based on the City of Sacramento 2030 General Plan, which forecasts that by 2030:

- Population will grow by 182,924
- Housing units will grow by 97,492
- Employment (jobs) will grow by 134,267

2.3 GHG EMISSIONS FORECASTS

GHG forecasts estimate future emission levels based on a continuation of current trends or a “business-as-usual” scenario. Forecasts provide insights into the scale of reductions needed to change our behaviors and perspective on what it will take to achieve the GHG emissions near-term target and interim goals.

A “business-as-usual” forecast assumes no efforts would be made to reduce GHG emissions in the future. It assumes that historical and current energy consumption, transportation, solid waste, and water consumption trends will continue. Finally, it does not account for GHG emissions reductions associated with implementation of the Plan, advances in technology, or emission reductions programs initiated by the State or Federal government.

Details on how the forecasts were developed and the indicators used to estimate each sector can be found in the GHG Emissions Inventory for Sacramento County (2009), except for transportation, which was prepared by Fehr & Peers and Ascent Environmental as part of this Climate Action Plan (see Appendix D).

Demographic Trends

GHG emission forecasts were estimated for 2020, 2030, and 2050 using city-specific demographic projections based on assumed buildout of the City’s 2030 General Plan. Projected growth from the GHG Emissions Inventory for Sacramento County (2009) show that Sacramento’s population is expected to increase by about 23 percent by 2020, 40 percent by 2030, and nearly 70 percent by 2050. Growth in employment is expected at a rate slightly higher than population; however, the overall ratio of jobs per population is not expected to change dramatically from 2005 conditions.

A much greater percentage increase is expected for housing, which will be needed to accommodate additional population growth. From 2005 to 2020 a 32.7 percent increase in housing is expected to occur, and by 2030 housing is expected to increase by 54.6 percent. By 2050 it is expected that Sacramento’s housing will nearly double to over 354,000 units. It is also expected that there will be fewer people per housing unit in the future. Compared to 2005, when it is estimated that

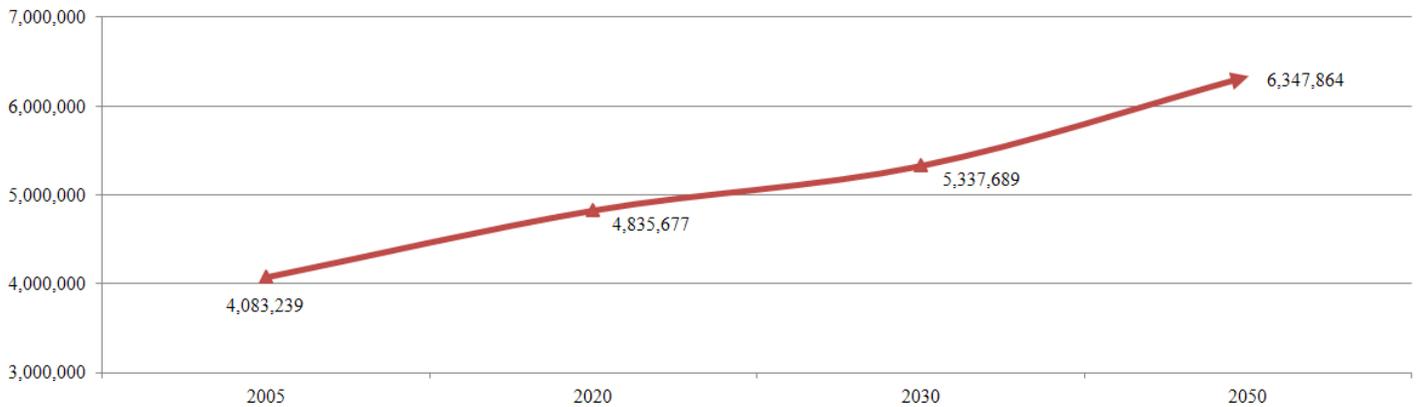


DEMOGRAPHIC PROJECTIONS



Source: ICF International 2011; data compiled by Fehr & Peers and Ascent in 2011.

BUSINESS-AS-USUAL GHG EMISSION FORECASTS



Source: ICF International 2011; data compiled by Fehr & Peers and Ascent in 2011.

there were about 2.56 people per housing unit, by 2020 that ratio is expected to drop to about 2.37 and hold steady through 2030 at about 2.32 persons per housing unit. However, by 2050 it is expected that this ratio will drop again to just 2.19 people per housing unit. This is important because fewer people per housing unit tend to consume more energy per capita compared to higher rates.

Business-as-Usual GHG Forecasts

Without the measures and actions included in this Plan (see Chapter 4) and other Federal and State programs, it is estimated that our GHG emissions would rise to over 4.84 MMTCO₂e/year by 2020, an increase of 18.4 percent. By 2030 emissions would increase by 30.7 percent over 2005 levels and to 55.5 by 2050. Under the business-as-usual forecasts, energy use (residential, commercial, industrial) would be responsible for the greatest increase in GHG emissions, with residential energy emissions nearly doubling by 2050. While gasoline and diesel consumption by vehicles driven in Sacramento were the single greatest source of emissions in 2005, the combined energy use of residential dwellings and commercial and industrial buildings and processes would surpass it by 2020, and significantly exceed it by 2030 and 2050.



Near-term Target and Long-term Goals

This Climate Action Plan identifies the following GHG emissions reduction near-term target and long-term goals for communitywide emissions:

- Target of 15 percent below 2005 levels by 2020;
- Goal of 38 percent below 2005 levels by 2030; and
- Goal of 83 percent below 2005 levels by 2050.

2.4: GHG EMISSIONS NEAR-TERM TARGET AND INTERIM GOALS

This Plan primarily focuses on reducing emissions by 2020, consistent with State mandates (i.e., California Global Warming Solutions Act [AB 32] 2006). While setting goals beyond 2020 is important to provide long-term objectives, it is difficult to establish targets beyond a 10–15 year time frame for which defensible reduction assumptions can be made. This is primarily due to uncertainty around future technological advances, demographic changes, and Federal and State laws.

According to ARB’s *Climate Change Scoping Plan* (December 2008), 15 percent below 2005 emission levels would be comparable to 1990 statewide emission levels. It is estimated that in 1990 atmospheric concentrations of CO₂ were about 353 ppm, which is why we use 1990 emissions levels as the target to help stabilize climate change trends. The *Scoping Plan* recommends that local governments use this 15 percent reduction as a guide in their local target setting processes. It should be noted that this 15 percent reduction would be the minimum required to comply with statewide GHG emissions reduction efforts (e.g., AB 32) and current guidance offered by ARB.

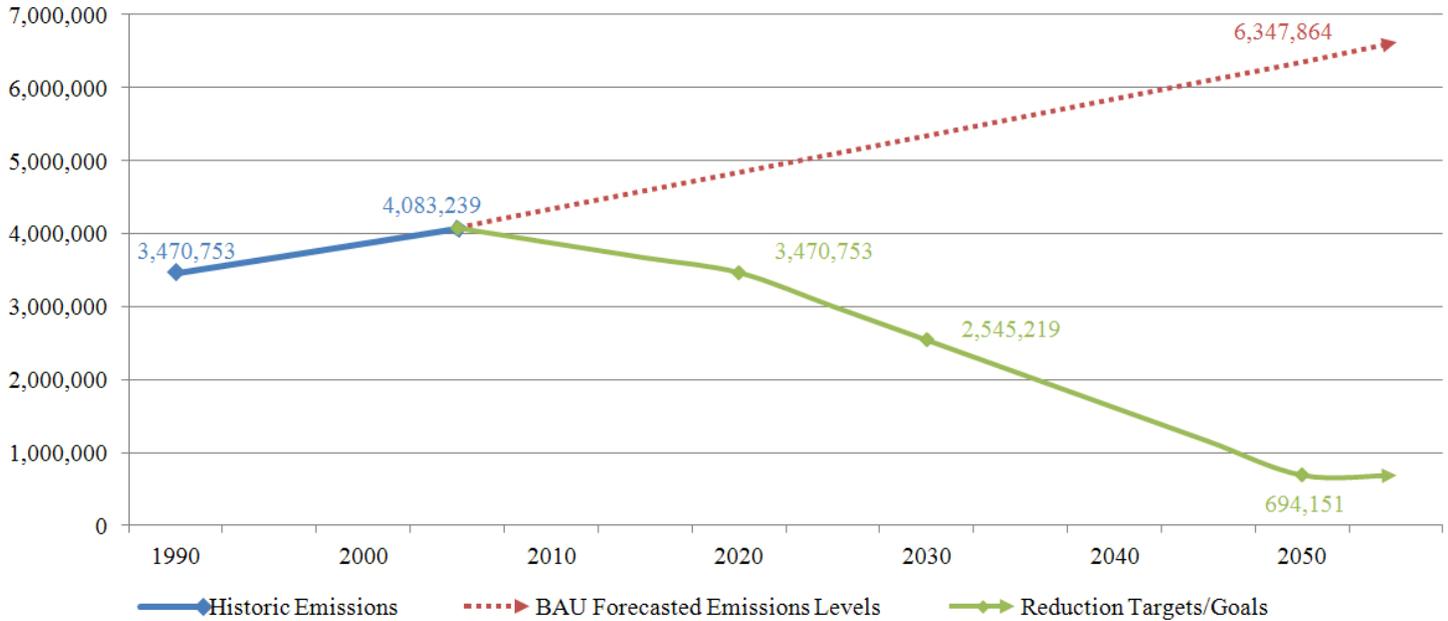
In order to support the intent of Executive Order S-3-05 and set the City on a path toward continued GHG emission reductions beyond 2020, a 2030 reduction goal, consistent with the time frame of the 2030 General Plan, and a 2050 GHG reduction goal, consistent with Executive Order S-3-05, are identified. While the City is not under any obligation to achieve the 2030 or 2050 goals, it will use this Plan’s strategies, measures, and actions to set the city on a path for further GHG reductions beyond 2020. It is expected that as this Plan is implemented and refined, additional strategies, measures, and actions will be identified and adopted to achieve these long-term goals.

The City’s communitywide GHG emissions reduction target and goals are based only on emissions for which the City can directly influence reductions. Attaining a 15 percent reduction in GHG emissions will require that we reduce our annual emissions to approximately 3.47 MMT CO₂e/year in 2020, which is about 612,500 MTCO₂e/year lower than 2005 levels. This represents a reduction of about 28 percent from forecasted “business-as-usual” 2020 levels.

In setting its 2030 and 2050 goals, the City assumed that 15 percent below 2005 levels is equivalent to 1990 emission levels in order to apply the 80 percent below 1990 emission goal established by Executive Order S-3-05. For 2030 the City estimated an interim point along the path to achieve the 2050 goal of 80 percent below 1990 levels.

In order to achieve long-term GHG reductions, the City will need to reduce its emissions to 2.55 MMTCO₂e/year by 2030, or about 1.59 MMTCO₂e (38 percent) below 2005 GHG emissions levels. To achieve an 80 percent reduction in GHG emissions from 1990 levels by 2050, the City will need to reduce its emissions to about 694,200 MT CO₂e per year in 2050, which is about 3.39 MMTCO₂e (83 percent) lower than 2005 levels. A detailed technical analysis of the City’s emissions reduction target and goals can be found in Appendix E.

NEAR-TERM GHG TARGET AND LONG-TERM GOALS (MTCO₂e/YEAR)



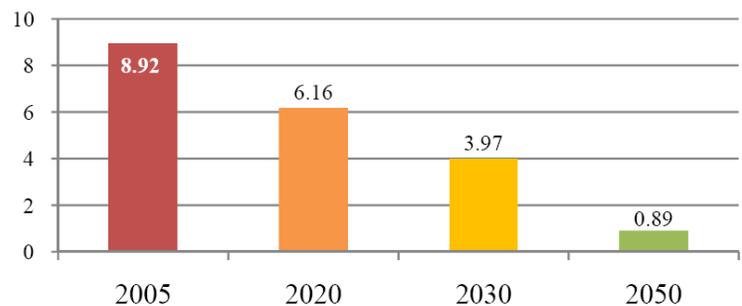
YEAR	EXISTING (2005)/ BAU FORECASTED	REDUCTION TARGET/GOALS	PERCENT BELOW EXISTING (2005)	PERCENT BELOW 2020 BAU FORECASTED
2005	4,083,239	—	—	—
2020	4,835,677	3,470,753	15%	28%
2030	5,337,689	2,545,219	38%	52%
2050	6,347,864	694,151	83%	89%

1) 1990 GHG emissions levels assumed based on 2020 target.
Source: Ascent Environmental, 2011

It will be a challenge for the city’s existing residents and businesses to achieve the City’s GHG emission reduction objectives; however, this near-term target and interim goals must also be achieved with the addition of new residents living in the city and additional people working in the city. As described in Section 2.3, an additional 116,400 people, 58,500 housing units, and 80,200 employees are forecasted to be in the city by 2020.

On a per capita basis (including new residents), we will need to reduce our emissions to about 6.2 MTCO₂e per person by 2020. This represents a reduction of 31 percent (2.8 MTCO₂e/year) from current (2005) per capita emissions levels (8.9 MTCO₂e/year) and is equivalent to a person driving 7,000 fewer miles/year or planting 60 trees.¹² By 2030 we will need to reduce our per capita emissions by another 30 percent or by over 55 percent (4.0 MTCO₂e/year) from 2005 levels.

PER CAPITA GHG EMISSIONS GOALS (MTCO₂e/PERSON/YEAR)



ESTIMATED EFFECTS OF FEDERAL AND STATE PROGRAMS ON SACRAMENTO GHG EMISSION FORECASTS

SCOPING PLAN MEASURE	AFFECTED EMISSIONS SECTOR	SCOPING PLAN- ESTIMATED EMISSION REDUCTION (2020)	PROJECTED STATEWIDE 2020 EMISSIONS OF SECTOR (MMTCO ₂ E)	PERCENT EMISSION REDUCTION (STATEWIDE)	PERCENT EMISSION REDUCTION (LOCAL)	INVENTORY SUBSECTOR	PERCENT EMISSION REDUCTION FROM 2020 PROJECTED EMISSIONS
Federal Fuel Economy Standards; AB 1493 (Pavley Advanced Clean Cars 2002)	Transportation	30.1	210.0	14.3%	-	80.3% (light-duty vehicles)	5.2%
Energy Efficiency Measures; California Green Building Code	Energy	11.9	167.7	7.1%	-	-	3.3%
Renewable Electricity Standard; Renewable Portfolio Standard	Energy	23.4	167.7	14%	21%	51.6% (electricity)	5.1%
Total							13.6%

Note: Energy Efficiency Measures and Green Building Code assumes that development would implement the basic Green Building Code Standards (CalGreen); CO₂e = carbon dioxide equivalent; MMT= million metric tons.

Source: ARB 2010; SACOG 2010; SMUD 2008. Data compiled by Ascent in 2011

Reductions from Federal and State Regulations

It would be unreasonable to expect that the City could achieve the aggressive emission reduction target presented without the aid of statewide programs, changes in technology, and/or funding assistance. Identification of potentially feasible, post-2020 actions will require subsequent analysis, City planning decisions, and coordination with State programs. There are several Federal and State programs that can be applied to the transportation and energy sectors that will help meet the city's overall emissions reduction near-term target and long-term goals. These include Federal regulations addressing GHG emissions from passenger cars and trucks (e.g., Corporate Average Fuel Economy [CAFE] standards revised in the 2007 House Energy Bill) and State regulations to increase the amount of electricity generated from renewable sources (e.g., California Renewable Energy Portfolio Standard Program).

The California Climate Change Scoping Plan contains the strategies the State of California will implement to achieve reduction of approximately 118 MMTCO₂e, or approximately 22 percent from California's projected 2020 emission level of 545 MMTCO₂e under a business-as-usual scenario (this is a reduction of 47 MMTCO₂e, or almost 10 percent, from 2008 emissions). The following GHG emission reductions anticipated at the State level were also anticipated to affect emission factors used to develop the City of Sacramento's emissions inventory projections:

- improved emissions standards for light-duty vehicles (estimated reduction of 26.1 MMTCO₂e)
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (11.9 MMTCO₂e)
- a renewable portfolio standard for electricity production (23.4 MMTCO₂e)

If all programs are implemented as described in the Scoping Plan, the City's 2020 emissions would be reduced by a maximum of 13.6 percent by 2020 (659,415 MTCO₂e/year).

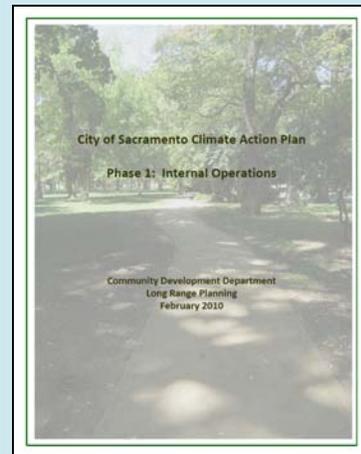
2.5 MUNICIPAL OPERATIONS GHG EMISSIONS, FORECASTS, AND NEAR-TERM TARGET AND INTERIM GOALS

In February 2010 the City Council approved Phase 1 of the Climate Action Plan, which summarized the City’s municipal buildings, vehicle fleet, streetlights and signals, parks maintenance, water and drainage pumping, and other facilities and operations; forecast future municipal emissions; and set near-term target and interim goals for municipal GHG emission reductions. The following section is a summary of the Phase 1 effort. Details on the City’s Phase 1 emissions inventory, forecasts, and near-term target and interim goals can be found in the *City of Sacramento Climate Action Plan Phase 1: Internal Operations* (February 2010). A copy of the complete Phase 1 report can be found in Appendix B.

As described in Section 2.1 of this Chapter, the City’s municipal operations are a subset of the city’s overall communitywide contribution to GHG emissions. Municipal operations GHGs include emissions resulting from activities carried out by the City to provide public services, such as energy used to operate City buildings and facilities and gasoline used to run City vehicles. Because these emissions are specific to government operations, the sector categories differ from those described for communitywide emissions, and they are dealt with separately in this Climate Action Plan. The municipal operations GHG inventory is divided among the following four sectors:

- Building energy associated with electricity and natural gas to power and heat City buildings and facilities.
- Energy associated with electricity used by streetlights and traffic signals in public rights-of-way or adjacent to City facilities.
- Vehicle fleet fuel use associated with gasoline, diesel, liquefied natural gas (LNG), and other fuels used in City vehicles and other motorized equipment, such as police cars, fire trucks, garbage trucks, and parks maintenance vehicles.
- Landfill emissions associated with methane generated from waste disposed in prior years in the 28th Street City landfill at Sutter’s Landing (closed in 1997).

Details on the City of Sacramento municipal operations GHG emissions inventory, forecasts, and targets can be found in the Climate Action Plan, Phase 1: Internal Operations report.



http://www.sacgp.org/documents/Phase-1-CAP_2-11-10.pdf



While economic recovery and growth remain uncertain, several projects have been approved in the city that are expected to trigger the need to increase services by 2020.

Municipal Operations GHG Emissions Inventory

The City's GHG emissions resulting from municipal operations in 2005 were about 78,500 MTCO₂e. City buildings represented the largest sector, at 45.5 percent (35,700 MTCO₂e). It is important to note that the "buildings" emissions category includes emissions from energy use in many types of facilities along with typical buildings. The largest user of electricity in City operations, for example, is pumping activities in the City's water, sewer, and drainage facilities. Vehicle fleet operations represent the second largest sector at 27.9 percent (21,900 MTCO₂e). Waste-in-Place emissions (primarily methane) from the former City landfill at Sutter's Landing amounts to approximately 17.8 percent (14,000 MTCO₂e) and streetlights and traffic signals represent the fourth largest sector at 8.7 percent (6,800 MTCO₂e).

2020/2030/2050 Greenhouse Gas Emissions Forecast

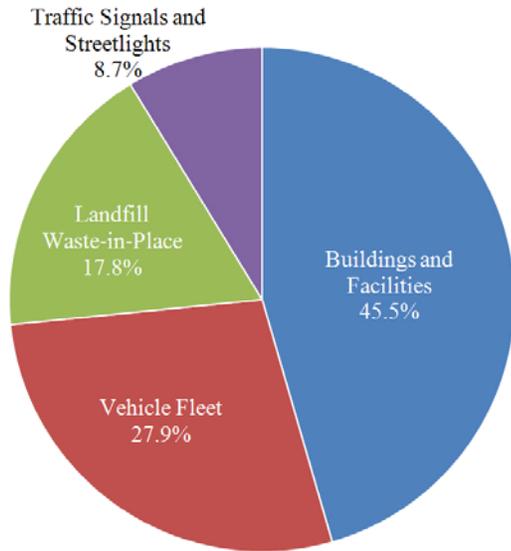
The City's internal municipal operations grew steadily up to and after 2005, commensurate with increases in population and the gradual increase in service demands within Sacramento. However, the recent economic recession slowed the rate of growth in the city and led to cuts in City staff and services due to severely reduced revenues. The City expects that similar reductions in City services and staffing levels could continue in the near term. Therefore, it is not expected that the City's internal operations will expand significantly in the near future.

While economic recovery and growth are expected to resume sometime in the future, it remains uncertain as to when the City's operations will match or exceed 2005 levels. However, projects have been approved in a number of significant infill and greenfield development areas in the city that are expected to trigger the need to increase services by 2020.

The "business-as-usual" forecast assumes no action and growth in GHG emissions from City operations in accordance with these growth rates. For the purposes of this Plan, it is assumed that any resumed growth in City operations would be close to an average of about 1 percent annually between 2005 and 2020, taking into account a period of significant expansion in City operations that occurred between 2005 and 2008, a period of reductions in staffing and services in 2009-2011, and conservative to modest growth between 2012 and 2020.

The City's "business-as-usual" forecast for 2020, 2030, and 2050, assuming limited growth in GHG emissions from City operations, demonstrate that emissions would increase from the 2005 baseline of 78,584 MTCO₂e to about 90,000 MTCO₂e by 2020, about 100,000 MTCO₂e by 2030, and about 120,000 MTCO₂e by 2050.

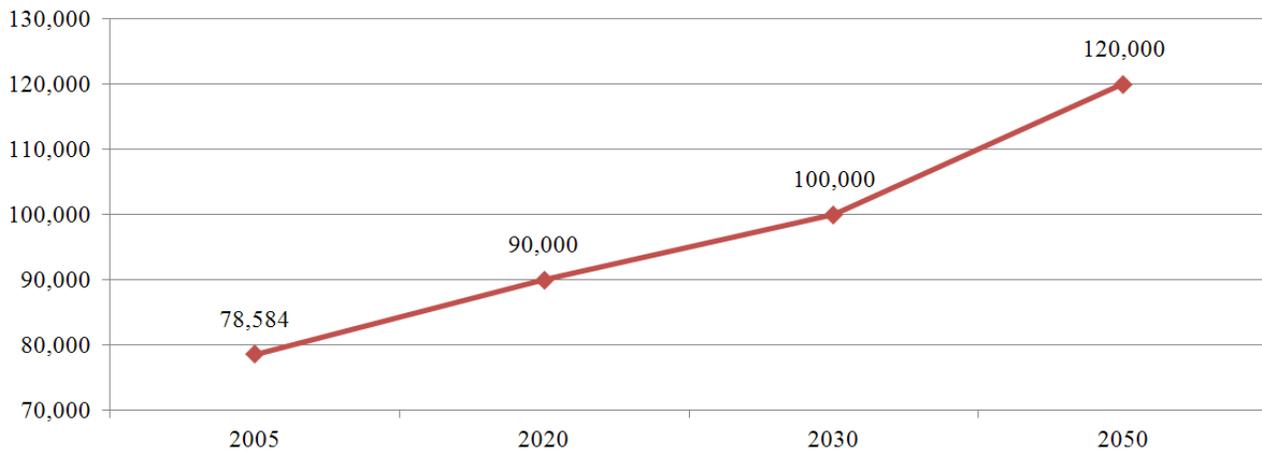
CITY OF SACRAMENTO MUNICIPAL OPERATIONS 2005 GHG INVENTORY



EMISSIONS SECTOR	MTCO ₂ e	PERCENT
Buildings and Facilities	35,773	45.5%
Vehicle Fleet	21,927	27.9%
Landfill Waste-in-Place	14,012	17.8%
Traffic Signals and Streetlights	6,872	8.7%
Total	78,584	100%

Source: City of Sacramento Community Development Department, Climate Action Plan, Phase 1: Internal Operations, February 2010

CITY OF SACRAMENTO MUNICIPAL OPERATIONS GHG EMISSIONS FORECASTS



Source: City of Sacramento Community Development Department, Climate Action Plan, Phase 1: Internal Operations, February 2011 .



What municipal operations GHG reduction Target and Goals Does the City have?

The municipal operations GHG reduction target for 2020 show that the City will need to reduce its annual emissions by about 26 percent from forecasted 2020 levels. In order to achieve long-term goals, the City would need to further reduce emissions by about 50 percent below forecasted 2030 levels and 83 percent below forecasted 2050 levels.

2020 Target/2030 and 2050 Goals

The Sustainability Master Plan (2007) set a specific 2020 reduction target of 54,000 MT CO₂e for municipal operations, which was based on a preliminary staff estimate of the City's operational GHG levels in 1990. However, the 1990 estimate was not based on a formal inventory using Local Government Operations Protocol and was included in the Sustainability Master Plan prior to the completion of the 2005 GHG emissions inventory.

For the purposes of Phase 1 Climate Action Plan analysis, it was assumed that the preliminary Sustainability Master Plan target for internal operations would need to be updated per guidance issued by ARB in the AB 32 Scoping Plan, which set a minimum target of 15 percent below 2005 levels by 2020 for local government operations. The City's municipal operations GHG emissions reduction target for 2020 and goals for 2030 and 2050 show that the City will need to reduce its annual GHG emissions from 78,584 MTCO₂e in 2005, to 66,760 MT CO₂e/year in 2020, a reduction of approximately 11,800 MTCO₂e. This represents a reduction of about 26 percent (23,200 MTCO₂e) from forecasted 2020 levels.

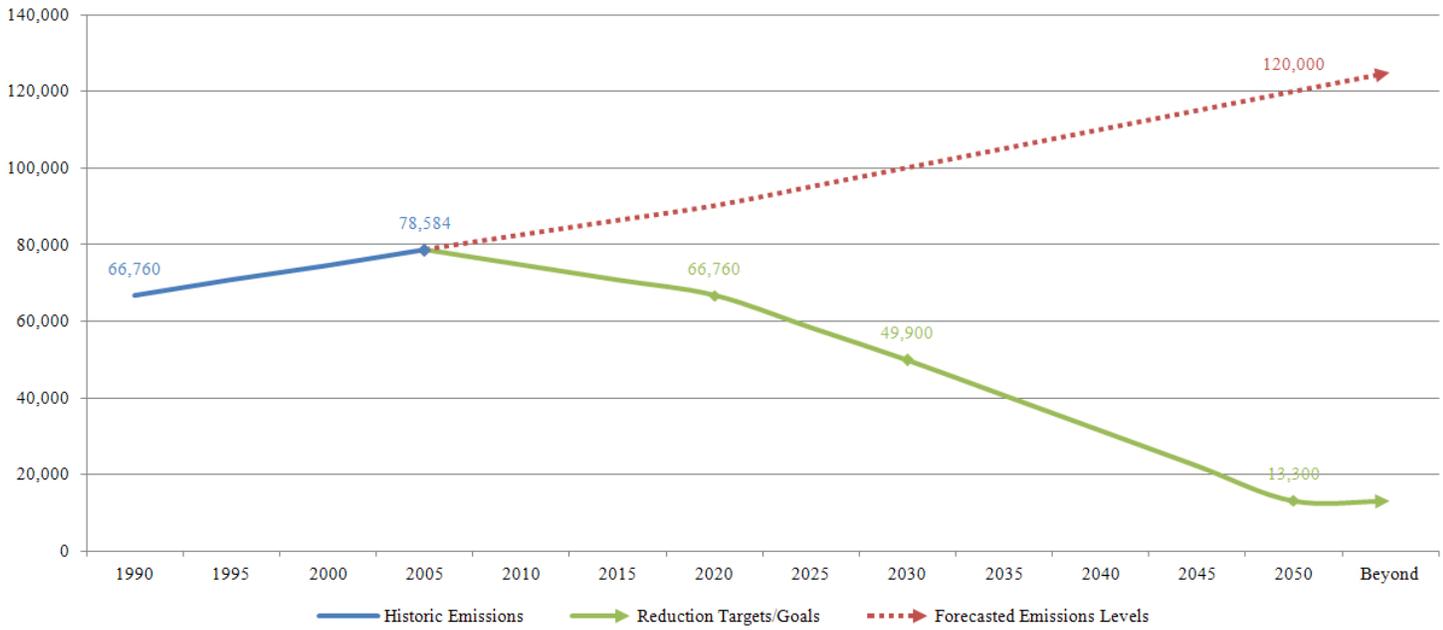
The City also outlined three potential GHG emission reduction scenarios based on variations in reductions for goals beyond 2020. The scenarios were intended to compare the relative trends associated with meeting the Sustainability Master Plan targets noted above from 2020 through 2050. Simply complying with the minimum 15 percent reduction target and maintaining that trend over time (approximately 1.1 percent annual reductions through 2050) would not put the City on track to reduce its internal operations GHG emissions to 80 percent below 1990 levels by 2050.

For the purposes of the Phase 1 analysis, however, the City identified preliminary goals for 2030 and 2050 that would be needed to achieve long-term GHG reductions consistent with long-term State objectives. In order to meet State objectives, the City would need to reduce its GHG emissions from 78,584 MTCO₂e in 2005 to 49,900 MTCO₂e/year in 2030, a reduction of about 28,600 MTCO₂e/year. This represents a reduction of about 50 percent (50,100 MTCO₂e) from forecasted 2030 levels. By 2050 the City would need to further reduce emissions to 13,300 MTCO₂e/year. This represents an 83 percent reduction from 2005 emissions levels and an 89 percent reduction (106,700 MTCO₂e) from forecasted 2050 emissions levels.

In the Phase 1 Climate Action Plan analysis, the City noted that meeting these goals for GHG emission reductions would need to be phased in over time and/or the City could choose to cut emissions more aggressively in the future.



CITY OF SACRAMENTO MUNICIPAL OPERATIONS NEAR-TERM TARGET AND LONG-TERM GOALS (MTCO₂e)



	2020 TARGET	2030 GOAL	2050 GOAL
Percentage Reduction ¹	15%	37%	83%
Emissions Target/Goal	66,760	49,900	13,300
Net Reduction from 2005 Levels	11,824	28,684	65,284
Net Reduction from Forecasted levels	23,240	50,100	106,700
Percentage Below Forecast	26%	50%	89%

1) The GHG Emissions Reduction Goal for 2050 is 80 percent below 1990 levels or 80 percent below the 2020 target.

Source: City of Sacramento Community Development Department, Climate Action Plan, Phase 1: Internal Operations, February 2011



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CHAPTER

3

Expected Climate Change Impacts

CHAPTER 3

EXPECTED CLIMATE CHANGE IMPACTS

3.1 INTRODUCTION

This chapter summarizes the impacts from climate change that we can expect to experience over the coming decades. It includes a discussion of the cause of climate change impacts, the effect of climate change, and how those effects will impact the Sacramento region. It highlights potential climate change-related factors that should be considered as part of the City's long-term planning processes. This chapter is intended to provide a foundation for the strategies, measures, and actions that will enable us to prepare for and adapt to climate change impacts.

What is causing climate change?

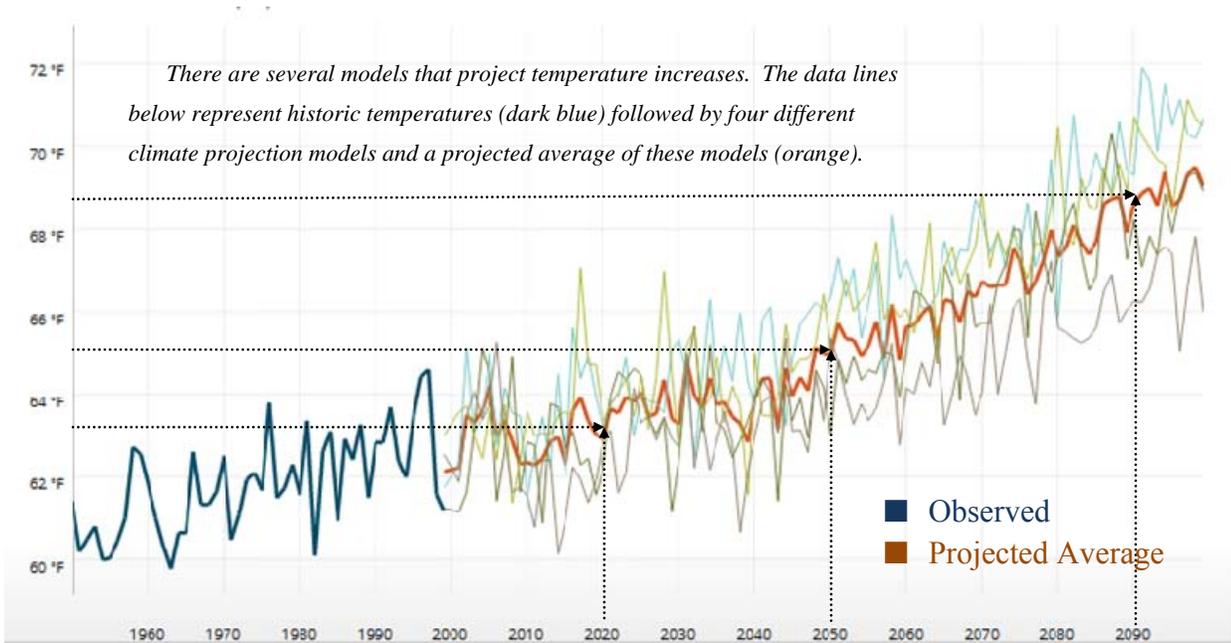
As described in the Introduction, the greenhouse effect naturally regulates the Earth's temperature. However, human activity has increased the intensity of the greenhouse effect by releasing GHGs into the atmosphere. Increased concentrations of GHGs in the atmosphere result in increased air, surface, and ocean temperatures. Many of the effects and impacts of climate change stem from resulting changes in temperature and meteorological responses to those changes.

The Intergovernmental Panel on Climate Change (IPCC), which includes more than 1,300 scientists from the United States and other countries, estimated that over the last century, global temperatures have increased by about 1.3 degrees Fahrenheit (°F)¹. IPCC forecasts indicate that global temperatures can be expected to continue to rise between 2.5 and 10°F over the next century. According to the California Climate Adaptation Strategy (ARB 2009), average state temperatures are currently predicted to increase 1.8 to 5.4°F by 2050 and 3.6 to 9°F by 2100.² Some regional models show average temperatures in California increasing as much as 10.8°F.

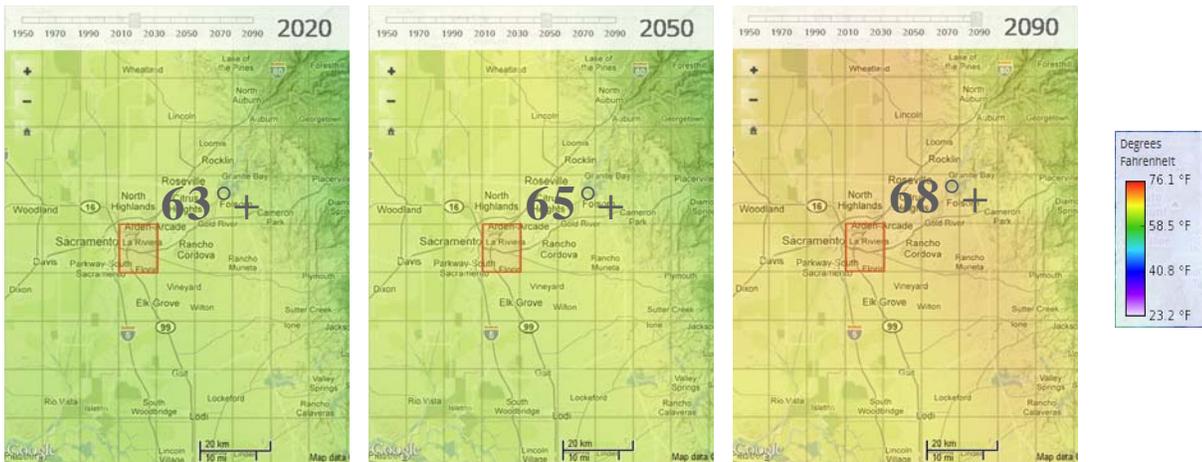
Temperature increase predictions are based on ranges of global GHG emissions expected within the next century. The IPCC temperature ranges mentioned above reflect a variety of low, medium, and high scenarios for emissions. Global GHG emissions are being monitored annually and they continue to increase. As a result, achieving the low emission scenarios has become unlikely, while the probability of reaching the medium and high scenarios is believed to be more likely to occur. For purposes of this discussion, the focus is mostly on the effects of the medium- or high-range emissions scenario, although information about low ranges is also presented where relevant or available.



OBSERVED AND PROJECTED AVERAGE TEMPERATURES FOR SACRAMENTO



Source: Cal-Adapt, Source: Cal-Adapt, <http://cal-adapt.org/tools/factsheet/>, June 2011.



Source: Cal-Adapt, <http://cal-adapt.org/temperature/decadal/#>, June 2011.

Sacramento's Rising Temperatures

The Sacramento region has experienced a rise in average temperatures. According to the U.S. Global Change Research Program winters are now shorter and warmer than they were 30 years ago. The Department of Water Resources (DWR) documented an increase of one degree in the Sacramento watershed over the last century.³ According to Cal-Adapt, a climate change projection modeling tool developed by California Energy Commission, temperatures in the Sacramento region have historically averaged about 60°F. Temperatures are projected to rise between six and nine degrees by 2100, based on average low and high emissions scenarios.



Climate change is expected to affect us all, threatening to harm the health and safety of residents and the economic growth and stability of businesses.

Who is at risk from climate change?

Climate change is expected to affect us all, threatening to harm our health and safety. In particular, climate change will affect physical and mental health, economic stability, and overall quality of life. It will affect people's access to, and the quality of, basic goods and services such as water, shelter, and food, as well as other key priorities for well-being such as education, employment, and crime rates. According to the U.S. Global Change Research Program climate change is already reshaping the United States, and warns that global warming could have serious consequences for how Americans live and work.

The impacts of climate change will not affect us equally. Some people are more likely to be impacted than others. People exposed to the most severe climate-related hazards are often those least able to cope with the associated impacts, due to their limited adaptive capacity. Globally, climate change is expected to have a greater impact on a larger number of people living in poorer and developing countries. People in these areas have lower incomes and rely on natural resources and agricultural systems that will likely be affected by changing climates. These countries also often lack the technology and social systems needed to address and adapt to climate change on a large scale.

Certain groups in developed countries like the United States will also experience more impacts from climate change than others. People in rural areas are more likely to be affected by climate change impacts, such as droughts or severe storms, compared to their urban counterparts. However, certain groups living in cities will also be at higher risk than others. Sacramento residents who are at greatest risk for the impacts described in this chapter include children, the elderly, those with existing health problems (e.g., heart and lung diseases), the socially and/or economically disadvantaged, those who are less mobile, and those who work outdoors.



What can we do to adapt to climate change?

Reducing GHG emissions will go a long way in helping to decrease the magnitude of climate change impacts; however, GHGs can remain in the atmosphere for decades. The GHG emissions that are already in the atmosphere will continue to cause climate change for years to come, just as the warming we are experiencing now is the result of emissions produced in the past. Climatic changes are happening now and are projected to increase in frequency and severity before the benefits of GHG emission reductions will be realized. Although reducing GHGs is critical in addressing climate change, proactive planning and action is equally important.

For natural environments, adaptation occurs when plants, animals, and other organisms are forced to change (e.g., migrating to other regions that provide the climate necessary to sustain them). In some cases, plants and animals must also deal with competition or impacts from other migrating species. Those that are unable to adapt fast enough often face extinction. Human communities, on the other hand, can and are planning ways to help communities adapt to climate change. Public agencies and community leaders are taking steps to assess risks and find solutions to alleviate climate change impacts for vulnerable communities and natural environments. This is known as *adaptation planning*.

Adaptation planning is an increasingly valuable tool to prepare for the impacts of climate change. Because of the regional scale of climate change, decisions about how to best manage the expected impacts are best made at the local and regional levels by representatives from government, the private sector, and other organizations. Steps in adaptation planning include identifying key climate change-related impacts and vulnerabilities, assessing local and regional sensitivity, and developing adaptation strategies.

California has pioneered adaptation efforts by developing a statewide climate adaptation strategy, which recognizes the potential adverse effects of climate change on the health, environment, and economy of the state. Communities throughout California are now starting to plan for how to mitigate these impacts locally and become resilient to the expected impacts of climate change. This Plan includes strategies that work in tandem with GHG reduction measures to help the City and its residents and businesses adapt to expected climate change impacts. By minimizing the risks associated with climate impacts now, future costs and public health concerns can be avoided and/or minimized in the future.

Chapter 4 of this Plan outlines the strategies, measures, and actions Sacramento will use to address expected regional climate change impacts.

MITIGATION VS. ADAPTATION

There are two primary methods for addressing climate change impacts:

- **Mitigation:** Actions that prevent future climate change by either reducing GHG emissions or removing GHGs from the atmosphere.
- **Adaptation:** Actions that protect communities, residents, businesses and ecosystems from climate change impacts that have already occurred or will occur in the future.



There is still uncertainty about when, where, and to what extent climate change effects will occur.

3.2 EXPECTED EFFECTS ON THE SACRAMENTO REGION

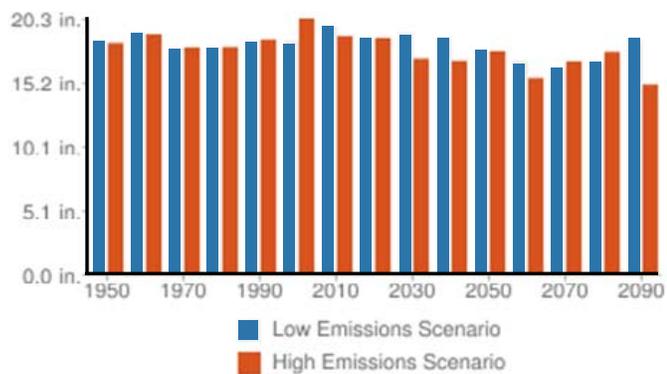
This section summarizes the climate change effects that the Sacramento region is likely to experience based on current scientific research, analysis, and understanding. There is broad scientific consensus about general categories of climate change effects and their likely consequences for the region. However, understanding the magnitude, timing, and scale of effects and the relationships among them is still evolving.

Variable Precipitation Patterns

Precipitation levels are difficult to predict compared to other indicators of climate change. Annual rain and snowfall patterns vary widely from year to year, especially in California. Generally, higher temperatures increase evaporation and decrease snowfall, resulting in a drier climate. A majority of scientific models have shown that northern California precipitation is expected to decrease after 2030. But, more precipitation is expected to fall as rain rather than as snow.

According to DWR, the Sacramento region has actually seen an increase in annual precipitation of about one inch over the last century.⁴ DWR research from 1901 to 2000 shows that the Sacramento River system runoff volume has remained stable on an annual basis, but there has been a 9 percent reduction in runoff from April through July. This is likely the result of increased winter rainfall and less snowpack storage. DWR anticipates that over the next century the Sacramento region will likely experience a light increase in annual precipitation, with larger and more intense storms resulting in flood conditions, and longer drought periods. However, according to Cal-Adapt, the Sacramento region is projected to experience a slight decrease in annual precipitation levels (rain and snow) by 2090.⁵

OBSERVED AND PROJECTED PRECIPITATION

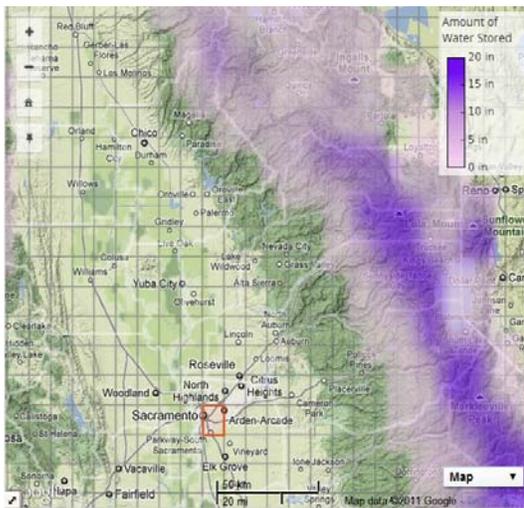


Source: Cal-Adapt, <http://cal-adapt.org/precip/decadal/>, June 2011.

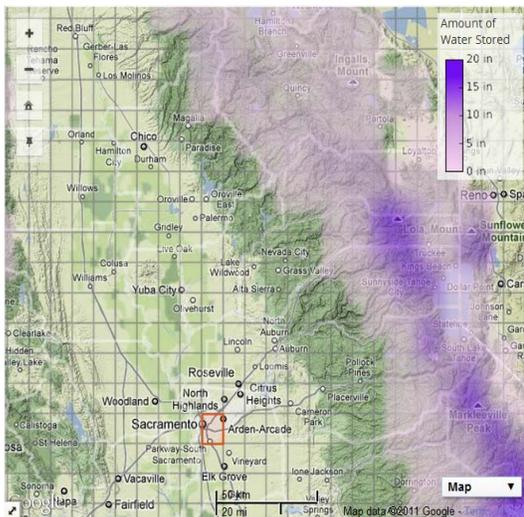


PROJECTED AVERAGE SNOWPACK IN APRIL (SNOW WATER EQUIVALENT)

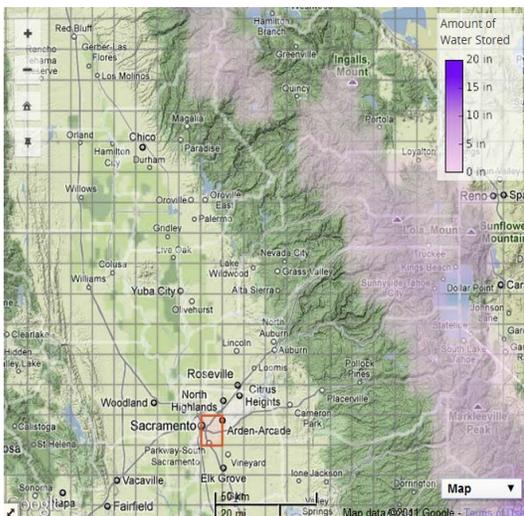
2010



2050



2090



Source: Cal-Adapt, <http://cal-adapt.org/snowpack/decadal/#>, June 2011.

Reduced Snowpack and Snowline at Higher Elevations

The Sierra Nevada snowpack acts as a large natural reservoir that stores water during the winter and releases it into the Sacramento and American Rivers in Spring and Summer. In Sacramento the timing and magnitude of the release for this water supply is especially important during the dry summer.

It is expected that there will be less snowfall in the Sierra Nevada and the elevations at which snow falls will rise. Coincidentally, there will be less snowpack water storage to supply runoff water in the warmer months. Already it has been documented that California's snow line is rising.

The spring snowpack in the Sierra Nevada has decreased by 10 percent in the last century and may decrease up to 80 percent by 2100.⁶ DWR also estimates that for each one degree Celsius (°C) increase in Earth's average temperature, the Sierra snowpack will retreat 500 feet in elevation. According to DWR, the Sierra Nevada can expect to experience a decrease in snowpack at lower elevations and an overall reduction of 25 percent to 40 percent reduction in snowpack by 2050.⁷

There is general consensus that higher temperatures will continue to reduce the snowpack that feeds many Sierra Nevada foothill watersheds. This is particularly relevant to areas in the Sacramento region that rely on the Sacramento and American Rivers for water.



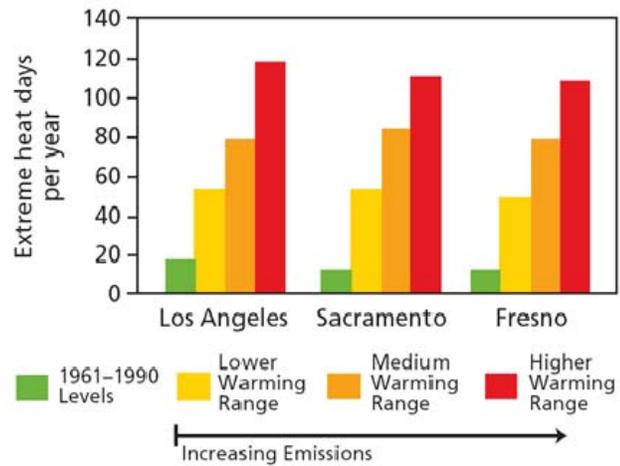
Earlier, Hotter, More Frequent, and Longer Heat Waves

Heat waves are projected to increase in frequency, intensity, and duration for the Sacramento region. Over the past 60 years, summer maximum temperatures have increased by 0.4°C.⁸

Extreme heat waves are expected to increase in number by ten times in the Sacramento region and could become an annual event by 2100.⁹ Sacramento could experience up to 100 additional days per year with temperatures above 95°F and by 2090, the average July temperature could reach over 104°F.¹⁰

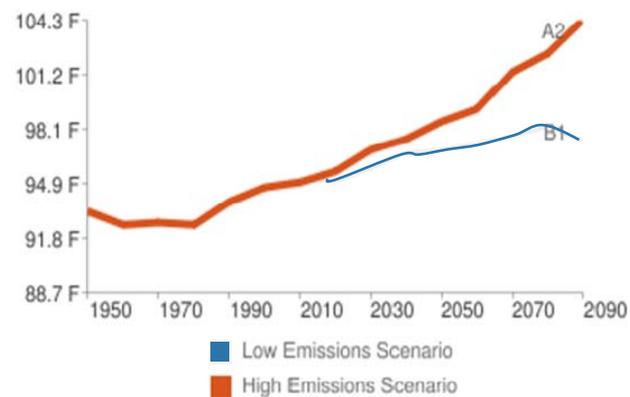
Of particular concern for Sacramento is the “urban heat island” effect, which is caused in urban areas where greater heat retention of buildings and paved surfaces result in higher ambient temperatures compared to vegetated areas. During heat waves, urban heat islands are especially dangerous because they are both hotter during the day and do not cool down at night.

INCREASE IN EXTREME HEAT (2070-2090)



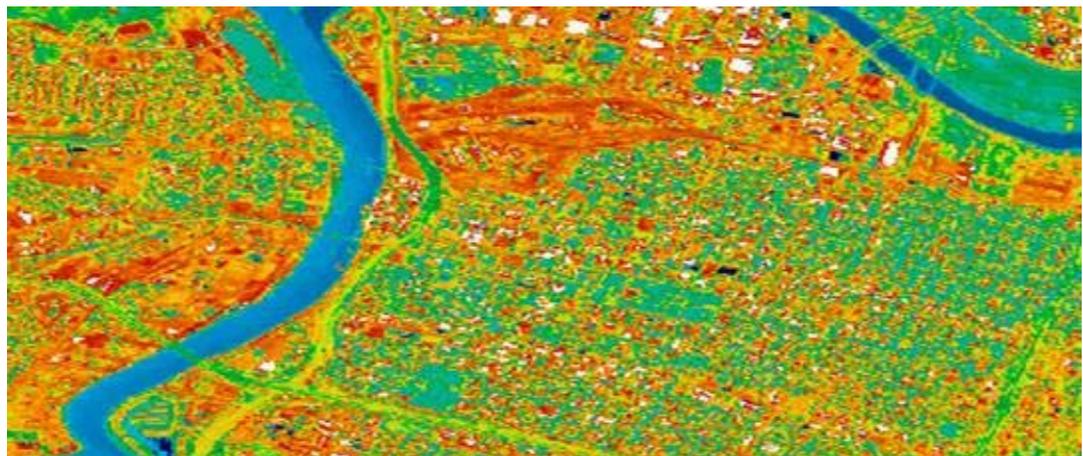
Source: Luers, Amy L. et al. (2006). *Our Changing Climate: Assessing the Risks to California. The 2006 Summary Report from the California Climate Change Center. CEC-PIER Report, CEC-500-2006-077.*

PROJECTED AVERAGE HIGH TEMPERATURES



1) Average temperatures in July
Source: Cal-Adapt. <http://cal-adapt.org/temperature/decadal/#>, June 2009.

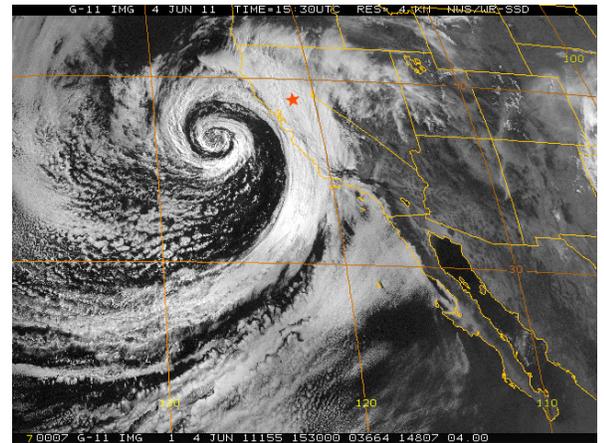
OBSERVED URBAN HEAT ISLAND EFFECT IN SACRAMENTO



Source: NASA, 2000

More Frequent and Extreme Storm Events

Extreme weather is expected to become more common throughout California. More extreme storm events are expected to increase water runoff to streams and rivers during the winter months, heightening flood risks. Warmer ocean surface temperatures have caused warmer and wetter conditions in the Sierra Nevada, increasing flood risk. When the Sacramento or American Rivers are already at peak capacity, additional flows from increased snowpack runoff or storm intensity could cause flooding. During the last 50 years peak flow patterns have increased in the Sacramento River, making floods more likely in the future, especially if there is an increase in intense storms.¹¹



Diminished Air Quality

Climate change is expected to exacerbate air quality problems by increasing the frequency, duration, and intensity of conditions conducive to air pollution formation. Higher temperatures and increased ultraviolet radiation from climate change are expected to facilitate the chemical formation of more secondary air pollutants from ground-level sources. Conversely decreased precipitation is expected to reduce the amount of particulates cleansed from the air.¹² As one of the sunniest cities in the country, Sacramento has all the ingredients to create smog. Sunlight triggers the chemical reaction between nitrogen oxides and volatile organic compounds (VOCs) that creates ozone. In addition, incidents of wildfires in nearby foothills and mountain regions are expected to increase and further contribute to the air quality problems.



Sea Level Rise

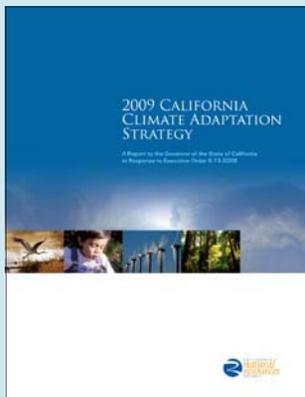
Rising sea levels are expected due to temperature increases that cause ocean water to expand, Arctic and glacial ice to melt, and increased amounts of snowpack runoff to enter the sea. California’s ocean surface temperature patterns have been warmer than normal for the past decade, a condition known as Pacific Decadal Oscillation.¹³ California sea level appears to have risen by about seven inches over the 20th century and is predicted to rise up to 55 inches by the end of the 21st century.¹⁴

Sacramento’s location (70 miles inland coast) limits the most significant effects from sea level rise. However, rising sea levels may lead to levee failures in the Delta causing infrastructure damage, flooding, and saltwater intrusion into groundwater aquifers that may affect Sacramento region groundwater sources. It is also possible that sea level rise could reduce the effectiveness of Delta and nearby Delta levees, or increase flood levels in tidally affected reaches of the Sacramento River, if storm flow and tide conditions coincide. An influx of saltwater would degrade California’s inland estuaries, wetlands, and groundwater aquifers. Saltwater intrusion could threaten the quality and reliability of California’s biggest fresh water supply that is pumped from the southern edge of the Sacramento/San Joaquin River Delta.



Source: Cal-Adapt. <http://cal-adapt.org/sealevel/>, June 2009.

Additional details on the expected effects and impacts of climate change on California can be found in the California Adaptation Strategy and the Cal-Adapt scenario tool.



www.climatechange.ca.gov/adaptation

cal-adapt

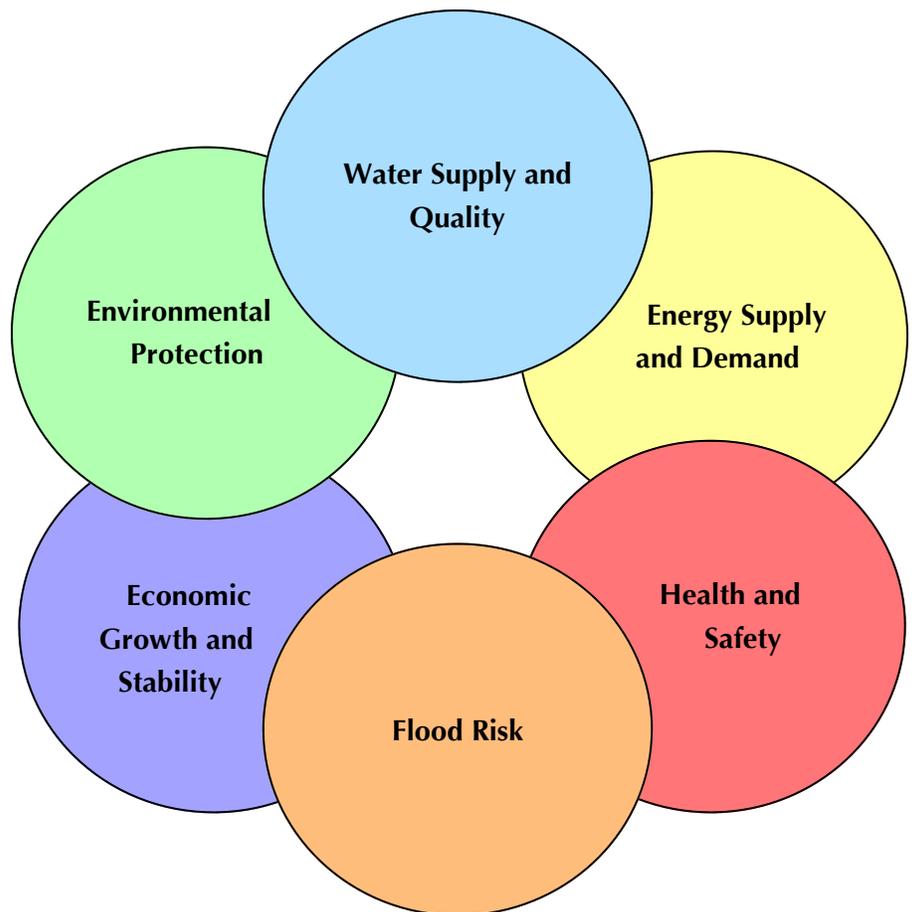
www.cal-adapt.org

3.3 EXPECTED IMPACTS ON THE SACRAMENTO REGION

Climate change threatens the health and well-being of all Sacramento residents and businesses. This section summarizes the impacts of climate change that the Sacramento region could expect. The Sacramento region can expect many negative impacts that affect our health, economy, environment, and quality of life.

According to the 2009 California Climate Change Adaptation Strategy (Cal Adaptation Strategy), California can expect to experience increased average temperatures with overall hotter and drier conditions, reductions in winter snow, increases in winter rains, accelerating sea-level rise, and more extreme weather events. The Cal Adaptation Strategy indicates that extreme weather events (e.g., heat waves), wildfires, droughts, and floods are likely to be some of the earliest climate impacts.

The information and assessments outlined in this section are based on the effects described in Section 3.2. Similar to the expected effects of climate change, there is uncertainty about when, where, and to what extent these impacts will affect the Sacramento region’s residents, businesses, and natural environments.



Water Supply and Quality

Climate Change is expected to increase pressure on and competition for California's water resources, further exacerbating already stretched water supplies. Decreasing snowpack and spring stream flows and increasing demand for water from a growing population and hotter climate could lead to increasing water shortages. Water supplies are also at risk from rising sea levels.

The Sacramento region is expected to experience hotter and drier conditions and reduced snowpack that could cause reduced reservoir supplies and Sacramento and American River flows. It is also expected that the region will experience more intense rainfall events that could increase demand for reservoir capacity to provide for water capture and storage. Despite these uncertainties, it is still widely accepted that changes in water supply will occur and water yields from reservoirs are expected to be unreliable. As Earth's temperature rises, it is expected that water demands will increase and could result in a longer season of peak treated water demands. Due to these effects it is expected that competition for water will increase among cities, farmers, and the environment.

Changes to air and land temperatures will have an impact on the timing, amount, type, and location of precipitation and runoff in the Sacramento and American Rivers watersheds. This will impact the quantity of water supplies, the management of those quantities, the quality of the source water, and the demand for treated drinking water. DWR has identified anticipated changes to the source water conditions in the watershed that will likely impact the quality of the source waters, including more intense storm events, longer drought periods, reduced snowpack at lower elevations, and earlier spring runoff.¹⁵

Modeling for the Central Valley Project indicates that there are likely to be significant shortages of water in drought years in North of the Delta operations.¹⁶ Current flood control operations would prevent the capture of increased winter runoff and, therefore, operational changes would be required to avoid shortages. These possible future changes in source water management could also impact source water quality, such as increased water temperature, nutrient loading, sediment transport, carbon loading, and pathogen transport.

Changes in source water quantity and quality may impact the treatment necessary to produce potable drinking water. These changes could result in additional treatment processes required and increased costs for treated drinking water in order to avoid potential for human health risk via drinking water consumption.

Climate Change is expected to increase pressure on and competition for California water resources, further exacerbating stretched water supplies.

**Spare
the Water**
S A C R A M E N T O



Energy Supply and Demand

Climate change is expected to cause higher electricity demands and costs and increased air pollution from dirtier sources of energy used to meet increased demand.

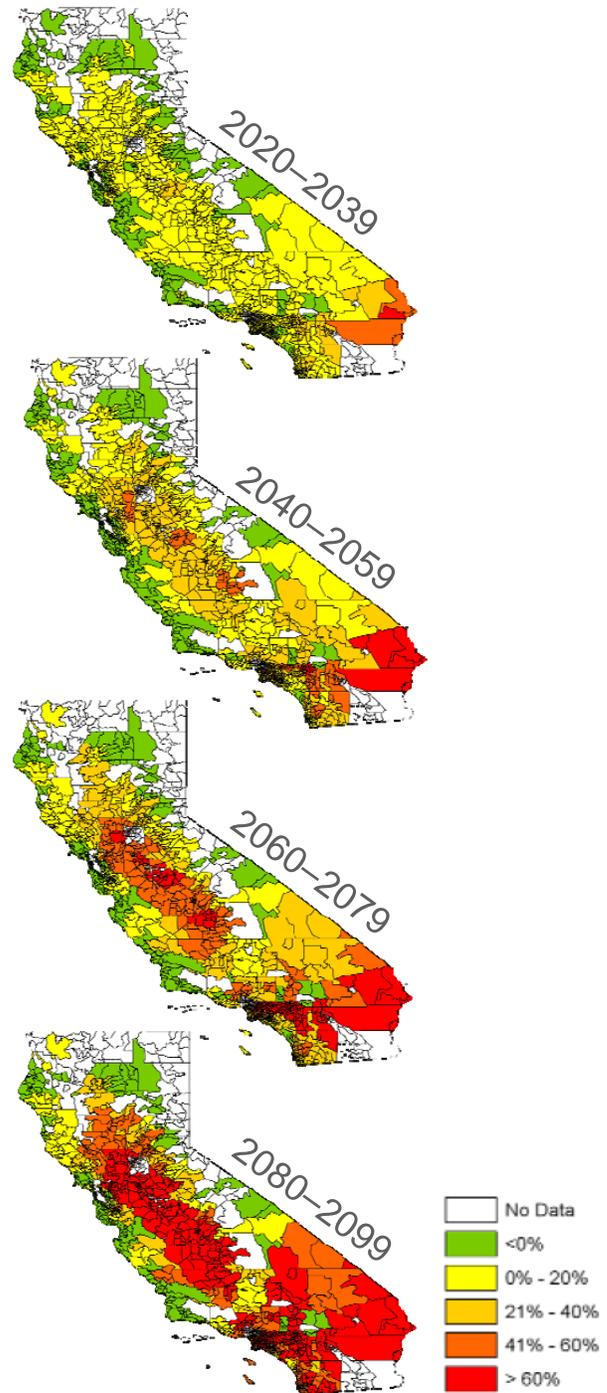
Decreased snowpack, earlier snow melt, and increased precipitation events and droughts may all contribute to less stability in those electricity supplies. Using a network of eight power plants and 11 reservoirs, the Sacramento Municipal Utility District uses hydroelectric power to provide 15 percent of the energy used in Sacramento county.¹⁷ Higher variability of runoff flows could cause a loss in hydroelectric power if reservoir dams are forced to use spillways to avoid overcapacity.

Similarly, prolonged periods of drought may lower reservoir levels, limiting the amount of water that may be released to generate hydroelectric power for the Sacramento region and beyond. Overall, hydroelectric power production could decrease by a total of 30 percent across California.¹⁸

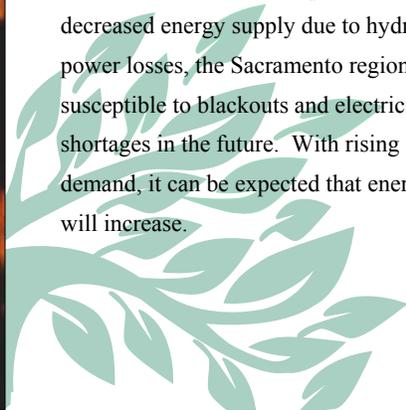
In addition, increasing average temperatures and more prolonged, intense heat waves are expected to increase demand for energy (i.e., to operate air conditioners). While winter temperatures will be higher on average, the reduced use of energy for heating is not expected to compensate for the increased energy demand for cooling.

Overall energy demand could increase 6 percent by 2020¹⁹ and electricity demand by residential dwellings could increase by up to 55 percent by 2100.²⁰ With rising energy demand due to higher temperatures and decreased energy supply due to hydroelectric power losses, the Sacramento region could be susceptible to blackouts and electricity shortages in the future. With rising energy demand, it can be expected that energy costs will increase.

PROJECTED HOUSEHOLD ELECTRICITY CONSUMPTION BASED ON MODELED HIGHER AVERAGE TEMPERATURES



Source: Aroonruengsawat, Anin, Maximilian Auffhammer (2009). *Impacts of Climate Change on Residential Electricity Consumption: Evidence from Billing Data*. California Climate Change Center, CEC-500-2009-018-D. Model NCAR PCM forced by IPCC SRES A2.



Health and Safety

The various effects of climate change are expected to increase risks to the health and safety of residents. Those most likely to suffer include children, the elderly, and other vulnerable populations.

Respiratory Illness

As temperatures rise from global warming, the frequency and severity of heat waves will grow and increase the potential for bad air days, which can lead to increases in illness and death due to dehydration, heart attack, stroke, and respiratory disease. Californians experience the worst quality air in the nation, especially in the Sacramento region. More than 90 percent of California's population lives in an area that has ozone or particulate matter levels above the state air quality standard.²¹

Presently, poor air quality results in 8,800 deaths per year across California.²² Sacramento County is designated a severe nonattainment area for exceeding a number of State and national ambient air quality standards based in regulation.²³ Sacramento's poor air quality has significant effects for public health.

More highly impaired air quality from climate change may result in increased incidence of respiratory disease and asthma and lead to more heat-related deaths.

Heat-related Illness

Higher temperatures and the increased frequency of heat waves associated with climate change are expected to significantly increase heat-related illnesses, such as heat exhaustion and heat stroke, while also exacerbating

conditions associated with cardiovascular and respiratory diseases, diabetes, nervous system disorders, emphysema, and epilepsy.

In California heat waves have killed more people than all other disaster events in the last 15 years, usually affecting vulnerable populations such as infants, the sick, the elderly, or those of low incomes who lack access to air conditioning or work outdoors.²⁴ An increase of every 10°F in average daily temperature is associated with a 2.3 percent increase in mortality.²⁵ During heat waves mortality rates can increase to about 9 percent. Hot summers make Sacramento especially susceptible to an increase in heat-related illness. Deaths from heat-related illnesses in Sacramento are projected to increase from ten in 1990 to as many as 148 by 2090.²⁶

Vector-borne Diseases

As climate change affects the temperature, humidity, and rainfall levels across California, some areas could become more suitable habitats for insects (especially mosquitoes), ticks, and mites that may carry diseases. Wetter regions are typically more susceptible to vector-borne diseases, especially human hantavirus cardiopulmonary syndrome, Lyme disease, and West Nile virus.²⁷

The amount and pattern of precipitation as well as warmer winter weather affects the abundance of vector habitat and food supply. The Sacramento region is projected to have wetter and warmer winters that may attract vector populations (e.g., mosquito inhabited still-water pools may become more prolific).

Flood Risk

Increased flood frequency and elevated flood risk are expected in California as a result of sea level rise, more intense storm events, and shifts in the seasonal timing of rainfall and snowpack runoff. Densely populated, low-lying areas like Sacramento are at the greatest risk from flooding and the Sacramento region has been identified as one of the highest flood prone areas in the country.

The Sacramento region is protected by an elaborate system of levees and dams to protect residents and property from flooding. However, the region's levee system will be further strained to meet the challenges expected from shifting snow and rain patterns and more extreme storm events.

Floods can also increase the food supply available to rodents that may transmit Lyme disease, plague, tularemia, and rickettsial infections.²⁸ In each of these cases the increase in vector-borne disease occurrences is expected to impact public health and increase demand on health care systems.

Health Care Systems

Finally, increased health and safety impacts are expected to cause a corresponding demand for health care and place additional strain on health care systems by overloading emergency rooms and medical facilities. As a result, residents and businesses may experience increased health care costs and higher insurance premiums.

Potential statewide direct costs due to climate change-induced damage, if no action is taken, could exceed tens of billions of dollars annually.

Economic Growth and Stability

Economic impacts due to climate change will likely affect all sectors of the economy with negative consequences. A study conducted in 2008 by the University of California, Berkeley and Next10, estimated that potential statewide direct costs due to climate change-induced damage, if no action is taken, could exceed tens of billions of dollars annually, with even higher direct economic costs and the placement of trillions of dollars of real estate at risk. Consequently, the economic well-being of communities is diminished with higher risk, and greater uncertainty about the future. Residents, businesses, and public agencies will likely see everyday costs for food and services increase. Costs will increase to cover energy, water, food, and health related issues, leaving less money for discretionary household spending, business investment and profits, and government services.

- Energy costs are expected to rise as demand increases to cool buildings due to higher temperatures, especially in urban areas affected by the urban heat island effect. Energy prices may also be affected due to more variable energy supplies locally and from increased competition for electricity, natural gas, and oil.
- Water costs will likely rise due to increased demands for potable, landscaping, and irrigation water use (e.g., metered water cost increases) and scarcity of and competition for water supplies.
- Food prices are expected to increase as the agricultural sector experiences lower yields or crop patterns shift due to higher temperatures and droughts, crops are damaged from extreme weather events, and/or operation costs increase (e.g., irrigation water costs).
- Health care and insurance costs are likely to increase to meet the increasing demand and risks due to climate change impacts.

For businesses, workforce productivity may experience more frequent disruptions from climate-change induced health impacts to residents and employees due to vector- and water-borne disease; heat related illness; and increased demand for and costs of health care. Outdoor labor/industries (e.g., construction) may be at even higher risk as more frequent, unhealthy working conditions become more common (e.g., higher temperatures, poorer air quality, heat waves, extreme weather events). Workers may be harmed when climate-related events, such as floods, cause them to lose their jobs and incomes. The indirect effects of climate change also may lead to similar outcomes, as businesses move away from areas affected by climate change impacts to less affected areas.

Finally, climate change impacts will likely result in property damage due to hotter temperatures, more extreme weather events, and flooding. Preparation for and adaptation to new and changing conditions will likely generate new costs that were not necessary to address similar concerns in the past. Residents, businesses, and the City can expect increased costs for maintenance and upgrades to address these issues, or to make repairs in the event of damage. As climate change generates conditions not experienced in the past, preparation and adaptation will be more costly in terms of requiring new information, institutions, infrastructure, and behaviors.



Environmental Protection

Climate change effects will have broad impacts on local and regional ecosystems, habitats, and wildlife as average temperatures increase, precipitation patterns change, and more extreme weather events occur. Although species have adapted to environmental changes for millions of years, a quickly changing climate could require adaptation on larger and faster scales than in the past. Similarly, the timing of many natural events, such as growing seasons and migrations, is linked to temperature, moisture availability, and amount of daylight. Changes in weather patterns and extreme events associated with climate change will disrupt these natural patterns. Species that cannot adapt are at risk of extinction. Even the loss of a single species can have subsequent impacts on other species connected through food webs and other interactions. Climate change is expected to radically and quickly change the ecosystems that many plants and animals rely on for survival.

Habitats that currently support local wildlife are expected to change, forcing plants and animals to either adapt to the new environment or move to more hospitable areas. Some species will be able to adapt to changing habitats by shifting their range or altitudes in order to adjust to rising temperatures. Others, however, might not be able to adapt fast enough to keep pace with the rate of climate change. For some species, climate change may allow them to increase the range of habitat where they can live; however, where plants and animals need to move to survive they may find wildlife corridors blocked or competition from other species.

The risk of extinction could increase for many species, especially those that are already endangered or at risk due to isolation by geography or human development, low population numbers, or a narrow temperature tolerance range. Additionally, as species move to more favorable areas there may be new competitions formed for food and resources. Some species that thrive may be invasive (not native to a region) and could gradually drive out or even kill native species.

CHANGING ECOSYSTEMS

Climate change is affecting U.S. biodiversity and ecosystems, including changes in growing season, life cycle, primary production, and species distributions and diversity. In an analysis of 866 scientific papers that explore the ecological consequences of climate change, nearly 60 percent of the 1,598 species studied exhibited shifts in distributions and/or life cycles over time frames of 20 to 140 years. Analyses of field-based life cycle responses show shifts as great as 5.1 days per decade, with an average of 2.3 days per decade across all species.

Source: The Effects of Climate Change on U.S. Ecosystems; USDA; November 2009.



Source: Pacific Southwest Region U.S. Fish and Wildlife Service, October 15, 2010



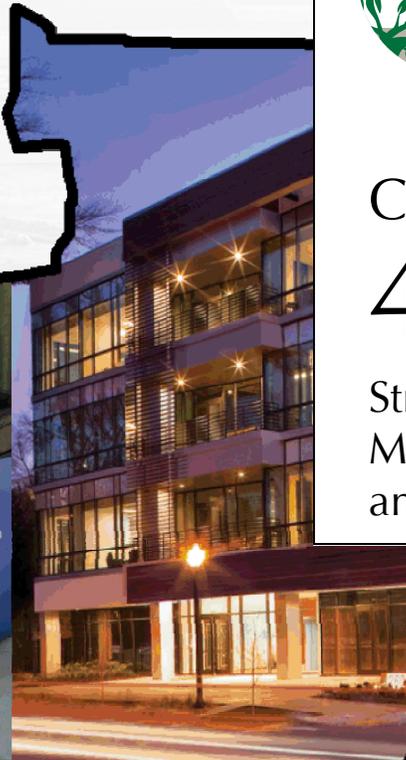
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CHAPTER 4

Strategies,
Measures,
and Actions



STRATEGIES, MEASURES, AND ACTIONS

CHAPTER 4

4.1 INTRODUCTION

If the City of Sacramento were to continue “business-as-usual” practices and activities, the City’s communitywide GHG emissions could increase by more than 1.5 times before 2050, exacerbating global warming and climate change. Even with reductions, existing GHG emissions already in the atmosphere are expected to cause increasingly frequent and intense heat waves, hotter summers, frequent and persistent droughts, unpredictable flooding, increased stress on local utilities and infrastructure, and threats to our public health and the City’s economy. This chapter outlines the strategies, measures, and actions to be implemented by the City to achieve its climate protection goals over the coming decades.

The measures and actions defined here focus on both mitigating and adapting to future climate change by implementing strategies that address GHG emissions and prepare for the future effects of a changing climate. The Climate Action Plan strategies, measures, and actions are divided into two categories – community scale strategies and municipal operations strategies – in order to address both public and private responsibility for climate change. Through partnerships with and among residents, businesses, and other organizations, these actions will provide net benefits for everyone, such as cost savings, a strengthened economy, and greater quality of life, while also making a difference in the world.

The strategies in the Plan build upon the City’s decade-long tradition of sustainability, resource efficiency, conservation, and smart growth. The City’s 2030 General Plan is the foundation for the Climate Action Plan. It contains dozens of goals, policies, and implementation programs that provide direction to become *the most livable city in America* and to make great places, grow smarter, maintain a vibrant economy, create a healthy city, live lightly, reduce our carbon footprint, and develop a sustainable future. The measures and actions within the Plan outline specific tasks and steps the City will take to implement the 2030 General Plan. Dozens of other City plans, programs, and initiatives support this vision and also contribute to addressing climate change issues.

In addition to defining new measures and actions, the Plan has taken into account existing plans, programs, and activities that the City has already undertaken to reduce GHG emissions and adapt to climate change impacts. The Plan acknowledges these efforts and, in some cases, builds or expands on them.



4.2 CLIMATE ACTION PLAN STRATEGIES

The Plan is organized by seven overarching strategies. The strategies represent the primary ways to reduce identified GHG emissions and adapt to climate change impacts. Within each strategy are a series of measures that define the programs, policies, and regulations the City will implement to achieve its climate action objectives. These are grounded in actions directly influenced by the City, but are reliant on partnerships with the business community and participation by community members. Below are the seven strategies included in the Plan:



Sustainable Land Use: Using land efficiently, while preserving the character of existing neighborhoods, and providing for complete neighborhoods that incorporate natural resources and green infrastructure. Goal: Reduce vehicle miles traveled (VMT) per capita in new development by 35 percent, compared to statewide averages.



Mobility and Connectivity: Creating a connected multi-modal transportation network that increases the use of sustainable modes of transportation (i.e., walking, biking, transit) and reduces dependence on automobiles. Goal: Reduce total communitywide vehicle miles traveled (VMT) per capita, a minimum of 7 percent by 2020, and 16 percent by 2035.



Energy Efficiency and Renewable Energy: Increasing the energy efficiency of existing and new buildings and maximizing the use and generation of renewable energy. Goals: Achieve zero net energy in all new construction by 2030. Achieve an overall 15 percent reduction in energy usage in all existing residential and commercial buildings by 2020.



Waste Reduction and Recycling: Reducing the production, consumption, and disposal of waste materials, while encouraging reuse, recycling, and composting. Goals: Achieve 75 percent diversion of solid waste by 2020, and work towards becoming a “zero waste” community by 2040.



Water Conservation and Wastewater Efficiency: Increasing water conservation and management and wastewater treatment practices that reduce energy demand and promote efficient use of this limited resource. Goal: Reduce water consumption 20 percent per capita by 2020.



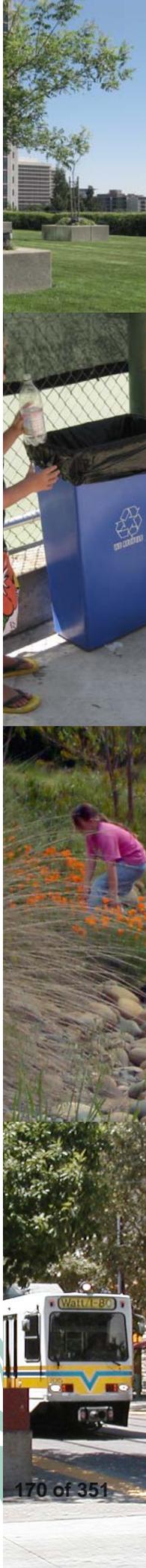
Climate Change Adaptation: Planning for and adapting to future climate change risks and creating resilient communities, economies, and environments. Goal: A community that is resilient to the effects and impacts of climate change.



Community Involvement and Empowerment: Enlisting the ideas and energy of residents and businesses to help achieve the City’s climate action objectives and maximize co-benefits. Goal: Involve the community in climate action efforts.

CLIMATE ACTION CONSIDERATIONS

- Without action, climate change impacts to Sacramento could be significant.
- Fossil fuel-based energy used to power our homes and businesses and move our cars and trucks represents over 90 percent of our GHG emissions.
- Even with steps to reduce GHG emissions, we must also prepare for climate change impacts that are inevitable.
- Making a difference will require many actions, but the benefits of action will improve quality of life and create a more sustainable community.



The measures and actions included in this Plan exceed the 2020 reduction target established by the City. However, over the coming decades, additional measures and actions will be needed to meet long-term goals.

4.3 GHG EMISSIONS REDUCTION SUMMARY

The Plan includes 7 strategies and 31 measures to reduce GHG emissions. As described in Chapter 2, if we were to continue “business-as-usual” (BAU) practices and activities, the City’s GHG emissions would increase by more than 18.4 percent by 2020, 30.7 percent by 2030, and 55.5 percent by 2050. To prevent the continued escalation of GHG emissions, the City has established a 2020 target (15 percent below 2005 levels) and 2030 and 2050 goals (38 percent and 83 percent below 2005 levels, respectively) to reduce annual emissions levels consistent with State laws and guidelines.

2020 Reduction Potential

The actions that could be quantified at this time, along with those that could not, outline a path to meet the City’s 2020 reduction target, consistent with State laws and guidelines. When combined with quantified State and Federal legislative reductions and the reductions included in the City’s Phase 1 Climate Action Plan, primary actions offer a potential reduction of about 1.37 MMTCO₂e/year. This level of reduction exceeds the City’s 2020 target of 15 percent (1.36 MMTCO₂e/year) by 6,227 MTCO₂e, and is consistent with State law. See Appendix E for a more detailed explanation of how the primary actions in this plan achieve the 2020 target.

Long-term Reduction Potential

In the long term, the primary actions that could be quantified fall short of meeting the City’s 2030 and 2050 reduction goals. However, as described in Chapter 2, the City is under no obligation to meet these goals at this time. Furthermore, the science and politics surrounding climate change are continually evolving. Over the coming decades new innovations and technologies will become available that improve our ability to achieve further GHG reductions. New methodologies may become available to quantify actions that currently are identified as supporting actions. Finally, new Federal and State laws may further reduce emissions in sectors currently addressed by City measures. As climate change science and policy continues to advance, the City will be able to apply new reductions toward meeting its long-term GHG emissions goals.

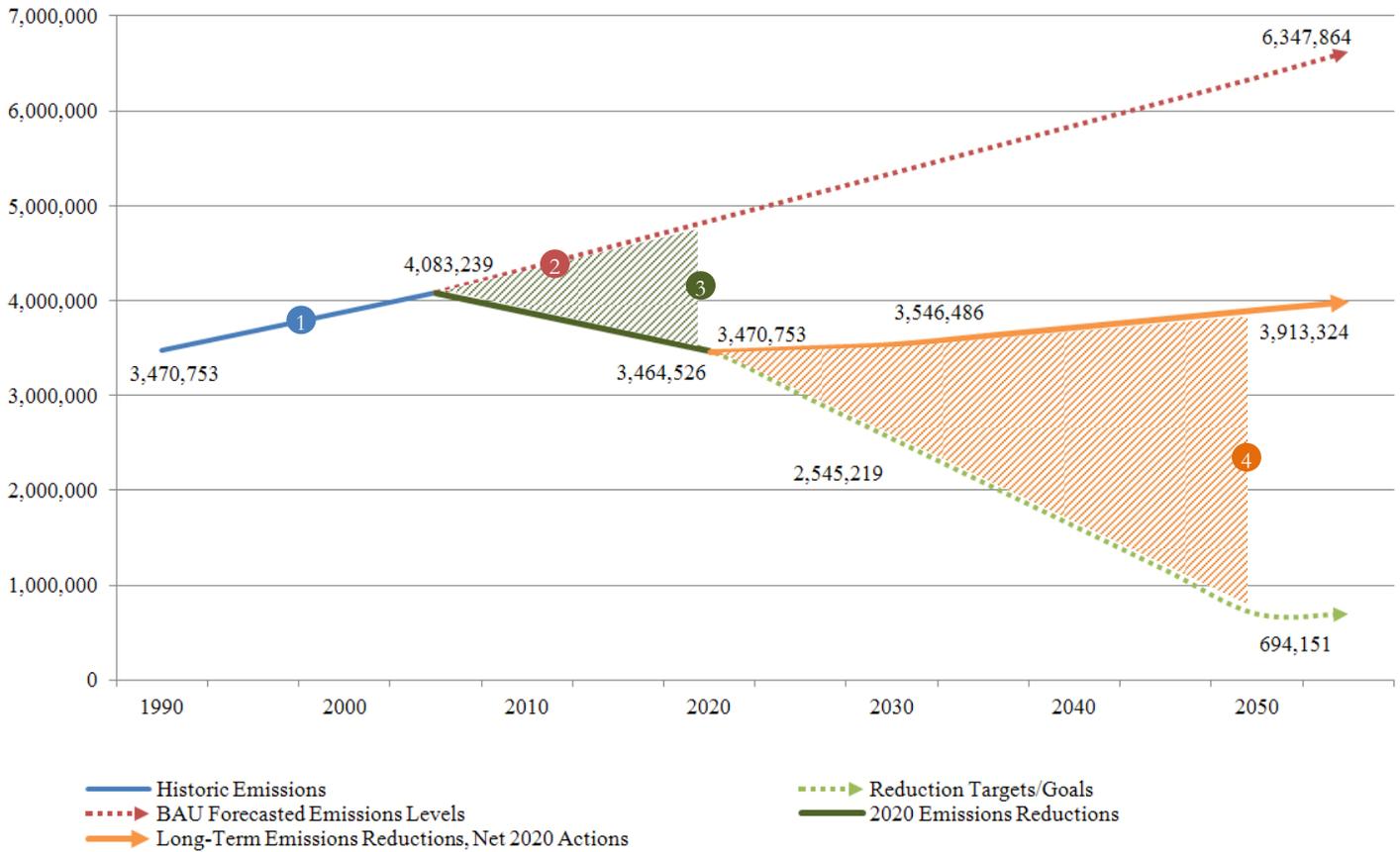
PROJECTED GHG EMISSIONS REDUCTIONS
(MTCO₂e/YEAR)

YEAR	EXISTING/ BUSINESS AS USUAL (BAU) FORECASTED	REDUCTION TARGET/GOALS	REDUCTION POTENTIAL	GAP/ (SURPLUS)
2005	4,083,239	—	—	—
2020	4,835,677	3,470,753	3,464,526	(6,227)
2030	5,337,689	2,545,219	3,546,486	1,001,267
2050	6,347,864	694,151	3,913,324	3,219,173

Source: Source: Ascent Environmental, 2011; ICF International 2011; Fehr & Peers 2011; data compiled by Ascent in 2011.



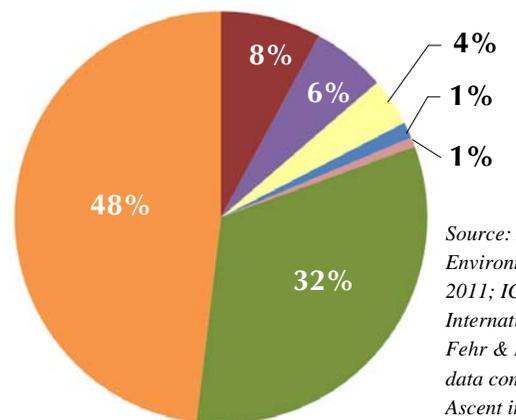
PROJECTED GHG EMISSIONS REDUCTIONS (MTCO₂e/YEAR)



Note: 1990 GHG estimates are assumed to be the same as the calculated 2020 reduction target.
 Source: Ascent Environmental, 2011; ICF International 2011; Fehr & Peers 2011; data compiled by Ascent in 2011.

- 1 GHG emissions have been rising to current levels seen today. Sacramento’s 2005 estimated GHG emissions were over 4.08 MMTCO₂e/year.
- 2 Left unchecked, GHG emissions will continue to rise. Forecasted emissions levels are expected to increase to almost 6.35 MMTCO₂e/year by 2050, contributing to global warming and more severe climate change impacts.
- 3 The measures and actions in this Plan are expected to reduce GHG emissions to 3.46 MMTCO₂e/year by 2020, which is below the City’s GHG reduction target of 3.47 MMTCO₂e/year.
- 4 However, the measures and actions included in this Plan at this time will not achieve long-term 2030 and 2050 emissions reduction goals of 2.55 MMTCO₂e/year and 0.69 MMTCO₂e/year, respectively. In fact, with additional population and employment growth, emissions are expected to rise slightly after 2020. Additional reduction measures and actions will be needed to achieve an additional 1.00 MMTCO₂e/year by 2030 and 3.22 MMTCO₂e/year by 2050.

2020 GHG REDUCTIONS BY SECTOR



Source: Ascent Environmental, 2011; ICF International 2011; Fehr & Peers 2011; data compiled by Ascent in 2011.

- Sustainable Land Use
- Mobility and Connectivity
- Energy Efficiency and Renewable Energy
- Waste Reduction and Recycling
- Water Conservation and Wastewater Efficiency
- Phase 1 CAP: Municipal Operations
- State and Federal Reductions

In addition to the specific measures and actions directed toward adapting to climate change, many GHG emissions reduction measures and actions also provide adaptation benefits.

4.4 CLIMATE CHANGE ADAPTATION SUMMARY

The Plan outlines a number of strategies for reducing GHG emissions.

However, even when target emissions levels are reached or exceeded, our region will still be affected by some level of climate change. It is essential to plan to address climate change effects to avoid potentially detrimental impacts to the economy and health of Sacramento's residents and businesses. By preparing now, we will be better equipped to deal with a changing climate in the future.

Chapter 3 of the Plan identifies the causes, effects, and impacts of climate change, and describes Sacramento's likely vulnerabilities. This is a critical first step in planning and managing the likely consequences of climate change. However, the severity and timing of expected impacts are still largely unknown. An important part of climate action planning includes regularly monitoring climatic changes and associated effects.

The Plan includes seven specific measures to help the City and its residents and businesses build adaptive and resilient systems that can respond to the challenges ahead. Measures addressing climate change adaptation include:

1. Prepare for Increases in Average Temperature
2. Preserve and Expand Water Sources and Respond to Variable Water Supplies
3. Respond to Increases in Energy Demands and Variable Supplies
4. Protect the Public from Increased Health Risks and Safety Hazards
5. Promote a Climate-Resilient Economy
6. Respond to Potential Impacts to Public Infrastructure
7. Protect Natural Ecosystems and Migration Routes

In addition to the specific measures and actions directed toward adaptation, many of the GHG emissions reduction measures and actions also provide adaptation benefits. For example, creating a multi-modal transportation network reduces dependence on driving and prepares Sacramento for possible future gasoline shortages. Conserving water not only reduces energy, but also prepares Sacramento for drought and reduced run-off supply in the summer. Roof gardens and a healthy urban forest reduce energy demand and the urban heat island effect and prepares Sacramento for hotter summers and heat waves. The Plan calls out those GHG reduction measures that also provide adaptation benefits.

4.5 GUIDING AND IMPLEMENTING THE PLAN

In order to achieve the objectives of the Plan, the City will conduct regular monitoring of GHG emissions and Plan implementation and maintenance. The Plan identifies a comprehensive set of actions that the City will use to reduce GHG emissions and adapt to climate change impacts. These actions include a combination of programs, incentives, outreach and education activities, and regulations. As implementation occurs, each strategy, measure, and action will be continuously assessed and monitored.

The City of Sacramento recognizes the need for proper staffing, financing, and resource allocation to ensure the success of each action included in the Plan. The following describes the ways the City will commit staff and resources to implement the Plan.

Monitoring GHG Emissions

Within the Plan the City has identified existing and business-as-usual GHG emissions, as well as GHG reduction target and goals. In order to monitor the success of the Plan in achieving the target and goals, the City will conduct communitywide GHG inventories at least every five years in coordination with the five-year review of the 2030 General Plan and Master EIR, depending on available funding and resources. The City has inventoried and reported GHG emissions from internal operations to the California Climate Action Registry on an annual basis for the last several years, and will continue to do so as funding and resources allow. By monitoring GHG emissions, the City will be able to track its progress, highlight achievements, and identify additional measures and actions to continue meeting its GHG reduction target and goals.

Maintaining and Updating the Plan

The Plan will need to be updated and maintained if it is to remain relevant and effective. Technologies may advance, new State and Federal laws may be passed, and local resources may change. Based on findings gathered during annual Plan reviews, data from future GHG inventories, and future year conditions the City will prepare updates to the Plan in coordination with the five-year review of the 2030 General Plan and Master EIR, depending on available funding and resources.

The City will monitor both the GHG reduction capacity and level of community participation for each action to measure progress and performance. The City will review the actions within the Plan to understand the effectiveness of individual measures as well as the Plan as a whole. The target indicators for actions identify the level of participation and performance required to achieve the expected level of GHG reduction. The City will identify successful measures and reevaluate or replace underperforming actions to manage success of the Plan over time.

Monitoring and Reporting on Plan Implementation

IMPLEMENTATION FLEXIBILITY

Implementation of the Climate Action Plan will require the City to be nimble and flexible. The science and policy surrounding climate change are continually evolving. Over the coming decades, new technologies will become available and new State and Federal laws will pass that influence how GHGs are measured and mitigated. To remain effective, the City will need to evolve its climate protection efforts accordingly. Regular updates (e.g., every five years) to the GHG inventory, climate change impact assessment, and strategies and measures will ensure that the Plan remains effective and relevant.



As implementation occurs, each strategy, measure, and action must be continuously assessed and monitored.

Upon adoption the Plan's measures and actions will continue to be or begin to be implemented by the City. In order to track progress, the City will evaluate and report on the progress of implementing the Plan's measures and actions annually in conjunction with the 2030 General Plan and Sustainability Annual Report and the Livability Index. To the extent feasible, the City will use the Plan's benchmarks and target indicators as part of the Livability Index. This ongoing monitoring will enable the City and residents to see where progress is being made and where further efforts and additional resources may be needed.

The Plan identifies the time frame for which each action will be implemented. The City will develop an implementation schedule based on staff requirements and funding opportunities available for implementing the actions outlined in the Plan. Priority will be given to projects based on cost effectiveness, GHG reduction potential, available funding, and the ease and length of time for implementation. However, some actions may not be completed as indicated due to budget or resource constraints.

Administration and Staff

Within the Plan the City has identified responsible departments for each action. The City will also assign a coordinator to oversee the implementation of all actions outlined in the Plan. To increase efficiency and reduce costs, the City will integrate these actions into the context of existing workloads and programs whenever possible. Climate action will be a part of standard operating procedure.

Financing and Budgeting

The City will incur costs to implement some of the actions outlined in the Plan. These include initial start-up, ongoing administration, and enforcement costs. While some actions will only require funding from public entities, others will result in increased costs for businesses and residents. However, most of the actions provide substantial savings in the long term. The City will be diligent in seeking strategic funding opportunities and use partnerships to share the cost.



4.6 METHODS OF IMPLEMENTING ACTIONS

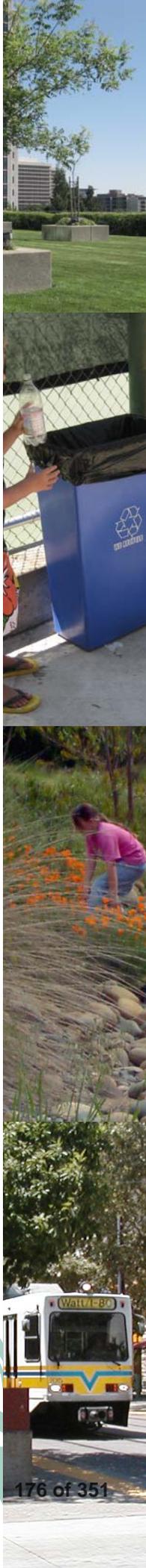
The City will implement the measures and actions of the Plan through many tools and activities that can be grouped according to the five categories listed below.

- **New Ordinances.** Several of the actions in the Plan are implemented through new regulations adopted by the City, such as the Residential or Commercial Energy Conservation Ordinances (RECO/CECO). New ordinances will ensure that City requirements are in place to further the objectives of the Plan.
- **Code Updates.** Similar to adopting new ordinances, the City's existing codes will be updated to implement the Plan, such as incorporating CalGreen Tier 1 "reach codes" into the City's building codes and preparing the Green Development Code to update and enhance the existing Zoning Code.
- **Financing and Incentives.** Providing mechanisms for funding and allocating resources, such as the Commercial PACE program and various SMUD rebates, will help ensure that the Plan is successfully implemented by the City and residents and businesses.
- **Education and Outreach.** Education efforts about the objectives of the Plan and methods of implementation, and outreach to residents to include them in implementation efforts, such as the Energy Efficiency Challenge, will create support for the Plan and involve the community in its implementation.
- **Changes to City Services.** In addition to the actions applicable to community-wide activities, the City's internal operations will also need to change. Actions outlined in the Phase 1 Climate Action Plan will ensure that the City does its part to meet Plan objectives.

Role of New Development

Implementation of the Plan requires a change in the way the City and development community design and construct projects. New development projects will need to attain higher levels of energy efficiency and incorporate sustainable design standards. However with these additional regulations also come added benefits. State law allows new developments that are consistent with the actions in the Plan that reduce GHG emissions to be eligible for CEQA streamlining, per the provisions of CEQA Guidelines section 15183.5. Under these provisions, if a project can show consistency with a Climate Action Plan designed to reduce greenhouse gas emissions on an area-wide basis (e.g. communitywide), the level of environmental review for the project required under CEQA with respect to GHG emissions can be reduced considerably. This Climate Action Plan meets the criteria identified in section 15183.5 of the CEQA guidelines, and is therefore a "qualified CAP".

In order to help new development applicants plan and design projects consistent with the Plan, the City has identified in Appendix C the primary actions resulting in GHG emissions reductions, which apply to new development projects and existing development.





STRATEGY, MEASURE, AND ACTION NUMBERING SYSTEM

Each strategy identified in this chapter includes several supporting measures and discrete actions. Strategies, measures, and actions are organized using their numeric order:

- Strategy 1
 - Measure 1.1
 - Primary Action 1.1.1
 - ↳ Supporting Actions
- Strategy 2
 - Measure 2.1
 - Primary Action 2.1.1
 - ↳ Supporting Actions
 - Measure 2.2
 - Primary Action 2.2.1
 - ↳ Supporting Actions
 - Primary Action 2.2.2
 - ↳ Supporting Actions

4.7 STRATEGY AND MEASURES READERS' GUIDE

The structure of the strategies, measures, and actions included in the remainder of this chapter are described below. The image on the next page explains the layout for each measure and set of actions included under each strategy.

Strategies

Strategies organize the measures and actions that the City will use to reduce GHG emissions and adapt to climate change. The cover page for each strategy includes a title, representative icon, and co-benefits that may be achieved by implementing each strategy. Each strategy is then introduced and described. The introduction includes the GHG reduction potential that will be achieved and a list of implementing measures. Each strategy is followed by the measures and actions associated with implementation.

Measures

Measures organize the specific programs, policies, and actions that the City will carry out to achieve its climate action strategies. Each measure includes an introduction and description of pertinent background information, such as the City's objectives, past efforts, and future intent. Following the description is a summary of the measure's GHG reduction potential and community/public co-benefits. For GHG reduction measures, adaptation and resiliency potential are also identified. Each measure is followed by the actions associated with its implementation.

Actions

Within each measure are the detailed actions and steps that the City or others will take to implement the measures. Actions are organized to help ensure that appropriate staff and resources are allocated to implement the Plan.

Actions are included in tables following each measure description. They are split into two categories: primary actions and supporting actions. Primary actions include those actions that could be quantified for GHG reduction potential using verified methods, evidence, and reasonable assumptions to support calculations. For primary actions, the tables identify GHG reduction potential, target indicators, responsible City departments or other entities, and an implementation time frame for when the action will be completed. This information will be used by the City to track implementation and monitor overall progress.

There are numerous other actions included in the Plan that could not be quantified at this time, but are still expected to reduce GHG emissions. These supporting actions could not be quantified because of a lack of reliable data and/or methodology to quantify emissions reductions. Supporting actions are included in the Plan and treated as supplemental to the actions that were quantified.

READER'S GUIDE

Strategies and Measures

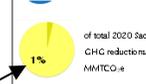
STRATEGY IDENTIFIER
Identifies the strategy name, number, and logo.

GHG REDUCTION CHART
Shows the GHG reduction potential of each strategy.

MEASURE LIST
Provides a list of measures associated with each strategy.

CHAPTER 4

STRATEGY 1
SUSTAINABLE LAND USE



of total 2020 Sacramento GHG reduction = 51,507 MTCO₂e

MEASURES:

- Promote Sustainable Growth Patterns and Infill Development
- Create More Complete Neighborhoods
- Encourage Mixed-use Development Projects
- Require Sustainable Development Practices
- Ensure Quality Development and Project Design

GOAL:
Reduce vehicle miles traveled (VMT) per capita in new development by 35%, compared to statewide averages.

The 2030 General Plan already results in a 8 percent VMT/per capita improvement by 2020 and 13 percent by 2035.

The City is largely built out and it is anticipated that most neighborhoods will experience little change, however, many key centers and corridors within the City are expected to experience infill and redevelopment and will accommodate a majority of the city's growth and development. Sustainable land use patterns will include more compact development patterns, "infill" and reuse of underutilized properties, intensify development near transit and mixed-use activity centers, and locate jobs closer to housing. According to the Local Government Commission (2009), in the long-term (i.e., beyond 2020) combining a robust transit system with sustainable, compact, mixed-use development patterns can help reduce GHG emissions by as much as 11.5 MTCO₂e per household.

Designing more complete neighborhoods and developing mixed-use projects increases the viability of sustainable modes of transportation, such as walking, biking, and transit use, lowers automobile dependency, and reduces trip lengths. Similarly, "green" buildings, when part of a broader sustainability plan, consume less energy, produce fewer emissions, protect occupant health, minimize waste, and create jobs. Collectively, Sustainable Land Use measures also help to create communities and buildings that are more resilient to the effects and impacts of climate change.

Sustainable land use strategies include the use of more compact development patterns, a mix of land uses, complete neighborhoods, and "green" building practices. The places we live, the methods used to construct our homes, and where we work dictate how far and by what means we travel and how much energy we consume. In Sacramento, the City's 2030 General Plan provides the foundation for the city's overall approach to achieve sustainable land use. This Sustainable Land Use strategy builds upon the goals and policies of the 2030 General Plan and complements the other strategies included in the Climate Action Plan and the objectives of the SACOG Regional Blueprint, particularly those that reduce GHG emissions from transportation and energy. The City's goal is to reduce vehicle miles traveled (VMT) per capita in new development by 35%, compared to statewide averages.

The City of Sacramento has a robust Infill Program that includes an adopted Infill Strategy (2002) as well as a companion "Shovel Ready" program. The City de-emphasizes staff to administering the City's Infill policies and programs and identifying and promoting additional activities to encourage quality infill projects. The Infill Program provides phase, ordinance, and systems that anticipate and support quality infill development and strives to create and maintain a predictable and supportive development review process for infill development. The Shovel Ready program complements the Infill Program by proactively addressing infrastructure and planning issues for key infill sites so they can more easily develop. The City also has dedicated staff that monitor, plan, and manage new growth areas, consistent with the vision of the City. The City produces regular activity reports highlighting the City's efforts related to new growth areas. The City is also currently implementing several actions that further the objectives of this measure, including updating the Zoning Code to support infill development. The City intends for this measure to implement key 2030 General Plan programs to update and maintain the Infill Strategy, expand the shovel ready program for key infill sites, provide guidance for mid-size projects to achieve CEQA site analysis, and coordinate with other stakeholders in the region to promote sustainable development.

GHG Reduction Potential by 2020
51,507 MTCO₂e/year

Adaptation/Resiliency

- Improve Impaired Air Quality
- Limit Conversion of Habitat and Loss of Native Species

Community/Public Co-Benefits

- Reduce Congestion
- Lower Commute Times
- Improve Connections to Home, Services and Work
- Create a Healthy Living Environment
- Increase Social Interaction
- Preserve Farmland
- Prevent Destruction of Natural Habitats

STRATEGY IDENTIFIER
Provides the strategy name and logo each measure is organized under.

MEASURE HEADER
Identifies the measure name and number.

MEASURE DESCRIPTION
Introduces the measure and associated actions.

STRATEGY DESCRIPTION
Introduces the strategy and associated measures.

GHG REDUCTION
Shows the GHG reduction potential of each measure.

ADAPTATION/RESILIENCY
Lists the potential for each measure to help adapt to the impacts of climate change.

CO-BENEFITS
Lists the community and public co-benefits that can be achieved by implementing each measure.

Actions

PRIMARY ACTIONS
Identifies the primary action and its number.

GHG REDUCTION
Shows GHG reduction potential of each primary action.

RESPONSIBILITY
Identifies which City department(s) and/or other organizations or agencies are responsible for implementing each primary action.

Action 1.1.1 Require new development within the city to demonstrate that it would reduce vehicle miles traveled (VMT)/capita by 35 percent compared to the statewide average VMT/capita based on project density, diversity, design, destination accessibility, and distance to transit.

GHG Reduction Potential	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
51,507 MTCO ₂ e/year					x

Responsibility: Community Development

Target Indicators: Reduce VMT 28.6 percent per capita below 2009 statewide VMT average by 2020.

Supporting Actions:

- Continue to analyze potential for building-energy savings from the transition to more compact urban form, which tends to increase densities and multi-family housing, and decrease the average area of residential units.
- Continue pursuing local, State, and Federal grants to fund a comprehensive update of the City's Zoning, Subdivision, and other development-related sections of the City Code in order to create designations that support more sustainable development patterns and streamline infill development.

TIMELINE
Identifies an estimated timeline for when the action will be completed. Actions may not be completed as indicated due to budget or resource constraints.

TARGET INDICATORS
Identifies key indicators that the City can use to measure implementation success.

SUPPORTING ACTIONS
Organizes actions that support the primary actions.

EVERYONE CAN TAKE ACTION AGAINST CLIMATE CHANGE,

Take Action Today...



- Support City sustainable land use and complete neighborhood infill, mixed-use, and higher-density efforts and initiatives.
- Check your home's "Walk Score" at www.walkscore.com to find out how your home and neighborhood compare with other parts of Sacramento, and amenities and activities that are within walking distance of your home.



- Shift daily trips to walking, bicycling, transit, and carpooling to reduce driving.
- Drive more efficiently: avoid rapid acceleration or braking, observe the speed limit, remove excess weight, avoid excessive idling, and use cruise control or overdrive.
- Keep your car in top shape: make sure the engine is properly tuned, tires are inflated, the air filter is changed regularly, and that you use the manufacturer's recommended grade of motor oil.



- Replace incandescent light bulbs with compact fluorescent light (CFL), LED or other energy-efficient bulbs.
- Turn down water heater temperature and turn off your water heater during extended periods of non-use.
- Use only cold water to wash laundry.
- Air dry clothes whenever possible and avoid overusing the dryer (clean the lint trap, check on clothes regularly).
- Unplug appliances, televisions, and computers when not in use.
- In the winter turn your thermostat down three degrees during the day and ten degrees during the night. During summer turn up the thermostat by three degrees.
- Use SMUD energy saving tips. Visit www.smud.org.



- Reduce the amount of new products you buy, or if you do need to buy new products, look for items with less packaging, that are long-lasting, and made from recycled materials.
- Reuse things you already have instead of buying new products.
- Donate items you no longer need instead of throwing them away.
- Buy locally: support Sacramento businesses and local farmer's markets: www.california-grown.com.
- Recycle glass, metal, plastic, and paper products, as well as electronic devices.
- Use reusable bags every time you go shopping and reusable mugs when you go to coffee shops.



- Show us your blue thumb! Take the Spare the Water Sacramento pledge at: www.bewatersmart.info.
- Use water conservatively: avoid taking baths and limit showers to ten minutes or less, scrape dishes rather than rinsing them before putting them in the dishwasher, wash only full loads of laundry and dishes, and turn off the faucet when brushing teeth or shaving.
- Fix leaks right away.
- Reduce outdoor water use: water your yard 1-3 minutes less and only during off-peak hours, use drip irrigation or hand watering, use a broom to clean driveways and patios, adjust sprinklers to avoid overspray and repair leaks, and get an auto shut-off hose nozzle.



- Get familiar with emergency evacuation routes and shelter locations in the event of an extreme storm event.
- Drink lots of water and avoid going outside during poor air quality or extreme temperature events.
- Wear protective bug spray when outdoors.
- Check the air quality index at SMAQMD: www.sparetheair.com.



- Encourage friends, neighbors, and co-workers to reduce their carbon footprint: www.carbonfootprint.com/calculator.aspx.
- Attend a City or local homeowner's association meeting to lobby for infill and mixed-use development, complete streets/neighborhoods, and coordinated transit, bicycle, and pedestrian systems.
- Attend a water conservation workshop at the City of Sacramento Department of Utilities Water Conservation Office.
- Learn with SMUD! Take an electricity efficiency class at the Energy and Technology Center: www.smud.org.

HERE ARE JUST SOME OF THE WAYS YOU CAN PARTICIPATE

...And Plan for Tomorrow

- Move into housing in a higher-density, mixed-use, or transit-oriented development.
- Find a job close to home or find a home closer to work.
- Telecommute or work from home more often in place of driving.



- Stagger work hours, carpool, and combine trips to reduce congestion and vehicles miles traveled if you need to drive.
- Use a car-sharing program like Zipcar, rather than owning a car or owning more than one car.
- Purchase a fuel-efficient vehicle and take advantage of the Clean Vehicle Rebate Project: www.energycenter.org.



- Schedule a home energy audit through SMUD and participate in an energy efficiency program: www.smud.org/
- Increase heating and cooling efficiency: change the air filter regularly, tune up HVAC equipment, seal ducts, add more insulation, replace windows with dual pane models, plug door leaks, and install a programmable thermostat that allows you to adjust temperatures when you are away from home.
- Purchase Energy Star electronics and appliances that save energy. You may be eligible for SMUD, CEC or EPA rebates: www.smud.org or www.energy.ca.gov or www.epa.gov.
- Purchase SMUD green power generated from renewable sources: www.smud.org.
- Generate your own renewable energy: install solar panels, a solar water heater, or a wind turbine.



- Try to borrow or rent things you will only need to use for a short amount of time.
- Compost organic materials to use as garden fertilizer. Learn how at www.cityofsacramento.org.
- Plant a vegetable garden or participate in a community garden to access fresh produce close to home: www.cityofsacramento.org.
- Donate business waste that could be reused for art and educational purposes. Learn how at www.raftsac.org and www.recreate.org.
- Do your own waste audit at home or work to see what can be reduced, reused, recycled or composted, and then commit to making the change.
- Plan your next meeting or special event using Zero Waste principles.



- Schedule a Water Wise House Call to check for leaks and learn about potential water savings: www.cityofsacramento.org.
- Install low-flow or high-efficiency fixtures and appliances like showerheads, toilets, dishwashers, and washing machines. You may be eligible for rebates from the City of Sacramento Department of Utilities, SMUD, or PG&E.
- Greenscape your yard using drought-tolerant plants.
- Increase the amount of permeable surfaces and pavement allowing stormwater absorption.
- Install a plumbing system that reuses rainwater or graywater for irrigation.



- Plant a tree to reduce home energy consumption and provide shade.
- Install a cool roof on your home. You may be eligible for SMUD rebates: www.smud.org.
- Get vaccinated against vector-borne diseases.
- Use only native species when landscaping to preserve ecosystems.



- Join a community organization working to reduce GHG emissions and plan for climate change.
- Become a Sacramento Area Sustainable Business: <http://sacberc/web/programs/ssbp/index.php>.
- Become a Water Conservation Ambassador: www.sparesacwater.org.



ADDRESSING THE CHALLENGE OF CLIMATE CHANGE



SUSTAINABLE LAND USE

5 MEASURES – 26 ACTIONS

GHG REDUCTION POTENTIAL BY 2020= 51,507 MTCO₂e/YEAR



MOBILITY AND CONNECTIVITY

7 MEASURES – 30 ACTIONS

GHG REDUCTION POTENTIAL BY 2020= 107,894 MTCO₂e/YEAR



ENERGY EFFICIENCY AND RENEWABLE ENERGY

4 MEASURES – 42 ACTIONS

GHG REDUCTION POTENTIAL BY 2020= 445,590 MTCO₂e/YEAR



WASTE REDUCTION AND RECYCLING

3 MEASURES – 23 ACTIONS

GHG REDUCTION POTENTIAL BY 2020= 79,404 MTCO₂e/YEAR



WATER CONSERVATION AND WASTEWATER EFFICIENCY

2 MEASURES – 18 ACTIONS

GHG REDUCTION POTENTIAL BY 2020= 17,267 MTCO₂e/YEAR



CLIMATE CHANGE ADAPTATION

7 MEASURES – 43 ACTIONS



COMMUNITY INVOLVEMENT AND EMPOWERMENT

3 MEASURES – 14 ACTIONS

196 WAYS TO CREATE A MORE SUSTAINABLE CITY

GHG REDUCTION POTENTIAL BY 2020= 701,662 MTCO₂e/YEAR

STRATEGY 1

SUSTAINABLE LAND USE



CO-BENEFITS

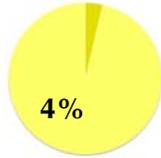
- Lower Operating Costs for Businesses
- Increase Home and Building Equity and Resale Value
- Increase Building Rent/Lease Rates
- Keep Energy Dollars in the Community
- Lower Energy and Fuel Bills
- Improve Traffic/Air Quality
- Reduce Congestion
- Lower Commute Times
- Lower Energy Demand
- Improve Energy Security
- Conserve Water
- Improve Connections to Home, Services and Work
- Increase Access to Open Space
- Prevent Destruction of Natural Habitats
- Create a Healthy Living Environment
- Increase Social Interaction
- Improve Quality of Life

Using land efficiently, while preserving the character of existing neighborhoods, and providing for complete neighborhoods that incorporate natural resources and green infrastructure.





STRATEGY 1 SUSTAINABLE LAND USE



of total 2020 GHG reductions
= 51,507 MMTCO₂e/year

MEASURES

1. Promote Sustainable Growth Patterns and Infill Development
2. Create More Complete Neighborhoods
3. Encourage Mixed-use Development Projects
4. Require Sustainable Development Practices
5. Ensure Quality Development and Project Design

GOAL:

Reduce vehicle miles traveled (VMT) per capita in new development by 35 percent, compared to statewide averages.

Sustainable land use strategies include the use of more compact development patterns, a mix of land uses, complete neighborhoods, and “green” building practices. The places we live, the methods used to construct our homes, and where we work dictate how far and by what means we travel and how much energy we consume. In Sacramento the City’s 2030 General Plan provides the foundation for the city’s overall approach to achieve sustainable land use. This Sustainable Land Use strategy builds upon the goals and policies of the 2030 General Plan and complements the other strategies included in this Climate Action Plan and the objectives of the SACOG Regional Blueprint, particularly those that reduce GHG emissions from transportation and energy. The City’s goal is to reduce vehicle miles traveled (VMT) per capita in new development by 35 percent, compared to statewide averages. The 2030 General Plan already results in an 8 percent VMT/per capita improvement by 2020 and 13 percent by 2035.

The City is largely built out and it is anticipated that most neighborhoods will experience little change; however, many key centers and corridors within the City are expected to experience infill and redevelopment and will accommodate a majority of the city’s growth and development. Sustainable land use patterns will include more compact development patterns, “infill” and reuse of underutilized properties, intensify development near transit and mixed-use activity centers, and locate jobs closer to housing. According to the Local Government Commission (2009), in the long term (i.e., beyond 2020) combining a robust transit system with sustainable, compact, mixed-use development patterns can help reduce GHG emissions by as much as 11.5 MTCO₂e per household.

Designing more complete neighborhoods and developing mixed-use projects increases the viability of sustainable modes of transportation, such as walking, biking, and transit use; lowers automobile dependency; and reduces trip lengths. Similarly, “green” buildings, when part of a broader sustainability plan, consume less energy, produce fewer emissions, protect occupant health, minimize waste, and create jobs. Collectively, Sustainable Land Use measures also help to create communities and buildings that are more resilient to the effects and impacts of climate change.



STRATEGY 1: SUSTAINABLE LAND USE



MEASURE 1.1: PROMOTE SUSTAINABLE GROWTH PATTERNS AND INFILL DEVELOPMENT

A majority of future development in Sacramento will occur within key infill opportunity areas and, to a lesser extent, in new growth areas adjacent to the city. Infill development includes redevelopment and re-use of existing sites and buildings in the City's existing neighborhoods and commercial corridors. Due to size, location, site conditions, and development economics and requirements, infill development faces many challenges. New growth areas include expansion of City boundaries to include development on undeveloped "greenfield" lands. A key objective in both cases is to create diverse, mixed-use, smart growth neighborhoods, centers, and corridors that sustain healthy communities, place people near their jobs and everyday needs, and provide the foundation for the use of sustainable modes of transportation that reduce dependence on the automobile.

The City of Sacramento has a robust Infill Program that includes an adopted Infill Strategy (2002) as well as a companion "Shovel Ready" program. The City dedicates staff to administering the City's infill policies and programs and identifying and promoting additional activities to encourage

quality infill projects. The Infill Program provides plans, ordinances, and systems that anticipate and support quality infill development and strives to create and maintain a predictable and supportive development review process for infill development. The Shovel Ready program complements the Infill Program by proactively addressing infrastructure and planning issues for key infill sites so they can more easily develop. The City also has dedicated staff that monitor, plan, and manage new growth areas, consistent with the vision of the City. The City produces regular activity reports highlighting the City's efforts related to new growth areas.

The City is also currently implementing several actions that further the objectives of this measure, including updating the Zoning Code to support infill development. The City intends for this measure to implement key 2030 General Plan programs to update and maintain the Infill Strategy, expand the Shovel Ready program for key infill sites, provide guidance for mixed-use projects to achieve CEQA streamlining, and coordinate with other stakeholders in the region to promote sustainable development.

GHG Reduction Potential by 2020
51,507 MTCO₂e/year

Adaptation/Resiliency

- Improve Impaired Air Quality
- Limit Conversion of Habitat and Loss of Native Species

Community/Public Co-Benefits

- Reduce Congestion
- Lower Commute Times
- Improve Connections to Home, Services, and Work
- Create a Healthy Living Environment
- Increase Social Interaction
- Preserve Farmland
- Prevent Destruction of Natural Habitats





STRATEGY 1: SUSTAINABLE LAND USE

MEASURE 1.1: PROMOTE SUSTAINABLE GROWTH PATTERNS AND INFILL DEVELOPMENT

Action 1.1.1 Require new development within the city to demonstrate that it would reduce vehicle miles traveled (VMT)/capita by 35 percent compared to the statewide average VMT/capita based on project density, diversity, design, destination accessibility, and distance to transit.

GHG Reduction Potential 51,507 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					X

Responsibility: Community Development

Target Indicators: Reduce VMT 28.6 percent per capita below 2009 statewide VMT average by 2020.

Supporting Actions:

- Continue to analyze potential for building-energy savings from the transition to more compact urban form, which tends to increase densities and multi-family housing, and decrease the average area of residential units.
- Continue pursuing local, State, and Federal grants to fund a comprehensive update of the City’s Zoning, Subdivision, and other development-related sections of the City Code in order to create designations that support more sustainable development patterns and streamline infill development.
- Implement the destination and accessibility (i.e., centers) policies of the General Plan to achieve an increase in the number of jobs and other attractions that can be reached within reasonable amounts of time by walking, biking, or transit.
- Implement the transit center policies of the General Plan to locate appropriate projects near transit and achieve an increase in the use of transit by people traveling to and from the projects.
- Implement the affordable housing and transit-oriented development policies of the General Plan to integrate affordable and below market-rate housing near transit.
- Provide CEQA streamlining benefits for residential mixed-use projects and Transit Priority Projects pursuant to State Law (SB375), consistent with 2030 General Plan.
- Work with regional partners to adopt and implement guidelines that will protect and preserve open space, prime farmland and key habitat, including wildlife and riparian corridors.
- Recognize the value of agricultural, habitat, and open space lands as carbon sinks, and establish easements and other mechanisms to preserve them.
- Support the implementation of the SACOG Sustainable Communities Strategy through implementation of the 2030 General Plan and encouraging infill development in Transit Priority Project areas.

STRATEGY 1: SUSTAINABLE LAND USE



MEASURE 1.2: CREATE MORE COMPLETE NEIGHBORHOODS

Sacramento has a wide variety of neighborhoods, often defined by a public amenity or commercial center. However, many of Sacramento’s neighborhoods were designed and built in such a way that residents are physically separated from stores, work, schools, community services, and open spaces. This separation has fostered a dependence on automobiles and longer and more frequent automobile trips. How neighborhoods are organized and what they include is a major factor in transportation choice and trip lengths required for daily activities and quality of life issues, such as raising a family, commuting to work and school, shopping for food, operating a business, and participating in community activities. More complete neighborhoods can foster livable neighborhoods that place services, jobs, gathering places, and resources closer to where people live, and, in turn, provide more opportunities for people to walk and bike rather than make frequent and longer automobile trips.

A complete neighborhood is one where all residents have access to amenities and resources. Most of Sacramento’s existing neighborhoods are built out and it is not expected that

significant changes will occur in these areas in the future. The 2030 General Plan has made it a priority to preserve existing neighborhoods, but to also enhance their physical layout and land use mix through infill and redevelopment of nearby opportunity areas so that residents can easily access public transit, parks, shopping, childcare centers, farmers markets, and restaurants. For new growth areas and major infill areas, the 2030 General Plan requires that new neighborhoods include all the elements of a complete neighborhood.

The City intends for this measure to implement the policies of the 2030 General Plan to enhance the City’s existing neighborhoods to include elements of complete neighborhoods. The City will also proactively plan residential neighborhood centers in areas that lack services to provide places for additional housing and access to shopping and services, employment opportunities, and transportation options. For new neighborhoods the City will create a green neighborhood checklist that will be used to ensure development of complete, sustainable neighborhoods.

Adaptation/Resiliency

- Improve Impaired Air Quality

Community/Public Co-Benefits

- Improve Traffic/Air Quality
- Reduce Congestion
- Lower Commute Times
- Improve Connections to Home, Services, and Work
- Create a Healthy Living Environment
- Increase Social Interaction
- Improve Quality of Life

Supporting Actions:

- Proactively plan residential neighborhood centers for existing neighborhoods (rather than waiting for development plans to be submitted), either as Community Plan Updates or City-initiated Community Plan Amendments.





STRATEGY 1: SUSTAINABLE LAND USE

MEASURE 1.3: MIXED-USE DEVELOPMENT PROJECTS

Mixed-use development combines homes, shopping and gathering spaces (e.g., restaurants, cafes), work places, and civic uses, placing these key community elements and destinations closer to one another and within a short walk, bike ride, or near a transit stop. Mixed-use developments take many forms, but generally are either vertical, meaning that uses vary from one floor to another in a building (e.g., apartment above a storefront) or horizontal (e.g., side-by-side storefront for office and retail). By bringing different uses closer together, residents and employees are more likely to walk or ride a bike to nearby stores and services, or only need to take short car trips. Biking, walking, and short trips can benefit the health of residents, and reduce traffic congestion and energy consumption for transportation, which leads to reduced GHG emissions.

The City intends for this measure to implement the policies of the 2030 General Plan to encourage mixed-use projects, remove barriers to their development, and provide incentives to facilitate their review, processing, and construction. While historically mixed-use developments have primarily been developed in Sacramento’s Downtown and Mid-town areas, the City will focus on encouraging mixed-use projects in outlying commercial and transit centers, along commercial corridors, and in major employment centers. The City will also revise the Zoning Code, as part of the Green Development Code update, to allow for a greater mix of uses in the city’s neighborhoods, corridors, and centers.

Adaptation/Resiliency

- Improve Impaired Air Quality

Community/Public Co-Benefits

- Improve Traffic/Air Quality
- Reduce Congestion
- Lower Commute Times
- Improve Connections to Home, Services, and Work
- Create a Healthy Living Environment
- Increase Social Interaction
- Improve Quality of Life

Supporting Actions:

- Implement the mixed-use policies of the General Plan to achieve an increase in the diversity of uses in urban and suburban developments.
- Improve the job-housing balance by revising the Sacramento City Zoning Code to allow for a greater mix of uses in neighborhoods, corridors and centers.



STRATEGY 1: SUSTAINABLE LAND USE



MEASURE 1.4: REQUIRE SUSTAINABLE DEVELOPMENT PRACTICES

Sustainable development practices use a “whole-systems” approach that incorporates resource efficiency into the design, construction, renovation, and reuse of buildings. Also known as “green building,” this approach to construction primarily reduces GHG emissions from energy consumption and water demand needed to construct and operate buildings. Green building can save residents and businesses money on energy, water, and maintenance, can enhance residential health, and result in greater worker productivity through improved air quality and day lighting. While building green can result in increased upfront design and construction costs (3 to 5 percent depending on building types and location), over time, green buildings can pay for themselves through more efficient operation and maintenance costs.

Sacramento has a Green Building Program that coordinates and provides access to variety of resource conservation programs offered by the City and encourages projects to pursue green building certification. The City and County of Sacramento joined efforts and formed the Green Building Taskforce, which has developed policy and best practices recommendations and other resources to encourage green building practices regionally. Finally, the City is

currently in the process of preparing the Green Development Code update. The Green Development Code will incorporate mandatory and voluntary building requirements consistent with the California Green Building Standards Code (i.e., CalGreen), as well as best practices for creating sustainable development at the neighborhood or areawide planning scales.

The City intends to create regulations and processes that encourage, streamline, and facilitate the development of more sustainable green buildings and neighborhoods throughout the city. Because the city is largely built out and existing buildings are a significant contributor to GHG emissions, adaptive reuse of existing buildings coupled with retrofitting existing structures with green building technologies will be a key strategy to meet sustainable development objectives. As part of the Green Development Code Update, the City will establish standards that meet and exceed CalGreen and other industry certification programs (e.g., LEED, Build-it-Green). The City will also adjust impact fees to more accurately reflect the true cost of buildings such that more efficient buildings with fewer impacts pay lower fees.

Adaptation/Resiliency

- Adjust to Temperature Increases
- Reduce the Urban Heat Island Effect
- Adjust to Energy Demand Increases
- Prepare for Energy Supply Variability
- Prepare for Variable Water Supplies
- Improve Efficiency of Infrastructure
- Reduce Home and Building Maintenance Costs

Community/Public Co-Benefits

- Lower Operating Costs for Businesses
- Increase Home and Building Equity and Resale Value
- Increase Building Rent/Lease Rates
- Conserve Water
- Lower Water and Sewer Bills
- Lower Energy and Fuel Bills
- Lower Energy Demand





STRATEGY 1: SUSTAINABLE LAND USE

MEASURE 1.4: REQUIRE SUSTAINABLE DEVELOPMENT PRACTICES

Supporting Actions:

- Amend the Subdivision Ordinance to include standards for street and lot configuration to accommodate solar access. Amend City Zoning Code to provide standards for site design and building orientation to optimize potential for passive solar design.
- Reduce Impact Fees to more accurately reflect the impacts associated with all types of building, including Green Building, such that those building practices that result in lower impacts have lower fees.
- Encourage development projects to use sustainable building materials that are sourced and processed locally and/or contain recycled materials.
- Review and revise the City Code for consistency with the 2030 General Plan, including but not limited to: Zoning Code, subdivision regulations, street design standards, parking regulations, annexation regulations, and design guidelines.
- Develop and adopt development standards for bicycle support facilities (e.g., bicycle racks, personal lockers, showers, other support facilities) which meet or exceed CalGreen Tier 1 requirements.
- Develop standards that require developments of a certain size to include dedicated parking for electric cars and NEVs.
- Develop a fast-track permit process for electric vehicle charging stations on private property.



Green buildings will save residents and businesses money on energy, water, and maintenance; enhance residential health; and result in greater worker productivity through improved air quality and day lighting.

STRATEGY 1: SUSTAINABLE LAND USE



MEASURE 1.5: ENSURE QUALITY DEVELOPMENT AND PROJECT DESIGN

Quality development and project design concerns the characteristics of the public realm, that is, the area of the city experienced from the street, sidewalk, plaza, or public park. It includes the arrangement, appearance, and functionality of buildings, public spaces, streets, transportation, and open spaces. More specifically, quality development and project design address how the built environment can positively affect the experience of people living, working, or moving throughout the city. Neighborhoods, centers, and corridors that are more enjoyable can help make walking and bicycling a part of daily life and create desirable gathering places near homes and jobs, reducing the need to drive to other areas.

The City of Sacramento has adopted guidelines, standards, and processes to create well-planned mixed-use communities that are diverse, but also aesthetically unified. The City has a Design Review Director and staff who review development projects for consistency with the urban design policies of the 2030 General Plan, Neighborhood Design Guidelines, City’s Design Review Code, and other area-specific design guidelines, ordinances, and standards.

The City intends for this measure to implement the policies of the 2030 General Plan to create a distinct, high-quality built environment that reflects Sacramento’s unique character.



Adaptation/Resiliency

- Improve Impaired Air Quality
- Limit Conversion of Habitat and Loss of Native Species
- Improve Efficiency of Infrastructure

Community/Public Co-Benefits

- Increase Home and Building Equity and Resale Value
- Improve Traffic/Air Quality
- Reduce Congestion
- Increase Access to Open Space
- Create a Healthy Living Environment
- Increase Social Interaction
- Improve Quality of Life
- Keep Energy Dollars in the Community





STRATEGY 1: SUSTAINABLE LAND USE

MEASURE 1.5: ENSURE QUALITY DEVELOPMENT AND PROJECT DESIGN

Supporting Actions:

- Implement the urban design policies of the 2030 General Plan to enhance walkability and connectivity and improve street network characteristics within a neighborhood.
- Provide incentives for development projects that separate the costs of rented parking from leased building space so that the charges from parking are borne more explicitly by the user.
- Incorporate a parking cash-out program option into the TSM ordinance.
- Limit parking in areas of the City that are readily served by transit and are accessible by bicycle by limiting on-street parking, and reduce minimum parking requirements standards over time, and promote shared parking programs.
- Provide accessible public park or recreational open space within one-half mile of all residences and restore public access along all waterways and riparian corridors (Sacramento and American Rivers, urban creeks).



Neighborhoods, centers, and corridors that are well designed will make walking and bicycling a part of daily life and create desirable gathering places near homes and jobs, thereby reducing the need to drive to other areas.

STRATEGY 2

MOBILITY AND CONNECTIVITY



CO-BENEFITS

- Lower Operating Costs for Businesses
- Lower Energy and Fuel Bills
- Improve Traffic/Air Quality
- Reduce Congestion
- Lower Commute Times
- Improve Connections to Home, Services, and Work
- Lower Energy Demand
- Create Jobs
- Increase Recreation Choices
- Improve Public Health
- Create a Healthy Living Environment
- Improve Quality of Life

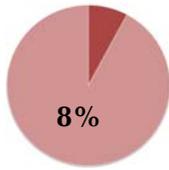
Creating a connected multi-modal transportation network that increases the use of sustainable modes of transportation (e.g., walking, biking, transit) and reduces dependence on automobiles.





STRATEGY 2

MOBILITY AND CONNECTIVITY



of total 2020 GHG reductions
= 107,894 MMTCO₂e/year

MEASURES

1. Multi-modal Travel Options
2. Improved Pedestrian Environment
3. Increased Bicycle Mode Share
4. Increased Transit Mode Share
5. Low Emission Vehicles/Efficient Goods Movement
6. Connected Transportation System
7. Transportation Demand Management

GOALS:

Reduce total communitywide vehicle miles traveled (VMT) per capita, at minimum of 7 percent by 2020 and 16 percent by 2035.

Gas and diesel consumption by vehicles is the largest source of GHGs in Sacramento, making up 48 percent of citywide emissions. While considerable action is needed to reduce vehicle emissions, there are many benefits for doing so. Reducing vehicle miles traveled (VMT) by increasing the availability, efficiency, and appeal of alternative forms of transportation, such as walking, bicycling, and riding public transit, will not only reduce GHG emissions, but will improve air quality, public health, and quality of life. The City's communitywide goals for VMT include a 7 percent per capita reduction by 2020, and a 16 percent per capita reduction by the year 2035. The City's goal for new development is to reduce VMT by 35 percent compared to statewide averages.

Land use and transportation are inextricably linked and decisions about land use planning and transportation funding greatly influence GHG emissions. A well-connected transportation network includes higher-density and mixed-use neighborhoods with complete streets that provide infrastructure for vehicles, bicycles, and pedestrians. Transit-

oriented development reduces the number and distance of vehicle trips and encourages mode shifts to walking, biking, and public transit. Vibrant neighborhoods with safe and engaging pedestrian environments will encourage more people to choose walking or biking over automobile use.

While personal automobile use is a major source of vehicle emissions, goods movement also contributes significantly to GHG emissions. Shifting away from personal automobile use will make freight movement on highways more efficient by relieving congestion and improving traffic flow for all vehicles.

The City of Sacramento recognizes the importance of establishing an efficient, multi-modal transportation network that minimizes impacts to natural resources and improves the quality of life for city residents.



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.1: MULTI-MODAL TRAVEL OPTIONS

To reduce GHG emissions and energy consumption, Sacramento residents need access to a variety of travel modes that provide for the diverse needs of users, including: commuting, running errands, traveling to entertainment, and recreation. By creating opportunities for the use of high-quality and accessible alternative modes of transportation, the City of Sacramento can influence modal choice. Expanded use of sidewalks and pedestrian trails, public transportation, bikeways, rail, and waterways will promote a healthy lifestyle, while improving air quality. Multimodal transportation systems can also be economically advantageous. A study by the Surface Transportation Policy Project noted that households in automobile-dependent communities devote 50percent more to transportation (more than \$8,500 annually) than households in communities with more accessible land use and more multi-modal transportation systems (less than \$5,500 annually) . While some trips may still require automobile use, options like carshare, rideshare, or vanpool services offer alternative choices.

The City of Sacramento will enhance multi-modal travel options through a number of actions. Adopting multi-modal design standards will lead to streets that are more complete, with a preference for alternative modes of transportation.

Incorporating traffic calming measures and green infrastructure into street design will make streets safer and more attractive for use by residents. A transportation infrastructure fee could be used to fund these improvements.



GHG Reduction Potential by 2020
1,097 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Transportation Energy Demand Increases
 - Improve Impaired Air Quality
 - Improve Efficiency of Infrastructure

- Community/Public Co-Benefits**
- Improve Traffic/Air Quality
 - Reduce Congestion
 - Improve Connections to Home, Services, and Work
 - Lower Energy Demand
 - Lower Energy and Fuel Bills
 - Improve Public Health
 - Improve Quality of Life



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.1: MULTI-MODAL TRAVEL OPTIONS

Action
2.1.1

Continue to increase the use of traffic calming measures within the City to reduce motor vehicle speeds and encourage pedestrian and bicycle trips. Traffic calming features may include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.

GHG Reduction Potential
1,097 MTCO₂e/year

Implementation Time Frame

2012-2015	2015-2020	2020 +	Annual	Ongoing
				✕

Responsibility: Transportation

Target Indicators: 0.05 percent reduction in VMT

Supporting Actions:

- Conduct a study to analyze bike and pedestrian facilities on existing bridges to identify deficiencies and feasible improvements.
- Prepare and adopt a citywide Transportation Development Impact Fee Program to support the development of all travel modes needed for new development.
- Green Infrastructure Master Plan: Consider preparing a long-term planning document for integrating the City's green infrastructure – parkways, waterways, parks, open space, shaded bicycle parkways and pedestrianways.
- Conduct a study to identify underused rights-of-way, such as street lanes, drainage canals, and railroad corridors to convert to bikeways and/or pedestrian ways.
- Continue to consider additional one-way streets for two-way conversion to make them more transit-, bicycle-, and pedestrian-friendly.
- Conduct a study of the existing street network to identify streets that can be more complete based on adopted design standards and the policies in the 2030 General Plan.

STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.2: IMPROVED PEDESTRIAN ENVIRONMENT

Vibrant neighborhoods where residents are active and engaged are essential for a sustainable city. Providing an enhanced pedestrian environment will encourage residents to drive less often and consume less energy. While areas of Sacramento are highly walkable, over 400 miles of roads in the city lack sidewalks; roads with sidewalks often lack well-marked street crossings; and high-speed arterial roadways are designed to accommodate vehicles, which create unsafe conditions for pedestrians. To encourage walking as a mode of transportation, Sacramento residents need a universally accessible, safe, convenient, and integrated pedestrian system.

The Sacramento Pedestrian Master Plan estimates that the total cost of implementing all of the sidewalk and crossing improvements needed in the city will cost about \$800 million. In order to be successful, pedestrianways must have a pleasant environment with amenities like public art, benches, landscaping, wide sidewalks, scaled lighting, and meaningful destinations. Pedestrianways should also be safe and convenient for users. The pedestrian system must include a complete and connected network of pathways, including

carefully designed bridges and crossings that minimize pedestrian and vehicle conflicts. The City of Sacramento must pay particular attention to the location, type, design standards, and schedule of improvements for sidewalks.

The City of Sacramento plans to improve the pedestrian environment and encourage walking in a number of ways. Increasing pedestrian awareness through safety outreach programs will make residents more comfortable and more prepared for walking to their destinations. By continually updating the Pedestrian Master Plan and implementing and expanding facilities identified in the plan, the City will provide more opportunities for convenient and accessible use of sidewalks. Finally, speed management and improved crossing measures will ensure that residents can walk safely and comfortably.

GHG Reduction Potential by 2020
6,582 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Improve Impaired Air Quality
 - Improve Efficiency of Infrastructure

- Community/Public Co-Benefits**
- Improve Traffic/Air Quality
 - Reduce Congestion
 - Improve Connections to Home, Services, and Work
 - Lower Energy and Fuel Bills
 - Increase Recreation Choices
 - Improve Public Health
 - Improve Quality of Life





STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.2: IMPROVED PEDESTRIAN ENVIRONMENT

Action 2.2.1 Implement Pedestrian Master Plan facilities to achieve an annual expansion of 1 percent of the existing (2011) system.

GHG Reduction Potential 6,582 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					✘

Responsibility: Transportation

Target Indicators: 0.3 percent reduction in VMT

Supporting Actions:

- Initiate a pedestrian safety outreach program and continue outreach to the public through DOT's website.
- Continue to identify and prioritize pedestrian improvement projects as part of the Transportation Programming Guide.
- Improve connections to transit, thereby extending a pedestrian's/cyclist's potential trip length.



Sacramento residents will have a universally accessible, safe, convenient, and integrated pedestrian system.

STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.3: INCREASED BICYCLE MODE SHARE

By choosing to bike instead of driving a car, residents reduce road congestion and improve air quality. Biking also promotes a healthy lifestyle and greater quality of life, especially for those without access to a car. The major impediments to biking are a lack of support facilities, connected bikeways, and public education. Sacramento can increase bicycle use by creating and maintaining a safe, comprehensive, and integrated bicycle system with support facilities throughout the city. Expanding street width, lowering volumes of motor vehicle traffic, and reducing speeds promote shared use by motorists and bicyclists. Providing bicycle support facilities such as bike racks, showers, and lockers, and increasing bicycle accessibility on transit, make biking more convenient.

The City of Sacramento has been working and will continue to work to enhance the bicycle system through a variety of actions. Sacramento has 55 miles of pathways and trails for bicycle use and 1,150 miles of public streets

(Pedestrian Master Plan/Bikeway Master Plan). The City recently (2011) completed an update to the Bikeway Master Plan. By continually updating and implementing the Bikeway Master Plan, the City estimates that it will expand the existing bikeway system by 5 percent annually. The City is launching a new pilot bicycle rack program to install accessible bicycle racks in the public rights-of-way near businesses in the city. The City also offers low-cost rentals of bicycle lockers at key locations in the downtown. Continuing to install bicycle parking throughout the city will provide better support facilities for bicyclists using the more integrated bicycle system. Finally, bike-sharing programs may improve bicycling options for residents and visitors.

GHG Reduction Potential by 2020
32,909 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Improve Impaired Air Quality
 - Improve Efficiency of Infrastructure

- Community/Public Co-Benefits**
- Improve Traffic/Air Quality
 - Reduce Congestion
 - Improve Connections to Home, Services, and Work
 - Lower Energy and Fuel Bills
 - Increase Recreation Choices
 - Improve Public Health
 - Improve Quality of Life





STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.3: INCREASED BICYCLE MODE SHARE

Action 2.3.1 Implement Bikeway Master Plan facilities to achieve an annual expansion of 5 percent of the existing system.

<p>GHG Reduction Potential 32,909 MTCO₂e/year</p>	<p>Implementation Time Frame</p>				
	<p>2012-2015</p>	<p>2015-2020</p>	<p>2020 +</p>	<p>Annual</p>	<p>Ongoing</p>
					<p>✕</p>

Responsibility: Transportation

Target Indicators: 1.5 percent reduction in VMT

Supporting Actions:

- Increase the amount of secure bicycle parking within the City by 50 locations annually for the next 5 years, funded in part by the Sacramento Metropolitan Air Quality Management District bike parking program.
- Work with community partners to establish a bicycle mode share goal and methodology.
- Continue to work with community partners to locate bicycle racks, lockers, and bike-share programs in or near transit stops to help cyclists lengthen their trip potential as well as facilitate the start and completion of the transit-rider's trip.
- Establish a bicycle mode share goal and establish a methodology for monitoring progress to achieve that goal.



More biking opportunities will promote a healthy lifestyle and greater quality of life, especially for those without access to a car.

STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.4: INCREASED TRANSIT MODE SHARE

Regional Transit (RT) operates 64 bus routes and 37.5 miles of rail serving an average of 108,100 passengers daily in Sacramento County¹. RT's fleet includes over 180 compressed natural gas (CNG) powered buses, which are much cleaner and emit fewer GHG emissions. In addition to RT, numerous other transit operators provide service in the city. Transit use produces fewer GHG emissions to move a larger number of people, making it a more efficient and sustainable mode of transportation than the single-occupant motor vehicle. A safe, comprehensive, and integrated transit system is an essential component of a vibrant transportation system.

One of the most important elements in increased transit use is the provision of direct pedestrian and bicycle access to transit station areas. Transit stops and hubs located along pedestrian and bicycle networks and near transit-oriented neighborhoods ensure that the greatest number of riders have convenient access. Comprehensive transit networks provide a variety of transit types for diverse users along intra- and inter-city routes. By extending existing lines, increasing frequency of service, and adding new routes, RT and other transit

operators in the region can increase the transit mode share.

The City will support the efforts of RT and others to increase transit service in a number of ways. In addition to the heavy rail, light rail, urban bus, and neighborhood bus service, the City is conducting a study on the potential to implement a streetcar system. By ensuring that fares are affordable and bus stops are no further than one-quarter mile from neighborhoods, regional transit providers will ensure that transit is accessible to a diverse group of users.



GHG Reduction Potential by 2020
54,848 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Improve Impaired Air Quality
 - Improve Efficiency of Infrastructure

- Community/Public Co-Benefits**
- Improve Traffic/Air Quality
 - Reduce Congestion
 - Improve Connections to Home, Services, and Work
 - Lower Energy and Fuel Bills
 - Create a Healthy Living Environment
 - Create Jobs



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.4: INCREASED TRANSIT MODE SHARE

Action 2.4.1 Work with transit operators and community partners to increase public transit service (i.e. frequency, number of lines and stops, dedicated transit lanes) above and beyond what is already planned in the Metropolitan Transportation Plan by 5 percent in 2020 and 10 percent in 2030.

GHG Reduction Potential 54,848 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					✘

Responsibility: Community Development supported by Transportation

Target Indicators: 2.5 — 5 percent reduction in VMT

Supporting Actions:

- Work with transit operators and community partners to develop and implement a policy that expands affordable public transportation coverage to within one-quarter of a mile of all city residents.
- Expand transit and mode options to fill transit gaps, including streetcars, car-sharing, and bike-sharing by establishing a car-sharing program, bike-sharing facilities near car-sharing locations, and conducting a study on potential for streetcars.
- Work with transit operators and community partners to identify funding to expand affordable transit coverage.



Greater transit use will produce fewer GHG emissions while moving a larger number of people, creating a more efficient and sustainable transportation system.

STRATEGY 2: MOBILITY AND CONNECTIVITY



MEASURE 2.5: LOW EMISSION VEHICLES/EFFICIENT GOODS MOVEMENT

The way in which goods are transported, as well as the route taken, trip length, and fuel technology are all factors in efficiency. Rail is usually the most efficient way to transport goods, while air travel is usually the least efficient. All shipping modes may be made more efficient by reducing traffic jams and replacing aging or outdated infrastructure. Increasing the amount of goods shipped by rail and marine transportation, while also facilitating the clearance, timely movement, and security of trade, and providing facilities for intermodal transfer between all transportation modes will ensure efficient goods movement.

Alternative fuels, electric vehicles, and other cleaner forms of transportation help reduce the amount of GHGs emitted into the atmosphere. In 2009 the City of Sacramento consumed about 150,000 fewer gallons of fuel than in 2005 through the use of 640 alternative fuel vehicles. While local governments have limited opportunity to affect the technological improvements necessary to increase vehicle fuel efficiency, vehicle emissions standards enacted at the Federal,

State, and regional levels can help lower GHG emissions. Federal, State, and Regional agencies can also provide the resources necessary to develop infrastructure that supports low-emission and alternative fuel vehicles.

Many of the measures aimed at increasing the mode shift to walking, biking, and transit, described earlier, will benefit goods movement by relieving congestion and improving traffic flows for all users. Increasing the efficiency of moving large diesel trucks will not only reduce fuel use, but also reduces emissions of soot, which contributes to poor air quality. The City of Sacramento will implement infrastructure improvements and use emerging technologies to support the use of alternative fuels and the efficient movement of people and goods. By collaborating between government entities on high emissions vehicle buyback programs and low emissions vehicle infrastructure, such as electric vehicle road networks and charging facilities, the City of Sacramento will provide opportunities for residents to use cleaner forms of transportation.

GHG Reduction Potential by 2020
1,804 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Improve Impaired Air Quality
 - Improve Efficiency of Infrastructure
 - Reduce Damage to Infrastructure

- Community/Public Co-Benefits**
- Improve Traffic/Air Quality
 - Reduce Congestion
 - Lower Energy Demand
 - Lower Energy and Fuel Bills
 - Lower Operating Costs for Businesses
 - Create a Healthy Living Environment





STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.5: LOW EMISSION VEHICLES/EFFICIENT GOODS MOVEMENT

Action 2.5.1 Transport waste generated by residents and businesses to landfill facilities within the region rather than out of state, which will result in a reduction of over 1.2 million vehicle miles traveled per year.

GHG Reduction Potential 1,804 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					x

Responsibility: Utilities – Solid Waste Division

Target Indicators: Reduction of approximately 1,279,389 VMT per year

Supporting Actions:

- Participate in planning efforts for public charging infrastructure to support plug-in electric vehicles (PEVs). Provide public charging stations according to plan.
- Develop and implement Route Smart software for solid waste trucks to decrease VMT and increase fuel efficiency.



Alternative fuels, electric vehicles, and other cleaner forms of transportation will help reduce the amount of GHGs emitted into the atmosphere.

STRATEGY 2: MOBILITY AND CONNECTIVITY



MEASURE 2.6: CONNECTED TRANSPORTATION SYSTEM

In addition to creating a multi-modal network of complete streets, the City of Sacramento can increase efficiency and access through a connected transportation system. All modes of transportation should have networks that are cohesive and continuous, allowing residents to easily navigate the system. Improving the connectivity of the transportation system will improve efficiency, which will result in decreased GHG emissions.

The City of Sacramento will strive to remove and minimize the effect of natural and manmade barriers and obstacles between and within existing neighborhoods, corridors, and centers to ensure that the transportation network is continuous. The City has already prepared a study of crossings over the Sacramento River to identify major barriers to connectivity, and has been awarded funding to prepare a similar study for the American River. The City will also identify and fix gaps in the existing system to ensure that the transportation network is cohesive.



GHG Reduction Potential by 2020
10,431 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Improve Impaired Air Quality
 - Improve Efficiency of Infrastructure

- Community/Public Co-Benefits**
- Improve Traffic/Air Quality
 - Reduce Congestion
 - Improve Connections to Home, Services, and Work
 - Lower Commute Times
 - Lower Energy and Fuel Bills
 - Create a Healthy Living Environment



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.6: CONNECTED TRANSPORTATION SYSTEM

Action 2.6.1 Improve traffic flow and associated fuel economy of vehicles traveling on city streets by synchronizing the remaining estimated 50 percent of the city's eligible traffic signals by 2035.

<p>GHG Reduction Potential 10,431 MTCO₂e/year</p>	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
	x	x	x		

Responsibility: Transportation

Target Indicators: 100 percent of signals synchronized

Supporting Actions:

- Identify major barriers to connectivity throughout the city and prioritize funding for improvements.



All modes of transportation will have networks that are cohesive and continuous, allowing residents to easily navigate the city.

STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.7: TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) programs are strategies designed to reduce the demand for the automobile as a mode of travel. Cities can provide incentives for transit ridership, carpooling, telecommuting, and alternatives to single-occupant vehicles. Likewise, cities may use disincentives to discourage the use of single-occupant automobiles by reducing parking supply or implementing price controls. By encouraging the use of alternative transportation modes or alternative types of commuting, the vehicle demand on the existing roadway system is reduced and system efficiency is improved. In addition to reducing GHG emissions, TDM strategies can help reduce the need for costly capacity-enhancing improvement projects on roadways.

The City of Sacramento will continue to strive to decrease the dependence on single-occupant use motor vehicles through several TDM measures. The City approved an agreement with Zipcar in March 2011, which currently (August 2011) has 10 Zipcars available downtown and will have two cars available at the California State University of Sacramento (CSUS). The City is also in the process of updating and enhancing the

Transportation Systems Management Program to be consistent with policies of the General Plan.

The City will promote commuter clubs and car-sharing programs as an incentive to reduce transportation demand. The Transportation Systems Management Program requires that developers of business projects contribute to the City transportation facility fund in order to expand transit and vanpool programs. The City will limit parking in areas of the city that are readily served by transit and accessible by bicycle, will reduce minimum parking standards, and promote shared parking. The City will also implement market price parking as a deterrent to increased transportation demand.



GHG Reduction Potential by 2020
223 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Improve Impaired Air Quality
 - Reduce the Urban Heat Island Effect

- Community/Public Co-Benefits**
- Improve Traffic/Air Quality
 - Reduce Congestion
 - Lower Commute Times
 - Lower Energy Demand
 - Lower Energy and Fuel Bills
 - Create a Healthy Living Environment



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.7: TRANSPORTATION DEMAND MANAGEMENT

Action 2.7.1 City employee furloughs have resulted in an estimated reduction of 493,072 vehicle miles traveled in the past three years. Continuing this reduction in commuting miles through 2020 by ongoing furloughs, or telecommuting or alternate schedules, would result in an estimated GHG reduction of 223 metric tons/year.

GHG Reduction Potential 223 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					✘

Responsibility: General Services

Target Indicators: VMT reduction of 493,072

Supporting Actions:

- Support SACOG's Commuter Club, which offers free services to help employers and commuters use carpool, bus, light rail, walking, biking, or telecommuting to get to work or run errands.
- Develop and implement a market price public parking program for on-street parking.
- Update and enhance the Transportation Systems Management Program consistent with the policies of the General Plan.
- Provide incentives for development projects that separate the costs of rented parking from leased building space so that the charges from parking are borne more explicitly by the user.



By encouraging the use of alternative transportation modes or alternative types of commuting, the vehicle demand on the existing roadway system will be reduced and system efficiency will improve.

STRATEGY 3

ENERGY EFFICIENCY AND RENEWABLE ENERGY



CO-BENEFITS

- Increase Energy Independence
- Lower Energy and Fuel Bills
- Lower Energy Demand
- Create Jobs
- Lower Operating Costs for Businesses
- Increase Home and Building Equity and Resale Value
- Conserve Water
- Reduce Waste
- Increase Public Awareness of Climate Change
- Create Climate Action and Sustainability Leaders

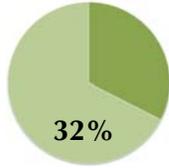
Increasing the energy efficiency of existing and new buildings and maximizing the use and generation of renewable energy.





STRATEGY 3

ENERGY EFFICIENCY AND RENEWABLE ENERGY



of total 2020 GHG reductions
= 445,590 MTCO₂e/year

MEASURES

1. Energy Demand Management and Conservation
2. Increase Existing Building Energy Efficiency
3. Increase Energy Efficiency in New Buildings
4. Increase Renewable Energy Generation and Use

Goals:

Achieve zero net energy in all new construction by 2030. Achieve an overall 15 percent reduction in energy usage in all existing residential and commercial buildings by 2020.

Energy is an essential part of our everyday lives, from the lights that illuminate our homes to the machines and computers that operate our businesses. The energy used in buildings is a significant contributor to GHG emissions in Sacramento, accounting for more than 39 percent of total emissions (17 percent from residential and 22 percent commercial/industrial); however, we have substantial opportunities to reduce GHG emissions associated with energy use. Sacramento included a goal in the 2030 General Plan to reduce energy demand 25 percent by 2030 compared to 2005 levels. Increasing energy efficiency and conservation can considerably reduce homeowner and business energy bills.

The two key performance goals for the Energy Efficiency and Renewable Energy Strategy include: achieving zero net energy in all new construction by 2030; and achieving an overall 15 percent reduction in energy usage in all existing residential & commercial buildings by 2020.

Energy-related measures are intended to increase energy efficiency and renewable energy generation in existing buildings and new

developments, and motivate individuals to make choices that conserve energy. Significant reductions in energy demand can be achieved using construction techniques that make our homes and commercial and industrial buildings more efficient. Further emissions reductions can be achieved by using less gas and electricity (i.e., conservation) in our daily lifestyle choices and business practices, and by improving the energy efficiency of our household appliances and industrial processes. Finally, we can favor clean energy sources and generate our own energy by increasing the generation and use of renewable sources of electricity, such as hydro, wind, geothermal, and solar power.



STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.1: ENERGY DEMAND MANAGEMENT AND CONSERVATION

Our daily choices and habits have a significant impact on the amount of energy we consume. We live in an increasingly electronic world where nearly everything we do involves using energy. Energy demand management by energy suppliers and energy conservation by users can reduce the total amount of electricity and natural gas consumed. Energy demand management is typically a top-down approach to conserving energy where financial incentives and education are used by energy providers to modify energy consumption and encourage consumers to use less energy. Energy conservation, on the other hand, is a bottom-up approach that relies on consumers making choices and changing habits that result in decreased energy consumption. In addition to saving energy and associated costs, demand management and conservation help to prevent blackouts, reduce the need to rely on older, higher-emission power plants, and reduce the need for additional power supplies.

The City intends for this measure to work with energy providers (e.g., SMUD, PG&E) to provide incentives and encourage and educate residents and businesses to use less

energy, such as: unplugging electronics and other equipment when not in use, setting air conditioners five degrees higher and heaters five degrees lower, turning off lights when not in use, enabling “power management” on computers, and turning them off at night.



GHG Reduction Potential by 2020
155,700 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Prepare for Energy Supply Variability
 - Improve Impaired Air Quality

- Community/Public Co-Benefits**
- Lower Energy Demand
 - Increase Energy Independence
 - Lower Energy and Fuel Bills
 - Increase Public Awareness of Climate Change
 - Create Climate Action and Sustainability Leaders



STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.1: ENERGY DEMAND MANAGEMENT AND CONSERVATION

Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD, PG&E) to launch a comprehensive social marketing campaign that leverages available tools from the social sciences to influence behaviors that reduce energy demand and promote conservation. The campaign could include the following elements:

- Continuous messaging and frequent prompts from a trusted messenger through media campaigns and branding of communications.
- Encouraging residents to set goals for reductions. Provide tools (e.g., online calculators) to track their progress toward meeting the goals.
- Providing normative comparisons showing carbon footprints or energy and water use of households compared to the average in the community.
- Providing public education on the need for energy efficiency, emissions reduction programs, utility incentives and cost savings associated with energy-efficient buildings.
- Launching an “energy efficiency challenge” campaign for city residents that challenges communities and neighborhoods to achieve the highest energy efficiency in return for pooled resources that could be applied to improvements or amenities.
- Launching energy efficiency campaigns targeted at businesses that provide business and property-owner education on the need for energy efficiency and emissions reduction programs and incentives.

GHG Reduction Potential 5,594 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
	✘				✘

Responsibility: SMUD and PG&E supported by Community Development and General Services

Target Indicators: 25 percent participation rate with 1 percent reduction in energy consumption

Action 3.1.2 Support SMUD’s Smart Grid program, which is estimated to result in 4 percent energy savings and 2 percent transmission savings by 2030.

GHG Reduction Potential 69,215 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					✘

Responsibility: SMUD in coordination with General Services and Community Development

Target Indicators: 4 percent energy savings and 2 percent transmission savings by 2030

Action 3.1.3 Support the SMUD and Tree Foundation Shade Trees programs, which reduce the urban heat island effect and associated energy consumption.

GHG Reduction Potential 1,507 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					✘

Responsibility: SMUD in coordination with General Services, Community Development, Transportation, Utilities, Parks and Recreation

Target Indicators: 3.84 million kWh/year reduction in energy consumption

STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.1: ENERGY DEMAND MANAGEMENT AND CONSERVATION

Action 3.1.4

Support SMUD’s energy efficiency rebate and incentive programs:

- **Appliance Rebate.** SMUD buys down the cost of energy-efficient electric appliances and products, offers rebates and incentives to customers, and affordable financing to purchase energy-efficient appliances.
- **Lighting Rebates.** SMUD offers standard rebates to residential and commercial customers for the installation of energy-efficient lighting, such as LED lamps, fixtures, and other forms of highly-efficient lighting.
- **Electronic Incentives.** SMUD provides incentives to retailers in the Sacramento region to stock the most energy-efficient major electronics, such as televisions and computer monitors.
- **Custom and Prescriptive Lighting Incentives.** SMUD encourages and offers incentives to qualifying systems for the successful installation of LED lighting in local commercial applications.
- **Multi-family Retrofits.** SMUD offers multi-family prescriptive rebates for multi-family residential customers seeking to retrofit units and common spaces to increase energy efficiency. This program offers rebates specific to the type of appliance, lighting, or improvement used, and encourages comprehensive analysis of the energy performance of each building.

GHG Reduction Potential 79,384 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					x

Responsibility: SMUD in coordination with General Services and Community Development

Target Indicators: Constant participation in the programs. No net decrease in participation.

Supporting Actions:

- Continue building on the City’s existing partnerships, such as with Sacramento County’s Business Environmental Resource Center (BERC) and Sacramento Municipal Utility District (SMUD), to promote energy efficiency and conservation for the business community and for individuals.



Energy-efficient choices and habits will significantly reduce the amount of energy we consume.





STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.2: INCREASE EXISTING BUILDING ENERGY EFFICIENCY

Many factors influence energy use, including: the type, age, and size of a building; level of insulation, size and type of windows, efficiency of lighting and appliances. Generally, the older a building is, the less energy-efficient it is. Of Sacramento’s existing 195,000 housing units (2010), about 45 percent were built before 1970, 76 percent before 1990, and 83 before 2000 (US Census). Because existing buildings will continue to be used in the future, increasing the energy efficiency of existing homes and buildings can have a substantial impact on overall energy consumption, much more than the implementation of green building practices for new construction.

Recent changes in California's Title 24 building standards (i.e., CalGreen) will ensure that new buildings are much more energy efficient. However, buildings last for decades and efforts to reduce GHG emissions from buildings will also need to address the City's existing structures. A significant amount of the city's existing housing stock and commercial buildings will exist in 2020 and beyond. Retrofitting homes and commercial and industrial buildings to improve energy efficiency offers an opportunity to achieve considerable emissions reductions. Improving energy efficiency in existing

buildings and facilities provides one of the most cost-effective strategies for reducing GHGs, because the energy savings can pay for the cost of the upgrades and retrofits over time.

The City intends for this measure to incorporate energy-efficient technologies and construction methods into existing building remodels and other improvements to existing structures, including:

- Replacing older lighting, appliances, and equipment with higher quality, energy-efficient products (e.g., LEDs; Energy Star-rated).
- Insulating attics and walls; weatherizing windows, doors, and the building envelope to reduce heating and cooling losses.
- Installing cool-roofing (i.e., highly reflective coating) and roof-top gardens to reduce heat absorption.
- Using smart meters and smart grid systems that use wireless technology to monitor and optimize energy use in real time.

For larger or more complex buildings, a professional commissioning study can fully assess the operational performance of buildings.

GHG Reduction Potential by 2020
107,559 MTCO₂e/year

Adaptation/Resiliency

- Adjust to Energy Demand Increases
- Prepare for Energy Supply Variability
- Adjust to Temperature Increases
- Reduce the Urban Heat Island Effect
- Reduce Home and Building Maintenance Costs
- Improve Impaired Air Quality

Community/Public Co-Benefits

- Increase Home and Building Equity and Resale Value
- Lower Operating Costs for Businesses
- Lower Energy and Fuel Bills
- Lower Energy Demand



STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.2: INCREASE EXISTING BUILDING ENERGY EFFICIENCY					
Action 3.2.1	Develop and adopt a Commercial Property Assessed Clean Energy Financing Program (Commercial PACE program) to create a voluntary special assessment district to help finance energy efficiency retrofits of commercial establishments.				
	GHG Reduction Potential 18,225 MTCO ₂ e/year	Implementation Time Frame			
		2012-2015	2015-2020	2020 +	Annual
		X	X		
<p>Responsibility: Department of General Services</p> <p>Target Indicators: Minimum of 90 PACE projects per year over 5 years, for a total of 450 projects</p>					
Action 3.2.2	Update and enforce Chapter 15.76 of the Sacramento City Code, also known as the Residential Energy Conservation Ordinance (RECO), which requires the implementation of mandatory energy and water conservation standards for existing residential properties when building permits are required for major remodels or additions. This measure was assumed to reduce residential energy consumption by 15 percent on average per project for which a building permit is pulled.				
	GHG Reduction Potential 3,193 MTCO ₂ e/year	Implementation Time Frame			
		2012-2015	2015-2020	2020 +	Annual
		X	X	X	
<p>Responsibility: Community Development</p> <p>Target Indicators: 15 percent improvement in energy efficiency performance of 4,981 existing units</p>					
Action 3.2.3	Work with community partners to develop and implement a voluntary rental housing energy efficiency program to improve the energy and water efficiency of existing rental units (both single-family and multi-family). If the voluntary program does not achieve an average energy savings of 15% per unit in at least 10,000 units/year by the end of 2014, the program may switch to mandatory energy efficiency improvements for rental housing.				
	GHG Reduction Potential 32,887 MTCO ₂ e/year	Implementation Time Frame			
		2012-2015	2015-2020	2020 +	Annual
		X			
<p>Responsibility: Community Development</p> <p>Target Indicators: 10,000 rental housing (both single-family and multi-family) inspections per year with 15 percent energy savings</p>					
Action 3.2.4	Develop and adopt a Commercial Energy Conservation Ordinance (CECO) that requires the implementation of mandatory energy and water conservation standards for all commercial and industrial properties. CECO would involve retrofitting existing commercial and industrial buildings for which a building permit is pulled for renovation or addition above a specified project size threshold.				
	GHG Reduction Potential 50,071 MTCO ₂ e/year	Implementation Time Frame			
		2012-2015	2015-2020	2020 +	Annual
		X	X	X	
<p>Responsibility: Community Development</p> <p>Target Indicators: 15 percent reduction in energy consumption from affected existing building stock</p>					





STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.2: INCREASE EXISTING BUILDING ENERGY EFFICIENCY

Action 3.2.5 Continue to partner with SMUD to implement the Small Commercial Energy Efficiency Pilot Program, which provides incentives to small commercial customers to improve energy efficiency.

GHG Reduction Potential 1,219 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
	✘				

Responsibility: SMUD in coordination with General Services

Target Indicators: 3.1 million kWh/year reduction in energy consumption

Action 3.2.6 Support SMUD’s Home Performance Program, which offers low-cost energy audits and rebates for energy efficiency upgrades to existing residential customers.

GHG Reduction Potential 1,964 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
	✘				

Responsibility: SMUD

Target Indicators: 207 single-family home retrofits with 30 percent improvement in energy efficiency
 11 single-family home retrofits with 15 percent improvement in energy efficiency
 2,205 multi-family unit retrofits with 20 percent improvement in energy efficiency

Supporting Actions:

- Support SMUD’s low-income weatherization programs and Energy Efficient Remodel Program.
- Collaborate with SMUD, PG&E, and other partners to provide information at the public counter and on the City’s website about energy efficiency, green building, passive solar design, rebates, and financing for energy efficiency retrofits.
- Continue to evaluate other voluntary programs and strategies for improving the energy efficiency of existing buildings and work with organizations including the Sacramento Association of REALTORS®, the Air Quality Management District, SMUD, and others that have an interest in this area.
- Identify funding to develop planning and design documents to assist property owners with appropriate retrofit options for historic and potentially-eligible properties that will comply with the Secretary of the Interior’s Standards for the Treatment of Historic Properties.
- Explore the feasibility of incorporating residential into the City’s forthcoming property assessed clean energy financing (PACE) program.
- Continue to explore and advocate for low-cost financing program options, such as the CHF Energy Upgrade Loan program, to assist homeowners and others in funding energy efficiency retrofits.

STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.3: INCREASE ENERGY EFFICIENCY IN NEW BUILDINGS

Sacramento will continue to experience population and job growth, which will result in the construction of new homes for residents and new buildings for businesses. According to development projections, by 2020 it is expected that there will be an additional 58,495 dwelling units and 80,229 jobs in the city, compared to 2005. Optimizing energy efficiency and incorporating passive heating and cooling approaches into structures that use natural ventilation to regulate interior temperatures is a critical element to achieve future GHG reductions and accommodate population and job growth. By using energy efficiency strategies and concepts in the planning, siting, and design of buildings, they can more effectively maximize the use of natural sun and air, and reduce energy bills for heating, cooling, and lighting.

In January 2011 the California Green Building Code (CalGreen) became effective, updating Title 24 of the

California Code of Regulations for building standards. The CalGreen Code requires that new buildings reduce water consumption, increase energy efficiency, divert construction waste from landfills, and install low-pollutant-emitting finish materials. CalGreen standards also include two optional energy efficiency standards that the City may adopt to surpass minimum State requirements. Tier 1 option requires a building’s energy performance to exceed basic requirements by 15 percent, while Tier 2 increases the standard to 30 percent.

The City intends for this measure to enforce local standards for energy efficiency that are 15 percent above CalGreen, remove barriers to achieving higher energy efficiency in buildings, and develop incentives to encourage high performance.

GHG Reduction Potential by 2020
39,009 MTCO₂e/year

- Adaptation/Resiliency**
- Adjust to Energy Demand Increases
 - Prepare for Energy Supply Variability
 - Adjust to Temperature Increases
 - Reduce the Urban Heat Island Effect
 - Prepare for Variable Water Supplies
 - Reduce Home and Building Maintenance Costs
 - Improve Impaired Air Quality

- Community/Public Co-Benefits**
- Increase Home and Building Equity and Resale Value
 - Lower Operating Costs for Businesses
 - Lower Energy and Fuel Bills
 - Lower Energy Demand
 - Conserve Water





STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.3: INCREASE ENERGY EFFICIENCY IN NEW BUILDINGS

Action 3.3.1 Achieve energy efficiency through increased residential density. Greenhouse gas emission reductions will be achieved through greater energy efficiency as new housing types shift from single-family to attached/multi-family, consistent with the General Plan.

GHG Reduction Potential 8,474 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
					✘

Responsibility: Community Development

Target Indicators: 39 percent of the city’s housing stock as multi-family by 2020.

Action 3.3.2 Require Tier 1 CalGreen Building Code standards for all new development starting in 2014.

GHG Reduction Potential 30,535 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
	✘				✘

Responsibility: Community Development

Target Indicators: 15 percent higher energy efficiency performance compared with basic mandatory CalGreen requirements

Supporting Actions:

- Prepare passive solar design guidelines for new development, customized for Sacramento's latitude and solar angle.
- As part of the Green Development Code Update process, conduct a comprehensive review and update of existing codes and policies to remove barriers related to the implementation of green building strategies and to include incentives that are not currently in the City Code (i.e., Green Development Code).
- Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD, PG&E) to prepare a Contractor and Developer "Did You Know?" checklist that identifies how to incorporate low- or no-cost energy efficiency designs, features, and materials into a project.
- Develop and maintain Impact Fee Reduction schedules for sewer, water, parks, and other services that are based on a building’s performance and its impacts on public infrastructure and services.
- Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD, PG&E) to develop a database that maintains Alternative Means Requests (AMRs) and associated research and findings that can be accessed by local building staff within the region. This database would allow easy access to AMRs and applications, allowing staff to quickly assess what additional information/testing is needed to monitor local green building projects. It could also eventually be linked to a best practices green building forum.

STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.3: INCREASE ENERGY EFFICIENCY IN NEW BUILDINGS

Supporting Actions:

- Develop a Green Building Incentive Program that encourages and rewards projects that voluntarily achieve high performance green building standards (i.e. LEED or GreenPoint Rated certification) beyond mandatory CalGreen requirements.
- Continue to partner with SMUD to promote energy efficiency incentive programs for new construction, such as Savings by Design and SolarSmart Homes.
- Adopt energy-efficient outdoor lighting standards for new development. The following provisions should be taken into consideration to reduce energy consumption by future outdoor lighting:
 - Consider leveraging existing grant money to help fund this initiative. For example, both the City of Sacramento and the County have obtained funding from the Department of Energy Efficiency and Conservation Block Grant to convert existing high pressure sodium and mercury vapor streetlights to induction and LED streetlights.
 - Encourage lighting along the urban-rural edge not to exceed one-half the current maximum lighting standard.
 - Balance public safety with limits on continuous all night outdoor lighting in parks, sport facilities, construction sites, and other relevant areas.
 - Explore options for the use of bi-level/sensor-activated outdoor lighting or low-level security lighting with photo sensors.
- Update the City project selection process for publicly-subsidized buildings to include sustainability as a priority in both the bidding process and as an evaluation criterion.
- Encourage builders to supply ENERGY STAR appliances and HVAC systems for all new residential developments.
- Require that all new non-residential developments install high-efficiency boilers, where applicable, with a minimum of 85 percent efficiency.
- Develop and adopt building design guidelines that require conveniently located exterior electrical outlets to improve the ease of using electrical landscaping equipment and vehicles rather than gas-powered equipment.
- Work with energy providers (e.g., SMUD, PG&E) to promote the installation of solar thermal swimming pool heaters and solar water and space heating systems in existing and new developments.
- Work with energy providers (e.g., SMUD, PG&E) to encourage the industrial sector to participate in co-generation programs, where feasible.





STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.4: INCREASE RENEWABLE ENERGY GENERATION AND USE

Renewable energy is energy derived from naturally replenishing resources, such as sunlight, wind, geothermal heat, water flows, and biomass. The use of renewable energy sources in place of fossil fuels substantially reduces GHG emissions. The California Renewable Energy Resources Act (SB 1-2) obligates California electricity providers to provide at least 33 percent of their power from qualified renewable resources by the year 2020. As Sacramento's electricity provider, SMUD will be responsible for meeting this requirement. Residents and businesses can choose to buy energy from renewable sources through SMUD's Greenergy® program, which matches up to 100 percent of electric needs with purchases of renewable resources.

Solar and wind are potential renewable energy sources that Sacramento residents and businesses can generate on their own. Technologies that use these sources to generate renewable energy (e.g., solar panels or small-scale wind energy systems) can be added to existing homes and businesses or included in the construction of new buildings. However, increasing renewable energy generation in buildings is not without its challenges. The ability of residents and businesses to implement this measure will require local

policies and regulations that support and allow them; coordination with SMUD and third party agencies and organizations to incorporate them into the electricity grid; and access to a variety of funding mechanisms to fund construction and maintenance.

The methods used to generate energy, primarily electricity, also influences the generation of GHG emissions. The cost and accessibility of fossil fuels (e.g., coal, oil, natural gas) to generate energy have resulted in the production of significant amounts of GHGs. Renewable energy sources, on the other hand, generally produce nominal GHG emissions. Energy providers offer direct opportunities for residents and businesses to use renewable sources of energy through programs and their choice of energy sources. But, residents and businesses also play a role in increasing renewable energy generation.

The City can also help to accelerate the increase of renewable energy by requiring new construction to be as efficient as possible, while also phasing in the incorporation of renewable energy onsite for larger projects. This will help move the community closer to achieving zero net energy in all new construction by the year 2030.

GHG Reduction Potential by 2020
143,322 MTCO₂e/year

- Adaptation/Resiliency**
- Prepare for Energy Supply Variability
 - Improve Efficiency of Infrastructure
 - Reduce the Urban Heat Island Effect
 - Improve Impaired Air Quality

- Community/Public Co-Benefits**
- Increase Energy Independence
 - Lower Energy and Fuel Bills
 - Create Jobs
 - Increased Competitive Advantage
 - Increase Home and Building Equity and Resale Value

STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.4: INCREASE RENEWABLE ENERGY GENERATION AND USE

Action 3.4.1	Update the Development Code to require that new single-family and multi-family residential projects of ten units or more install photovoltaic systems and participate in SMUD’s SolarSmart Homes program.				
GHG Reduction Potential 71,134 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
<p>Responsibility: Community Development</p> <p>Target Indicators: 84 percent of new eligible units creating 40,108 systems</p>					
Action 3.4.2	Update the Development Code to require that new commercial developments greater than 25,000 square feet and industrial developments greater than 100,000 square feet install renewable energy systems (including photovoltaic systems) that generate 15 percent of the project’s energy demand onsite.				
GHG Reduction Potential 1,717 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
<p>Responsibility: Community Development</p> <p>Target Indicators: 15 percent of eligible projects’ energy generated through on-site renewable energy generation</p>					
Action 3.4.3	Support SMUD’s Greenergy Program, which allows customers to opt in to pay an additional fee on their utility bill each month to promote local renewable energy projects and expanded use of renewable power supply.				
GHG Reduction Potential 70,471 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
<p>Responsibility: SMUD</p> <p>Target Indicators: Constant or increased participation in the program</p>					
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Adopt a solar building permit fee schedule based on cost recovery of staff time, rather than valuation, to help reduce the permitting costs of solar PV and water heating systems. • Work with SMUD and other regional partners to streamline the permitting and interconnection process for solar photovoltaic systems. • Amend the Development Code to address how photovoltaic arrays may be used to meet parking lot shading requirements. If appropriate, expand the conditions under which shading credit can be given for photovoltaic arrays. If feasible, work with SMUD to identify priority areas and track progress. 					





STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.4: INCREASE RENEWABLE ENERGY GENERATION AND USE

Supporting Actions:

- Continue to explore the feasibility of an advanced waste-to-energy conversion program, focusing on organics or other non-recyclable, problematic portions of the waste stream. Consider a “demonstration energy park,” and identify future opportunities for a waste-to-energy program on a regional, cooperative basis with SMUD, Sacramento County, and others.
- Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD and PG&E) to develop and maintain a "shovel ready" program for renewable energy development. Considerations should include:
 - Collaborating with SMUD in identifying possible sites for production of renewable energy using local renewable resources such as solar, wind, small hydro, and biomass.
 - Evaluating potential land use, environmental, economic, and other constraints affecting the development of renewable resources within city limits.
 - Establishing a protocol for reviewing a proposed alternative energy project against existing City policies and ordinances. The protocol should identify optimal locations and best means to avoid noise, aesthetic, and other potential land use compatibility conflicts.
- Promote the City’s existing “Clean-Tech” zone to help draw clean, renewable energy plants and other industries to locations within the city.



Technologies that use renewable sources to generate energy will be added to existing homes and businesses, thereby lowering gas and electricity bills and increasing energy independence.

STRATEGY 4

WASTE REDUCTION AND RECYCLING



CO-BENEFITS

- Reduce Waste
- Lower Grocery and Merchandise Bills
- Improve Access to Local Food
- Support Local Economy
- Lower Energy Demand
- Create a Healthy Living Environment
- Improve Public Health
- Increase Social Interaction
- Create Climate Action and Sustainability Leaders
- Improve Quality of Life

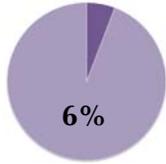
Reducing the production, consumption, and disposal of waste materials, while encouraging reuse, recycling, and composting.





STRATEGY 4

WASTE REDUCTION AND RECYCLING



of total GHG reductions
= 79,404 MMTCO₂e/year

MEASURES

1. Sustainable Production and Consumption
2. Source Reduction, Diversion, Recycling, and Reuse
3. Greenwaste and Composting

GOALS:

Achieve 75 percent diversion of solid waste by 2020, and work towards becoming a “zero waste” community by 2040.

Greenhouse gas emissions may result at several stages in the life of a product, including pre-consumer commercial or industrial production and post-consumer disposal. In Sacramento, 5.3 percent of GHG emissions are associated with solid waste generation and disposal. Our decisions about the goods we consume and how we dispose of them can greatly impact the amount of GHG emissions we produce. Extracting and processing raw materials for consumer products and food and distributing them to consumers creates GHG emissions on a global scale. Disposing of packaging, used products, and organic wastes (e.g., food scraps, yard clippings, paper, wood) creates GHG emission when it is buried in landfills and emits GHGs during decomposition.

The City of Sacramento is committed to helping its residents and businesses reduce waste at the source and increase recycling of materials that would otherwise end up in a landfill. The measures in this section support the City’s goal to achieve 75 percent waste diversion by 2020, and zero waste to landfills by 2040. By engaging in more sustainable production, the commercial and industrial sectors can reduce the emissions related to manufacturing new products. Residents can also reduce emissions by consuming less, therefore, reducing the amount of waste produced. Finally, reusing and recycling materials can reduce GHG emissions by saving energy required for production and disposal and reducing the amount of solid waste-related GHGs in landfills. Residents, developers, and businesses can all engage in recycling practice and use recycled products to take advantage of these savings.



STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.1: SUSTAINABLE PRODUCTION AND CONSUMPTION

From the extraction and processing of raw materials to the manufacture, distribution, storage, and disposal of goods, GHG emissions are produced at various stages over the life of a product. Similar goods may differ dramatically in their lifecycle emissions. For example, food shipped from foreign countries, packaged, and sold in supermarkets requires more energy inputs than food grown and consumed locally. To reduce waste at the pre-consumer commercial level, Sacramento residents, businesses, and developers can purchase and use goods and materials that are made using minimal energy and packaging, transported short distances, and meant for extended use. Residents can also grow their own food at home or in their communities, eliminating the need to purchase some goods and saving money.

The City of Sacramento intends for this measure to foster better consumption choices among local residents and businesses. The City has several actions already underway to encourage residents to participate in sustainable consumption including the City’s community garden program, in which the City operates several permanent community gardens; updating

codes to allow front yard vegetable gardens and backyard chicken raising; and working with local utilities to promote paperless billing. The City will continue to promote local businesses and farmer’s markets so residents have more opportunities to buy products produced locally. The City will also promote junk mail prevention programs to ensure that businesses produce less waste.



Adaptation/Resiliency

- Reduce the Urban Heat Island Effect
- Adjust to Energy Demand Increases
- Create a Climate-Resilient Economy

Community/Public Co-Benefits

- Reduce Waste
- Lower Grocery and Merchandise Bills
- Lower Energy Demand
- Support Local Economy
- Improve Access to Local Food
- Improve Public Health
- Improve Quality of Life





STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.1: SUSTAINABLE PRODUCTION AND CONSUMPTION

Supporting Actions:

- Work with the Rental Housing Association of Sacramento to inform and advise rental property owners and managers of the recycling requirements contained in the Multi-family Recycling Ordinance (SWA Ordinance 21).
- Develop a junk-mail prevention outreach program that helps residents to voluntarily opt out of receiving junk mail.
- Work with utilities and other public service providers (e.g., SMUD, PG&E, Comcast) to promote and encourage paperless billing and payment options.
- Continue to work with community partners and local neighborhood groups to promote and support access to fresh, locally-grown food, encourage the purchase of locally-produced food, and sponsor public education events related to gardening and locally-produced food.
- Continue to seek funding to develop and maintain demonstration gardens in each Council District.
- Work with regional partners to identify funding to develop and maintain a regional demonstration garden and training center for public education on community gardens and rooftop gardens.
- Continue to provide incentives (e.g., Development Impact Fee Deferral Program; Economic Development Treatment Capacity Bank; Recycling Pledge; reduced size/cost garbage containers) to encourage the development of a local market for recycled materials.
- Develop and maintain a sidewalk grinding option for sidewalk maintenance rather than demolishing and re-paving sidewalks.



City programs will support permanent community gardens for residents to grow their own food.

STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.2: SOURCE REDUCTION, DIVERSION, RECYCLING, AND REUSE

The average Californian throws away six pounds of trash daily.² As a result, the City of Sacramento emits 241,862 MTCO₂e in associated GHG emissions each year. The City of Sacramento has adopted a target to achieve zero waste to landfills by 2040. Zero waste means that no discarded material is sent to landfills. The most effective ways to reduce the amount of waste sent to landfills is to reduce, reuse, and recycle. Solid waste diversion can be achieved by composting and separating waste to effectively dispose of organic material. Durable goods can be reused in traditional or creative new ways. Recycling creates a cycle where certain products may never have to enter a landfill, because old materials are used to create new ones.

The City has already made progress toward increasing waste diversion and recycling. In 2009 the City adopted a Construction and Demolition Ordinance and amended it in 2010 per CalGreen diversion requirements, which became effective on January 1, 2011, and requires a minimum 50 percent of construction wastes generated by the demolition and remodeling of buildings to be recycled or reused. The Solid Waste Authority (SWA), of which the City of Sacramento is a

member, adopted a Business and Multi-Family Complex Recycling Ordinance. As part of this program, educational materials explaining recycling requirements are provided to owners and managers of businesses.

The City also offers door-to-door pick-up services and drop-off locations for household batteries and fluorescent lamps, and participates in the California Take-it-Back Partnership, a collaboration effort among businesses and State and local agencies to provide convenient locations for consumers to take back certain types of waste, including batteries, fluorescent lamps, and electronic waste.

By implementing a system of incentives and mandates, the City of Sacramento will encourage residents, businesses, and collection providers to recycle more and reduce waste. The SWA will also begin waste reduction consultations with businesses and multi-family complexes that tend to be major waste generators, and require commercial businesses to increase the amount of waste diverted from landfills.

The City will increase route efficiency for solid waste pickup trucks and transport waste to a closer landfill, thereby reducing the energy used to transport and dispose of waste.

GHG Reduction Potential by 2020
79,404 MTCO₂e/year

Adaptation/Resiliency

- Adjust to Energy Demand Increases

Community/Public Co-Benefits

- Reduce Waste
- Lower Grocery and Merchandise Bills
- Lower Energy Demand
- Increase Public Awareness of Climate Change





STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.2: SOURCE REDUCTION, DIVERSION, RECYCLING, AND REUSE

Action 4.2.1	In order to meet the long-term waste diversion target (i.e., zero waste by 2040), achieve interim waste reduction goals of 75 percent diversion from the waste stream by 2020 and 90 percent diversion from the waste stream by 2030.				
GHG Reduction Potential 79,404 MTCO ₂ e/year	Implementation Time Frame				
	2012-2015	2015-2020	2020 +	Annual	Ongoing
		✘	✘		
Responsibility: Department of Utilities					
Target Indicators: 3.45 lb of waste/capita per day by 2020; 1.38 lb of waste per capita per day by 2030					
Supporting Actions: <ul style="list-style-type: none"> Conduct waste-reduction consultations with major waste generators (e.g., businesses and multi-family complexes) and recommend strategies to reduce waste and increase recycling while reducing costs. Work with commercial solid waste customers and franchise haulers to increase diversion rates to 30 percent (Business Recycling Ordinance). Continue to participate in the California Take-It-Back Partnership, a collaborative effort among businesses and State and local agencies to provide convenient locations for consumers to take back certain types of waste, including batteries, fluorescent lamps, compact-fluorescent light (CFL) bulbs, and other electronic devices. Continue to offer alternatives for e-Waste recycling and drop-off locations for household batteries and fluorescent lamps, including: <ul style="list-style-type: none"> Promoting businesses that take back universal waste and e-waste. Encouraging and supporting extended producer responsibility. Support efforts to implement the Solid Waste Authorities Multi-family Recycling Ordinance, which requires apartments and multi-family dwellings of 5 or more units to have a recycling program. Support the development and implementation of model recycling lease language for residential and commercial building managers. As funding becomes available, expand availability of public recycling containers in public parks, along commercial corridors and public right-of-ways, and reduce the waste generated from public events. Develop and implement residential and commercial waste audit programs that educate residents and businesses on what materials can and cannot be recycled and when and where to recycle. 					



STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.3: GREENWASTE AND COMPOSTING

Compostable organics make up 30 percent of California's overall waste stream, contributing over 12 million tons annually to landfills (California Integrated Waste Management Board). Landfills are one of the largest sources of methane, which is produced when organic waste decomposes in an environment without oxygen (EPA). Methane is a potent GHG with 21 times the warming potential of carbon dioxide.

Composting is a natural way of recycling organic material and nutrients back into the earth. When food and greenwaste decompose in a controlled setting, the result is a deep, rich soil material that retains moisture, prevents erosion, and promotes soil fertility for healthy plants. Traditional composting is usually done using only organic material and water to facilitate the efforts of decomposing organisms (e.g., bacteria) or vermicomposting (i.e., worms). Either type of composting may be done on a large-scale in a centralized facility or on a small scale, such as a resident's backyard.

Composting reduces GHG emissions by diverting organic waste from landfills where anaerobic digestion produces methane. Well-managed compost facilities decompose organic materials through a primarily aerobic process, which does not produce methane.

The City has several existing programs to promote composting. Through the Containerized Yard Waste Program, the City collects residential greenwaste. The City also currently promotes backyard composting through free backyard composting seminars and information on vermicomposting on the City website. The City of Sacramento plans to increase home composting of food and yard waste through educational programs and resources. The City will also implement a food waste recycling program and a garden refuse processing plant for residents and businesses to participate in composting at the community level.



Adaptation/Resiliency

- Improve Impaired Air Quality
- Adjust to Energy Demand Increases

Community/Public Co-Benefits

- Reduce Waste
- Lower Energy Demand
- Improve Traffic/Air Quality
- Create a Healthy Living Environment
- Increase Social Interaction
- Create Climate Action and Sustainability Leaders





STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.3: GREENWASTE AND COMPOSTING

Supporting Actions:

- Continue to support area wood grinding facilities that recycle greenwaste material for mulch and other groundcover applications.
- Develop a food waste recycling program that diverts food from landfills into composting processes.
- Promote home composting and vermiculture to reduce GHG emissions by reducing the amount of organic waste (e.g., cellulose-based waste, paper, food waste) that is sent to landfills.
- Increase participation in and use of the Containerized Yard Waste Program by enhancing education and outreach to residents on the topic of composting leaves, grass trimmings, tree and shrub prunings, Christmas trees, and sod (with dirt removed).
- Support the Solid Waste Authority's Sacramento Greencycle effort (i.e., regional garden refuse processing plant).
- Support efforts to remove organics from landfills and produce renewable energy from organic waste, using technology such as gasification anaerobic digestion, as planned for Sacramento County's South Area Transfer Station Energy Park.



The City will promote backyard composting through free backyard composting seminars and information on vermicomposting on the City website.

STRATEGY 5

WATER CONSERVATION AND WATER EFFICIENCY



CO-BENEFITS

- Conserve Water
- Protect Water Quality
- Lower Water and Sewer Bills
- Increase Home and Building Equity and Resale Value
- Increase Energy Independence
- Increase Public Awareness of Climate Change
- Create Climate Action and Sustainability Leaders

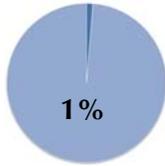
Increasing water conservation and management and wastewater treatment practices that reduce energy demand and promote efficient use of this limited resource.





STRATEGY 5

WATER CONSERVATION AND WATER EFFICIENCY



of total GHG reductions
= 17,267 MTCO₂e/ year

MEASURES

1. Water Conservation
2. Wastewater Treatment

GOAL:

Achieve a 20 percent reduction in per capita water consumption by the year 2020.

Greenhouse gas emissions are produced through the energy used to pump, transport, and treat water and wastewater. The City of Sacramento recognizes the importance of water conservation and efficient management and treatment of wastewater. The City's goal is to achieve a 20 percent reduction in per capita water consumption by the year 2020. Water is a precious and limited resource that must be conserved through water-efficient appliances, landscaping, and practice. Water should also be managed to ensure that the resource is stored and distributed efficiently.

Increasing the efficiency of water distribution and reducing consumption will have multiple benefits beyond the reduction of water-related GHG emissions. It can make more water available to improve American River flow conditions; it can improve water

quality in the American and Sacramento Rivers and the Delta; it can improve the long-term reliability of the region's water supply; it can lower the cost of water service and associated energy costs to the City's water and wastewater customers; and it can produce energy.

Increasing the efficiency of water distribution and reducing consumption will have multiple benefits beyond the reduction of water-related GHG emissions.



STRATEGY 5: WATER CONSERVATION AND WATER EFFICIENCY



MEASURE 5.1: WATER CONSERVATION

While GHG emissions from the energy needed to pump, transport, and treat water and wastewater make up only 1.7 percent of Sacramento’s total GHG emissions, climate change has important implications for the limited resource. Water demand is expected to rise as population growth occurs and average temperatures and extreme heat events increase. At the same time water supplies are expected to decrease due to less Sierra snowpack and variable precipitation.

Sacramento’s water sources include the Sacramento and American Rivers and groundwater wells. Increasing the efficiency of water distribution and reducing consumption will have the dual benefit of reducing GHG emissions and helping the City adapt to future impacts of climate change. To maintain existing water supplies Sacramento will need to use conservation measures that reduce demand for and consumption of water.

One of the City’s projects with the largest potential for water conservation is the installation of water meters. The City began installing water meters in 2005 to transition customers to a metered water pricing structure. The City transitioned customers to a metered rate in 2010 by expanding the use of water meters and AMI technologies. Residents and businesses can now monitor their water consumption and change their behaviors to use less water.

The City has already completed or initiated several actions to conserve water. The City has an Outdoor Water Conservation Ordinance, last updated in 2009, that limits outdoor water use and establishes penalties for violations. Additionally, in 2009 the City adopted the State Model Water Efficient Landscape Ordinance to ensure efficient landscapes in new developments and reduce water waste in existing landscapes. The City maintains a Water Wise Demonstration Garden and a Residential Assistance Ambassador Program to educate about water conservation. The City also provides “Water Wise House Calls” in which customers can request a trained Water Conservation Specialist to visit their home or business to identify potential water savings.

The City of Sacramento will further conserve water through several actions. Waterwise audits for the top water users, Blue Thumb conservation programs, and energy-efficient appliance rebates will educate the public on the importance of conservation, while providing residents opportunities to be more water-conscious. Developer checklists for graywater piping and Low Impact Development (LID) standards will increase the efficient use of water in new buildings. Finally, the City of Sacramento will prepare and update plans addressing urban water management, water conservation, water supply, and urban drought.

GHG Reduction Potential by 2020

17,267 MTCO₂e/year

Adaptation and Resiliency

- Prepare for Variable Water Supplies
- Prepare for Impaired Water Quality
- Adjust to Energy Demand Increases
- Prepare for Energy Supply Variability
- Improve Efficiency of Infrastructure
- Reduce Damage to Infrastructure
- Adjust to Energy Demand Increases
- Prepare for Increased Safety Hazards

Community/Public Co-Benefits

- Conserve Water
- Protect Water Quality
- Lower Water and Sewer Bills
- Lower Energy Demand
- Lower Energy and Fuel Bills
- Increase Home and Building Equity and Resale Value





STRATEGY 5: WATER CONSERVATION AND WATER EFFICIENCY

MEASURE 5.1: WATER CONSERVATION

Achieve a 20 percent reduction in per-capita water use by 2020 consistent with the State’s 20x2020 Water Conservation Plan (California Water Resources Control Board, 2010) using the following programs:

Action
5.1.1

- Installing water meters in residential units constructed prior to 1992 and in new developments, both commercial and residential, automated meter infrastructure (AMI) in all residential water metering. Water meters will result in all residents paying for water according to their usage. AMI will give residents information about inefficient water use.
- Require CalGreen Tier 1 Water Efficiency measures in all new construction.
- Require CalGreen Tier 1 Water Efficiency measures as part of the Residential Energy Conservation Ordinance (RECO).
- Require CalGreen Tier 1 Water Efficiency measures as part of the Rental Housing Energy and Water Efficiency Program.

GHG Reduction Potential
17,267 MTCO₂e/year

Implementation Time Frame

2012-2015	2015-2020	2020 +	Annual	Ongoing
✘	✘	✘		

Responsibility: General Services, Community Development, Department of Utilities

Target Indicators: Water metering and AMI: 20 percent reduction in water use
 Residential CalGreen Tier 1 Water Efficiency: 20 percent indoor 60 percent outdoor increase in water use efficiency
 Non-residential CalGreen Tier 1 Water Efficiency: 30 percent indoor, 60 percent outdoor increase in water use efficiency
 RECO: 20 percent reduction in water use
 Rental Housing Energy and Water Efficiency Program: 20 percent reduction in water use

Supporting Actions:

- Develop a water conservation program to be coordinated with the Rental Housing Energy and Water Efficiency Program.
- Develop and implement a voluntary landscaping water efficiency certification training program for irrigation designers, installers, and property managers.
- In conjunction with other water conservation measures and programs, continue conducting voluntary Water Wise House Calls (i.e., water audits) for city residents and businesses.
- Administer Water Wise Surveys (audits) to the top commercial, institutional, and industrial (CII) water users and homeowner associations (HOAs) with high water use.
- Continue administering the Residential Assistance Ambassadors Program that trains volunteers to provide door-to-door residential assistance (surveys) to targeted areas of the city.
- Continue to offer the Water Conservation Rebate Program, which provides Toilet Rebates and Washer Machine Rebates to city residents and businesses who install High Efficiency Toilets and Tier 3 Washer Machines.
- Use water conservation gardens like the one at the Glen Ellen water conservation office, to demonstrate and promote water conserving landscapes.

STRATEGY 5: WATER CONSERVATION AND WATER EFFICIENCY



MEASURE 5.1: WATER CONSERVATION

Supporting Actions:

- Promote "River Friendly Landscaping" techniques which include the use of native and climate appropriate plants; sustainable design and maintenance; underground (water-efficient) irrigation; and yard waste reduction practices.
- Develop and adopt a Water Conservation Strategy as part of the Urban Water Management Plan to implement the best management practices (BMP) listed in the California Urban Water Conservation Council MOU.
- Develop and implement a Conjunctive Use Program that transitions the city from a passive water pumping scheme to an active management program that plans and varies the amount of groundwater pumped based on surface water availability.
- Develop an automated operating system for the distribution of water throughout the city to increase efficiency and reduce energy demand.
- Update and/or establish criteria and standards to require water efficiency upgrades as a condition of issuing permits for renovations or additions of existing buildings that involve plumbing fixtures consistent with SB 407, which requires single-family homes and multi-family and commercial properties built before January 1, 1994, to upgrade noncompliant plumbing fixtures to water-efficient models at transfer of property.
- Continue providing public education (e.g., Bluethumb Program) and conducting outreach campaigns to promote water conservation efforts. Programs should highlight specific water-wasting activities to discourage, such as the watering of non-vegetated surfaces and using water to clean sidewalks and driveways, and educate the community about the importance of water conserving techniques. Water efficiency training and certification for irrigation designers, installers, and property managers should also be offered.
- Develop and implement a water conservation program in coordination with the Rental Housing Energy and Water Efficiency Program to audit plumbing fixtures in rental properties.
- Develop and adopt regional Low Impact Development (LID) standards, policies, and update codes and ordinances to require LID for new development and redevelopment priority projects to reduce stormwater. Promoting use of native plants with low water requirements for the landscape-type of LID facility can help conserve water.
- Develop guidelines and building standards for installation and use of composting toilets.



STRATEGY 5: WATER CONSERVATION AND WATER EFFICIENCY

MEASURE 5.2: WASTEWATER TREATMENT

Wastewater includes sewage materials produced by residents, wastewater from industrial processes, and stormwater runoff captured during rain storms. Wastewater treatment processes produce GHG emissions from energy used to pump, treat, and dispose of wastewater and gases produced from decomposing and treated waste. The Sacramento Regional County Sanitation District (SRCSD) and Sacramento Area Sewer District (SASD) provide regional wastewater conveyance and treatment services to residential, industrial, and commercial customers in Sacramento and surrounding areas. Most of Sacramento's wastewater travels to and is treated at the Sacramento Regional Wastewater Treatment Plant before being discharged into the Sacramento River.

Because the City of Sacramento has a limited role in the treatment and disposal of wastewater, most of the City's efforts to address this area will be through coordination and support. However, several of the water conservation actions described in the Climate Action Plan will also aid efforts to reduce GHG emissions produced during the wastewater

treatment process. Low-flow plumbing, water metering, and reduced outdoor water use through best management practice measures will result in less wastewater produced and less energy needed to transport and treat wastewater. Likewise, water efficient landscaping will result in less runoff and less energy needed to transport and treat water. Use of Low Impact Development practices for stormwater management will help improve runoff quality and reduce runoff volume.

Beyond water conservation measures, the City will support regional efforts to reduce the amount of GHGs (e.g., methane) produced and/or released into the atmosphere at wastewater treatment facilities. Captured methane can be reused as an efficient energy resource for creating electricity. SRCSD is in the process of enhancing its existing digestion and gas collection systems with a co-digestion facility which will enable direct digestion of energy rich materials that may otherwise be landfilled. The City intends to support these regional efforts to make wastewater treatment process more efficient and produce fewer GHG emissions.

Adaptation and Resiliency

- Prepare for Impaired Water Quality
- Improve Efficiency of Infrastructure
- Reduce Damage to Infrastructure
- Adjust to Energy Demand Increases

Community/Public Co-Benefits

- Protect Water Quality
- Conserve Water
- Lower Water and Sewer Bills
- Increase Energy Independence

Supporting Actions:

- Support SRCSD efforts to develop and maintain methane recovery and energy production facilities by 2020 by:
 - Evaluating methane emissions and potential capture at primary and secondary clarifiers and force system mains.
 - Maintaining methane recovery systems and digester gas combustion systems at wastewater treatment plants.
 - Developing waste-to-energy projects at 50 percent of wastewater treatment plants.
 - Evaluating potential for biofuel production at the Sacramento Regional Wastewater Treatment Plant.

STRATEGY 6

CLIMATE CHANGE ADAPTATION



CO-BENEFITS

- Improved Traffic/Air Quality
- Increase Home and Building Equity and Resale Value
- Lower Operating Costs for Businesses
- Lower Energy Demand
- Lower Energy and Fuel Bills
- Increase Energy Independence
- Conserve Water
- Protect Water Quality
- Lower Water and Sewer Bills
- Support Local Economy
- Increase Competitive Advantage
- Create Jobs
- Prevent Destruction of Natural Habitats
- Improve Access to Local Food
- Increase Access to Open Space
- Increase Recreation Choices
- Create a Healthy Living Environment
- Improve Public Health
- Improve Quality of Life
- Create Climate Action and Sustainability Leaders

Planning for and adapting to future climate change risks and creating resilient communities, economies, and environments.





STRATEGY 6

CLIMATE CHANGE ADAPTATION

MEASURES

1. Prepare for Increases in Average Temperatures
2. Preserve and Expand Water Sources and Respond to Variable Water Supplies
3. Respond to Increases in Energy Demands and Variable Supplies
4. Protect Public from Increased Health Risks and Safety Hazards
5. Promote a Climate-Resilient Economy
6. Respond to Potential Impacts on Public Infrastructure
7. Protect Natural Ecosystems and Migration Routes

GOAL:

A community that is resilient to the effects and impacts of climate change.

While many of the other strategies address GHG emissions reductions to prevent further climate change, the climate change adaptation strategy prepares Sacramento for dealing with the future impacts of climate change and creating climate-resilient communities. As described in Chapter 3 of the Climate Action Plan, Sacramento must prepare for warmer and more extreme temperatures, decreased water supply, drought, flooding, increasing energy and water demand, and public health risks. The City of Sacramento has identified the goal of creating a climate change-resilient community. In addition to the measures included in this Strategy, many GHG reduction measures included in the other Strategy sections also provide adaptation benefits. For example, water conservation and management, energy efficiency, natural resource conservation, and urban forests are all strategies with adaptive co-benefits, which will help the city prepare for and cope with the impacts of climate change.

By monitoring climate change impacts, staying up-to-date on climate change science, and incorporating climate change thinking into normal planning and other activities, the City will be better prepared for likely future effects and impacts. For example, better planned and constructed infrastructure improvements will allow the City to better manage extreme weather events, flooding, and increasing energy demand. Revised economic and governance strategies that take into account a changing climate will allow the city to grow and thrive despite climate change impacts.



STRATEGY 6: CLIMATE CHANGE ADAPTATION

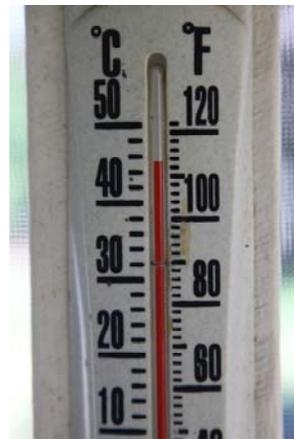


MEASURE 6.1: PREPARE FOR INCREASES IN AVERAGE TEMPERATURES

In California average temperatures are projected to rise as much as 9 degrees Fahrenheit by 2100.³ This is especially pertinent for Sacramento where extreme heat events are likely to increase and urban heat islands may intensify already high temperatures. Characterized by asphalt roads, concrete roofs, and energy use, urban developments modify the natural landscape using materials that create and/or retain heat. “Green” infrastructure, such as urban forests and rooftop gardens, absorb less heat than urban infrastructure and reflective or light-colored pavement absorb less of the sun’s heating rays. By reducing heat retention in urban heat islands today, the City will be better-prepared for rising temperatures in the future.

The City of Sacramento has already begun an initiative to prepare for higher temperatures and combat the urban heat island effect. The City plans to continue the Parks and Recreation tree planting program with the goal of adding 1,000 new trees annually. Through demonstration gardens and an updated Development Code, the City will promote the use of community gardens on vacant property and rooftops. The City

will also develop ordinances to require inclusion of shade trees and reflective pavement in parking lots and reflective or “green” roofs on new buildings. In addition, the City will conduct outreach to businesses and residents in order to promote the benefits of cool roofs in reducing the negative effects of rising temperatures. Finally, by promoting “Leading Edge” sustainable design for energy efficiency (e.g., shade and renewables), Sacramento will be better prepared to deal with temperature increases in the future.



Adaptation/Resiliency

- Adjust to Temperature Increases
- Reduce the Urban Heat Island Effect
- Improve Impaired Air Quality
- Adjust to Energy Demand Increases
- Reduce Home and Building Maintenance Costs

Community/Public Co-Benefits

- Improved Traffic/Air Quality
- Lower Energy Demand
- Lower Energy and Fuel Bills
- Increase Building Rent/Lease Rates
- Lower Operating Costs for Businesses
- Increase Access to Open Space
- Create a Healthy Living Environment





STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.1: PREPARE FOR INCREASES IN AVERAGE TEMPERATURES

Supporting Actions:

- Continue tree planting and tree replacement programs with a goal of adding 1,000 new trees annually.
- Update park development standards to implement "Leading Edge" sustainable design. Coordinating with Urban Forest Services and Sacramento Tree Foundation to pursue grant funding to add trees to parks.
- Identify funding for the development and implementation of a street tree master plan for the Central City area as part of the next phase of the Downtown Urban Design Plan.
- Continue to work with local and regional tree experts and the Tree Foundation to keep an up-to-date list of preferred tree species that will thrive in Sacramento's current climate, and continue to survive in hotter, drier future climate conditions.
- Work with labor organizations, the business community, and county and State health and safety agencies to publicize programs and standards for preventing heat-related illness in employees who work outdoors. Continue to operate cooling centers, and publicize precautions for preventing heat-related illness during heat waves.
- Develop informational materials for the public counter to encourage residents to install cool roof technologies and rooftop gardens and provide guidance to contractors and staff.
- Explore options in the Green Development Code Update process to improve parking lot shading requirements to improve the health and vigor of the trees. Allow additional trees and landscaping to be installed in existing parking lots without requiring replacement of lost parking spaces (when increase in building area or change in use is not being proposed).
- Explore options in the Green Development Code Update process to require paving for new development to meet minimum Solar Reflectance Index (SRI) values; and incorporate cool pavement technology into the regular maintenance of existing streets, sidewalks, parking areas, and bike lanes.



Green infrastructure, such as urban forests and rooftop gardens, will absorb less heat and increase reflection, thereby lowering urban temperatures.

STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.2: PRESERVE WATER SOURCES AND RESPOND TO VARIABLE SUPPLIES

With reduced snowpack, variable precipitation levels, rising temperatures, and drought on the horizon, Sacramento will be left with an unpredictable water supply. Preparing for variable water supply involves the preservation and expansion of existing water sources by retaining water quality, increasing storage and distribution capacity and efficiency, promoting conservation, and locating new resources.

Water resources are usually considered in three categories: potable water, gray water, and wastewater. Potable water is freshwater that can be used for drinking. Wastewater includes any used water or stormwater that is not suitable for reuse until it has been treated. However, gray water is an underutilized resource produced from activities such as laundry, dishwashing, and bathing. The most sustainable way to prepare for variable water supply in the future is to recycle water, reduce water use, and prevent water waste in order to practice conservation and conserve existing supply.

The City of Sacramento has several actions underway to encourage residents to conserve water resources and the City will continue to update and promote these programs. The proposed changes to the Residential Energy Conservation Ordinance (RECO) will address water efficiency

improvements in plumbing, landscaping, and irrigation in existing buildings. Water Wise House Calls provide information and assistance to homeowners who are interested in conservation methods. Top Water User Surveys (AUDIT) educate the top 25 percent of commercial water users on sustainable habits. The Water Conservation Rebate Program provides rebates to residents and businesses for installing high efficiency toilets and washing machines. The City will also continue efforts to retrofit commercial and residential developments with water meters and Automated Meter Infrastructure (AMI) to monitor customer water use.

The City of Sacramento plans to expand these programs by developing a water pricing structure to encourage conservation, creating a web-based monitoring tool to inform customers about water consumption, and offering additional rebates for dual plumbing systems that allow for gray water systems in new and existing development. Additionally, the City will require CalGreen Tier 1 standards by 2014 that require all new development to demonstrate a 30 percent reduction in use of potable water. A Conjunctive Use Program will allow the City to vary the amount of groundwater pumped based on surface water availability.

Adaptation/Resiliency

- Prepare for Variable Water Supplies
- Prepare for Impaired Water Quality
- Improve Efficiency of Infrastructure
- Reduce Home and Building Maintenance Costs
- Limit Conversion of Habitat and Loss of Native Species

Community/Public Co-Benefits

- Conserve Water
- Protect Water Quality
- Lower Water and Sewer Bills
- Create Jobs
- Increase Public Awareness of Climate Change
- Create Climate Action and Sustainability Leaders





STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.2: PRESERVE WATER SOURCES AND RESPOND TO VARIABLE SUPPLIES

Supporting Actions:

- Seek grant funding to enhance the cost-feasibility of reclaimed water for certain parks and industrial sites.
- Convene and maintain a multi-stakeholder Sacramento Water Conservation Advisory Group (SWCAG) to serve in an advisory capacity to the City regarding water conservation programs and policies, and strategic planning. The SWCAG will (1) encourage effective water conservation policy and water use efficiency, (2) advance public education and awareness, and (3) build collaborative partnerships.
- Continue to pursue grant opportunities for projects and programs that reduce water use in the City's parks and open spaces.
- Update the Development Code to establish a limit on area of impervious surface allowable and require the use of pervious surface materials in new developments to improve groundwater recharge and limit saltwater intrusion.
- Protect open space areas that are currently used for recharging groundwater basins or have the potential to be used for recharge.
- Pursue grant funding to provide resources to incorporate the use of reclaimed water in appropriate parks and industrial sites/processes.
- Promote the use of rain barrels and rain gardens to conserve water, while not increasing the occurrence of disease vectors.
- Continue ongoing Sacramento and American River source water protection efforts, based on follow-up to watershed sanitary survey recommendations, including support of watershed protection efforts such as Keep Our Waters Clean.
- As part of updates to the Water Supply Master Plan, explore the economic costs and benefits associated with recycled water, and identify areas appropriate for additional piping infrastructure.
- Develop a rebate program to provide incentives for the installation of:
 - Complete gray water systems in new and existing buildings.
 - Dual plumbing in new buildings to allow gray water systems to be installed cost-effectively in the future.

STRATEGY 6: CLIMATE CHANGE ADAPTATION



MEASURE 6.3: RESPOND TO ENERGY DEMANDS AND VARIABLE SUPPLIES

A study by the California Energy Commission predicts that energy rates in the SMUD planning area will rise 30 percent by 2020 and energy demand will more than double by 2050 (California Energy Demand 2010-2020 Staff Draft Forecast June 2009). Energy demand will rise due to increased average temperatures, more frequent extreme heat events, supply loss due to variable water resource impacts on hydroelectric power, and normal population increase. However, if population increase slows, household size and density increases, technology improves, and the city increases energy efficiency and reduces energy waste, Sacramento can reduce energy demand to 20 percent below 2005 levels (California Energy Demand 2010-2020 Staff Draft Forecast June 2009). By reducing existing energy demand, Sacramento can slow future demand increases.

The City of Sacramento intends for this measure to encourage residents and businesses to consume 25 percent less energy by 2030 compared to a baseline year of 2005. The City

will increase the amount of available solar energy by amending the City Subdivision regulations and Zoning Code to orient site design in a way that accommodates solar access. The City will increase energy efficiency by developing and implementing a green neighborhood design checklist that includes principles supporting healthy sustainable neighborhoods. The City will implement CalGreen codes requiring Tier 1 energy efficiency standards.

The City will also launch an “energy efficiency challenge” campaign that challenges communities to achieve the highest energy efficiency in return for pooled resources that could be applied to improvements or amenities and a Small Business Energy Efficiency Pilot Program targeting small businesses for energy efficiency upgrades. Finally, the City will explore the feasibility of a waste-to-energy program that will use waste products such as methane as an additional energy source.

Adaptation/Resiliency

- Adjust to Energy Demand Increases
- Prepare for Energy Supply Variability
- Improve Efficiency of Infrastructure
- Reduce Home and Building Maintenance Costs

Community/Public Co-Benefits

- Lower Energy Demand
- Lower Energy and Fuel Bills
- Increase Energy Independence
- Increase Home and Building Equity and Resale Value
- Create Jobs
- Increase Public Awareness of Climate Change

Supporting Actions:

- Work with SMUD to encourage greater enrollment of residents and businesses in energy Demand Response Programs to avoid higher costs of peak energy use and lower energy bills.



STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.4: PROTECT THE PUBLIC FROM HEALTH RISKS AND SAFETY HAZARDS

Disasters such as floods and extreme weather events pose safety risks that threaten city residents and increase the risk of vector-borne disease. Similarly, rising and extreme temperatures increase health risks associated with reduced air quality and heat-related illness. Education and emergency preparedness are important resources in preventing future health risks and safety hazards. By monitoring existing conditions, the City can keep residents informed on how to best protect themselves against the changing elements.

The City of Sacramento takes the safety of its residents very seriously. The City will work with SMUD and others to expand the low-income and Rental Housing Inspection weatherization programs to minimize leakage or damage from extreme weather events. The City will also partner with SMAQMD and the Sacramento-Yolo Mosquito and Vector Management District to enhance awareness of air quality and vector control alerts in order to better protect the health of residents. Finally, the City will coordinate with agencies and universities to continually disseminate information on developments in climate change-related health risks and adaptation strategies.



Adaptation/Resiliency

- Improve Impaired Air Quality
- Prepare for Increased Safety Hazards
- Prepare for Increased Health Risks
- Adjust to Temperature Increases
- Improve Efficiency of Infrastructure
- Reduce Damage to Infrastructure

Community/Public Co-Benefits

- Improve Traffic/Air Quality
- Improve Public Health
- Improve Quality of Life



STRATEGY 6: CLIMATE CHANGE ADAPTATION



MEASURE 6.4: PROTECT THE PUBLIC FROM HEALTH RISKS AND SAFETY HAZARDS

Supporting Actions:

- As part of the implementation of the Sacramento County Multi-Hazard Mitigation Plan, participate in the development of a seasonal multi-hazard public education campaign to enhance public awareness about the risk of natural hazards, disaster preparedness, climate change impacts, and how citizens can reduce exposure to hazard-related losses.
- Update emergency response plans to account for increased potential for black-outs in summertime.
- Continue to participate in and partner with Sacramento Metropolitan Air Quality Management District on programs such as Sacramento Emergency Clean Air & Transportation (SECAT) Program, Spare the Air Program, and the implementation of the 2030 General Plan.
- Support efforts of the Sacramento Office of Emergency Services to continue to operate "cooling centers" during heat events to ensure adequate space is available for residents at all times of the week (including nights), with backup generators.
- Continue to partner with SMAQMD to enhance awareness of air quality index alerts and related outreach and education to protect the health of residents.
- Support the efforts of the Sacramento-Yolo Mosquito and Vector Management District to:
 - Enhance awareness of vector control to protect the health of residents.
 - Require drainage of untreated pools and other water features in home and businesses that are in sale proceedings.
- Continue development and implementation of the City's Integrated Pest Management (IPM) program for City facilities.
- Incorporate climate change effects and impacts into public emergency preparedness education programs, with special consideration given to effective methods to communicate the issue to a general audience.
- Continue to partner with relevant organizations and agencies when updating FEMA and DWR flood hazard maps and the City's Comprehensive Flood Management Plan to consider of the impacts of urbanization and climate change on long-term flood safety and long-term flood event probabilities.
- Implement the City's Comprehensive Flood Management Plan, which addresses emergency preparedness, evacuation, hazardous materials, protection of critical facilities, and development guidelines, and flood insurance outreach to better protect citizens in the event of a major flood event. In conjunction with annual updates of the Plan, provide a report to the City Council on the status of Sacramento's flood protection and related issues.
- Partner with community organizations to perform an analysis of social equity issues related to climate change effects/impacts to assess resilience of low-income communities and guide relevant future policy/program development. Create a heat response plan, focusing on vulnerable populations.
- Increase community access to fresh fruits and vegetables by providing public community gardens and encouraging urban agriculture and private community gardens with supportive zoning ordinances.
- Support local farms through access to Sacramento farmer's markets and co-ops that sell locally-grown food.



STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.5: PROMOTE A CLIMATE-RESILIENT ECONOMY

Given the expected impacts of climate change, residents and businesses face a future that may be more economically unstable and more costly. The most effective ways to prepare the economy for the effects of climate change is to improve technology, develop new skills, and keep residents and businesses informed of what can be expected. Sustainability strategies also help to strengthen the economy for climate change by improving efficiency, encouraging businesses to conduct ventures more sustainably, and creating new jobs through training and research programs.

The City plans to educate and provide information resources for businesses and community groups about the impacts of climate change, crisis management, and adaptation strategies. In order to increase public awareness, the City will collect more information on specific impacts and work with community partners to develop support services including job retraining for specific sectors and for the economy as a whole. Finally, the City will identify opportunities to diversify the local economy to reduce the detrimental effects of climate change.

Adaptation/Resiliency

- Create a Climate-Resilient Economy
- Reduce Home and Building Maintenance Costs

Community/Public Co-Benefits

- Support Local Economy
- Increase Competitive Advantage
- Lower Operating Costs for Businesses
- Create Jobs
- Increase Public Awareness of Climate Change
- Create Climate Action and Sustainability Leaders

Supporting Actions:

- Work with the Business Environmental Resource Center (BERC) to incorporate information into BERC programs about actions that businesses can take to reduce their vulnerability to climate change.
- Continue to analyze information on potential impacts of climate change on government operations and the local economy, and actively share results to foster public awareness and support for adaptation policy.
- Identify and seek opportunities to diversify local economy in response to global supply chain pressures, in order to reduce effects on the local economy from climate change impacts in other regions.

STRATEGY 6: CLIMATE CHANGE ADAPTATION



MEASURE 6.6: RESPOND TO POTENTIAL IMPACTS ON PUBLIC INFRASTRUCTURE

Extreme weather events and temperature increase can damage and stress public infrastructure. Some of this infrastructure is under the City’s direct control, and some is not. The City and partner agencies can prepare for adverse climate change impacts by improving the resiliency of infrastructure systems, including: strengthening existing infrastructure, increasing infrastructure capacity, and creating backup plans as insurance for unforeseen disruptions.

The City can also take an active leadership role in regional cooperation on interconnected water resource issues, including those that impact Sacramento’s level of flood protection, such as the management of upstream reservoirs. During the next five to seven years, the City will partner with

SAFCA to negotiate for the development of reservoir management practices and improvements that will increase Sacramento’s level of flood protection. The City will consider climate change impacts in design, construction, operations, and maintenance of infrastructure, including implementing CalGreen standards for stormwater design where at least 20 percent of paved surfaces are required to be permeable (where feasible) and retrofitting all levees for 200 year flood protection. To reduce peak demand, energy costs, and outages, the City will create demand response programs for municipal facilities. Finally, the City will prioritize funding and draft policies based on infrastructure vulnerability assessments to better-target systems at risk of damage.



Adaptation/Resiliency

- Improve Efficiency of Infrastructure
- Reduce Damage to Infrastructure
- Prepare for Increased Safety Hazards
- Adjust to Energy Demand Increases
- Prepare for Impaired Water Quality
- Reduce Home and Building Maintenance Costs

Community/Public Co-Benefits

- Lower Energy Demand
- Lower Energy and Fuel Bills
- Conserve Water
- Protect Water Quality
- Lower Water and Sewer Bills
- Create Jobs



STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.6: RESPOND TO POTENTIAL IMPACTS ON PUBLIC INFRASTRUCTURE

Supporting Actions:

- Develop an Interagency Adaptation Team to work with appropriate agencies (e.g., California Natural Resources Agency, State Lands Commission, California Energy Commission, Sacramento Area Flood Control Agency [SAFCA], UC Davis) and neighboring jurisdictions (e.g., Sacramento County) to:
 - Ensure that current information and data on climate change effects and impacts are considered and addressed as part of updates to infrastructure and utility plans, manuals, and specifications.
 - Review existing infrastructure plans, policies, standards, and investments to ensure information about projected climate change impacts is included.
 - Assess impacts of climate change effects when siting new infrastructure and maintaining or renovating existing infrastructure.
 - Incorporate climate change impact information into the design, construction, operation, and maintenance of infrastructure.
- Actively collaborate with regional agencies and neighboring jurisdictions to ensure that planning for future development and redevelopment incorporates risks from climate change effects/impacts.
- Support SAFCA's efforts to achieve 200 year flood protection, and take a strong leadership role in the evolving process of readjusting flood protection to accommodate for climate change. Partner with SAFCA to negotiate for the development of reservoir management practices and improvements that will increase Sacramento's level of flood protection.
- Enroll all applicable municipal facilities in Demand Response Programs and promote onsite energy generation and/or storage to help reduce peak energy demands and offset energy costs.



The City and partner agencies will prepare for adverse climate change impacts by improving the resiliency of infrastructure systems.

STRATEGY 6: CLIMATE CHANGE ADAPTATION



MEASURE 6.7: PROTECT NATURAL ECOSYSTEMS AND MIGRATION ROUTES

Even though climate change is a result of human activity, it does not only adversely impact humans. Temperature change, variable precipitation, and sea level rise also disrupt natural ecosystems and migration routes. Currently, California is one of the 25 biodiversity “hotspots” on earth. But if plants and animals are unable to adapt to changing conditions, they will shift habitats, giving invasive species the opportunity to take over and risking species extinction. In order to prepare for future ecosystem stressors, it is important to preserve and restore fragile habitats already at risk.

The City of Sacramento will partner with wildlife agencies to better understand climate change impacts on local habitats and species. To ensure that species have connected, diverse, open spaces, the City will review habitat management plans. The City will also begin active habitat restoration projects to remove invasive species and improve the resiliency of fragile habitats. Finally, the City will require that new developments maintain the integrity of any ecosystem to ensure the habitat is resilient over time.

Adaptation/Resiliency

- Limit Conversion of Habitat and Loss of Native Species
- Reduce the Urban Heat Island Effect
- Preserve Sacramento River Basin Watersheds

Community/Public Co-Benefits

- Prevent Destruction of Natural Habitats
- Increase Access to Open Space
- Increase Recreation Choices
- Create a Healthy Living Environment
- Improve Quality of Life
- Protect Water Quality

Supporting Actions:

- Support the efforts of The Natomas Basin Conservancy and other habitat preserve managers to adaptively manage wildlife preserves to ensure adequate connectivity, habitat range, and diversity of topographic and climatic conditions are provided for species to move as climate shifts.
- The new or amended HCPs should provide a robust adaptive management component sufficient to ensure that habitat preserves are resilient to climate change effects/impacts and to ensure their mitigation value over time. Provisions should include, but are not limited to: greater habitat ranges and diversity; corridors and transition zones to accommodate retreat or spatial shifts in natural areas; redundant water supply; elevated topography to accommodate extreme flooding; and flexible management and fee structure.
- As funding becomes available, implement active habitat restoration and enhancement to reduce impact of climate change stressors and improve overall resilience of habitat within existing parks and open space in the city. Support the efforts of Sacramento County to improve the resilience of habitat areas in the American River Parkway.
- Recognize the value of trees on levees for habitat and as carbon sinks. Support SAFCA’s efforts to protect the existing trees on levees.

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STRATEGY 7

COMMUNITY INVOLVEMENT AND EMPOWERMENT



CO-BENEFITS

- Increase Social Interaction
- Increase Public Awareness of Climate Change
- Improve Participation in City Governance
- Create Climate Action and Sustainability Leaders
- Increased Competitive Advantage
- Support Local Economy

Enlisting the ideas and energy of residents and businesses to help achieve climate action objectives and maximize co-benefits.





STRATEGY 7 COMMUNITY INVOLVEMENT AND EMPOWERMENT

Most of the GHG reductions for the measures and actions in this strategy could not be measured at this time, but are still expected to help reduce emissions.

MEASURES

1. Education and Community Involvement
2. Recognize Community Accomplishments
3. Build Businesses and Community Organization Partnerships

GOAL:

Involve the community in climate action efforts.

Everyone in the community has a role to play in addressing climate change. Effective climate action will require new behaviors and ways of thinking, which can only be sustained in the long term by communitywide efforts to reduce waste and use resources more sustainably. Participation by residents and businesses in the ongoing implementation of the CAP will increase the likelihood that the GHG reduction measures are achieved. To do this, the City will engage the public and encourage them to actively participate in planning a more sustainable future. The City of Sacramento has identified the goal of involving the community in climate action efforts.

Residents and businesses have the opportunity to work with the government as an equal partner in facilitating a climate action movement. The City's role is to inspire others by leading by example and to give residents and businesses the means to take action and influence their neighbors. To engage the community in the implementation of the CAP, the City will conduct outreach programs that involve residents and businesses in various GHG-reducing activities and acknowledge the accomplishments of individuals, businesses, and neighborhoods to reduce GHG emissions. The City will also continue to serve as a climate action leader by reducing its own GHG emissions.



The City will lead residents and businesses in sustainability activities and acknowledge the accomplishments of individuals, businesses, and neighborhoods that reduce GHG emissions.



STRATEGY 7: COMMUNITY INVOLVEMENT AND EMPOWERMENT



MEASURE 7.1: EDUCATION AND COMMUNITY INVOLVEMENT

The City can encourage behavioral change through increased public awareness of the challenge and the potential solutions for addressing climate change. While the City can educate the community about climate action, residents can also educate the City. Community workshops provide a forum for citizens to share new ideas for ways that Sacramento can reduce GHG emissions and adapt to climate change.

The City already hosts several educational programs on specific topics related to GHG emissions reductions. For example, the City hosts free backyard composting seminars, provides free Water Wise House Calls and a water conservation demonstration garden, and educates the public on what can and cannot go into the blue recycling can. The City will tie together existing efforts with new public outreach initiatives to connect with residents and businesses in the community. The City will support communitywide public engagement campaigns to educate, inspire, and offer some of

the most cost-effective and easy solutions for reducing GHG emissions. Finally, the City will conduct educational workshops on different ways to reduce GHG emissions. Workshop topics may include energy efficiency, water conservation, backyard composting, and bicycle commuting.



Adaptation Resiliency

- Adjust to Energy Demand Increases
- Prepare for Increased Safety Hazards

Community/Public Co-Benefits

- Increase Social Interaction
- Increase Public Awareness of Climate Change
- Improve Participation in City Governance
- Create Climate Action and Sustainability Leaders

Supporting Actions:

- Work with community partners to initiate a Green Building Professionals Guild in Sacramento to provide professional development and training opportunities for contractors and others in the green building industry.
- Work with community partners to design and implement a program educating the public about the cost and benefits associated with green buildings.





STRATEGY 7: COMMUNITY INVOLVEMENT AND EMPOWERMENT

MEASURE 7.1: EDUCATION AND COMMUNITY INVOLVEMENT

Supporting Actions:

- Develop a pilot project to educate the public on how to garden and grow their own food.
- Work with community partners to develop a Green Lease Toolkit that promotes partnership between building owners and tenants to contribute to efficient building operations.
- Improve the City's sustainability website to incorporate all the City's sustainability program information in one location.
- Continue to collaborate with city agencies, nonprofit organizations, neighborhoods groups and other community organizations to promote the issues of air quality, food availability, renewable energy systems, sustainable land use and the reduction of GHGs.
- Identify and work with existing groups, such as schools, neighborhood associations, and non profits, to identify issues and opportunities for engaging them in sustainability efforts. Work with community partners to ensure that all possible segments of the community are included in the City's sustainability efforts and outreach.
- Develop and implement a campaign to Make Green Routine program to achieve "green" practices in residential households.
- Establish community working groups to lead individuals or other groups of the community to promote climate protection programs.
- Continue to implement and expand educational programs and media campaigns to promote and educate the public about the 3R's (i.e., reduce, reuse, recycle) and the benefits of resource conservation, recycling, composting, and responsible purchasing.



The City will support communitywide public engagement campaigns to educate, inspire, and offer some of the most cost-effective and easy solutions for reducing GHG emissions.

STRATEGY 7: COMMUNITY INVOLVEMENT AND EMPOWERMENT



MEASURE 7.2: RECOGNIZE COMMUNITY ACCOMPLISHMENTS

Many residents and businesses have already shown a commitment to addressing climate change by consuming less energy and producing less waste by recycling, composting, conserving water, using public transit, shopping locally, and making homes and businesses more energy efficient. These small steps by individuals can make a difference for the future of our city and our planet. Recognition can also serve as a motivator for action. The City will recognize these efforts by creating an awards program to recognize outstanding

achievements for green building practices, waste diversion and reduction, and energy and water conservation.

The City will also adopt a neighborhood climate metrics program to publicize energy use, consumption patterns, vehicle miles traveled, bicycle commute rates, and other efforts to reduce GHG emissions by neighborhood. By creating friendly competition between neighborhoods in the city, the City can motivate residents to make changes to further the goals of the Climate Action Plan.

Adaptation Resiliency

- Create a Climate-resilient Economy

Community/Public Co-Benefits

- Increase Social Interaction
- Increase Public Awareness of Climate Change
- Improve Participation in City Governance
- Create Climate Action and Sustainability Leaders

Supporting Actions:

- Develop and implement a program celebrating local developers that achieve third party green building certification to both raise community awareness and reward high performance.
- Support the ongoing efforts of the Business Environmental Resource Center (BERC) to implement the Sacramento Area Sustainable Business Certification Program, which recognizes and rewards business practices that achieve a high standard of sustainability and environmental performance and reduce GHG emissions.
- Work with local groups and organizations to develop programs (e.g., home tours) to celebrate and raise awareness about innovative green building projects in both new and existing buildings.





STRATEGY 7: COMMUNITY INVOLVEMENT AND EMPOWERMENT

MEASURE 7.3: BUILD BUSINESSES AND COMMUNITY ORGANIZATION PARTNERSHIPS

Climate change is an avenue that offers a unique opportunity to partner for collective action, while fostering individual empowerment. The City of Sacramento has been a leader in our region in moving towards sustainability and livability. Through the adoption of a Sustainability Master Plan in 2007, the 2030 General Plan in 2009, and by implementing important programs and projects which are already carrying out these plans, the City has demonstrated a clear commitment to sustainability.

A key to effectively addressing climate change will also be to build ongoing partnerships between residents, businesses, and city government. The City has already supported efforts to build partnerships. The Mayor’s Greenwise Sacramento initiative convened over 275 experts and community leaders to identify goals for the Sacramento region’s efforts to grow a green economy and improve the environment.

The City will expand on current efforts by striving to increase participation in the Sacramento Area Sustainable Business program sponsored by the Business Environmental

Resource Center (BERC). This program certifies local businesses as a “Sustainable Business” for implementing energy and water conservation, pollution prevention, solid waste reduction, green building, and transportation and air quality measures. The BERC also provides business assistance resources to help with permitting and regulatory requirements.

Community organizations can be important instruments for behavioral change. The City can seek funding to support neighborhood and community groups implement projects and programs that engage their constituents in climate action. The City’s role will be to inspire others in leading by example and to give communities the means to take action and influence their peers.

Adaptation Resiliency

- Create a Climate-resilient Economy

Community/Public Co-Benefits

- Increase Competitive Advantage
- Increase Social Interaction
- Increase Public Awareness of Climate Change
- Improve Participation in City Governance
- Create Climate Action and Sustainability Leaders

Supporting Actions:

- Expand existing partnerships with City agencies, educational institutions, neighborhood groups, businesses, and community organizations to continue efforts to maintain the City’s status as an environmental “green” leader.



ENDNOTES

CHAPTER 2

¹ Assuming one MTCO₂e is equal to driving 2,500 miles; Source: Chicago Climate Action Plan

² Source: <http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>

CHAPTER 3

¹ IPCC Fourth Assessment Report, 2007.

² California Climate Adaptation Strategy. Final Draft, 2009.

³ Sacramento River Watershed Sanitary Survey 2010 Update, December 2010.

⁴ Sacramento River Watershed Sanitary Survey 2010 Update, December 2010.

⁵ California Natural Resources Agency. California Climate Adaptation Strategy. Final Draft, 2009.

⁶ DWR. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.

⁷ Sacramento River Watershed Sanitary Survey 2010 Update, December 2010.

⁸ Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

⁹ California Natural Resources Agency. California Climate Adaptation Strategy. Final Draft, 2009.

¹⁰ Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

¹¹ DWR. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.

¹² Luers, Amy L. et al. (2006). Our Changing Climate: Assessing the Risks to California. The 2006 Summary Report from the California Climate Change Center. CEC-PIER Report, CEC-500-2006-077, Sacramento, CA.

¹³ Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

¹⁴ California Natural Resources Agency. California Climate Adaptation Strategy. Final Draft, 2009. Resolution of the California Ocean Protection Council on Sea-Level Rise, Adopted on March 11, 2011.

¹⁵ Department of Water Resources. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.

¹⁶ Starr Consulting, Palencia Consulting Engineers, and Talavera & Richardson. Sacramento River Watershed Sanitary Survey 2010 Update. December 2010.

¹⁷ SMUD. "Power Supplies." 2011. <http://www.smud.org/en/about/Pages/power-supplies.aspx>.

¹⁸ California Energy Commission. Climate Change Impacts and Adaptation in California. June 2005.



- ¹⁹ California Energy Commission. Climate Change Impacts and Adaptation in California. June 2005.
- ²⁰ Source: Impact of Climate Change on Residential Electricity Consumption.
- ²¹ Luers, Amy L. et al. (2006). Our Changing Climate: Assessing the Risks to California. The 2006 Summary Report from the California Climate Change Center. CEC-PIER Report, CEC-500-2006-077, Sacramento, CA.
- ²² Sacramento Metropolitan Air Quality Management District. "Air Quality Information for the Sacramento Region." 2010. <http://www.airquality.org/aqdata/attainmentstat.shtml>.
- ²³ California Department of Water Resources. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.
- ²⁴ California Department of Water Resources. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.
- ²⁵ Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.
- ²⁶ Hayhoe, K., D. Cayan, C.B. Field, P.C. Frumhoff, E.P. Maurer, N.L. Miller, S.C. Moser, S.H. Schneider, K.N. Cahill, E.E. Cleland, L. Dale, R. Drapek, R.M. Hanemann, L.S. Kalkstein, J. Lenihan, C.K. Lunch, R.P. Neilson, S.C. Sheridan, and J.H. Verville, Emissions pathways, climate change, and impacts on California. Proceedings of the National Academy of Sciences of the United States of America, 2004. 101(34): p. 12422-12427.
- ²⁷ Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.
- ²⁸ Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

CHAPTER 4

- ¹ Sacramento Regional Transit District. Fact Sheet. January 2011.
- ² Kids Be Green. 2011. <http://www.kidsbegreen.org>.
- ³ California Climate Adaptation Strategy. Final Draft, 2009.





APPENDIX

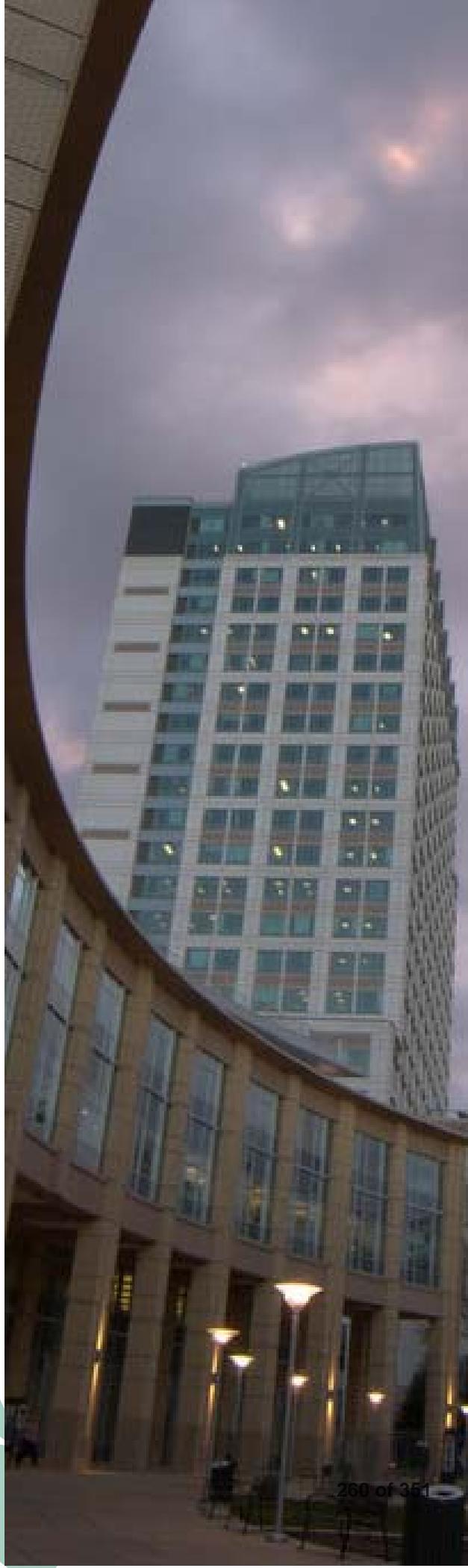


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APPENDIX A

COST-BENEFIT ANALYSIS OF GHG REDUCTION MEASURES



COST-BENEFIT ANALYSIS OF GHG REDUCTION MEASURES

The costs and benefits associated with implementing GHG reduction measures can vary in multiple ways. In some cases the cost of implementing measures may be borne by public agencies, in other cases by the homeowner or business owner, or both parties. Many measures are cost-effective over the long-term because the initial costs are recouped by savings in energy bills or water bills. Some measures also have other community co-benefits such as the potential to generate new jobs in public agencies or in the private sector.

A generalized cost-benefit analysis was conducted for a limited set of the Primary Actions in this Climate Action Plan. The selected actions were primarily those that would have quantifiable or substantial contributions to job creation, would result in substantial energy savings, are mandatory or regulatory in nature, and where data was available based on prior studies or similar projects in the past. The results are intended to demonstrate general, order-of-magnitude financial costs and benefits, as well as job generation potential, for this limited set of measures. In some instances, key data were not available in order to estimate costs, savings, or job generation. Detailed, life-cycle assessment, while desirable in some instances, is outside the current scope of this planning effort.

The following provides some highlights of the results. The following pages of Appendix A provide detailed data and assumptions used in the analysis.

Action 3.2.2. Residential Energy Conservation Ordinance (RECO): A Residential Energy Conservation Ordinance (RECO) is an ordinance that requires energy assessments and certain energy- and water-efficiency upgrades to be installed into existing residential buildings upon a variety of “trigger” events such as at the time of building permits for major remodel or additions, the sale or renovation of a property, or by a certain date. This analysis examined the proposed version of a RECO program in which the City would require energy efficiency upgrades to existing housing stock when a building permit is issued for additions or major remodels exceeding \$50,000 in value. There would be no public cost to implementing a RECO if the funds needed to enforce the ordinance would come from building permit fees paid by the homeowner, seller, or buyer. Initial private costs were estimated to be approximately \$1,500-\$1,800 per remodel or renovation that exceeds \$50,000. Homeowners would experience an average annual cost savings of \$330-420, assuming 15% average energy efficiency improvement per project. The expenses for administering such a program could come from a public fund or from permit fees paid by the building owner and/or seller. This type of program could also support additional employment at the City, as well as additional jobs in the private sector to complete audits and energy efficiency upgrades.

Action 3.2.4. Commercial Energy Conservation Ordinance (CECO): A Commercial Energy Conservation Ordinance (CECO) is an ordinance that requires certain energy-efficiency upgrades to be installed into existing industrial and commercial buildings upon a variety of transactions or events such as the sale or renovation of a property. According to the U.S. Green Building Council, the

average energy efficiency retrofit of an existing commercial building costs \$1.61 per square foot and results in an average annual utility savings of \$0.33 per square foot. This means the upfront renovation costs would be recouped in approximately 4.8 years. The expenses for administering such a program could come from a public fund or from permit fees paid by the building owner and/or seller. This type of program could also support additional employment at the City, as well as additional jobs in the private sector to complete audits and energy efficiency upgrades.

Action 3.2.1. Commercial Property Assessed Clean Energy (PACE)

Program: Commercial Property Assessed Clean Energy (PACE) Programs can be used by property owners to finance energy efficiency improvements and renewable energy installations. In brief, the City would set up a voluntary special assessment district which commercial property owners could opt into to help finance the upfront costs of these improvements. The property owners repay the costs as part of their property tax bills. One advantage of a PACE program is that building owners do not risk fronting the initial capital costs and then not owning the building long enough to receive the positive returns from energy savings. The program would leverage between \$12.3 million and \$30.9 million in construction revenue and equipment sales and expected to result in increased tax revenue of \$0.6-1.6 million during over a 5 year period. The program would generate approximately 42-106 additional jobs in the private sector for the first five years until the program is complete. An estimated 1-6 permanent FTE jobs would be expected to continue after program completion. Ongoing annual energy cost savings could be \$320,664 - \$923,615 as a result of approximately 90 projects completed in the first 5 year period.

Action 3.2.3. Rental Housing Water and Energy Efficiency Program: The Rental Housing Water and Energy Efficiency Program would require energy efficiency upgrades to be installed in the City's rental housing stock. Mandatory weatherization requirements, which result in improved energy efficiency, would be enforced as part of the City's existing Rental Housing Water and Energy Efficiency Program. This type of program would have an annual cost to the City of \$1.2 million to support up to 13 new City FTE positions. The one-time cost to the homeowner was estimated at \$1,500-1,800 per unit, and rental units would save approximately \$330-\$420 annually in utility bill savings after upgrades are completed. This program would also support 207 FTE jobs in the private sector, associated with the installation of the required weatherization upgrades.

Action 3.4.1. Solar Power Installations in New Residential Development:

The upfront costs of incorporating solar power facilities into new residential developments with 10 units or more would cost an average of \$17,745 per unit (after incentives) and would save an average of \$630 per unit annually. This means the payback time would be approximately 28.2 years. This type of requirement would generate more than 2,000 FTE jobs by 2020.

Action 3.4.2. Solar Power Installations in New Commercial Development:

Requiring solar power facilities on new commercial buildings over 50,000 square



feet would cost approximately \$328,550 annually (after incentives) and would save an average of approximately \$10,806 per year in electric bills for those commercial buildings. The payback period would be approximately 25.5 years and this program would support 69 new jobs in the private sector by 2020.

Action 3.1.2. SMUD Smart Grid: The City could also achieve GHG reductions by supporting SMUD's installation of a comprehensive regional Smart Grid system. The Smart Grid would improve the reliability and efficiency of utility operations, facilitate integration of distributed and intermittent forms of clean and renewable energy, and optimize the use of electricity by the end consumer. For the SMUD region, development of the Smart Grid system would cost \$180 million in addition to the \$127 million in grants that has been awarded to the project. This investment would result in an annual savings of \$11.5 million by SMUD's residential customers and \$25.6 million annually by non-residential customers. This means the infrastructure costs would be recouped in approximately 4.8 years. This would support 4.3-8.9 direct and indirect FTE jobs per \$1 million in investment in Smart Grid.

Action 3.3.2. Tier 1 CalGreen in New Development: Requiring Tier 1 CalGreen in new development refers to the exceedance of existing Title 24 energy efficiency standards for new buildings by 15%. The initial costs and payback period for implementing Tier 1 CalGreen energy efficiency standards would vary according to building type and size. Future single-family homeowners would experience energy cost savings of \$111 to \$214 per year. Multi-family building energy savings would add up to anywhere from \$478 to \$4,379 per year per building. Commercial energy savings would be in the range of \$1,383 to \$9,233 per year.

Action 3.2.6. SMUD Home Performance Program: As part of its Home Performance Program, SMUD offers low-cost energy audits to existing residential customers and offers performance-based incentives for energy upgrade projects that achieve 20% or more energy efficiency improvement. Remedies could cost in the range of \$1,500-\$1,800 per unit and result in an annual savings in energy costs of \$330-\$420 annually. Three to eight FTE jobs in the private sector would also be supported by this program.

Actions 2.1.1, 2.2.1, 2.3.1: Pedestrian and Bicycle Infrastructure Improvements: Small-scale retrofits to local roadway infrastructure could also result in GHG reductions, particularly retrofits that result in more evenly-paced automobile traffic and that improves safety and enjoyment of bicycling and pedestrian uses. Such retrofits could include traffic calming measures, such as marked crosswalks, roundabouts, curb extensions, speed tables, expanded sidewalks, Class I facilities (bike paths), and Class II facilities (bike ways). These types of projects generally require relatively small amounts of public funds and result in relatively small GHG reductions; however, the reductions achieved by multiple, complimentary retrofits in the same neighborhood or area may result in a GHG reduction that is greater than the sum of individual retrofit projects. Costs of pedestrian and bicycle infrastructure vary widely depending on the need to acquire

public right-of-way. For example, construction of class I facilities (bike paths) can range from \$375,000-\$5 million/mile; class II facilities (bike ways) can range from \$75,000-\$4 million/mile. The lower end of the range occurs when public right-of-way is already dedicated.





Cost-Benefit Analysis and Job Generation Information

Notes:

Action 3.2.2 RECO				
Public Costs (annual)	Initial Private Costs Total	City Job Generation (FTE)	Annual Cost Savings	Private Sector Job Generation (FTE)
If the home-owner, buyer, or seller pays for inspection, would cost \$0 to city to administer	\$1,300 limit on San Francisco's RECO of 1-2 dwelling units and co-op housing			
			-\$330-\$420 per household (energy savings)	
	\$1,500-1,800 for remodels >\$50,000 before incentives			
\$184,000-368,000	Cap of 1% of sale price, for point of sale	2-4		

Source: City of San Francisco Department of Building Inspection. 2007. RECO;
 Source: The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011. Table 2.1. Pg 3; assumes same household savings as basic weatherization in Rental Housing Program study
 Source: Research Report on City of Hayward RECO. 2010 (August). Prepared by Gabel Associates.
 City job generation derived from assumptions in The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011. Table 2.1. pg 3; Assumes \$92,000/yr per public employee (based on Sacramento County EECBG Grant Applications)
 Source: Research Report on City of Hayward RECO. 2010 (August). Prepared by Gabel Associates.

Action 3.2.4 CECE				
Public Costs (annual)	Initial Private Costs Total	City Job Generation (FTE)	Annual Cost Savings	Private Sector Job Generation (FTE)
Potential City revenue for CECE permit/audit fees \$20/unit (City of Berkeley); Audit conducted by a 3rd party	\$180+ for CECE audit by 3rd party			
\$200,000	1% of the sale price or assessed value, not to exceed \$150,000.			
	LEED-Existing Buildings certification cost an average of \$1.61 per square foot.		Average annual utility savings of \$0.33/square foot	

Source: City of Berkeley CECE program.
<http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=19664>
 Source: San Francisco Planning and Urban Research Association (SPUR). Reinstating the Commercial Energy Conservation Ordinance.
http://www.spur.org/publications/library/report/critical_cooling/option4
 Source: "The Economics of LEED for Existing Buildings for Individual Buildings," 2008 edition, a white paper by Leonardo Academy, April 21, 2008, rev. Oct. 14, 2008, available from <http://www.leonardoacademy.org/Resources/reports/index.htm>.

Action 3.2.1 Commercial PACE				
Public Costs/Revenue (annual)	Private Costs	Annual Cost Savings	City Job Generation (FTE)	Private Sector Job Generation (FTE)
	\$188,000/project (voluntary program)	\$320,664-\$923,615 direct cost savings for entire program		
			1	
\$0.6-1.6 million in state and local taxes		\$12.3 million to \$30.9 million in revenue/sales		97-232

Source: Potential Economic Impacts of a Commercial PACE Program. May 2011. Prepared for City of Sacramento by Center for Strategic Economic Research
 90 Projects per year scenario
 Source: Yvette Rincon
 Values would occur over 5 years until projects are complete. 1-6 permanent jobs would be created after project completion

Action 3.2.3 Rental Housing Energy and Water Efficiency Program				
Option 1: Voluntary Basic Weatherization				
Public Costs (annual)	Private Costs (annual)	City Job Generation (FTE)	Annual Cost Savings	Private Sector Job Generation (FTE)
\$46,000-\$92,000		0.5-1	-\$330-\$420 per household (energy savings)	3-8
	\$1,500-1,800 for remodels >\$50,000 before incentives (voluntary program)			
Option 2: Mandatory Basic Weatherization				
Public Costs (annual)	Private Costs (annual)	City Job Generation (FTE)	Annual Cost Savings	Private Sector Job Generation (FTE)
\$1,196,000		13	-\$330-\$420 per household (energy savings)	207
	\$1,500-1,800 for remodels >\$50,000 before incentives			
Option 3: Voluntary Full House Performance				

Source: The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011.
 Assumes \$92,000/yr per public employee (based on Sacramento County EECBG Grant Applications)
 Source: The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011. Table 2.1. pg 3
 Same assumption for private cost as for RECO for Basic Weatherization. Source: Research Report on City of Hayward RECO. 2010 (August). Prepared by Gabel Associates.
 Source: The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011. Table 2.1. pg 3
 Same assumption for private cost as for RECO for Basic Weatherization. Source: Research Report on City of Hayward RECO. 2010 (August). Prepared by Gabel Associates.

Public Costs (annual)	Private Costs (annual)	City Job Generation (FTE)	Annual Cost Savings	Private Sector Job Generation (FTE)			
\$92,000-\$230,000		1-2.5	-\$1100-\$1400 per household (energy savings)	16-48			
Option 4: Voluntary Full House Performance with Enhanced Options							
Public Costs (annual)	Private Costs (annual)	City Job Generation (FTE)	Annual Cost Savings	Private Sector Job Generation (FTE)			
\$92,000-\$230,000		1-2.5	-\$1100-\$1400 per household (energy savings)	20-60			

Source: The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011. Table 2.1. pg 3

Source: The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011. Table 2.1. pg 3

Please note that the option shown for the Rental Housing Energy and Water Efficiency Program (Option 2) is the one currently contained in the Final version of the CAP. Other options were evaluated and considered as shown.

Action 3.4.1 Solar in New Residential Development							
Public Costs	Private Costs	Annual Cost Savings	Payback time	City Job Generation (FTE)	Private Sector Job Generation (FTE)	MW installed by 2020 (assumes 8 hrs/day of solar generation)	Total Jobs in 2020
	\$17,745 after incentives (\$12,225 incentives)	-\$630 electric bill savings	28.2 years		Average 33 jobs/MW installed	62	2,048
					7.14 jobs/MW		

Source: SMUD Clean Power Estimator. <http://smud.cleanpowerestimator.com/default.aspx>
Source: Job Creation Studies in California for Votesolar. 2004. Prepared by UC Berkeley. http://www.votesolar.org/linked-docs/MSR_Job_Creation.pdf
Source: Environment California Research and Policy Center, 2003. Renewable Energy and Jobs. Available: http://www.localcleanenergy.org/files/The_21st_Century_Energy_Greenprint_Full_Report.pdf

Action 3.4.2 Solar in New Commercial Development							
Public Costs	Private Costs	Annual Cost Savings	Payback time	City Job Generation (FTE)	Private Sector Job Generation (FTE)	MW installed by 2020 (assumes 8 hrs/day of solar generation)	Total Jobs in 2020
	\$328,550 after incentives (\$182,500 incentives)	-\$10,806 electric bill savings	25.5 years		Average 33 jobs/MW installed	2	69
					7.14 jobs/MW		

Source: SMUD Clean Power Estimator. <http://smud.cleanpowerestimator.com/default.aspx>
Source: Job Creation Studies in California for Votesolar. 2004. Prepared by UC Berkeley. http://www.votesolar.org/linked-docs/MSR_Job_Creation.pdf
Source: Environment California Research and Policy Center, 2003. Renewable Energy and Jobs. Available: http://www.localcleanenergy.org/files/The_21st_Century_Energy_Greenprint_Full_Report.pdf

Action 3.1.2 SMUD Smart Grid							
Public Costs	Private Costs (annual)		Private Sector Job Generation (FTE)				
\$307.7 million (\$127.5 million awarded to SMUD in grants)	-\$11,537,015	savings to residential customers in 2020	\$1 million in investment, a range of 4.3 to 8.9 direct and indirect jobs will be created				
	-\$25,609,903	savings to non-residential customers in 2020					

Source: Marcy Lowe, Hua Fanand Gary Gereffi. 2011 (April). U.S. Smart Grid. <http://www.scribd.com/doc/53577326/Duke-University-Smart-Grid-Study>

Source: SMUD Smart Grid Activities Presentation. January 2010, CEE Program Meeting.

Source: SMUD rates: <http://www.smud.org/en/residential/rates/Pages/rates.aspx>. Assumes average \$0.15/KWh for SMUD customers

Action 3.3.2 Tier 1 Calgreen in New Development (incremental cost to exceed Title 24 by 15%)							
Public Costs	Initial Private Costs Total (average)	Initial Private Costs per square foot (average)	Annual Cost Savings	Payback time			
	\$1,601-2,066 for small (2,025 sf) home	\$0.79 -1.02/square foot for small sf home	-\$111-133	12.5-16.8 years			
	\$2,604-\$3,970 for large (4,500 sf) home	\$0.58-0.88/square foot for large sf home	-\$137-214	17.8-19.1 years			
	\$6,495-12,423 for multi family low rise	\$0.77-1.47/square foot for multi family low rise	-\$478-601	13.6-21.8 years			
	\$31,810-74,000 for multi family high rise	\$0.86-2.01/square foot for multi family high rise	-\$3,011-4,379	8.6-18 years			
	\$24,497-33,088 for low rise office building	\$2.32-3.13/square foot for low rise office building	-\$1,383-1,636	15-23.9 years			
	\$31,000-57,979 for high rise office building	\$0.59-1.10/square foot for high rise office building	-\$8,709-9,233	3.6-6.3 years			

Source: Climate Zone 12 Energy Cost-Effectiveness Study (SMUD and PG&E rates). February 2011. Prepared by Gabel Associates. Prepared for PG&E.

Action 3.2.6 SMUD Home Performance Program							
Public Costs	Private Costs	City Job Generation (FTE)	Private Sector Job Generation (FTE)	Annual Cost Savings			
			3-8	-\$330-\$420 per household (energy savings)			
	\$1,500-1,800 for remodels >\$50,000 before incentives (voluntary program)						
	\$99/audit		750				

Source: Applied assumptions from voluntary Rental Housing Program. The Potential for Energy Retrofits within the City of Sacramento's Rental Housing Program. US DOE. April 2011. Table 2.1. pg 3

Same assumption for private cost as for RECO for Basic Weatherization. Source: Research Report on City of Hayward RECO. 2010 (August). Prepared by Gabel Associates. Source: <http://www.sacbee.com/2011/04/29/3587600/smud-gets-efficiency-stimulus.html?storylink=lingospot>

Action 2.1.1 Traffic Calming Measures							
Public Costs							

the average construction cost of 14 U.S. roundabouts, none being part of an interchange, was approximately \$250,000. This includes all construction elements, but does not include land acquisition

Source: FHWA. 2000. Roundabout: an Informational Guide. <http://www.fhwa.dot.gov/publications/research/safety/00067/000672.pdf>

	Portland, OR year: 1997	Sarasota, FL year: 1997	Seattle, WA year: 1998					
Measure								
Speed humps	\$2,000–2,500	\$2,000	\$2,000					
Speed tables	—	\$2,500	—					
Raised intersections	—	\$12,500	—					
Traffic circles	\$10,000–15,000	\$3,500	\$6,000					
Chicanes	—	—	\$14,000					
Chokers	\$7,000–10,000	—	—					
Center islands	\$8,000–15,000	\$5,000	—					
Median barriers	\$10,000–20,000	—	—					
Half closures	\$40,000	—	\$35,000					
Diagonal diverters	—	—	\$85,000					
Full closures	—	—	120,00					

Source: ITE 1999. Traffic Calming: State of the Practice.
<http://www.ite.org/traffic/tcsop/Chapter3f.pdf>

Action 2.2.1 Pedestrian Facilities								
Public Costs								
\$ /project								
\$800,000	Elk Grove Florin Rd to Walnut Ave; School St. to Waterman Rd.							
\$250,000	Grant Ave. (SR 128)/Morgan St.							
\$150,000	North side of Higgins Road, east of Summerfield Drive and west of Constitution Ave./Hart Ave.							
\$370,000	Linden Road between Clarksburg Branch Line Trail and Stonegate Drive							
\$188,506	Winters: New sidewalks on: Edwards St., Grant Ave., & Hemenway St.							
\$850,000	Provide sidewalks for access to Esparto Middle & High School							
\$193,000	School Crosswalk/School Zone Improvements for Various Schools in Sutter County							

Source: Regional Bicycle Pedestrian Master Plan. 2009.
<http://www.sacog.org/bikeinfo/pdf/masterplan/2009-08-19/Formatted%20Amend%20Regional%20Bike%20Ped%20Plan%202009%208-19-09.pdf>

Action 2.3.1 Bicycle Facilities								
Public Costs								
\$ /mile								
Bike racks	Cost to purchase and install bike racks: \$150 to 300 each (parks two bikes)							
Bike lockers	Cost to purchase and install bike lockers: \$1000 to \$4000 each (parks two bikes)							
Class I Facilities (Bike Paths)								
\$423,428	Bass lake rd (Serrano Pkwy to Country Club Dr (2.5 miles))							
\$1,394,105	Markham Ravine Dr (Tea Hollow Dr to Joiner Pkwy (1.6 miles))							
\$5,714,286	NW Roseville SP Powerline Corridor (Foothills Rd to Washington Blvd to Diamond Oaks Rd (0.7 miles))							
\$514,286	Placer County Regional Bikeway Plan (Old Airport Rd to Bill Francis Dr (0.7 miles))							
\$1,150,000	Elder Creek Corridor (includes land acquisition (2 miles))							
\$375,000	Folsom Lake Class I Bikeway (East Natoma St. corridor from the Folsom Prison entrance road to El Dorado Co Line (3.2 miles))							
\$1,166,667	Gerber Creek Corridor (including land acquisition (1.5 miles))							
\$2,187,500	Historic Powerhouse Canal Trail (East Natoma St to Powerhouse (0.4 miles))							
\$980,000	Humbug-Willow Creek (East Bidwell St. to Chaffin Ct (0.5 miles))							
\$1,142,857	Laguna Creek (SR 99 to Camden Park Greenbelt (0.7 miles))							
\$606,061	S Sac Parkway (Franklin and Freeport (3.3 miles))							
Class II Facilities (Bike Ways)								
\$73,529	Green Valley Rd (W El Dorado Co line to Cameron Pk Dr (6.8 miles))							
\$384,615	White Rock Rd (W El Dorado Co line to Latrobe Rd (1.3 miles))							
\$186,916	Auburn Blvd (N. Sac Co Line to Howe Ave (10.7 miles))							
\$4,285,714	White Rock Rd (Placerville Dr to E Sac Co line (0.7 miles))							
\$375,000	Natoma St (Folsom Blvd to Blue Ravine Rd (1.2 miles))							

Source: <http://www.bicyclinginfo.org/engineering/parking.cfm>

Source: Regional Bicycle Pedestrian Master Plan. 2009.
<http://www.sacog.org/bikeinfo/pdf/masterplan/2009-08-19/Formatted%20Amend%20Regional%20Bike%20Ped%20Plan%202009%208-19-09.pdf>

Action 5.1.1 Water Meter Infrastructure								
Public Costs	Private Costs	City Job Generation (FTE)	Private Sector Job Generation (FTE)					
\$1,090 per connection								
\$440,000,000 for entire program								
\$150,000,000 for meter retrofit component for entire program (meter + AMI)								
\$1,350 per service (Includes Construction, labor, material, City staff time to retrofit a service)		70	850	Assumption that the entire \$150M retrofit component would be spent over one year. The number of City FTEs would be 80 and the number of Contractor employees would be approximately 990.				

Source: City of Sacramento Draft Interim Water Conservation Plan. Pg 30.
 Source: August 23, 2011 email from Michelle Carrey, Senior Engineer, Dept of Utilities, to Helen Selph.
 Source: August 23, 2011 email from Michelle Carrey, Senior Engineer, Dept of Utilities, to Helen Selph.

Source: August 23, 2011 email from Michelle Carrey, Senior Engineer, Dept of Utilities, to Helen Selph.

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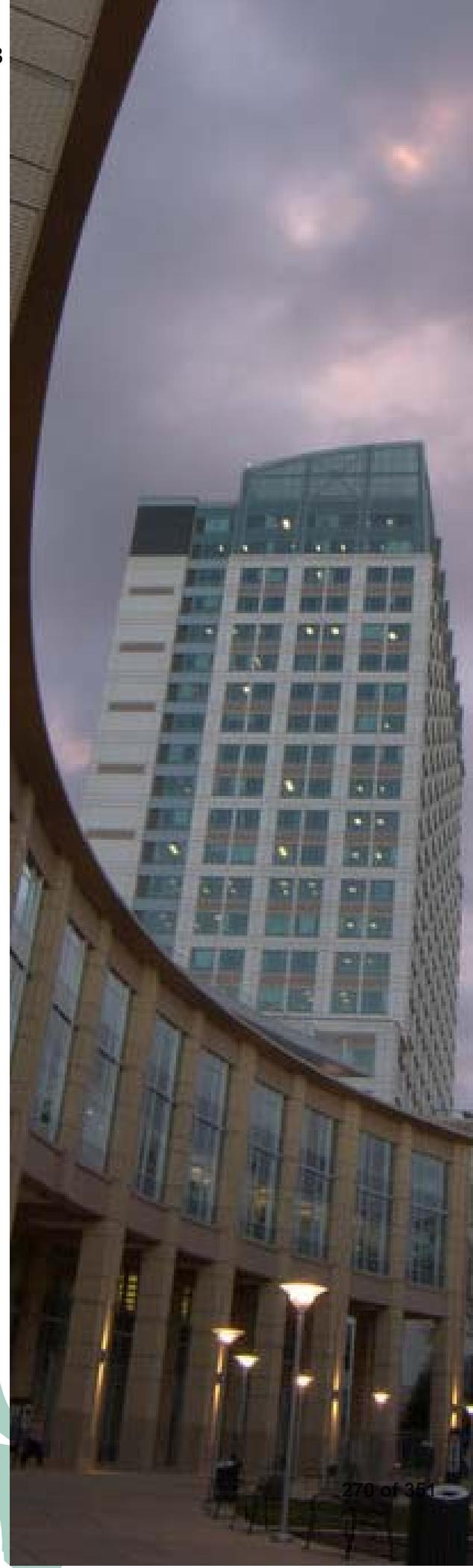
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APPENDIX B

PHASE 1: MUNICIPAL CLIMATE ACTION PLAN

The Phase 1 Municipal Climate Action Plan can be found on the following website: www.sacgp.org/documents/Phase-1-CAP_2-11-10.pdf (November 2011). If not available, please contact the City of Sacramento Community Development Department at (916) 264-5011.



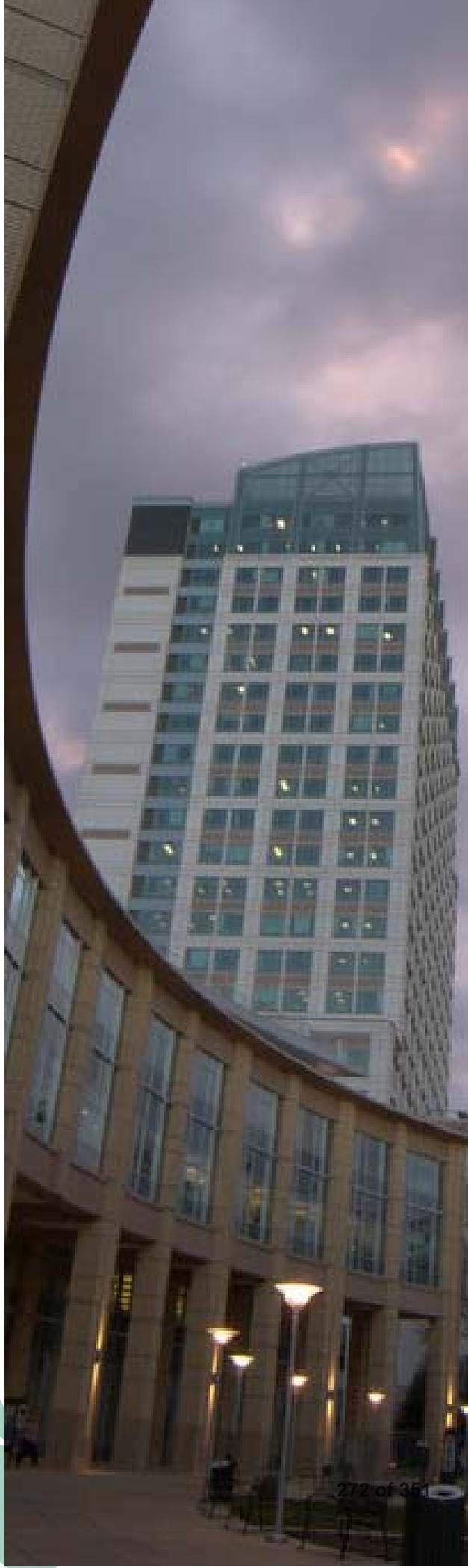
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APPENDIX C

CONNECTION OF ACTIONS TO GENERAL PLAN POLICIES

The Sacramento 2030 General Plan can be found on the following website: www.sacgp.org (October 2011). If not available, please contact the City of Sacramento Community Development Department at (916) 264-5011.





STRATEGY 1: SUSTAINABLE LAND USE

MEASURE 1.1: PROMOTE SUSTAINABLE GROWTH PATTERNS AND INFILL DEVELOPMENT

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 1.1.1: Require new development within the city to demonstrate that it would reduce vehicle miles traveled (VMT)/capita by 35 percent compared to the statewide average VMT/capita based on project density, diversity, design, destination accessibility, and distance to transit.</p> <p><input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Continue to analyze potential for building-energy savings from the transition to more compact urban form, which tends to increase densities and multi-family housing, and decrease the average area of residential units. Continue pursuing local, State, and Federal grants to fund a comprehensive update of the City’s Zoning, Subdivision, and other development-related sections of the City Code in order to create designations that support more sustainable development patterns and streamline infill development. Implement the destination and accessibility (i.e., centers) policies of the General Plan to achieve an increase in the number of jobs and other attractions that can be reached within reasonable amounts of time by walking, biking, or transit. Implement the transit center policies of the General Plan to locate appropriate projects near transit and achieve an increase in the use of transit by people traveling to and from the projects. Implement the affordable housing and transit-oriented development policies of the General Plan to integrate affordable and below market-rate housing near transit. Provide CEQA streamlining benefits for residential mixed-use projects and Transit Priority Projects pursuant to State Law (SB375), consistent with 2030 General Plan. Work with regional partners to adopt and implement guidelines that will protect and preserve open space, prime farmland and key habitat, including wildlife and riparian corridors. Recognize the value of agricultural, habitat, and open space lands as carbon sinks, and establish easements and other mechanisms to preserve them. Support the implementation of the SACOG Sustainable Communities Strategy through implementation of the 2030 General Plan and encouraging infill development in Transit Priority Project areas. 	<p>LU 1.1.1 Regional Leadership</p> <p>LU 1.1.4 Leading Infill Growth</p> <p>LU 1.1.5 Infill Development</p> <p>LU 1.1.9 Balancing Infill and New Growth</p> <p>LU 1.2 Sustainable Sacramento Strategy</p> <p>LU 2.1.5 Neighborhood Centers</p> <p>LU 1.2.1 Regional Coordination</p> <p>LU 2.5 City Connected and Accessible</p> <p>LU 1.2.3 Streamlined Development</p> <p>LU 2.5.1 Connected Neighborhoods, Corridors, and Centers</p> <p>LU 2.5.2 Overcoming Barriers to Accessibility</p> <p>LU 2.6 City Sustained and Renewed</p> <p>LU 4.1.1 Mixed-Use Neighborhoods</p> <p>LU 2.6.1 Sustainable Development Patterns</p>	<p>Table 4-2 #3</p> <p>Table 4-2 #2</p> <p>Table 4-2 #4</p> <p>Table 4-2 #5</p> <p>Table 4-4 #6</p> <p>Table 4-2 #8</p> <p>Table 4-2 #13</p> <p>Table 4-2 #10</p> <p>Table 4-2 #4</p>

STRATEGY 1: SUSTAINABLE LAND USE 

MEASURE 1.2: CREATE MORE COMPLETE NEIGHBORHOODS		
Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Proactively plan residential neighborhood centers for existing neighborhoods (rather than waiting for development plans to be submitted), either as Community Plan Updates or City-initiated Community Plan Amendments. 	<p>LU 2.1.3 Complete and Well-Structured Neighborhoods</p> <p>LU 4.1.2 Neighborhood Amenities</p>	<p>Table 4-2 #9</p>



STRATEGY 1: SUSTAINABLE LAND USE

MEASURE 1.3: MIXED-USE DEVELOPMENT PRACTICES

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Implement the mixed-use policies of the General Plan to achieve an increase in the diversity of uses in urban and suburban developments. Improve the job-housing balance by revising the Sacramento City Zoning Code to allow for a greater mix of uses in neighborhoods, corridors and centers. 	<p>LU 5.5.1 Diverse Centers</p> <p>LU 5.1.2 Centers Served By Transit</p> <p>LU 7.1.2 Housing in Employment Centers</p>	

STRATEGY 1: SUSTAINABLE LAND USE



MEASURE 1.4: REQUIRE SUSTAINABLE DEVELOPMENT PRACTICES

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Amend the Subdivision Ordinance to include standards for street and lot configuration to accommodate solar access. Amend City Zoning Code to provide standards for site design and building orientation to optimize potential for passive solar design. Reduce Impact Fees to more accurately reflect the impacts associated with all types of building, including Green Building, such that those building practices that result in lower impacts have lower fees. Encourage development projects to use local and sustainable building materials that are sourced and processed locally. Review and revise the City Code for consistency with the 2030 General Plan, including but not limited to: Zoning Code, subdivision regulations, street design standards, parking regulations, annexation regulations, and design guidelines. Develop and adopt development standards for bicycle support facilities (e.g., bicycle racks, personal lockers, showers, other support facilities) which meet or exceed CalGreen Tier 1 requirements. Develop standards that require developments of a certain size to include dedicated parking for electric cars and NEVs. Develop a fast-track permit process for electric vehicle charging stations on private property. Encourage development projects to use sustainable building materials that are sourced and processed locally and/or contain recycled materials. 	<p>LU 2.1.2 Protect Established Neighborhoods</p> <p>LU 2.4.2 Responsiveness to Context</p> <p>LU 2.6.2 Redevelopment and Revitalization Strategies</p> <p>LU 2.6.3 Sustainable Building Practices</p> <p>LU 2.6.4 Existing Structure Reuse</p> <p>LU 2.6.5 Green Building Retrofit</p> <p>LU 2.7.6 Walkable Blocks</p> <p>LU 4.1.3 Walkable Neighborhoods</p> <p>LU 4.3.5 Density Regulations for Mixed Density Development Projects</p> <p>LU 4.3.6 Exceeding Floor Area Ratio</p> <p>LU 5.3.1 Development Standards</p> <p>M 2.1.8 Housing and Destination Connections</p> <p>M 5.1.6 Connections between New Development and Bicycle Facilities</p> <p>M 5.1.8 Connections between New Development and Bikeways.</p> <p>M 5.1.11 Bike Facilities in New Developments</p> <p>M 6.1.2 Reduce Minimum Parking Standards</p> <p>ER 6.1.2 New Development</p> <p>ER 6.1.3 Emissions Reduction</p> <p>HCR 2.1.13 Adaptive Reuse</p>	<p>Table 4-2 #7</p> <p>Table 4-2 #9</p> <p>Table 4-2 #10</p> <p>Table 4-2 #11</p> <p>Table 4-2 #16</p> <p>Table 4-2 #23</p> <p>Table 4-3 #13</p> <p>Table 4-10 #9</p> <p>Table 4-10 #10</p>



STRATEGY 1: SUSTAINABLE LAND USE

MEASURE 1.5: ENSURE QUALITY DEVELOPMENT AND PROJECT DESIGN

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Implement the urban design policies of the 2030 General Plan to enhance walkability and connectivity and improve street network characteristics within a neighborhood. Provide incentives for development projects that separate the costs of rented parking from leased building space so that the charges from parking are borne more explicitly by the user. Incorporate a parking cash-out program option into the TSM ordinance. Limit parking in areas of the City that are readily served by transit and are accessible by bicycle by limiting on-street parking, and reduce minimum parking requirements standards over time, and promote shared parking programs. Provide accessible public park or recreational open space within one-half mile of all residences and restore public access along all waterways and riparian corridors (Sacramento and American Rivers, urban creeks). 	<p>LU 2.7.7 Buildings that Engage the Street</p> <p>LU 9.1.1 Open Space Preservation</p> <p>LU 9.1.4 Open Space Buffers</p> <p>ER 1.1.1 Conservation of Open Space Areas</p> <p>ER 2.1 Natural and Open Space Protection</p> <p>ER 2.1.1 Resource Preservation</p> <p>ER 2.1.6 Wetland Protection</p> <p>ER 2.1.7 Annual Grasslands</p> <p>ER 2.1.8 Oak Woodlands</p> <p>ER 2.1.9 Wildlife Corridors</p> <p>ER 4.2 Growth and Agriculture</p> <p>ER 4.2.1 Protect Agricultural Lands</p> <p>ER 4.2.3 Coordinate to Protect Farmland</p>	<p>Table 4-7 #27</p> <p>Table 4-8 #3</p> <p>Table 4-10 #2</p> <p>Table 4-10 #8</p>

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STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.1: MULTI-MODAL TRAVEL OPTIONS

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 2.1.1: Continue to increase the use of traffic calming measures within the City to reduce motor vehicle speeds and encourage pedestrian and bicycle trips. Traffic calming features may include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.</p> <p><input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Conduct a study to analyze bike and pedestrian facilities on existing bridges to identify deficiencies and feasible improvements. • Prepare and adopt a citywide Transportation Development Impact Fee Program to support the development of all travel modes needed for new development. • Green Infrastructure Master Plan: Consider preparing a long-term planning document for integrating the City's green infrastructure – parkways, waterways, parks, open space, shaded bicycle parkways and pedestrianways. • Conduct a study to identify underused rights-of-way, such as street lanes, drainage canals, and railroad corridors to convert to bikeways and/or pedestrian ways. • Continue to consider additional one-way streets for two-way conversion to make them more transit-, bicycle-, and pedestrian-friendly. • Conduct a study of the existing street network to identify streets that can be more complete based on adopted design standards and the policies in the 2030 General Plan. 	<p>M 1.1.1 Right-of-Ways</p> <p>M 1.2.1 Multimodal Choices</p> <p>M 1.2.2 LOS Standard</p> <p>M 4.2 Complete Streets</p> <p>M 4.2.1 Adequate Rights-of-Way</p> <p>M 4.2.4 Pedestrian and Bicycle Facilities on Bridges</p> <p>M 4.2.5 Multi-Modal Corridors</p> <p>M 4.2.6 Identify Gaps in Complete Streets</p>	<p>Table 4-6 #1</p> <p>Table 4-6 #2</p> <p>Table 4-6 #4</p> <p>Table 4-6 #5</p> <p>Table 4-6 #6</p> <p>Table 4-6 #10</p> <p>Table 4-6 #17</p> <p>Table 4-6 #23</p> <p>Table 4-6 #24</p>

STRATEGY 2: MOBILITY AND CONNECTIVITY



MEASURE 2.2: IMPROVED PEDESTRIAN ENVIRONMENT		
Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 2.2.1: Implement Pedestrian Master Plan facilities to achieve an annual expansion of 1 percent of the existing (2011) system.</p> <p><input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>M 2.1 Integrated Pedestrian System</p>	
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Initiate a pedestrian safety outreach program and continue outreach to the public through DOT's website. Continue to identify and prioritize pedestrian improvement projects as part of the Transportation Programming Guide. Improve connections to transit, thereby extending a pedestrian's/ cyclist's potential trip length. 	<p>M 2.1.1 Pedestrian Master Plan</p>	
	<p>M 2.1.2 Sidewalk Design</p>	
	<p>M 2.1.3 Streetscape Design</p>	Table 4-6 #14
	<p>M 2.1.4 Cohesive Network</p>	Table 4-6 #15
	<p>M 2.1.7 Parking Facility Design</p>	Table 4-6 #16
	<p>M 2.1.9 Pedestrian Awareness Education</p>	
	<p>M 2.1.10 Safe Pedestrian Crossings</p>	
	<p>M 2.1.11 Speed Management Policies</p>	
	<p>M 2.1.12 Safe Sidewalks</p>	



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.3: INCREASED BICYCLE MODE SHARE

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 2.3.1: Implement Bikeway Master Plan facilities to achieve an annual expansion of 5 percent of the existing system.</p> <p><input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>M 5.1 Integrated Bicycle System</p>	
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Increase the amount of secure bicycle parking within the City by 50 locations annually for the next 5 years, funded in part by the Sacramento Metropolitan Air Quality Management District bike parking program. • Work with community partners to establish a bicycle mode share goal and methodology. • Continue to work with community partners to locate bicycle racks, lockers, and bike-share programs in or near transit stops to help cyclists lengthen their trip potential as well as facilitate the start and completion of the transit-rider's trip. • Establish a bicycle mode share goal and establish a methodology for monitoring progress to achieve that goal. 	<p>M 5.1.1 Bikeway Master Plan</p> <p>M 5.1.2 Appropriate Bikeway Facilities</p> <p>M 5.1.4 Motorists, Bicyclists, and Pedestrian Conflicts</p> <p>M 5.1.7 Class II Bike Lane Requirements</p> <p>M 5.1.9 Conversion of Underused Facilities</p> <p>M 5.1.10 Bike Safely for Children</p> <p>M 5.1.11 Bike Facilities in New Developments</p> <p>M 5.1.12 Bicycle Parking at Transit Facilities</p> <p>M 5.1.13 Public Information and Education</p> <p>M 5.1.14 Encourage Bicycle Use</p>	<p>Table 4-6 #18</p> <p>Table 4-6 #19</p> <p>Table 4-6 #27</p>

STRATEGY 2: MOBILITY AND CONNECTIVITY



MEASURE 2.4: INCREASED TRANSIT MODE SHARE		
Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 2.4.1: Work with community and transit partners to increase public transit service (i.e. frequency, number of lines and stops) above and beyond what is already planned in the Metropolitan Transportation Plan by 5 percent in 2020 and 10 percent in 2030.</p> <p><input type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>M 1.3.5 Connections to Transit Stations</p> <p>M 3.1 Safe, Comprehensive, and Integrated Transit System</p>	
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Work with community partners to develop and implement a policy that expands affordable public transportation coverage to within one-quarter of a mile of all city residents. • Expand transit and mode options to fill transit gaps, including streetcars, car-sharing, and bike-sharing by establishing a car-sharing program, bike-sharing facilities near car-sharing locations, and conducting a study on potential for streetcars. • Work with community partners to identify funding to expand affordable transit coverage. 	<p>M 3.1.1 Transit for All</p> <p>M 3.1.2 Maintain Services</p> <p>M 3.1.3 Variety of Transit Types</p> <p>M 3.1.4 Reduced Transit Fares</p> <p>M 3.1.5 Unified Traveler Information System</p> <p>M 3.1.6 Safe System</p> <p>M 3.1.7 Transit Amenities</p> <p>M 3.1.8 Transit Service</p> <p>M 3.1.9 Demand-Responsive Service</p> <p>M 3.1.10 New Facilities</p> <p>M 3.1.11 Right-of-Way Preservation</p> <p>M 3.1.12 Direct Access to Stations</p> <p>M 3.1.13 Light Rail Extensions and Enhancements</p> <p>M 3.1.14 Streetcar Facilities</p> <p>M 3.1.15 Dedicated Bus Facilities</p> <p>M 3.1.16 Developer Contributions</p> <p>M 3.1.17 Transit Extension Studies</p> <p>M 3.2.1 Passenger Rail Service</p> <p>M 3.2.2 Sacramento Intermodal Transportation Facility</p> <p>M 3.2.3 Transcontinental Passenger Rail Service</p> <p>M 3.2.4 Capitol Corridor</p> <p>M 3.2.5 High Speed Rail Service</p> <p>M 3.3.1 Inter-City Bus Service</p> <p>M 3.3.3 Private Water Transportation Services</p>	<p>Table 4-6 #12</p> <p>Table 4-6 #20</p> <p>Table 4-6 #21</p>



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.5: LOW EMISSION VEHICLES/EFFICIENT GOODS MOVEMENT

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 2.5.1: Transport waste generated by residents and businesses to landfill facilities within the region rather than out of state, which will result in a reduction of over 1.2 million vehicle miles traveled per year.</p> <p><input type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>M 1.5.1 Facilities for Emerging Technologies</p>	
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Participate in planning efforts for public charging infrastructure to support plug-in electric vehicles (PEVs). Provide public charging stations according to plan. Develop and implement Route Smart software for solid waste trucks to decrease VMT and increase fuel efficiency. 	<p>M 1.5.4 High Emission Vehicle Buyback</p> <p>M 1.5.5 Neighborhood Electric Vehicles</p> <p>M 7.1.1 Efficient Goods Movement</p> <p>M 7.1.2 Goods Movement by Rail</p> <p>M 7.1.7 Port of Sacramento</p>	<p>Table 4-6 #13</p>

STRATEGY 2: MOBILITY AND CONNECTIVITY



MEASURE 2.6: CONNECTED TRANSPORTATION SYSTEM		
Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 2.6.1: Improve traffic flow and associated fuel economy of vehicles traveling on city streets by synchronizing the remaining estimated 50 percent of the city's eligible traffic signals by 2035.</p> <p><input type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>LU 2.5.2 Overcoming Barriers to Accessibility</p>	<p>Table 4-6 #7</p> <p>Table 4-6 #8</p> <p>Table 4-6 #9</p> <p>Table 4-6 #22</p>
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Identify major barriers to connectivity throughout the city and prioritize funding for improvements. 	M 1.3.1 Grid Network	
	M 1.3.3 Eliminate Gaps	
	M 2.1.5 Continuous Network	
	M 4.1 Roadway System	
	M 4.1.5 Bridge Crossings	



STRATEGY 2: MOBILITY AND CONNECTIVITY

MEASURE 2.7: TRANSPORTATION DEMAND MANAGEMENT

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 2.7.1: City employee furloughs have resulted in an estimated reduction of 493,072 vehicle miles traveled in the past three years. Continuing this reduction in commuting miles through 2020 by ongoing furloughs, or telecommuting or alternate schedules, would result in an estimated GHG reduction of 223 metric tons/year.</p> <p><input type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>M 1.4 Transportation Demand Management</p> <p>M 1.4.1 Increase Vehicle Occupancy</p>	
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Support SACOG's Commuter Club, which offers free services to help employers and commuters use carpool, bus, light rail, walking, biking, or telecommuting to get to work or run errands. • Develop and implement a market price public parking program for on-street parking. • Update and enhance the Transportation Systems Management Program consistent with the policies of the General Plan. • Provide incentives for development projects that separate the costs of rented parking from leased building space so that the charges from parking are borne more explicitly by the user. 	<p>M 1.4.2 Automobile Commute Trip Reduction</p> <p>M 1.4.3 Transportation Management Associations</p> <p>M 1.4.4 Off-Peak Deliveries</p> <p>M 1.5.3 Public-Private Transportation Partnerships</p> <p>M 3.3.2 Taxi Service</p> <p>M 6.1.1 Appropriate Parking</p> <p>M 6.1.2 Reduce Minimum Parking Standards</p> <p>M 6.1.7 Disincentives for Single-Occupant Vehicle Trips</p> <p>M 6.1.8 Separate Parking Costs</p>	<p>Table 4-6 #11</p> <p>Table 4-6 #28</p>

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 STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.1: ENERGY DEMAND MANAGEMENT AND CONSERVATION

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 3.1.1: Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD, PG&E) to launch a comprehensive social marketing campaign that leverages available tools from the social sciences to influence behaviors that reduce energy demand and promote conservation. The campaign could include the following elements:</p> <ul style="list-style-type: none"> • Continuous messaging and frequent prompts from a trusted messenger through media campaigns and branding of communications. • Encouraging residents to set goals for reductions. Provide tools (e.g., online calculators) to track their progress toward meeting the goals. • Providing normative comparisons showing carbon footprints or energy and water use of households compared to the average in the community. • Providing public education on the need for energy efficiency, emissions reduction programs, utility incentives and cost savings associated with energy-efficient buildings. • Launching an “energy efficiency challenge” campaign for city residents that challenges communities and neighborhoods to achieve the highest energy efficiency in return for pooled resources that could be applied to improvements or amenities. • Launching energy efficiency campaigns targeted at businesses that provide business and property-owner education on the need for energy efficiency and emissions reduction programs and incentives. <p><input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.1.2: Support SMUD’s Smart Grid program, which is estimated to result in 4 percent energy savings and 2 percent transmission savings by 2030.</p> <p><input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.1.3: Support the SMUD and Tree Foundation Shade Trees programs, which reduce the urban heat island effect and associated energy consumption.</p> <p><input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>U 6.1.5 Energy Consumption Per Capita</p>	<p>Table 4-7 #14 Table 4-7 #21</p>
<p>Action 3.1.4: Support SMUD’s energy efficiency rebate and incentive programs:</p> <ul style="list-style-type: none"> • Appliance Rebate. SMUD buys down the cost of energy-efficient electric appliances and products, offers rebates and incentives to customers, and affordable financing to purchase energy-efficient appliances. • Lighting Rebates. SMUD offers standard rebates to residential and commercial customers for the installation of energy-efficient lighting, such as LED lamps, fixtures, and other forms of highly-efficient lighting. • Electronic Incentives. SMUD provides incentives to retailers in the Sacramento region to stock the most energy-efficient major electronics, such as televisions and computer monitors. • Custom and Prescriptive Lighting Incentives. SMUD encourages and offers incentives to qualifying systems for the successful installation of LED lighting in local commercial applications. • Multi-family Retrofits. SMUD offers multi-family prescriptive rebates for multi-family residential customers seeking to retrofit units and common spaces to increase energy efficiency. This program offers rebates specific to the type of appliance, lighting, or improvement used, and encourages comprehensive analysis of the energy performance of each building. <p><input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>U 6.1.13 Energy Efficient Incentives</p>	<p>Table 4-7 #22</p>
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Continue building on the City’s existing partnerships, such as with Sacramento County’s Business Environmental Resource Center (BERC) and Sacramento Municipal Utility District (SMUD), to promote energy efficiency and conservation for the business community and for individuals. 		

STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.2: INCREASE EXISTING BUILDING ENERGY EFFICIENCY		
Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 3.2.1: Develop and adopt a Commercial Property Assessed Clean Energy Financing Program (Commercial PACE program) to create a voluntary special assessment district to help finance energy efficiency retrofits of commercial establishments. <input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.2.2: Update and enforce Chapter 15.76 of the Sacramento City Code, also known as the Residential Energy Conservation Ordinance (RECO), which requires the implementation of mandatory energy and water conservation standards for existing residential properties when building permits are required for major remodels or additions. This measure was assumed to reduce residential energy consumption by 15 percent on average per project for which a building permit is pulled. <input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.2.3: Work with community partners to develop and implement a voluntary rental housing energy efficiency program to improve the energy and water efficiency of existing rental units (both single-family and multi-family). If the voluntary program does not achieve an average energy savings of 15% per unit in at least 10,000 units/year by the end of 2014, the program may switch to mandatory energy efficiency improvements for rental housing. <input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.2.4: Develop and adopt a Commercial Energy Conservation Ordinance (CECO) that requires the implementation of mandatory energy and water conservation standards for all commercial and industrial properties. CECO would involve retrofitting existing commercial and industrial buildings for which a building permit is pulled for renovation or addition above a specified project size threshold. <input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>	<p>LU 2.6.5 Green Building Retrofit</p> <p>U 6.1.10 Energy Rebate Programs</p> <p>U 6.1.11 Energy Efficiency Improvements</p> <p>U 6.1.12 Energy Efficiency Audits</p>	<p>Table 4-7 #14</p> <p>Table 4-7 #26</p>
<p>Action 3.2.5: Continue to partner with SMUD to implement the Small Commercial Energy Efficiency Pilot Program, which provides incentives to small commercial customers to improve energy efficiency. <input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.2.6: Support SMUD’s Home Performance Program, which offers low-cost energy audits and rebates for energy efficiency upgrades to existing residential customers. <input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Support SMUD’s low-income weatherization programs and Energy Efficient Remodel Program. • Collaborate with SMUD, PG&E, and other partners to provide information at the public counter and on the City's website about energy efficiency, green building, passive solar design, rebates, and financing for energy efficiency retrofits. • The City of Sacramento will continue to evaluate other voluntary programs and strategies for improving the energy efficiency of existing buildings and work with other organizations including the Sacramento Association of REALTORS®, the Air Quality Management District, SMUD and others that have an interest in this area. 		

 STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.2: INCREASE EXISTING BUILDING ENERGY EFFICIENCY

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Identify funding to develop planning and design documents to assist property owners with appropriate retrofit options for historic and potentially-eligible properties that will comply with the Secretary of the Interior’s Standards for the Treatment of Historic Properties. Explore the feasibility of incorporating residential into the City's forthcoming property assessed clean energy financing (PACE) program. Continue to explore and advocate for low-cost financing program options, such as the CHF Energy Upgrade Loan program, to assist homeowners and others in funding energy efficiency retrofits. 		

STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.3: INCREASE ENERGY EFFICIENCY IN NEW BUILDINGS

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 3.3.1: Achieve energy efficiency through increased residential density. Greenhouse gas emission reductions will be achieved through greater energy efficiency as new housing types shift from single-family to attached/multi-family, consistent with the General Plan. <input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.3.2: Require Tier 1 CalGreen Building Code standards for all new development starting in 2014. <input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Prepare passive solar design guidelines for new development, customized for Sacramento's latitude and solar angle. • As part of the Green Development Code Update process, conduct a comprehensive review and update of existing codes and policies to remove barriers related to the implementation of green building strategies and to include incentives that are not currently in the City Code (i.e., Green Development Code). • Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD, PG&E) to prepare a Contractor and Developer "Did You Know?" checklist that identifies how to incorporate low- or no-cost energy efficiency designs, features, and materials into a project. • Develop and maintain Impact Fee Reduction schedules for sewer, water, parks, and other services that are based on a building's performance and its impacts on public infrastructure and services. • Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD, PG&E) to develop a database that maintains Alternative Means Requests (AMRs) and associated research and findings that can be accessed by local building staff within the region. This database would allow easy access to AMRs and applications, allowing staff to quickly assess what additional information/testing is needed to monitor local green building projects. It could also eventually be linked to a best practices green building forum. • Develop a Green Building Incentive Program that encourages and rewards projects that voluntarily achieve high performance green building standards (i.e. LEED or GreenPoint Rated certification) beyond mandatory CalGreen requirements. • Continue to partner with SMUD to promote energy efficiency incentive programs for new construction, such as Savings by Design and SolarSmart Homes. 	<p>LU 2.6.1 Sustainable Development Patterns</p> <p>LU 2.6.3 Sustainable Building Practices</p> <p>LU 2.6.6 Heat Island Effect</p> <p>LU 4.5.3 Green Neighborhoods</p> <p>U 6.1.7 Solar Access</p>	<p>Table 4-2 #10</p> <p>Table 4-2 #11</p> <p>Table 4-2 #16</p> <p>Table 4-2 #25</p>

 STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY

MEASURE 3.3: INCREASE ENERGY EFFICIENCY IN NEW BUILDINGS

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Adopt energy-efficient outdoor lighting standards for new development. The following provisions should be taken into consideration to reduce energy consumption by future outdoor lighting: <ul style="list-style-type: none"> • Consider leveraging existing grant money to help fund this initiative. For example, both the City of Sacramento and the County have obtained funding from the Department of Energy Efficiency and Conservation Block Grant to convert existing high pressure sodium and mercury vapor streetlights to induction and LED streetlights. • Encourage lighting along the urban-rural edge not to exceed one-half the current maximum lighting standard. • Balance public safety with limits on continuous all night outdoor lighting in parks, sport facilities, construction sites, and other relevant areas. • Explore options for the use of bi-level/sensor-activated outdoor lighting or low-level security lighting with photo sensors. • Update the City project selection process for publicly-subsidized buildings to include sustainability as a priority in both the bidding process and as an evaluation criterion. • Encourage builders to supply ENERGY STAR appliances and HVAC systems for all new residential developments. • Require that all new non-residential developments install high-efficiency boilers, where applicable, with a minimum of 85 percent efficiency. • Develop and adopt building design guidelines that require conveniently located exterior electrical outlets to improve the ease of using electrical landscaping equipment and vehicles rather than gas-powered equipment. • Work with energy providers (e.g., SMUD, PG&E) to promote the installation of solar thermal swimming pool heaters and solar water and space heating systems in existing and new developments. • Work with energy providers (e.g., SMUD, PG&E) to encourage the industrial sector to participate in co-generation programs, where feasible. 		

STRATEGY 3: ENERGY EFFICIENCY AND RENEWABLE ENERGY



MEASURE 3.4: INCREASE RENEWABLE ENERGY GENERATION AND USE

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 3.4.1: Update the Development Code to require that new single-family and multi-family residential projects of ten units or more install photovoltaic systems and participate in SMUD’s SolarSmart Homes program. <input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.4.2: Update the Development Code to require that new commercial developments greater than 25,000 square feet and industrial developments greater than 100,000 square feet install renewable energy systems (including photovoltaic systems) that generate 15 percent of the project’s energy demand onsite. <input checked="" type="checkbox"/> <i>Applicable to New Development</i> <input type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Action 3.4.3: Support SMUD’s Greenergy Program, which allows customers to opt in to pay an additional fee on their utility bill each month to promote local renewable energy projects and expanded use of renewable power supply. <input type="checkbox"/> <i>Applicable to New Development</i> <input checked="" type="checkbox"/> <i>Applicable to Existing Development</i></p>		
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Adopt a solar building permit fee schedule based on cost recovery of staff time, rather than valuation, to help reduce the permitting costs of solar PV and water heating systems. • Work with SMUD and other regional partners to streamline the permitting and interconnection process for solar photovoltaic systems. • Amend the Development Code to address how photovoltaic arrays may be used to meet parking lot shading requirements. If appropriate, expand the conditions under which shading credit can be given for photovoltaic arrays. If feasible, work with SMUD to identify priority areas and track progress. • Continue to explore the feasibility of an advanced waste-to-energy conversion program, focusing on organics or other non-recyclable, problematic portions of the waste stream. Consider a “demonstration energy park,” and identify future opportunities for a waste-to-energy program on a regional, cooperative basis with SMUD, Sacramento County, and others. • Work with City partners (e.g., Sacramento County) and energy providers (e.g., SMUD and PG&E) to develop and maintain a "shovel ready" program for renewable energy development. Considerations should include: <ul style="list-style-type: none"> ▪ Collaborating with SMUD in identifying possible sites for production of renewable energy using local renewable resources such as solar, wind, small hydro, and biomass. ▪ Evaluating potential land use, environmental, economic, and other constraints affecting the development of renewable resources within city limits. ▪ Establishing a protocol for reviewing a proposed alternative energy project against existing City policies and ordinances. The protocol should identify optimal locations and best means to avoid noise, aesthetic, and other potential land use compatibility conflicts. • Promote the City’s existing “Clean-Tech” zone to help draw clean, renewable energy plants and other industries to locations within the city. 	<p>U 5.1.17 Waste for Energy Generation</p> <p>U 6.1.6 Renewable Energy</p> <p>U 6.1.7 Solar Access</p>	<p>Table 4-2 #25</p> <p>Table 4-7 #23</p> <p>Table 4-7 #24</p>



STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.1: SUSTAINABLE PRODUCTION AND CONSUMPTION

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Work with the Rental Housing Association of Sacramento to inform and advise rental property owners and managers of the recycling requirements contained in the Multi-family Recycling Ordinance (SWA Ordinance 21). • Develop a junk-mail prevention outreach program that helps residents to voluntarily opt out of receiving junk mail. • Work with utilities and other public service providers (e.g., SMUD, PG&E, Comcast) to promote and encourage paperless billing and payment options. • Continue to work with community partners and local neighborhood groups to promote and support access to fresh, locally-grown food, encourage the purchase of locally-produced food, and sponsor public education events related to gardening and locally-produced food. • Continue to seek funding to develop and maintain demonstration gardens in each Council District. • Work with regional partners to identify funding to develop and maintain a regional demonstration garden and training center for public education on community gardens and rooftop gardens. • Continue to provide incentives (e.g., Development Impact Fee Deferral Program; Economic Development Treatment Capacity Bank; Recycling Pledge; reduced size/cost garbage containers) to encourage the development of a local market for recycled materials. • Develop and maintain a sidewalk grinding option for sidewalk maintenance rather than demolishing and re-paving sidewalks. 	<p>LU 8.2.7 Farmers/Public Markets</p> <p>ER 4.1.1 Locally Grown and Organic Foods</p> <p>ER 4.1.2 Community and Rooftop Gardens</p>	

STRATEGY 4: WASTE REDUCTION AND RECYCLING



MEASURE 4.2: SOURCE REDUCTION, DIVERSION, RECYCLING, AND REUSE

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 4.2.1: In order to meet the long-term waste diversion target (i.e., zero waste by 2040), achieve interim waste reduction goals of 75 percent diversion from the waste stream by 2020 and 90 percent diversion from the waste stream by 2030.</p> <p><input type="checkbox"/>Applicable to New Development <input type="checkbox"/>Applicable to Existing Development</p>		
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Conduct waste-reduction consultations with major waste generators (e.g., businesses and multi-family complexes) and recommend strategies to reduce waste and increase recycling while reducing costs. Work with commercial solid waste customers and franchise haulers to increase diversion rates to 30 percent (Business Recycling Ordinance). Continue to participate in the California Take-It-Back Partnership, a collaborative effort among businesses and State and local agencies to provide convenient locations for consumers to take back certain types of waste, including batteries, fluorescent lamps, compact-fluorescent light (CFL) bulbs, and other electronic devices. Continue to offer alternatives for e-Waste recycling and drop-off locations for household batteries and fluorescent lamps, including: <ul style="list-style-type: none"> Promoting businesses that take back universal waste and e-waste. Encouraging and supporting extended producer responsibility. Support efforts to implement the Solid Waste Authorities Multi-family Recycling Ordinance, which requires apartments and multi-family dwellings of 5 or more units to have a recycling program. Support the development and implementation of model recycling lease language for residential and commercial building managers. As funding becomes available, expand availability of public recycling containers in public parks, along commercial corridors and public right-of-ways, and reduce the waste generated from public events. Develop and implement residential and commercial waste audit programs that educate residents and businesses on what materials can and cannot be recycled and when and where to recycle. 	<p>LU 2.6.4 Existing Structure Reuse</p> <p>U 5.1.1 Zero Waste</p> <p>U 5.1.4 Equitably Distributed and Compatible Facilities</p> <p>U 5.1.5 Residential and Commercial Waste Disposal</p> <p>U 5.1.8 Neighborhood Cleanup Program</p> <p>U 5.1.9 Diversion of Waste</p> <p>U 5.1.10 Electronic Waste Recycling</p> <p>U 5.1.14 Recycled Materials for Goods Packaging</p> <p>U 5.1.15 Recycled Materials in New Construction</p> <p>U 5.1.16 Recycling and Reuse of Construction Wastes</p> <p>U 5.1.17 Waste for Energy Generation</p> <p>HCR 2.1.13 Adaptive Reuse</p> <p>HCR 2.1.14 Demolition</p>	<p>Table 4-7 #19</p> <p>Table 4-7 #20</p>



STRATEGY 4: WASTE REDUCTION AND RECYCLING

MEASURE 4.3: GREENWASTE AND COMPOSTING

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Continue to support area wood grinding facilities that recycle greenwaste material for mulch and other groundcover applications. Develop a food waste recycling program that diverts food from landfills into composting processes. Promote home composting and vermiculture to reduce GHG emissions by reducing the amount of organic waste (e.g., cellulose-based waste, paper, food waste) that is sent to landfills. Increase participation in and use of the Containerized Yard Waste Program by enhancing education and outreach to residents on the topic of composting leaves, grass trimmings, tree and shrub prunings, Christmas trees, and sod (with dirt removed). Support the Solid Waste Authority’s Sacramento Greencycle effort (i.e., regional garden refuse processing plant). Support efforts to remove organics from landfills and produce renewable energy from organic waste, using technology such as gasification anaerobic digestion, as planned for Sacramento County's South Area Transfer Station Energy Park. 	<p>U 5.1.6 Yard Waste and Street Sweeping</p> <p>U 5.1.7 Voluntary Containerized Yard Waste Program</p> <p>U 5.1.11 Composting and Grasscycling Programs</p> <p>U 5.1.13 Food Waste Recycling</p> <p>U 5.1.20 Waste Composting and Recycling for Landscapes</p>	

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 STRATEGY 5: WATER CONSERVATION AND WATER EFFICIENCY

MEASURE 5.1: WATER CONSERVATION

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Action 5.1.1: Achieve a 20 percent reduction in per-capita water use by 2020 consistent with the State’s 20x2020 Water Conservation Plan (California Water Resources Control Board, 2010) using the following programs:</p> <ul style="list-style-type: none"> • Installing water meters in residential units constructed prior to 1992 and in new developments, both commercial and residential, automated meter infrastructure (AMI) in all residential water metering. Water meters will result in all residents paying for water according to their usage. AMI will give residents information about inefficient water use. • Require CalGreen Tier 1 Water Efficiency measures in all new construction. • Require CalGreen Tier 1 Water Efficiency measures as part of the Residential Energy Conservation Ordinance (RECO). • Require CalGreen Tier 1 Water Efficiency measures as part of the Rental Housing Energy and Water Efficiency Program. <p><input checked="" type="checkbox"/>Applicable to New Development <input checked="" type="checkbox"/>Applicable to Existing Development</p>		
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Develop a water conservation program to be coordinated with the Rental Housing Water and Energy Efficiency Program. • Develop and implement a voluntary landscaping water efficiency certification training program for irrigation designers, installers, and property managers. • In conjunction with other water conservation measures and programs, continue conducting voluntary Water Wise House Calls (i.e., water audits) for city residents and businesses. • Administer Water Wise Surveys (audits) to the top commercial, institutional, and industrial (CII) water users and homeowner associations (HOAs) with high water use. • Continue administering the Residential Assistance Ambassadors Program that trains volunteers to provide door-to-door residential assistance (surveys) to targeted areas of the city. • Continue to offer the Water Conservation Rebate Program, which provides Toilet Rebates and Washer Machine Rebates to city residents and businesses who install High Efficiency Toilets and Tier 3 Washer Machines. • Use water conservation gardens like the one at the Glen Ellen water conservation office, to demonstrate and promote water conserving landscapes. • Promote "River Friendly Landscaping" techniques which include the use of native and climate appropriate plants; sustainable design and maintenance; underground (water-efficient) irrigation; and yard waste reduction practices. 	<p>U 2.1.2 Optimize Water System</p> <p>U 2.1.5 Comprehensive Water Supply Plan</p> <p>U 2.1.8 Emergency Water Conservation</p> <p>U 2.1.10 Water Conservation Programs</p> <p>U 2.1.11 Water Conservation Enforcement</p> <p>U 2.1.12 Recycled Water</p> <p>U 2.1.13 Landscaping</p>	<p>Table 4-7 #6</p> <p>Table 4-7 #7</p> <p>Table 4-7 #9</p> <p>Table 4-7 #11</p> <p>Table 4-7 #13</p> <p>Table 4-7 #14</p> <p>Table 4-7 #15</p>

STRATEGY 5: WATER CONSERVATION AND WATER EFFICIENCY



MEASURE 5.1: WATER CONSERVATION

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Develop and adopt a Water Conservation Strategy as part of the Urban Water Management Plan to implement the best management practices (BMP) listed in the California Urban Water Conservation Council MOU. • Develop and implement a Conjunctive Use Program that transitions the city from a passive water pumping scheme to an active management program that plans and varies the amount of groundwater pumped based on surface water availability. • Develop an automated operating system for the distribution of water throughout the city to increase efficiency and reduce energy demand. • Update and/or establish criteria and standards to require water efficiency upgrades as a condition of issuing permits for renovations or additions of existing buildings that involve plumbing fixtures consistent with SB 407, which requires single-family homes and multi-family and commercial properties built before January 1, 1994, to upgrade noncompliant plumbing fixtures to water-efficient models at transfer of property. • Continue providing public education (e.g., Bluethumb Program) and conducting outreach campaigns to promote water conservation efforts. Programs should highlight specific water-wasting activities to discourage, such as the watering of non-vegetated surfaces and using water to clean sidewalks and driveways, and educate the community about the importance of water conserving techniques. Water efficiency training and certification for irrigation designers, installers, and property managers should also be offered. • Develop and implement a water conservation program in coordination with the Rental Housing Water and Energy Efficiency Program to audit plumbing fixtures in rental properties. • Develop and adopt regional Low Impact Development (LID) standards, policies, and update codes and ordinances to require LID for new development and redevelopment priority projects to reduce stormwater. Promoting use of native plants with low water requirements for the landscape-type of LID facility can help conserve water. • Develop guidelines and building standards for installation and use of composting toilets. 		

 STRATEGY 5: WATER CONSERVATION AND WATER EFFICIENCY

MEASURE 5.2: WASTEWATER TREATMENT

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Support SCRSD efforts to develop and maintain methane recovery and energy production facilities by 2020 by: <ul style="list-style-type: none"> • Evaluating methane emissions and potential capture at primary and secondary clarifiers and force system mains. • Maintaining methane recovery systems and digester gas combustion systems at wastewater treatment plants. • Developing waste-to-energy projects at 50 percent of wastewater treatment plants. • Evaluating potential for biofuel production at the Sacramento Regional Wastewater Treatment Plant. 	<ul style="list-style-type: none"> U 1.1.4 Special Districts U 2.1.2 Optimize Water System U 2.1.3 Water Treatment Capacity and Infrastructure 	<ul style="list-style-type: none"> Table 4-7 #3 Table 4-7 #8 Table 4-7 #16

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STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.1: PREPARE FOR INCREASES IN AVERAGE TEMPERATURES

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Continue tree planting and tree replacement programs with a goal of adding 1,000 new trees annually. Update park development standards to implement "Leading Edge" sustainable design. Coordinating with Urban Forest Services and Sacramento Tree Foundation to pursue grant funding to add trees to parks. Identify funding for the development and implementation of a street tree master plan for the Central City area as part of the next phase of the Downtown Urban Design Plan. Continue to work with local and regional tree experts and the Tree Foundation to keep an up-to-date list of preferred tree species that will thrive in Sacramento’s current climate, and continue to survive in hotter, drier future climate conditions. Work with labor organizations, the business community, and county and State health and safety agencies to publicize programs and standards for preventing heat-related illness in employees who work outdoors. Continue to operate cooling centers, and publicize precautions for preventing heat-related illness during heat waves. Develop informational materials for the public counter to encourage residents to install cool roof technologies and rooftop gardens and provide guidance to contractors and staff. Explore options in the Green Development Code Update process to improve parking lot shading requirements to improve the health and vigor of the trees. Allow additional trees and landscaping to be installed in existing parking lots without requiring replacement of lost parking spaces (when increase in building area or change in use is not being proposed). Explore options in the Green Development Code Update process to require paving for new development to meet minimum Solar Reflectance Index (SRI) values; and incorporate cool pavement technology into the regular maintenance of existing streets, sidewalks, parking areas, and bike lanes. 	<p>LU 2.3 City of Trees and Open Spaces</p> <p>LU 2.3.1 Multi-functional Green Infrastructure</p> <p>LU 2.6.3 Sustainable Building Practices</p> <p>LU 2.6.6 Heat Island Effect</p> <p>LU 4.2.2 Enhanced Urban Forest</p> <p>ER 3.1.1 Urban Forest Management Plan</p> <p>ER 3.1.2 Manage and Enhance</p> <p>ER 3.1.6 Urban Heat Island Effects</p> <p>ER 3.1.7 Shade Tree Planting Program</p> <p>ER 4.1.2 Community and Rooftop Gardens</p>	<p>Table 4-2 #16</p> <p>Table 4-10 #3</p> <p>Table 4-10 #7</p>

STRATEGY 6: CLIMATE CHANGE ADAPTATION



MEASURE 6.2: PRESERVE WATER SOURCES AND RESPOND TO VARIABLE SUPPLIES

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Seek grant funding to enhance the cost-feasibility of reclaimed water for certain parks and industrial sites. Convene and maintain a multi-stakeholder Sacramento Water Conservation Advisory Group (SWCAG) to serve in an advisory capacity to the City regarding water conservation programs and policies, and strategic planning. The SWCAG will (1) encourage effective water conservation policy and water use efficiency, (2) advance public education and awareness, and (3) build collaborative partnerships. Continue to pursue grant opportunities for projects and programs that reduce water use in the City’s parks and open spaces. Update the Development Code to establish a limit on area of impervious surface allowable and require the use of pervious surface materials in new developments to improve groundwater recharge and limit saltwater intrusion. Protect open space areas that are currently used for recharging groundwater basins or have the potential to be used for recharge. Pursue grant funding to provide resources to incorporate the use of reclaimed water in appropriate parks and industrial sites/processes. Promote the use of rain barrels and rain gardens to conserve water, while not increasing the occurrence of disease vectors. Continue ongoing Sacramento and American River source water protection efforts, based on follow-up to watershed sanitary survey recommendations, including support of watershed protection efforts such as Keep Our Waters Clean. As part of updates to the Water Supply Master Plan, explore the economic costs and benefits associated with recycled water, and identify areas appropriate for additional piping infrastructure. Develop a rebate program to provide incentives for the installation of: <ul style="list-style-type: none"> Complete gray water systems in new and existing buildings. Dual plumbing in new buildings to allow gray water systems to be installed cost-effectively in the future. 	<ul style="list-style-type: none"> U 2.1.2 Optimize Water System U 2.1.3 Water Treatment Capacity and Infrastructure U 2.1 High-Quality and Reliable Water Supply U 2.1.5 Comprehensive Water Supply Plan U 2.1.8 Emergency Water Conservation U 2.1.10 Water Conservation Programs U 2.1.11 Water Conservation Enforcement U 2.1.12 Recycled Water U 2.1.13 Landscaping ER 1.1.2 Regional Planning ER 1.1.3 Stormwater Quality ER 1.1.4 New Development ER 1.1.8 Watershed Education 	<ul style="list-style-type: none"> Table 4-7 #6 Table 4-7 #7 Table 4-7 #9 Table 4-7 #10 Table 4-7 #11 Table 4-7 #13 Table 4-7 #15



STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.3: RESPOND TO ENERGY DEMANDS AND VARIABLE SUPPLIES

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Work with SMUD to encourage greater enrollment of residents and businesses in energy Demand Response Programs to avoid higher costs of peak energy use and lower energy bills. 	<p>LU 2.6.4 Existing Structure Reuse</p> <p>LU 2.6.5 Green Building Retrofit</p> <p>LU 4.5.3 Green Neighborhoods</p> <p>LU 5.1.17 Waste for Energy Generation</p> <p>LU 6.1.6 Renewable Energy</p> <p>LU 6.1.7 Solar Access</p> <p>U 6.1.5 Energy Consumption per Capita</p> <p>U 6.1.8 Other Energy Generation Systems</p> <p>U 6.1.9 Green Businesses</p> <p>U 6.1.10 Energy Rebate Programs</p> <p>U 6.1.11 Energy Efficiency Improvements</p> <p>U 6.1.12 Energy Efficiency Audits</p> <p>U 6.1.13 Energy Efficient Incentives</p> <p>ER 3.1.5 Solar Access</p>	<p>Table 4-2 #9</p> <p>Table 4-2 #11</p> <p>Table 4-2 #25</p> <p>Table 4-7 #14</p> <p>Table 4-7 #22</p> <p>Table 4-7 #23</p> <p>Table 4-7 #24</p> <p>Table 4-7 #25</p> <p>Table 4-7 #26</p>

STRATEGY 6: CLIMATE CHANGE ADAPTATION



MEASURE 6.4: PROTECT PUBLIC FROM HEALTH RISKS AND SAFETY HAZARDS

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> As part of the implementation of the Sacramento County Multi-Hazard Mitigation Plan, participate in the development of a seasonal multi-hazard public education campaign to enhance public awareness about the risk of natural hazards, disaster preparedness, climate change impacts, and how citizens can reduce exposure to hazard-related losses. Update emergency response plans to account for increased potential for black-outs in summertime. Continue to participate in and partner with Sacramento Metropolitan Air Quality Management District on programs such as Sacramento Emergency Clean Air & Transportation (SECAT) Program, Spare the Air Program, and the implementation of the 2030 General Plan. Support efforts of the Sacramento Office of Emergency Services to continue to operate "cooling centers" during heat events to ensure adequate space is available for residents at all times of the week (including nights), with backup generators. Continue to partner with SMAQMD to enhance awareness of air quality index alerts and related outreach and education to protect the health of residents. Support the efforts of the Sacramento-Yolo Mosquito and Vector Management District to: <ul style="list-style-type: none"> Enhance awareness of vector control to protect the health of residents. Require drainage of untreated pools and other water features in home and businesses that are in sale proceedings. Continue development and implementation of the City's Integrated Pest Management (IPM) program for City facilities. Incorporate climate change effects and impacts into public emergency preparedness education programs, with special consideration given to effective methods to communicate the issue to a general audience. 	<p>ER 1.1.5 No Net Increase</p> <p>ER 4.1.1 Locally Grown and Organic Foods</p> <p>ER 4.1.2 Community and Rooftop Gardens</p> <p>ER 6.1 Improved Air Quality</p> <p>ER 6.1.1 Maintain Ambient Air Quality Standards</p> <p>ER 6.1.19 Air Quality Education</p> <p>EC 2.1 Flood Protection</p> <p>EC 2.1.1 Interagency Flood Management</p> <p>EC 2.1.3 Funding for the 200-year Flood Protection</p> <p>EC 2.1.4 Floodplain Storage Maintenance</p> <p>EC 2.1.5 Floodplain Requirements</p> <p>EC 2.1.6 New Development</p> <p>EC 2.1.7 Levee Setbacks for New Development</p> <p>EC 2.1.12 Roadway Systems as Escape Routes</p> <p>EC 2.1.14 Comprehensive Flood Management Plan</p> <p>EC 2.1.15 Flooding Evacuation and Rescue Maps</p> <p>EC 2.1.16 Flood Risk Notification</p> <p>EC 2.1.17 Deed Notification</p> <p>EC 2.1.18 Flood Insurance</p> <p>EC 2.1.19 Dam Failure</p>	<p>Table 4-7 #5</p> <p>Table 4-7 #12</p> <p>Table 4-7 #13</p> <p>Table 4-9 #19</p> <p>Table 4-10 #1</p> <p>Table 4-10 #9</p> <p>Table 4-11 #3</p> <p>Table 4-11 #4</p> <p>Table 4-11 #5</p> <p>Table 4-11 #6</p> <p>Table 4-11 #7</p> <p>Table 4-11 #8</p>



STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.4: PROTECT PUBLIC FROM HEALTH RISKS AND SAFETY HAZARDS

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Continue to partner with relevant organizations and agencies when updating FEMA and DWR flood hazard maps and the City’s Comprehensive Flood Management Plan to consider of the impacts of urbanization and climate change on long-term flood safety and long-term flood event probabilities. Implement the City’s Comprehensive Flood Management Plan, which addresses emergency preparedness, evacuation, hazardous materials, protection of critical facilities, and development guidelines, and flood insurance outreach to better protect citizens in the event of a major flood event. In conjunction with annual updates of the Plan, provide a report to the City Council on the status of Sacramento's flood protection and related issues. Partner with community organizations to perform an analysis of social equity issues related to climate change effects/impacts to assess resilience of low-income communities and guide relevant future policy/program development. Create a heat response plan, focusing on vulnerable populations. Increase community access to fresh fruits and vegetables by providing public community gardens and encouraging urban agriculture and private community gardens with supportive zoning ordinances. Support local farms through access to Sacramento farmer's markets and co-ops that sell locally-grown food. 	<p>M 1.1.3 Emergency Services</p> <p>M 4.1.1 Emergency Access</p> <p>U 2.1.7 Water Supply During Emergencies</p> <p>U 4.1 Adequate Stormwater Drainage</p> <p>U 4.1.1 Adequate Drainage Facilities</p> <p>U 4.1.2 Master Planning</p> <p>U 4.1.5 New Development</p> <p>PHS 4.1.1 Multi-Hazard Emergency Plan</p> <p>PHS 4.1.3 Emergency Operations Center</p> <p>PHS 4.1.4 Emergency and Disaster Preparedness Exercises</p> <p>PHS 4.1.5 Mutual Aid Agreements</p> <p>PHS 4.1.6 Education Programs</p> <p>PHS 5.1.8 Pest/Vector Management</p>	

STRATEGY 6: CLIMATE CHANGE ADAPTATION 

MEASURE 6.5: PROMOTE A CLIMATE-RESILIENT ECONOMY

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Work with the Business Environmental Resource Center (BERC) to incorporate information into BERC programs about actions that businesses can take to reduce their vulnerability to climate change. • Continue to analyze information on potential impacts of climate change on government operations and the local economy, and actively share results to foster public awareness and support for adaptation policy. • Identify and seek opportunities to diversify local economy in response to global supply chain pressures, in order to reduce effects on the local economy from climate change impacts in other regions. 	<p>ED 1.1.2 Economic Development Strategy</p> <p>ED 1.1.3 Market Trends</p> <p>ED 1.1.4 Economic Development Partnerships</p> <p>ED 1.1.6 Tourism and Related Businesses</p> <p>ED 1.1.7 Sustainable Businesses</p> <p>ED 2.1.2 Attraction of Key Technical Institutions</p> <p>ED 3.1.7 Infrastructure and Public Facilities</p> <p>ED 3.1.8 Infrastructure Investments</p> <p>ED 4.1.1 City Role in Economic Initiatives</p>	<p>Table 4-4 #2</p> <p>Table 4-4 #5</p> <p>Table 4-4 #10</p>



STRATEGY 6: CLIMATE CHANGE ADAPTATION

MEASURE 6.6: RESPOND TO POTENTIAL IMPACTS ON PUBLIC INFRASTRUCTURE

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Develop an Interagency Adaptation Team to work with appropriate agencies (e.g., California Natural Resources Agency, State Lands Commission, California Energy Commission, Sacramento Area Flood Control Agency [SAFCA], UC Davis) and neighboring jurisdictions (e.g., Sacramento County) to: <ul style="list-style-type: none"> • Ensure that current information and data on climate change effects and impacts are considered and addressed as part of updates to infrastructure and utility plans, manuals, and specifications. • Review existing infrastructure plans, policies, standards, and investments to ensure information about projected climate change impacts is included. • Assess impacts of climate change effects when siting new infrastructure and maintaining or renovating existing infrastructure. • Incorporate climate change impact information into the design, construction, operation, and maintenance of infrastructure. • Actively collaborate with regional agencies and neighboring jurisdictions to ensure that planning for future development and redevelopment incorporates risks from climate change effects/impacts. • Support SAFCA's efforts to achieve 200 year flood protection, and take a strong leadership role in the evolving process of readjusting flood protection to accommodate for climate change. Partner with SAFCA to negotiate for the development of reservoir management practices and improvements that will increase Sacramento's level of flood protection. • Enroll all applicable municipal facilities in Demand Response Programs and promote onsite energy generation and/or storage to help reduce peak energy demands and offset energy costs. 	<ul style="list-style-type: none"> EC 2.1.2 Interagency Levee Management EC 2.1.9 Oversized Levees for Infill Development EC 2.1.10 Siting and Design of Critical Facilities U 1.1.1 Provision of Adequate Utilities U 1.1.3 Sustainable Facilities and Services U 1.1.7 Infrastructure Finance U 1.1.9 Joint-Use Facilities U 1.1.11 Underground Utilities U 2.1.2 Optimize Water System U 2.1.3 Water Treatment Capacity and Infrastructure U 2.1.4 Priority for Water Infrastructure U 4.1.1 Adequate Drainage Facilities U 4.1.2 Master Planning U 4.1.3 Regional Stormwater Facilities U 4.1.5 New Development 	<ul style="list-style-type: none"> Table 4-7 #2 Table 4-7 #6 Table 4-7 #7

STRATEGY 6: CLIMATE CHANGE ADAPTATION



MEASURE 6.7: PROTECT NATURAL ECOSYSTEMS AND MIGRATION ROUTES

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Support the efforts of The Natomas Basin Conservancy and other habitat preserve managers to adaptively manage wildlife preserves to ensure adequate connectivity, habitat range, and diversity of topographic and climatic conditions are provided for species to move as climate shifts. The new or amended HCPs should provide a robust adaptive management component sufficient to ensure that habitat preserves are resilient to climate change effects/impacts and to ensure their mitigation value over time. Provisions should include, but are not limited to: greater habitat ranges and diversity; corridors and transition zones to accommodate retreat or spatial shifts in natural areas; redundant water supply; elevated topography to accommodate extreme flooding; and flexible management and fee structure. As funding becomes available, implement active habitat restoration and enhancement to reduce impact of climate change stressors and improve overall resilience of habitat within existing parks and open space in the city. Support the efforts of Sacramento County to improve the resilience of habitat areas in the American River Parkway. Recognize the value of trees on levees for habitat and as carbon sinks. Support SAFCA’s efforts to protect the existing trees on levees. 	<p>LU 9.1.1 Open Space Preservation</p> <p>ER 1.1.1 Conservation of Open Space Areas</p> <p>ER 2.1.1 Resource Preservation</p> <p>ER 2.1.2 Conservation of Open Space</p> <p>ER 2.1.3 Natural Lands Management</p> <p>ER 2.1.4 Retain Habitat Areas</p> <p>ER 2.1.5 Riparian Habitat Integrity</p> <p>ER 2.1.6 Wetland Protection</p> <p>ER 2.1.7 Annual Grasslands</p> <p>ER 2.1.8 Oak Woodlands</p> <p>ER 2.1.9 Wildlife Corridors</p> <p>ER 2.1.10 Habitat Assessments</p> <p>ER 2.1.11 Agency Coordination</p> <p>ER 2.1.12 Natomas Basin Habitat Conservation Plan</p> <p>ER 2.1.13 Support Habitat Conservation Plan Efforts</p> <p>ER 2.1.14 Public Education</p>	<p>Table 4-10 #9</p>

 STRATEGY 7: COMMUNITY INVOLVEMENT AND EMPOWERMENT

MEASURE 7.1: EDUCATION AND COMMUNITY INVOLVEMENT

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Work with community partners to initiate a Green Building Professionals Guild in Sacramento to provide professional development and training opportunities for contractors and others in the green building industry. Work with community partners to design and implement a program educating the public about the cost and benefits associated with green buildings. Develop a pilot project to educate the public on how to garden and grow their own food. Work with community partners to develop a Green Lease Toolkit that promotes partnership between building owners and tenants to contribute to efficient building operations. Improve the City's sustainability website to incorporate all the City's sustainability program information in one location. Continue to collaborate with city agencies, nonprofit organizations, neighborhoods groups and other community organizations to promote the issues of air quality, food availability, renewable energy systems, sustainable land use and the reduction of GHGs. Identify and work with existing groups, such as schools, neighborhood associations, and non profits, to identify issues and opportunities for engaging them in sustainability efforts. Work with community partners to ensure that all possible segments of the community are included in the City's sustainability efforts and outreach. Develop and implement a campaign to Make Green Routine program to achieve "green" practices in residential households. Establish community working groups to lead individuals or other groups of the community to promote climate protection programs. Continue to implement and expand educational programs and media campaigns to promote and educate the public about the 3R's (i.e., reduce, reuse, recycle) and the benefits of resource conservation, recycling, composting, and responsible purchasing. 	<p>LU 2.8.6 Community Outreach</p> <p>M 1.4.3 Transportation Management Associations</p> <p>M 1.4.3 Community Outreach</p> <p>M 5.1.13 Public Information and Education</p> <p>M 5.1.14 Encourage Bicycle Use</p> <p>U 5.1.8 Neighborhood Clean-Up Program</p> <p>U 5.1.9 Diversion of Waste</p> <p>U 5.1.21 Educational Programs</p> <p>U 6.1.5 Energy Consumption per Capita</p> <p>U 6.1.13 Energy Efficient Incentives</p> <p>ED 4.1.3 Public/Private Partnerships</p> <p>ER 1.1.8 Watershed Education</p> <p>ER 2.1.14 Public Education</p> <p>ER 2.1.15 Community Involvement</p> <p>ER 3.1.8 Public Education</p> <p>ER 4.1.2 Community and Rooftop Gardens</p> <p>ER 6.1.14 Zero-Emission and Low-Emission Vehicle Use</p> <p>ER 6.1.17 Wood Stove/Fireplace Replacement</p> <p>ER 6.1.18 Employer Education Programs</p> <p>ER 6.1.19 Air Quality Education</p> <p>EC 2.1.18 Flood Insurance</p> <p>PHS 4.1.4 Emergency and Disaster Preparedness Exercises</p> <p>PHS 6.1.11 Communication and Education</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>Table 4-7 #8</p> <p>Table 4-7 #22</p> <p>Table 4-7 #27</p> <p>Table 4-9 #12</p> <p>Table 4-9 #19</p> <p>Table 4-10 #7</p> <p>Table 9-2 #16</p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p>

STRATEGY 7: COMMUNITY INVOLVEMENT AND EMPOWERMENT



MEASURE 7.2: RECOGNIZE COMMUNITY ACCOMPLISHMENTS

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> • Develop and implement a program celebrating local developers that achieve third party green building certification to both raise community awareness and reward high performance. • Support the ongoing efforts of the Business Environmental Resource Center (BERC) to implement the Sacramento Area Sustainable Business Certification Program, which recognizes and rewards business practices that achieve a high standard of sustainability and environmental performance and reduce GHG emissions. • Work with local groups and organizations to develop programs (e.g., home tours) to celebrate and raise awareness about innovative green building projects in both new and existing buildings. 		

 STRATEGY 7: COMMUNITY INVOLVEMENT AND EMPOWERMENT

MEASURE 7.3: BUILD BUSINESSES AND COMMUNITY ORGANIZATION PARTNERSHIPS

Climate Action Plan	2030 General Plan	
Actions	Policies	Implementation Programs
<p>Supporting Actions:</p> <ul style="list-style-type: none"> Expand existing partnerships with City agencies, educational institutions, neighborhood groups, businesses, and community organizations to continue efforts to maintain the City’s status as an environmental “green” leader. 	<p>M 1.4.2 Automobile Commute Trip Reduction</p> <p>M 1.4.4 Off-Peak Deliveries</p> <p>M 1.5.3 Public-Private Transportation Partnerships</p> <p>U 5.1.12 City Recycling</p> <p>U 5.1.15 Recycled Materials in New Construction</p> <p>U 6.1.6 Renewable Energy</p> <p>U 7.1.3 State-of-the-Art Technology</p> <p>PHS 6.1.11 Communication and Education</p>	<p>Table 4-7 #22</p> <p>Table 9-2 #14</p>

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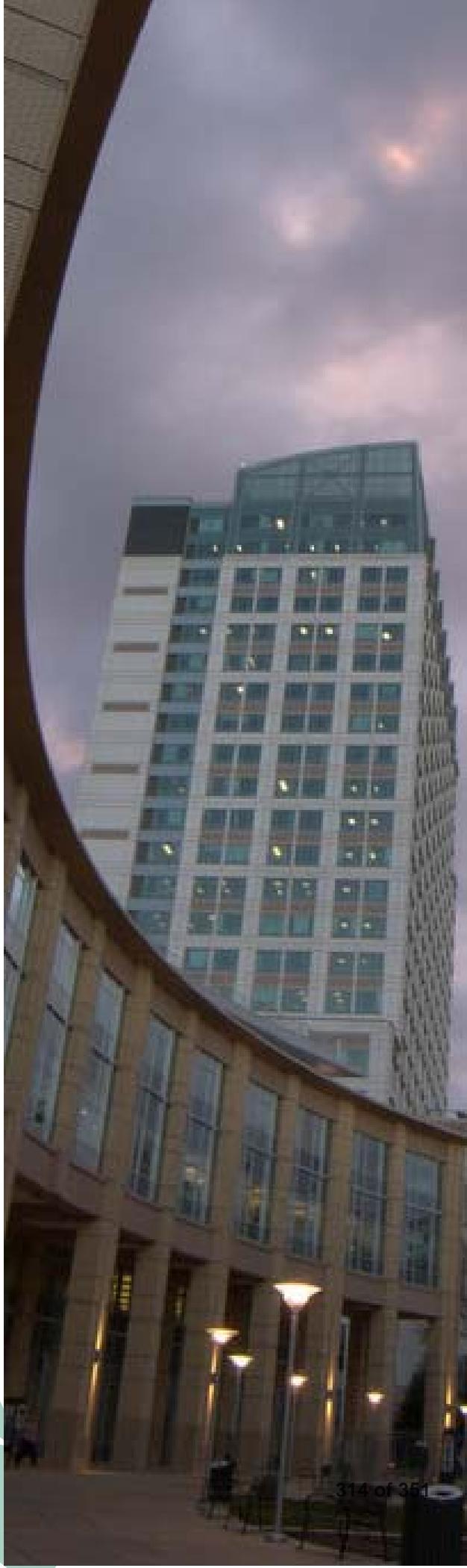
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APPENDIX D

GHG EMISSIONS INVENTORY FOR SACRAMENTO COUNTY

The Greenhouse Gas Emissions Inventory for Sacramento County can be found on the following website: www.dera.saccounty.net/Portals/0/docs/Final_SACCTY_GHG_June09_stacked_small.pdf (November 2011). If not available, please contact the City of Sacramento Community Development Department at (916) 264-5011.

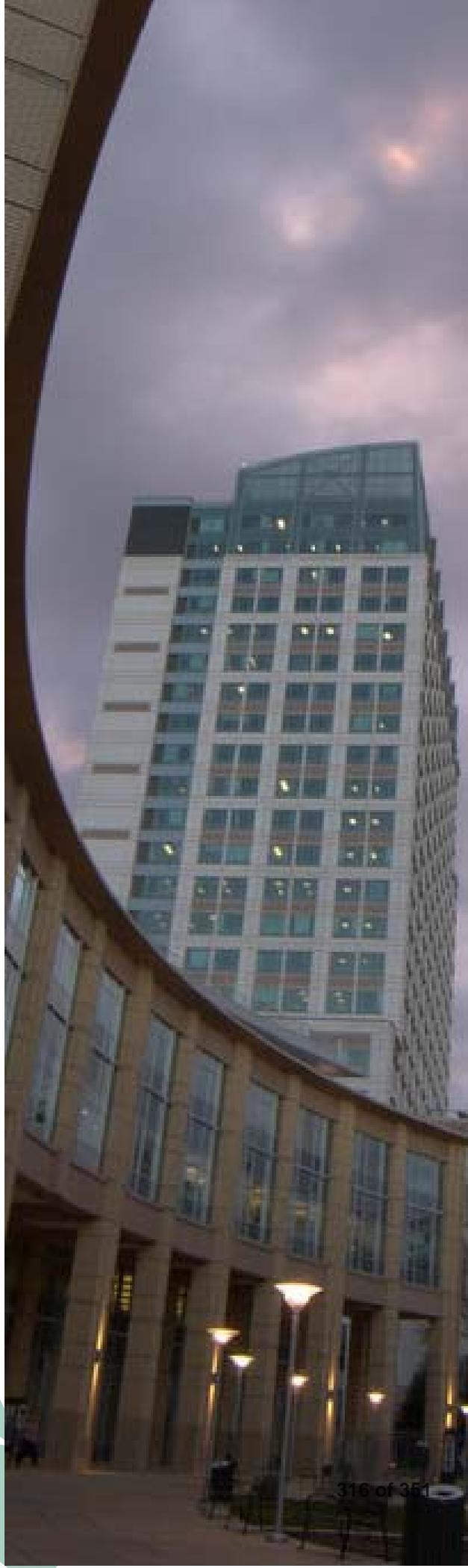


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APPENDIX E

TECHNICAL CLIMATE ACTION PLAN ANALYSIS



Memo



455 Capitol Mall, Suite 210
Sacramento, CA 95814
(916) 444-7301

Date: October 25, 2011
To: Helen Selph, Erik de Kok, Tom Pace (City of Sacramento)
From: Curtis Alling, Honey Walters, and Heather Phillips
Subject: **City of Sacramento Greenhouse Gas Emissions Reduction Target and Goals-Final**
cc: Ted Holzem (Mintier Harnish)

Introduction

This memorandum submitted by Ascent Environmental, Inc. (Ascent) presents information regarding the development of the City's greenhouse gas (GHG) reduction target for 2020. This work was based on the 2005 emissions inventory and future-year projections completed by ICF International (ICF) and Ascent. This memorandum also summarizes the development of additional longer-term GHG reduction goals (e.g., 2030 and 2050) for consideration by the City.

The field of emissions inventory development and available tools and methods continues to evolve in the absence of standardized guidance. The 2005 base-year inventory and future projections were compiled for the following emission sectors: energy consumption in residential, commercial, and industrial sectors; on-road transportation; off-road mobile sources; solid waste; wastewater treatment; water consumption-related; agricultural; and high global warming potential (GWP) GHGs.

Future year GHG emission projections shown in Table 2 below were developed under a scenario (business-as usual) that does not account for emission reductions associated with implementation of the Climate Action Plan (CAP) currently in development, advances in technology, or emission reductions programs initiated by the State or federal government.

GHG emission projections were estimated using City-specific demographic data, where available, from the City's 2030 General Plan buildout model. The demographic data summarized in Table 1 were used by ICF to estimate GHG emissions projections for 2020, 2030, and 2050. In addition, Fehr & Peers Transportation Consultants (Fehr & Peers) prepared a revised vehicle miles traveled (VMT) estimate using the latest version of the SACSIM travel demand forecast model for 2035. The results of the VMT forecast prepared by Fehr & Peers are provided as an appendix to this memo. Ascent revised the on-road mobile-source sector of the emissions inventory using the California Air Resources Board's (ARB's) Mobile-Source Emission Factor Model (EMFAC 2007)¹. Ascent

¹ Since the City's GHG inventory was conducted in May 2011, ARB released an updated version of the EMFAC model, EMFAC 2011, released on September 30, 2011. The primary difference between EMFAC 2007 and 2011 is that EMFAC 2011

interpolated and extrapolated revised emissions estimate to derive GHG emissions estimates for the years 2020, 2030, and 2050.

Table 1				
City of Sacramento Demographic Data Projections				
	2005	2020	2030	2050
Population	457,837	563,156	640,764	776,415
Housing	178,699	237,194	276,191	354,186
Industrial Employment	21,531	24,636	26,706	30,846
Non-retail Employment	285,664	362,582	413,861	516,419
Agricultural Employment	12,759	12,965	13,654	16,126

Source: ICF 2010

Summary of Results

Table 2 summarizes the results of the base-year (2005) inventory, and business-as usual projections for 2020, 2030, and 2050.

Table 2				
City of Sacramento Base-Year Greenhouse Gas Emissions Inventory and Future-Year Projections				
Emissions Sector	MT of CO₂e			
	2005	2020	2030	2050
Residential Energy	748,792	993,900	1,157,307	1,484,125
Commercial/Industrial Energy	979,777	1,243,593	1,419,470	1,771,224
Industrial-Specific	28,656	32,789	35,544	41,054
Transportation (On-Road Mobile)	2,013,962	2,193,916	2,313,886	2,553,825
Solid Waste	241,862	285,143	313,248	378,605
Wastewater Treatment	57,380	70,579	80,306	97,307
Water Consumption	12,810	15,757	17,928	21,724
High GWP	165,916	204,083	232,207	281,366
Agriculture	2,054	2,087	2,198	2,596
Off-Road Equipment	192,768	244,673	279,276	348,483

incorporates emission reductions anticipated from recent increases in fuel economy standards and technology changes that will affect the future vehicle fleet. EMFAC 2007 is still an acceptable model and still accurately characterizes mobile-source emissions within the City, particularly because legislative reductions are taken outside the GHG inventory modeling and projections, as described below under “State and Federal Emission Reduction Programs” and summarized in Table 6. Use of EMFAC 2011 will be a factor for consideration when the City monitors and updates its GHG inventory over the CAP implementation period.

Total	4,443,977	5,286,520	5,851,370	6,980,309
Notes: CO ₂ e = carbon dioxide equivalent; GWP=global warming potential, MT= metric tons. Source: Ascent 2011, Fehr & Peers 2011; ICF 2011, compiled by Ascent in 2011				

Jurisdictional Control

Of the sectors studied in the emissions inventory, the sectors (and portions thereof) over which the City has jurisdiction are somewhat limited. For example, the City retains discretionary authority over most land use decisions within its incorporated limits, which are known to influence VMT, but does not control public transit and has no jurisdiction over fuel economy standards, which are determined by the federal government. Similarly, the City has the ability to implement energy efficiency standards by ordinance for buildings constructed or renovated in the City, but it does not control the composition of Sacramento Metropolitan Utilities District's (SMUD) energy portfolio, which is regulated at the State level. The degree to which State and federal regulations may influence GHG emissions within the City is discussed later in this report.

Sectors over which the City has very limited control include the off-road equipment fleet and high GWP GHG-emitting processes (e.g., the City does not have jurisdiction over equipment emission rates from the tail pipe, and high GWP GHGs are being addressed through programs of the California Air Resources Board [ARB]). For these reasons, these sectors were removed from the inventory for purposes of GHG emissions reduction target development. In addition, there is very little agricultural land within City limits and agriculture-related emissions within the City are expected to remain constant or decrease over the CAP planning period. Agricultural GHG emissions compose a very small portion of the total GHG inventory (less than 0.1%), and will not be a source of cost-effective GHG reduction strategies in the CAP. Thus, agricultural GHG emissions were also removed from the City's jurisdictional inventory. The GHG emissions over which the City has jurisdiction are reported below in Table 3. The jurisdictional inventory will be the subject of GHG reduction efforts and target-setting, discussed below.

Emissions Sector	MT of CO ₂ e			
	2005	2020	2030	2050
Residential Energy	748,792	993,900	1,157,307	1,484,125
Commercial/Industrial Energy ¹	979,777	1,243,593	1,419,470	1,771,224
Industrial Specific Energy	28,656	32,789	35,544	41,054
Transportation (On-Road Mobile)	2,013,962	2,193,916	2,313,886	2,553,825
Solid Waste	241,862	285,143	313,248	378,605
Wastewater Treatment	57,380	70,579	80,306	97,307
Water Consumption	12,810	15,757	17,928	21,724
Total	4,083,239	4,835,677	5,337,689	6,347,864

Notes: CO₂e = carbon dioxide equivalent; MT= metric tons.

¹ Some utility customers may choose not to disclose their energy consumption information. In these cases where a customer elects to keep this information confidential, its consumption data is aggregated into the Commercial/Industrial Energy sector. The Industrial Specific Energy sector represents energy consumed by industrial buildings where the customer did not chose to keep its consumption information confidential.

Source: Ascent 2011, Fehr & Peers 2011; ICF 2011, compiled by Ascent in 2011

City of Sacramento Communitywide Greenhouse Gas Emissions Reduction Target

In this memorandum, please note that year 2005 GHG levels are also referred to as “base year” or “existing” levels as this was the most recent year with comprehensive communitywide inventory data. Also, as part of the City’s Phase 1 efforts, a minimum 15% reduction below 2005 levels by 2020 was identified for internal operations only (e.g., local government-owned) consistent with guidance provided in the California Air Resources Board’s (ARB) Climate Change Scoping Plan (Scoping Plan) (ARB 2008).

With respect to communitywide GHGs, attaining a 15% reduction below base year (2005) levels would require an emissions reduction of approximately 612,486 metric tons carbon dioxide equivalent per year (MT CO₂e/year) by 2020, or 1,364,924 MT CO₂e/year below 2020 projected levels. This is approximately a 28% reduction from projected 2020 emission levels. This reduction would need to be achieved in the context of future growth, as the City anticipates approximately 116,400 additional people by 2020 (ICF 2010). GHG emissions in the City would be limited to approximately 3,470,753 MT CO₂e/year in 2020. This emissions limit represents 15% below the 2005 GHG emission levels under the City’s jurisdiction. Refer to Table 4 for a summary of this information. Please note that this 15% reduction would be the minimum required to comply with statewide GHG emissions reduction efforts (e.g., Assembly Bill [AB] 32) and current guidance offered by ARB.

**Table 4
 Greenhouse Gas Emissions Reduction Target**

	Target (15% reduction from 2005 levels by 2020)	
	MT CO ₂ e/yr	% reduction
Emissions Limit	3,470,753	-
Reduction from Existing	612,486	15%
Reduction from 2020 Projected	1,364,924	28%

Notes: CO₂e = carbon dioxide equivalent; MT= metric tons.

Source: Data compiled by Ascent in 2011

Interim Future Emission Reduction Goals

The identified target discussed above would achieve minimum compliance with AB 32. In order to comply with the intent of Executive Order S-3-05, and set the City on a path toward continued GHG emission reductions beyond 2020, the following interim future GHG emissions reduction goals are worthy of consideration. S-3-05 requires an 80% reduction in statewide GHG emissions below 1990 levels by 2050.

According to the ARB’s Scoping Plan, 15% below 2005 emission levels would be comparable to 1990 statewide emission levels (ARB 2008). If we assume that 15% below 2005 levels would also be analogous to 1990 emission levels for the City, we can treat the 2020 GHG reduction target as a proxy for 1990 emission levels in order to apply the 80% below 1990 emission goal to the City’s data.

It is not the obligation of the City to comply with S-3-05. However, the City could strive to achieve the following interim goals presented in Table 5. The data in Table 5 were interpolated linearly assuming an 80% reduction in emissions below the City’s 2020 target by 2050:

Table 5 City of Sacramento Interim Future Greenhouse Gas Emissions Reduction Goals			
2030		2050	
% Below Existing	MT CO ₂ e/year Reduction from Existing (2005)	% Below Existing	MT CO ₂ e/year Reduction from Existing (2005)
38%	1,538,020	83%	3,389,088

Notes: CO₂e = carbon dioxide equivalent; MT= metric tons.
 Source: Data compiled by Ascent in 2011

It would be unreasonable to expect that the City could achieve the aggressive emission reductions presented above without the aid of statewide programs, changes in technology, and/or funding assistance. Identification of potentially feasible, post-2020 actions would require subsequent analysis, City planning decisions, and coordination with state programs.

State and Federal Emissions Reduction Programs

Existing federal regulations addressing GHG emissions from passenger cars and trucks (e.g., Corporate Average Fuel Economy [CAFE]) standards revised in the 2007 House Energy Bill; State and federal Advanced Clean Cars programs) and State-issued regulations to increase the amount of electricity generated from renewable sources (e.g., California Renewable Energy Portfolio Standard Program) will likely reduce the rate of GHG emissions increase associated with mobile sources and energy consumption.

In December 2008, ARB adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) of CO₂e, or approximately 22% from the state’s projected 2020 emissions level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, or almost 10%, from 2008 emissions). ARB’s original 2020 projection was 596 MMT CO₂e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). In August 2011, the Scoping Plan was re-approved by ARB, and includes the Final Supplement to the Scoping Plan Functional Equivalent Document (FED), which further-examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state’s GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by implementing the following measures and standards (ARB 2011):

- improved emissions standards for light-duty vehicles (estimated reductions of 30.1 MMT CO₂e),

- the Low-Carbon Fuel Standard (15.0 MMT CO₂e),
- energy efficiency measures in buildings and appliances (11.9 MMT CO₂e), and
- a renewable portfolio and electricity standards for electricity production (23.4 MMT CO₂e).

ARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the *Scoping Plan* does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The *Scoping Plan* states that the ultimate GHG reduction assignment to local government operations is to be determined (ARB 2008). With regard to land use planning, the *Scoping Plan* expects approximately 3.0 MMT CO₂e will be achieved associated with implementation of SB 375, which is discussed further below (ARB 2011).

At the local level, ARB issued the Sacramento Area Council of Governments (SACOG) GHG emission reduction targets for light-duty mobile-sources of 7% by 2020 and 16% by 2035, pursuant to Senate Bill 375 (SACOG 2010). For the purposes of this CAP, the City will be quantifying the GHG emission reduction benefits of individual land use and transportation measures. Because measures implemented by SACOG to achieve the SB 375 GHG reduction targets would likely be similar to programs implemented by the City as identified in the CAP, it is possible that some double-counting would occur if both the City's CAP measures and SB 375 targets were credited. Therefore, no legislative reductions were assumed from SB 375.

In addition, SMUD achieved 12% renewable energy in its portfolio in 2006 (SMUD 2008). SMUD plans to meet the 33% renewable energy portfolio standard by 2020, which would result in an additional 21% reduction in GHG emissions from electricity consumption in the City. For other applicable programs, Ascent applied the emission reductions estimated in the Scoping Plan to the associated emission sectors in the City's inventory. See Table 6 for a summary of estimated emission reductions from State and federal programs that would affect the City's projected GHG emissions.

If all programs are implemented as described in the Scoping Plan and by SMUD, the City's 2020 emissions would be reduced by a maximum of 13.6% from projected levels, leaving approximately 14.4% to be accomplished by the City's CAP. The effect of legislation on the City's GHG emissions projections is summarized in Table 6. It is anticipated that future legislation will be introduced to support longer-term GHG emissions reductions beyond 2020, but the effects of future legislation on the City's GHG emissions inventory is unknown at this time. Therefore, no additional reductions from legislation were accounted for beyond 2020.

Table 6
Estimated Effects of State and Federal Programs on City of Sacramento
Greenhouse Gas Emissions Projections

Scoping Plan Measure	Emissions Sector	Scoping Plan- Estimated Emission Reduction (MMT CO ₂ e by 2020)	Projected 2020 Emissions of Sector (MMT CO ₂ e by 2020)	Statewide% Reduction	Local % Reduction	Inventory Subsector	% of City's Inventory Affected in 2020	Scaled % Reduction from 2020 Projected Emissions
Federal Fuel Economy Standards; AB 1493 (Pavley) and Advanced Clean Cars	Transportation	30.1	210.0	14.3%	-	80.3% (light-duty vehicles)	45.4%	5.2%
Energy Efficiency Measures; California Green Building Code ¹	Energy	11.9	167.7	7.1%	-	-	46.9%	3.3%
Renewable Electricity Standard; Renewable Portfolio Standard	Energy	21.3	185.9	11.5%	21%	51.6% (electricity)	46.9%	5.1%
Total								13.6%
Notes: CO ₂ e = carbon dioxide equivalent; MMT= million metric tons. ¹ Energy Efficiency Measures and Green Building Code assumes that development would implement the basic Green Building Code Standards (CalGreen). Source: ARB 2010; SACOG 2010; SMUD 2008. Data compiled by Ascent in 2011								

Conclusion

The GHG reduction target described above is approximately 612,486 MT CO₂e/year below base-year (2005) emission levels and 1,364,924 MT CO₂e/year below business-as-usual 2020 projected levels. This represents a 15% reduction below base-year (2005) emissions and approximately 28% below projected 2020 GHG emissions. Future year (beyond 2020) GHG reduction goals could involve GHG reductions of approximately 3.4 million MT CO₂e/year by 2050, which is approximately 83% below projected 2050 emissions. This future reduction goal is not regulatory, but would put the City on track with the framework established within Executive Order S-3-05 to reduce the State's GHG emissions to 80% below 1990 levels by 2050.

Ascent recommends quantification of GHG reduction measures in the CAP separately from potential reductions that may occur from legislation. If legislative reductions are not realized, the City should be in a position to achieve its GHG reduction targets with its own actions and programs. This approach would provide a greater margin of environmental protection in the event that State programs to reduce GHG emissions are not realized.

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Memo



455 Capitol Mall, Suite 210
Sacramento, CA 95814
(916) 444-7301

Date: January 5, 2012
To: Helen Selph, Erik de Kok, Tom Pace (City of Sacramento)
From: Curtis Alling, Honey Walters, and Heather Phillips
Subject: **City of Sacramento Greenhouse Gas Emissions Reduction Analysis (Gap Analysis)-Final**
cc: Ted Holzem (Mintier Harnish)

Introduction

This technical memorandum submitted by Ascent Environmental, Inc. (Ascent) presents information related to the greenhouse gas (GHG) emissions reduction effectiveness of the City's existing strategies (e.g., 2030 General Plan, Sustainability Implementation Plan, and Municipal [Phase 1] activities, and others) for use in the communitywide Climate Action Plan (CAP), which is currently in progress. The GHG reduction effectiveness of these initial CAP strategies was estimated for the years 2020, 2030, and 2050. The associated reductions were applied to the GHG emission projections for the aforementioned future years and compared with the minimum target and interim future year goals as described for the City below and in the technical memorandum submitted on June 3, 2011 (*City of Sacramento Greenhouse Gas Emissions Reduction Target and Goals-Revised Draft*) and finalized October 25, 2011. This exercise is referred to as the "gap analysis", whereby the amount of emissions reduction expected by programs already underway (or currently under consideration) is estimated and, thus, the "gap", or shortfall, below the City's minimum GHG reduction target is determined. The City's baseline jurisdictional GHG emissions inventory and projections that form the basis of this work are summarized in Table 1. The GHG reductions were quantified relative to the future year projections wherever substantial evidence and reasonable assumptions were available to support calculations for comparison purposes as summarized in Tables 2 and 3. Also, as part of the City's Phase 1 efforts, a minimum 15% reduction below 2005 levels by 2020 was identified for internal operations only (e.g., local government-owned) consistent with guidance provided in the California Air Resources Board's (ARB) Climate Change Scoping Plan (Scoping Plan) (ARB 2008).

With respect to communitywide GHGs, attaining a 15% reduction below base year (2005) levels would require an emissions reduction of approximately 612,486 metric tons carbon dioxide equivalent per year (MT CO₂e/year) by 2020, or 1,364,924 MT CO₂e/year below 2020 projected levels. This is approximately a 28% reduction from projected 2020 emission levels. This reduction would need to be achieved in the context of future growth, as the City anticipates approximately 116,400 additional people by 2020 (ICF 2010). GHG emissions in the City would be limited to approximately 3,470,753 MT CO₂e/year in 2020. This emissions limit represents 15% below the 2005 GHG emission levels under the City's jurisdiction. Refer to Table 2 for a summary of this information. Please note that this 15% reduction would be the minimum required to comply with statewide GHG emissions reduction efforts (e.g., Assembly Bill [AB] 32) and current guidance offered by ARB.

Table 1				
City of Sacramento Jurisdictional Greenhouse Gas Emissions Inventory and Future-Year Projections				
Emissions Sector	MT CO₂e/year			
	2005	2020	2030	2050
Residential Energy	748,792	993,900	1,157,307	1,484,125
Commercial/Industrial Energy ¹	979,777	1,243,593	1,419,470	1,771,224
Industrial Specific Energy	28,656	32,789	35,544	41,054
Transportation (On-Road Mobile)	2,013,962	2,193,916	2,313,886	2,553,825
Solid Waste	241,862	285,143	313,248	378,605
Wastewater Treatment	57,380	70,579	80,306	97,307
Water Consumption	12,810	15,757	17,928	21,724
Total	4,083,239	4,835,677	5,337,689	6,347,864

Notes:
CO₂e = carbon dioxide equivalent; MT= metric tons.
¹ Some utility customers may choose not to disclose their energy consumption information. In these cases where a customer elects to keep this information confidential, its consumption data is aggregated into the Commercial/Industrial Energy sector. The Industrial Specific Energy sector represents energy consumed by industrial buildings where the customer did not chose to keep its consumption information confidential.
Source: Ascent 2011, Fehr & Peers 2011; ICF 2011, compiled by Ascent in 2011

Table 2		
Greenhouse Gas Emissions Reduction Target		
	Target (15% reduction from 2005 levels by 2020)	
	MT CO₂e/yr	% reduction
Emissions Limit	3,470,753	-
Reduction from Existing	612,486	15%
Reduction from 2020 Projected	1,364,924	28%

Notes: MT CO₂e/yr = metric tons carbon dioxide equivalent per year.
Source: Data compiled by Ascent in 2011

The identified target discussed above would achieve minimum compliance with AB 32. In order to comply with the intent of Executive Order S-3-05, and set the City on a path toward continued GHG emission reductions beyond 2020, the following interim future GHG emissions reduction goals are worthy of consideration. S-3-05 requires an 80% reduction in statewide GHG emissions below 1990 levels by 2050.

According to the ARB's Scoping Plan, 15% below 2005 emission levels would be comparable to 1990 statewide emission levels (ARB 2008). If we assume that 15% below 2005 levels would also be analogous to 1990 emission levels for the City, we can treat the 2020 GHG reduction target as a proxy for 1990 emission levels in order to apply the 80% below 1990 emission goal to the City's data.

It is not the obligation of the City to comply with S-3-05. However, the City could strive to achieve the following interim goals presented in Table 3. The data in Table 3 were interpolated linearly assuming an 80% reduction in emissions below the City’s 2020 target by 2050:

Table 3 City of Sacramento Interim Future Greenhouse Gas Emissions Reduction Goals			
2030		2050	
% Below Existing (Reduction from 2020 Projected)	MT CO ₂ e/year Reduction from Existing (Reduction from 2020 Projected)	% Below Existing (Reduction from 2020 Projected)	MT CO ₂ e/year Reduction from Existing (Reduction from 2020 Projected)
38% (52%)	1,538,020 (2,792,470)	83% (89%)	3,389,088 (5,653,713)
Notes: CO ₂ e = carbon dioxide equivalent; MT= metric tons; existing = 2005. Source: Data compiled by Ascent in 2011			

It would be unreasonable to expect that the City could achieve the aggressive emission reductions presented above without the aid of statewide programs, changes in technology, and/or funding assistance. Identification of potentially feasible, post-2020 actions would require subsequent analysis, City planning decisions, and coordination with state programs.

Calculation Methods

There were two methods employed for calculating GHG reduction effectiveness of the identified CAP strategies, known as “top-down” and “bottom-up”. The top-down method applies scaling indicators to the City’s GHG emissions inventory to determine the quantity of emissions that would be affected by a strategy. For example, improvements to the City’s bicycle infrastructure would reduce emissions from the transportation sector (i.e., 45% of the GHG inventory in 2020) by 1.5% (Fehr & Peers 2011). Thus, 45% x 1.5% would reduce the City’s 2020 GHG emissions by 0.7%.

On the other hand, a bottom-up method uses an activity and emissions factor to determine the amount of GHG reduction. For example, installation of solar panels on new residential development would result in savings of approximately 4,500 kilowatt-hours per year (KWh/yr) per home. The Sacramento Municipal Utilities District (SMUD) generates electricity with an emission factor of 0.616 pounds (lb) CO₂e per KWh. Therefore, each photovoltaic system would eliminate approximately 2,783 lb CO₂e/year or 1.3 MT CO₂e/yr. Please note that numbers may not match exactly due to rounding.

GHG reductions were calculated in a step-wise manner for the future years of 2020, 2030, and 2050. In other words, GHG reductions (MT CO₂e/year) are assessed during a snapshot in time in years 2020, 2030, and 2050. This is a simplified method of characterizing GHG reductions, which would more realistically occur on a continuous basis. However, a step-wise method is appropriate for a planning-level document, such as a CAP, since the City’s GHG reduction targets and monitoring of CAP implementation progress would be tied to these future years.

Importantly, GHG reductions were quantified for strategies wherever substantial evidence and reasonable assumptions were available to support calculations. The City has identified numerous programs and policies that were not quantifiable at this time, but are still expected to reduce GHG emissions. Such programs will be addressed qualitatively in the CAP and treated as supporting measures to the strategies that were quantified, and will be tracked for potential quantification in the future.

Summary of Results

The following sections discuss the assumptions and estimated effectiveness of the identified GHG reduction strategies. These strategies are contained (or tied to) the City's 2030 General Plan, Sustainability Master Plan, or were initiated by other agencies (e.g., SMUD and the Sacramento Area Council of Governments [SACOG]). Some of the strategies are already underway, adopted, proposed, or even controversial and still under evaluation. These CAP strategies are organized by emissions sector (e.g., energy, transportation, solid waste, and water/wastewater). Assumptions used to support smud sathe quantification of each strategy's effectiveness were developed in coordination with City staff and described within each measure summary table. Table 4, below, presents an overall summary of the GHG reduction strategy and gap analysis. Figure 1 also depicts each strategy's contribution to the total estimated GHG emissions reduction in 2020. Please note that the options shown for RECO (Option 2 - building permit trigger), CECO (Option 2 - building permit trigger), and Rental Housing Energy and Water Efficiency Program (Option 2) are those that are currently contained in the Final version of the CAP. Other options for these were evaluated and considered (e.g., point of sale) as discussed below.

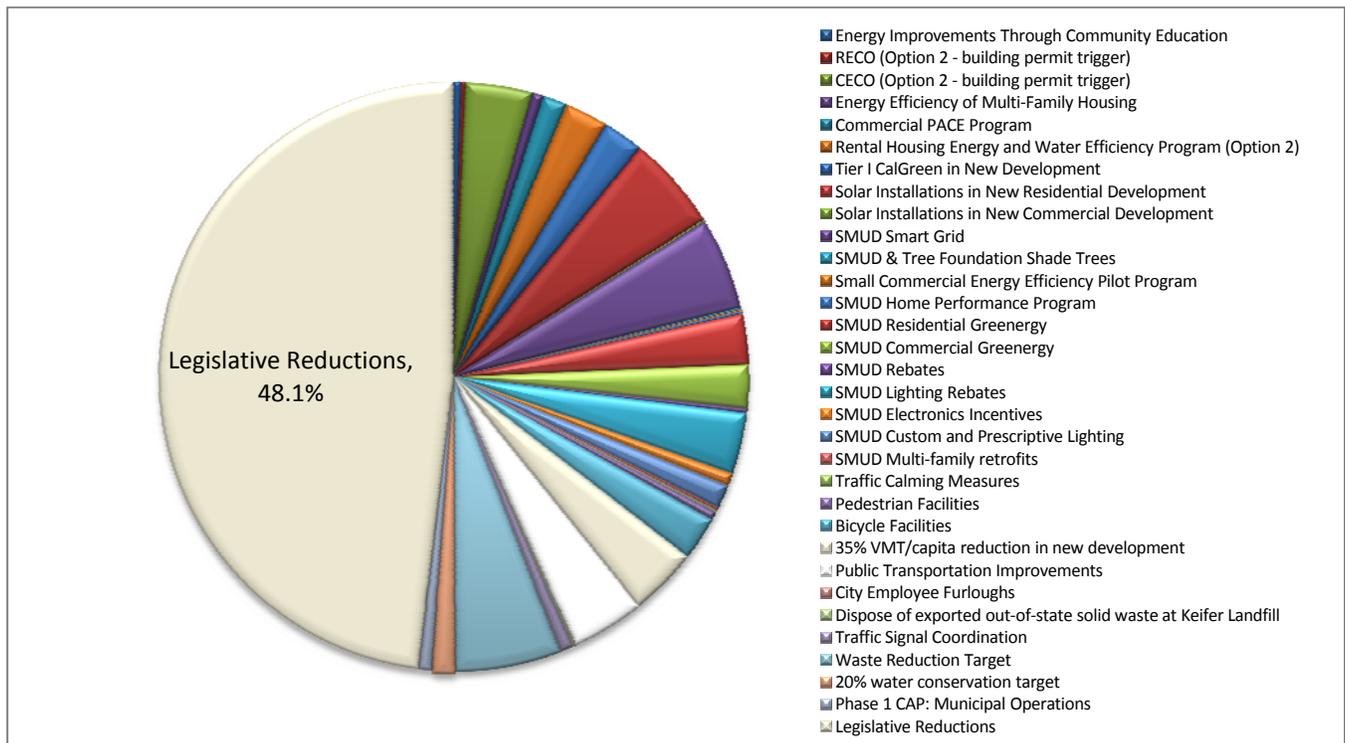


Figure 1: Contribution of GHG Reduction Strategies and Legislative Reductions Towards Meeting the Recommended GHG Reduction Target in 2020

**Table 4
Greenhouse Gas Reduction Strategy and Gap Analysis Summary**

Action #		2020 (MT CO ₂ e/yr)	2030 (MT CO ₂ e/yr)	2050 (MT CO ₂ e/yr)
Energy Efficiency Strategies				
3.1.1	Energy Improvements Through Community Education	5,594	6,442	8,138
3.2.2	RECO (Option 2: building permit trigger) ¹	3,193	6,742	13,839
3.2.4	CECO (Option 2: building permit trigger) ¹	50,071	79,804	91,830
3.3.1	Energy Efficiency Through Increased Residential Density	8,474	25,894	88,983
3.2.1	Commercial PACE Program	18,225	18,225	18,225
3.2.3	Rental Housing Energy and Water Efficiency Program (Option 2) ¹	32,887	64,269	113,212
3.3.2	CalGreen Tier 1 Energy Efficiency in New Development	30,535	81,428	183,214
3.4.1	Solar Installations in New Residential Development	71,134	129,354	245,795
3.4.2	Solar Installations in New Commercial/Industrial Development	1,717	2,862	5,152
3.1.2	SMUD Smart Grid	69,215	79,498	100,064
3.1.3	SMUD & Tree Foundation Shade Trees	1,507	1,507	1,507
3.2.5	Small Commercial Energy Efficiency Pilot Program	1,219	1,219	1,219
3.2.6	SMUD Home Performance Program	1,964	1,964	1,964
3.4.3	SMUD Residential Greenergy	38,037	38,037	38,037
	SMUD Commercial Greenergy	32,434	32,434	32,434
3.1.4	SMUD Appliance Rebates	3,597	3,597	3,597
	SMUD Lighting Rebates	46,015	46,015	46,015
	SMUD Electronics Incentives	9,406	9,406	9,406
	SMUD Custom and Prescriptive Lighting Incentives	17,956	17,956	17,956
	SMUD Multi-Family Retrofits	2,410	2,410	2,410
<i>Subtotal (Energy Efficiency Strategies)</i>		<i>445,590</i>	<i>649,062</i>	<i>1,022,995</i>
Transportation and Land Use Strategies				
2.1.1	Traffic Calming Measures	1,097	1,157	1,376
2.2.1	Pedestrian Facilities	6,582	6,942	8,255
2.3.1	Bicycle Facilities	32,909	34,708	41,277
1.1.1	35% VMT/capita Reduction Standard in New Development	51,507	70,572	99,193
2.4.1	Public Transportation Improvements	54,848	115,694	127,691
2.7.1	City Employee Furloughs	223	223	223
2.5.1	Dispose of exported out-of-state solid waste at Keifer Landfill	1,804	1,804	1,804
2.6.1	Traffic Signal Coordination	10,431	22,021	27,816
<i>Subtotal (Transportation and Land Use Strategies)</i>		<i>159,400</i>	<i>253,121</i>	<i>303,973</i>
Solid Waste Strategies				
4.2.1	Waste Reduction Target	79,404	129,834	194,711
<i>Subtotal (Solid Waste Strategies)</i>		<i>79,404</i>	<i>129,834</i>	<i>194,711</i>
Water & Wastewater Strategies				
5.1.1	Recycled Water for Non-potable Uses	0	1,310	1,587
	20% Water Conservation Target	17,267	19,647	23,806
<i>Subtotal (Water & Wastewater Strategies)</i>		<i>17,267</i>	<i>20,956</i>	<i>25,393</i>
Phase 1 CAP: Municipal Operations ²		10,075	10,075	10,075
Total (all strategies, reduction from projected)		711,737	1,063,048	1,557,148
Legislative Reductions (reduction from projected)		659,415 (13.6%)	728,156 (13.6%)	877,392 (13.8%)

**Table 4
Greenhouse Gas Reduction Strategy and Gap Analysis Summary**

Action #	2020 (MT CO ₂ e/yr)	2030 (MT CO ₂ e/yr)	2050 (MT CO ₂ e/yr)
Total (all strategies plus legislative, reduction from projected)	1,371,151	1,791,203	2,434,540
GHG Emissions Reduction Target/Goal (from Tables 2 and 3, reduction from projected)	1,364,924	2,792,470	5,653,713
(Surplus)/Gap	(6,227)	1,001,267	3,219,174

Notes: ¹ Please note that the options shown for RECO (Option 2 - building permit trigger), CECO (Option 2 - building permit trigger), and Rental Housing Energy and Water Efficiency Program (Option 2) are those that are currently contained in the Final version of the CAP. Other options for these were evaluated and considered (e.g., point of sale) as discussed below. ² City of Sacramento CAP: Phase 1 Internal Operations. February 2010; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; subtotal and totals may not sum exactly due to rounding.

Source: Data compiled by Ascent in 2011

Energy Efficiency Strategies

The following strategies address the energy sector, which includes residential and nonresidential electricity and natural gas consumption.

Action 3.1.1: Energy Improvements through Consumer Behavior and Education

This strategy was derived from the GHG Reduction Measure Analysis for SMUD (Measure Energy-7), and would “Launch a comprehensive social marketing campaign that leverages available tools from the social sciences to influence behaviors that impact GHG emissions in targeted areas” (ICF 2011). This strategy was estimated to reduce energy consumption in the County by 1% with 25% market penetration.

Calculation method: top-down

Year	Measure Performance ¹	Sector (Energy)	Participation Rate ²	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	1%	46.3%	25%	0.1%	5,594
2030	1%	48.3%	25%	0.1%	6,442
2050	1%	51.3%	25%	0.1%	8,138

Notes: ¹ SMAQMD 2009. Spare the Air Control Measure Program; Revision to State Implementation Plan Staff Report.

<http://airquality.org/notices/stateplan/20100128TriennialReport2009Hearing.pdf> pg 9-5. ² ICF GHG Reduction Measure Analysis for SMUD. April 2011. Measure E-7; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.

Source: Data compiled by Ascent in 2011

Action 3.2.2: Residential Energy Conservation Ordinance (RECO)

This strategy would involve retrofitting existing owner-occupied residential units (at the time of building permit for HVAC upgrades or renovating greater than \$50,000 in value) to improve energy efficiency of the City’s housing stock. This measure was assumed to reduce residential energy consumption by 15% and would apply to homes constructed prior to 2000. The program would focus on homes constructed prior to 1980 (i.e., pre-Title 24 homes) at first (i.e., during 2012-2016 implementation), and would then also phase in retrofit of units constructed between 1980 and 2000. Three different program trigger levels were evaluated initially, and it was assumed that 100% of affected homeowners would participate in the regulatory retrofit program.

Calculation method: top-down

Please note that three options are shown below as all were evaluated and considered as part of the gap analysis. The City has selected option 2 (building permit trigger for the purposes the actions contained in the CAP).

Option 1: Program Complete by End-Date-Certain (2020)

Year	Measure Performance	Sector (Residential Energy)	Subsector (Owner Occupied) ¹	Participation Rate ²	Eligible Housing Stock ¹	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	15%	20.6%	53.0%	100%	68.7%	1.1%	54,300	54,300

2030	15%	21.7%	53.0%	100%		59.0%		1.0%		54,300	54,300	
2050	15%	23.4%	53.0%	100%		46.0%		0.9%		54,300	54,300	
Option 2: Building Permit Trigger (building permit pulled for HVAC upgrade or home renovation greater than \$50,000 value)												
Year	Measure Performance	Sector (Residential Energy)	Subsector (Owner Occupied) ¹	# permits pulled (annual) ²	# years	% units affected	Participation Rate ²	Eligible Housing Stock ¹	% units undergo RECO	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	15%	20.6%	53.0%	1550	9	5.9%	100%	68.7%	2.1%	0.07%	3,193	3,193
2030	15%	21.7%	53.0%	1550	10	6.5%	100%	59.0%	2.0%	0.07%	3,548	6,742
2050	15%	23.4%	53.0%	1550	20	13.1%	100%	46.0%	3.2%	0.11%	7,097	13,839
Option 3: Point-of-Sale Requirement												
Year	Measure Performance	Sector (Residential Energy)	Subsector (Owner Occupied) ¹	% sales (annual) ³	# years	% units affected	Participation Rate ²	Eligible Housing Stock ¹	% units undergo RECO	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	15%	20.6%	53.0%	5%	9	45%	100%	68.7%	16.4%	0.5%	24,435	24,435
2030	15%	21.7%	53.0%	5%	10	50%	100%	59.0%	15.6%	0.5%	27,150	51,585
2050	15%	23.4%	53.0%	5%	20	100%	100%	46.0%	24.4%	0.9%	54,300	105,884
Notes: ¹ City of Sacramento Housing Element. 2008, and City of Sacramento 2030 General Plan Buildout Model; ² City of Sacramento. June 7, 2011 email from Helen Selph; ³ Sacramento Association of Realtors; Green Building Task Force discussions; HVAC = Heating, Ventilation, and Air Conditioning; MT CO ₂ e/yr = metric tons carbon dioxide equivalent per year. Eligible Housing Stock decreases as units undergo retrofit during the prior planning period; grey cells are used in calculation of "% units undergo RECO"; cells with diagonal cross-hatch pattern under option 1 show %'s for informational purposes, but are not used as this program would end in 2020. Source: Data compiled by Ascent in 2011												

Action 3.2.4: Commercial Energy Conservation Ordinance (CECO)												
This strategy would involve retrofitting existing commercial and industrial buildings to improve energy efficiency of the City's building stock. The requirement would be triggered when a building permit application is submitted for renovations or additions of greater than 25,000 sq. ft. of commercial or greater than 100,000 sq. ft. of industrial. This measure was assumed to reduce commercial/industrial energy consumption by 15% and would apply to buildings constructed prior to 2000. The program would focus on buildings constructed prior to 1980 (i.e., pre-Title 24 structures) at first (i.e., during 2012-2016 implementation), and would then also phase in retrofit of buildings constructed between 1980 and 2000. Three different program trigger levels were evaluated, and it was assumed that 100% of affected property owners would participate in the regulatory retrofit program. It was assumed that commercial building stock age would be similar to that of residential units used under the RECO calculation above.												
<i>Calculation method: top-down</i>												
Please note that three options are shown below as all were evaluated and considered as part of the gap analysis. The City has selected option 2 (building permit trigger for the purposes the actions contained in the CAP).												
Option 1: Program Complete by End-Date-Certain (2020)												
Year	Measure Performance	Sector (Commercial/Industrial Energy)	Participation Rate	Eligible Building Stock ¹	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)					
2020	15%	25.7%	100%	68.7%	2.4%	118,426	118,426					
2030	15%	21.7%	Same assumptions as for 2020 since program would be completed			118,426	118,426					
2050	15%	23.4%				118,426	118,426					
Option 2: Building Permit Trigger (building permit pulled for renovation or addition of greater than 25,000 square feet of commercial or 100,000 square feet of industrial)												
Year	Measure Performance	Sector (Commercial/Industrial Energy)	# permits pulled (annual) ²	# years	% building stock affected	Participation Rate ²	Eligible Building Stock ¹	% units undergo CECO	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)	
2020	15%	25.7%	4.3%	9	39.1%	100%	68.7%	26.8%	1.04%	50,071	50,071	
2030	15%	21.7%	4.3%	10	43.4%	100%	32.2%	14.0%	0.56%	29,732	79,804	

2050	15%	23.4%	4.3%	20	86.8%	100%	5.2%	4.5%	0.19%	12,026	91,830
Option 3: Voluntary											
Year	Measure Performance	Sector (Commercial/Industrial Energy)	Participation Rate	Eligible Building Stock ¹	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)				
2020	15%	25.7%	1%	68.7%	0.03%	1,282	1,282				
2030	15%	21.7%	1%	58.3%	0.02%	1,242	2,524				
2050	15%	23.4%	1%	44.8%	0.02%	1,189	3,713				
Notes: ¹ City of Sacramento Housing Element. 2008, and City of Sacramento 2030 General Plan Buildout Model; ² City of Sacramento 2011. Accela Query of commercial projects greater than 25,000 square feet or industrial projects greater than 100,000 square feet. 71 projects out of 1,637 total permits between 2005-2010 exceeded this trigger. Eligible Building Stock decreases as units undergo retrofit during the prior planning period; grey cells are used in calculation of "% units undergo CECO"; MT CO ₂ e/yr = metric tons carbon dioxide equivalent per year. Source: Data compiled by Ascent in 2011											

Action 3.3.1: Energy Efficiency Through Increased Residential Density						
GHG reductions will be achieved through increases in energy efficiency as housing trends from single-family to multi-family in the City. This measure only applies to the portion of the inventory associated with new development. According to <i>Growing Cooler: The Evidence on Urban Development and Climate Change</i> , a publication by the Urban Land Institute, single family housing consumes 35% more energy for space heating and 21% more for space cooling than multi-family housing. <i>Calculation method: top-down</i>						
Year	Measure Performance ¹	Portion of Inventory Affected (MT CO ₂ e/yr)	Subsector (Electric, Natural Gas)	Subsector (Space Heating/Cooling) ^{2,3}	% trend in housing stock toward multi-family ⁴	GHG Reduction (MT CO ₂ e/yr)
2020	35%	245,108	53.2% (Natural Gas)	44.0% (Space Heating)	39%	7,765
	21%	245,108	36.0% (Electric)	9.9% (Space Cooling)	39%	709
2030	35%	408,515	53.2% (Natural Gas)	44.0% (Space Heating)	71%	23,727
	21%	408,515	36.0% (Electric)	9.9% (Space Cooling)	71%	2,167
2050	35%	735,333	53.2% (Natural Gas)	44.0% (Space Heating)	135%	81,535
	21%	735,333	36.0% (Electric)	9.9% (Space Cooling)	135%	7,447
Notes: ¹ Ewing, et. al. 2008. <i>Growing Cooler: The Evidence on Urban Development and Climate Change</i> . pg 110; ² California Energy Commission. 2010. Energy Almanac. California Electricity Consumption by End Use. PG&E Estimates for year 2020. http://www.energyalmanac.ca.gov/electricity/electricity_stats/index.html ; ³ California Energy Commission. 2010. Energy Almanac. California Residential Natural Gas Consumption by End Use. http://www.energyalmanac.ca.gov/naturalgas/residential_use.html . ⁴ City of Sacramento 2030 General Plan Buildout Model; MT CO ₂ e/yr = metric tons carbon dioxide equivalent per year. Source: Data compiled by Ascent in 2011						

Action 3.2.1: Commercial Property Assessed Clean Energy (PACE) Program									
This measure assumes a pilot PACE program for commercial SMUD customers that would improve energy efficiency of those customers' facilities by 15%. It was assumed that the City would implement 90 PACE projects per year over 5 years, for a total of 450 projects. Of those projects, 74% would be small energy-user customers (18,039 kWh/yr on average) and 26% would be medium-to-large energy users (162,548 kWh/yr on average for the medium user and 2,957,578 kWh/yr on average for large user). It was also assumed that the medium and large users affected by the PACE program would also implement retro-commissioning measures for an additional average 155,194 kWh/yr energy savings each. <i>Calculation method: bottom-up</i>									
Year	Measure	Energy	Project	Customer Type	# of projects ¹	Energy Savings	SMUD	Conversion	Cumulative

	Performance	Consumption/ project (KWh/yr) ¹	Distribution ¹			(KWh/yr)	emission factor (lb CO ₂ e/KWh) ²	(lb/MT)	GHG Reduction (MT CO ₂ e/yr)
2020	15%	18,039	74%	Small	450	901,048	0.865	2,204	354
	15%	1,560,063	26%	Med/Large	450	45,536,745	0.865	2,204	17,872
2030	Program would be completed by 2020					901,048	0.865	2,204	354
						45,536,745	0.865	2,204	17,872
2050						901,048	0.865	2,204	354
						45,536,745	0.865	2,204	17,872

Notes: ¹ Ryan Sharp, 2011. SMUD Center for Strategic Economic Research (CSER); ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.2.3: Rental Housing Energy and Water Efficiency Program

This strategy would involve retrofitting existing renter-occupied residential units to improve energy efficiency of the City's housing stock. This measure was assumed to reduce residential energy consumption and would apply to homes constructed prior to 1980. The program would focus on homes constructed prior to 1980 (i.e., pre-Title 24 homes) at first (i.e., during 2012-2016 implementation), and would then also phase in retrofit of units constructed between 1980 and 2000. Energy efficiency upgrades of basic (15%) and full-house performance (50%) were evaluated at two trigger levels (voluntary and mandatory).

Calculation method: top-down

Please note that three options are shown below as all were evaluated as part of the gap analysis. The City has selected option 2 for the purposes the actions contained in the CAP.

Option 1: Voluntary Basic Weatherization

Year	Measure Performance ³	Sector (Residential Energy)	Subsector (Renter Occupied) ¹	Eligible Housing Stock ¹	Inspection Rate (annual) ²	# of years	Participation rate ²	Scaled% reduction	GHG Reduction	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	15%	20.6%	47%	68.7%	8%	9	1%	0.0%	329	329
2030	15%	21.7%	47%	59.0%	7%	10	1%	0.0%	314	643
2050	15%	23.4%	47%	46.0%	5%	20	1%	0.0%	489	1,132

Option 2: Mandatory Basic Weatherization

Year	Measure Performance ³	Sector (Residential Energy)	Subsector (Renter Occupied) ¹	Eligible Housing Stock ¹	Inspection Rate (annual) ²	# of years	Participation rate ²	Scaled% reduction	GHG Reduction	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	15%	20.6%	47%	68.7%	8%	9	100%	0.7%	32,887	32,887
2030	15%	21.7%	47%	59.0%	7%	10	100%	0.6%	31,382	64,269
2050	15%	23.4%	47%	46.0%	5%	20	100%	0.8%	48,943	113,212

Option 3: Voluntary Full House Performance

Year	Measure Performance ³	Sector (Residential Energy)	Subsector (Renter Occupied) ¹	Eligible Housing Stock ¹	Inspection Rate (annual) ²	# of years	Participation rate ²	Scaled% reduction	GHG Reduction	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	50%	20.6%	47%	68.7%	8%	9	1%	0.0%	1,096	1,096
2030	50%	21.7%	47%	59.0%	7%	10	1%	0.0%	1,046	2,142
2050	50%	23.4%	47%	46.0%	5%	20	1%	0.0%	1,631	3,774

Notes: ¹ City of Sacramento Housing Element, 2008; City of Sacramento 2030 General Plan Buildout Model; ² US DOE, April 2011; CO₂e/yr = metric tons carbon dioxide equivalent per year; eligible Housing Stock decreases as units undergo retrofit during the prior planning period.

Source: Data compiled by Ascent in 2011

Action 3.3.2: Tier 1 CalGreen Energy Efficiency in New Development

This strategy would require Tier 1 CalGreen Building Code standards for new development starting in 2014. Tier 1 would result in approximately 15% better energy efficiency performance above the standard mandatory California Green Building Code.

Calculation method: top-down

Year	Customer Type	Portion of Inventory Affected (MT CO ₂ e/yr)	Measure Performance ¹	GHG Reduction (MT CO ₂ e/yr)
2020	Residential	98,043	15%	14,706
	Nonresidential	105,526	15%	15,829
2030	Residential	261,450	15%	39,217
	Nonresidential	281,404	15%	42,211
2050	Residential	588,266	15%	88,240
	Nonresidential	633,158	15%	94,974

Notes: ¹ California Building Standards Commission. CalGreen. CCR Title 24, Part 11; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; This strategy applies to emissions from new development only starting in 2014.

Source: Data compiled by Ascent in 2011

Action 3.4.1: Solar Installations in New Residential Development of projects 10+ units

This strategy was derived from the GHG Reduction Measure Analysis for SMUD (Measure E-8). This strategy assumes that new residential development would install photovoltaic systems that would generate 4,519 kWh/yr per system (ICF 2011). The participation rate was calculated based on data from the City of Sacramento to derive an assumed % of units that would be developed in projects of 10 or more units.

Calculation method: bottom-up

Year	# of eligible homes	Participation Rate ¹	# of systems	system size (kWh/yr) ²	SMUD emission factor (lb CO ₂ e/kWh) ³	Conversion (lb/MT)	GHG reduction/system (MT CO ₂ e/yr)	GHG reduction (MT CO ₂ e/yr)	Cumulative GHG reduction (MT CO ₂ e/yr)
2020	47,647	84.2%	40,108	4,519	0.865	2,204	1.774	71,134	71,134
2030	38,997	84.2%	32,827	4,519	0.865	2,204	1.774	58,220	129,354
2050	77,995	84.2%	65,654	4,519	0.865	2,204	1.774	116,441	245,795

Notes: ¹ City of Sacramento. Participation rate calculated based on # of units that would be constructed as projects of 10+ units. (~16% of sf units and ~90% mf units); ² ICF 2011. GHG Reduction Measure Analysis for SMUD. Measure E-8. Average system capacity = 3.4 KW (produces 4,519 kWh/yr), ³ SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/kWh; kWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.4.2: Solar Installations in New Commercial/Industrial Development of projects greater than 25,000 square feet of commercial or 100,000 square feet of industrial

This strategy was derived from the GHG Reduction Measure Analysis for SMUD (Measure E-9). This strategy assumes that new commercial or industrial development would install photovoltaic systems that would generate 15% of the project's energy demand on-site through renewable energy (ICF 2011). The Portion of Eligible Building Stock was calculated based on data from the City of Sacramento to derive an assumed % of commercial or industrial projects that would be greater than 25,000 square feet or 100,000 square feet, respectively.

Calculation method: top-down

Year	Measure Performance ¹	Portion of eligible building stock ²	Participation Rate	Portion of GHG Inventory Affected	GHG reduction (MT CO ₂ e/yr)
2020	15%	4.3%	100%	263,816	1,717
2030	15%	4.3%	100%	439,693	2,862
2050	15%	4.3%	100%	791,447	5,152

Notes: ¹ ICF 2011. GHG Reduction Measure Analysis for SMUD. Measure E-9. ² City of Sacramento. 2011. Accela Query of commercial projects greater than 25,000 square feet or industrial projects greater than 100,000 square feet. 71 projects out of 1,637 total permits between 2005-2010 exceeded this trigger);

MT CO₂e/yr = metric tons carbon dioxide equivalent per year;
Source: Data compiled by Ascent in 2011

Action 3.1.2: SMUD Smart Grid

SMUD's Smart Grid program is estimated to result in an estimated 4% energy savings and 2% transmission savings by 2030. This assumption was applied to the entire CAP planning horizon.

Calculation method: top-down

Year	Measure Performance ¹	Sector (Energy, electricity)	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	6%	23.9%	1.4%	69,215
2030	6%	24.8%	1.5%	79,498
2050	6%	26.3%	1.6%	100,064

Notes: ¹ SMUD Smart Grid Activities 2010 presentation; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.
Source: Data compiled by Ascent in 2011

Action 3.1.3: SMUD & Tree Foundation Shade Trees

This strategy is already underway by SMUD (and the Tree Foundation), and acts to reduce the urban heat island effect, and associated energy consumption. SMUD estimates that its Shade Tree program has planned to reduce energy consumption up to 14.22 GWh/yr 2012 in Sacramento County. According to SMUD, 27% of the shade tree program is in the City's territory. It is anticipated that the program would expand in future years, but data was not available.

Calculation method: bottom-up

Year	Annual Savings (GWh/yr) ¹	Portion in City Territory	conversion to KWh	annual savings (KWh/yr)	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
2020	14.22	27%	1,000,000	3,839,400	0.865	2,204	1,507
2030	14.22	27%	1,000,000	3,839,400	0.865	2,204	1,507
2050	14.22	27%	1,000,000	3,839,400	0.865	2,204	1,507

Notes: ¹ email from Daniel Hamilton, Senior Energy Efficiency Planner at SMUD.; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; GWh/yr = gigawatt-hours per year; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.2.5: Small Commercial Energy Efficiency Pilot Program

This strategy is already underway by the City and SMUD, which are partnering on an incentive program for small commercial customers.

Calculation method: bottom-up

Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
2020	3,105,150	0.865	2,204	1,219
2030	Same as 2020, as program would be completed by 2012.			1,219
2050	Same as 2020, as program would be completed by 2012.			1,219

Notes: ¹ SMUD. Forecast for Small Commercial Energy Efficiency Ramp-up. Email from Cheri Davis to Yvette Rincon; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.2.6: SMUD Home Performance Program

This strategy is already underway by SMUD, which offers low-cost energy audits to existing residential customers. The program was estimated to result in approximately 207 single-family retrofits at 30% improvement in energy efficiency, 11 single-family retrofits at 15% improvement, and 2,025 multi-family units at 20% within in the City of Sacramento. It was estimated that the Home Performance Program would be complete by 2012.

Calculation method: bottom-up

Year	# Homes Affected ¹		% of Homes Affected	Measure Performance	Sector (Residential Energy)	Scaled % Reduction	GHG reduction (MT CO ₂ e/yr)
2020	207	Single-family	0.1%	30%	20.6%	0.01%	260
2020	11	Single-family	0.0%	15%	20.6%	0.00%	7
2020	2,025	Multi-family	0.9%	20%	20.6%	0.04%	1,697
Total 2020							1,964
2030	Same as 2020, as program would be completed by 2012.						1,964
2050	Same as 2020, as program would be completed by 2012.						1,964

Notes: ¹ July 25, 2011 Email from Steve Vang, SMUD to Helen Selph; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.4.3: SMUD Greenergy

This strategy is already underway by SMUD. The SMUD Greenergy program will meet up to 100% of customers' electricity usage with power generated from renewable resources like wind, water, sun and biomass. Customers opt in to pay an additional fee on their utility bills each month to purchase Greenergy. Greenergy is provided in addition to SMUD's RPS requirements. It was conservatively assumed that the number of Greenergy subscribers in the City would remain the same as the average during 2008-2010. In other words, there would be no net increase in Greenergy subscribers, as existing customers would drop the subscription at the same rate as new customers sign up.

Calculation method: bottom-up

	Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
Residential	2020	96,917,724	0.865	2,204	38,037
	2030	Same as 2020, as the number of subscriptions was assumed to remain constant			38,037
	2050	Same as 2020, as the number of subscriptions was assumed to remain constant			38,037
	Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	SMUD emission factor (lb CO ₂ e/KWh) ²
Commercial	2020	82,640,000	0.865	2,204	32,434
	2030	Same as 2020, as the number of subscriptions was assumed to remain constant			32,434
	2050	Same as 2020, as the number of subscriptions was assumed to remain constant			32,434

Notes: ¹ SMUD. September 8, 2011 and August 10, 2011 emails from Daniel Hamilton, Senior Energy Efficiency Planner at SMUD, to Helen Selph; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.4.1: SMUD Appliance Rebates

This strategy is already underway by SMUD. SMUD buys down the cost of energy-efficient electric appliances and products and offers rebates and incentives to customers. In addition, SMUD offers affordable financing to purchase energy-efficient appliances. This program was conservatively assumed to achieve maximum participation in 2010, based on an average of participation during 2008-2010, and linearly decrease through 2020, as the program would reach saturation.

Calculation method: bottom-up

Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
2008-2010 Average	1,221,938	0.865	2,204	480
2020	9,164,531	0.865	2,204	3,597
2030	Same as 2020, as program was assumed to achieve maximum participation in 2010 and			3,597
2050	saturation in 2020.			3,597

Notes: ¹ SMUD. August 10, 2011 email from Daniel Hamilton, Senior Energy Efficiency Planner at SMUD, to Helen Selph; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.4.1: SMUD Lighting Rebates

This strategy is already underway by SMUD. SMUD offers standard rebates for the installation of energy-efficient lighting. Rebates include LED lamps, fixtures, and other forms of highly-efficient lighting for residential and commercial customers. This program was conservatively assumed to achieve maximum participation in 2010, based on an average of participation during 2008-2010, and linearly decrease through 2020, as the program would reach saturation.

Calculation method: bottom-up

Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
2008-2010 Average	15,632,566	0.865	2,204	6,135
2020	117,244,242	0.865	2,204	46,015
2030	Same as 2020, as program is assumed to achieve maximum participation in 2010 and			46,015
2050	saturation in 2020.			46,015

Notes: ¹ SMUD. August 10, 2011 email from Daniel Hamilton, Senior Energy Efficiency Planner at SMUD, to Helen Selph; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.4.1: SMUD Electronics Incentives

This strategy is already underway by SMUD. SMUD provides incentives to retailers in the Sacramento region to stock the most energy-efficient major electronics, including televisions and computer monitors. This program was conservatively assumed to achieve maximum participation in 2010, based on an average of participation during 2009-2010, and linearly decrease through 2020, as the program would reach saturation.

Calculation method: bottom-up

Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
2009-2010 Average	3,687,097	0.865	2,204	1,447
2020	23,966,127	0.865	2,204	9,406
2030	Same as 2020, as program is assumed to achieve maximum participation in 2010 and			9,406
2050	saturation in 2020.			9,406

Notes: ¹ SMUD. August 10, 2011 email from Daniel Hamilton, Senior Energy Efficiency Planner at SMUD, to Helen Selph; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this

calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.
Source: Data compiled by Ascent in 2011

Action 3.4.1: SMUD Custom and Prescriptive Lighting

This strategy is already underway by SMUD. SMUD encourages the successful installation of LED lighting in local commercial applications, and offers incentives for qualified LED lighting systems. This program was conservatively assumed to achieve maximum participation in 2010, based on an average of participation during 2008-2010, and linearly decrease through 2020, as the program would reach saturation.

Calculation method: bottom-up

Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
2008-2010 Average	6,100,060	0.865	2,204	2,394
2020	45,750,453	0.865	2,204	17,956
2030	Same as 2020, as program is assumed to achieve maximum participation in 2010 and			17,956
2050	saturation in 2020.			17,956

Notes: ¹ SMUD. August 10, 2011 email from Daniel Hamilton, Senior Energy Efficiency Planner at SMUD, to Helen Selph; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Action 3.4.1: SMUD Multi-Family Retrofits

This strategy is already underway by SMUD. SMUD offers multi-family prescriptive rebates for multi-family residential customers seeking to retrofit units and common spaces to increase energy efficiency. This program offers rebates specific to the type of appliance, lighting, or improvement utilized, and encourages comprehensive analysis of the energy performance of each multifamily building. This program was conservatively assumed to be placed on hold while the Home Performance Program is administered through 2012. It is unknown at this time to what extent this program would be reinstated, thus the total emission reduction from retrofits completed during 2008-2010 is reported here.

Calculation method: bottom-up

Year	Annual Savings (KWh/yr) ¹	SMUD emission factor (lb CO ₂ e/KWh) ²	Conversion (lb/MT)	GHG reduction (MT CO ₂ e/yr)
2008-2010 Total	6,139,508	0.865	2,204	2,410
2020	6,139,508	0.865	2,204	2,410
2030	Same as 2020, as program is assumed to achieve maximum participation in 2010 and			2,410
2050	saturation in 2020.			2,410

Notes: ¹ SMUD. August 10, 2011 email from Daniel Hamilton, Senior Energy Efficiency Planner at SMUD, to Helen Selph; ² SMUD; July 28, 2011 email from Obediah Bartholomy to Erik deKok; SMUD's 2010 avoided emission factor is 865 lb/KWh; KWh/yr = kilowatt-hours per year; lb/MT = pounds per metric ton; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; SMUD = Sacramento Municipal Utilities District; SMUD's emission factor used in this calculation does not account for its current achievements or plans to comply with the renewable portfolio standard (RPS) because RPS is accounted for in legislative reductions discussed later in this report.

Source: Data compiled by Ascent in 2011

Transportation and Land Use Strategies

The following strategies address on-road mobile-source emissions. The City's GHG inventory was revised to reflect the most recent version of SACOG's SACSIM Travel Demand Forecast Model, which includes assumptions on planned transportation infrastructure projects. Thus, the City's GHG emissions inventory projections account for public transit mode share, which is why there is no separate measure quantification related to public transit. If the City were to achieve GHG emissions reductions associated with public transportation, it would need to

pursue transit infrastructure projects above and beyond what is already planned by Regional Transit and other transit agencies serving the region.

Since land use planning is an important factor influencing vehicle miles of travel (VMT), the CAP includes an assessment of the VMT reduction effects associated with the City’s general plan land use and circulation elements. This assessment was performed by comparing household-generated VMT from the regional SACSIM model. The intent of this assessment was to gauge how the general plan contributes to changes in household-generated VMT compared to a “business-as-usual” forecast as shown in Table 5 below. The data in Table 5 offers two methods for potentially capturing the influence of the City’s general plan on VMT. Method 1 compares the difference between a scenario where the 2005 VMT generated per household (HH) condition would continue into the future, without the 2030 general plan. Comparing this 2005 estimate (representing business-as-usual) with the 2035 VMT generated per HH reveals a reduction of 8.2%. Given the importance of land use and transportation inputs to the model, the General Plan is a significant contributor to this long-term reduction trend. Just how much, though, is difficult to determine. Method 2 may shed some light on this question because it adjusts the Method 1 difference to account for the fact the overall regional VMT generated per HH is projected to decline by 5.8% through 2035 as a result of other factors discussed below. After the adjustment, the City’s net reduction in VMT generated per HH is 2.4% better than the regional average. This is a notable improvement over business-as-usual conditions.

This assessment has many limitations because the extent to which the VMT forecasts are influenced by other model input variables or the land use and network changes throughout the rest of the region cannot be verified without further analysis. It is not possible within this study to truly isolate the effect of the City's General Plan land uses from other SACSIM model parameters; such as public transportation infrastructure, bicycle and pedestrian infrastructure, design and connectivity parameters, roadway congestion, and other factors; to which the model is sensitive.

Table 5
City of Sacramento VMT Summary by Regional Analysis District (RAD)

Area	2005		2035		% Change
	HH	VMT generated per HH	HH	VMT generated per HH	
Downtown	16,807	14.4	35,085	12.6	-12.5%
South Natomas	14,969	42.0	20,015	37.2	-11.4%
North Natomas	13,160	60.5	35,734	49.1	-18.9%
North Sacramento	21,567	37.1	28,217	35.9	-3.2%
East Sacramento	30,475	29.1	43,767	27.6	-5.2%
Land Park – Pocket – Meadowview	43,129	42.4	56,824	40.7	-4.0%
South Sacramento	50,386	43.7	62,243	41.0	-6.2%
City of Sacramento Totals	190,493	38.8	281,885	35.6	-8.2%
Regional Totals	768,089	51.7	1,258,003	48.7	-5.8%

Notes: HH = households; RAD = Regional Analysis District; VMT = vehicle miles traveled.
 Source: SACOG, 2009; Fehr & Peers, 2011 – SACSIM Regional Travel Demand Forecasting Model.

Action 2.1.1: Traffic Calming Measures

Continue to increase the use of traffic calming measures within the City that reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features. Traffic calming features may include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others. A typical range for vehicle miles traveled (VMT) reduction

for this strategy is 0.25 – 1.00%. Given that traffic calming projects have been completed in the majority of eligible neighborhoods, the estimated VMT reduction for any further measures is 0.05%

Calculation method: top-down

Year	Measure Performance ¹	Sector (Transportation)	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	0.05%	45.4%	0.02%	1,097
2030	0.05%	43.3%	0.02%	1,157
2050	0.05%	40.2%	0.02%	1,277

Notes: ¹ Fehr & Peers 2011; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.

Source: Data compiled by Ascent in 2011

Action 2.2.1: Increase Pedestrian Facilities within the City by 1% annually

A typical range of effectiveness of this strategy is 0 - 10% VMT reduction within a specific site. Given that this measure applies to incremental improvements to the already robust citywide pedestrian network, this measure is estimated to achieve a VMT reduction of 0.3%. It should be noted that the effectiveness of this measure is predicated upon a 1.5% decrease in automobile mode share over the same time period, in line with the forecasting completed for the 2030 General Plan Update EIR.

Calculation method: top-down

Year	Measure Performance ¹	Sector (Transportation)	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	0.3%	45.4%	0.1%	6,582
2030	0.3%	43.3%	0.1%	6,942
2050	0.3%	40.2%	0.1%	7,661

Notes: ¹ Fehr & Peers 2011; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.

Source: Data compiled by Ascent in 2011

Action 2.3.1: Increase Bicycle Facilities within the City by 5% annually

A sustained 5% annual increase in bicycle infrastructure would result in a substantial increase in facilities during the planning horizon, and would likely result in a greater shift in mode share to bicycle travel than contemplated in the 2030 GP EIR modeling. It is estimated that this increase would result in an additional VMT reduction of 1.5%.

Calculation method: top-down

Year	Measure Performance ¹	Sector (Transportation)	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	1.5%	45.4%	0.7%	32,909
2030	1.5%	43.3%	0.7%	34,708
2050	1.5%	40.2%	0.6%	38,307

Notes: ¹ Fehr & Peers 2011; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.

Source: Data compiled by Ascent in 2011

Action 2.4.1: Increase Public Transit Service 5% by 2020 and 10% by 2030

This measure intends to increase public transit service (i.e., frequency of service, number of transit lines and stops) above-and-beyond what is already planned in the Metropolitan Transportation Plan by 5% in 2020 and 10% by 2030. The Center for Clean Air Policy (CCAP) attributes a 0.5% reduction in VMT and associated GHG emissions per 1% improvement in transit frequency.

Calculation method: top-down

Year	Measure Performance ¹	Sector (Transportation)	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	2.5%	45.4%	1.1%	54,848
2030	5.0%	43.3%	2.2%	115,694
2050	5.0%	40.2%	2.0%	127,691

Notes: ¹ Center for Clean Air Policy (CCAP). Transportation Emission Guidebook, as cited in: CAPCOA 2010. Quantifying GHG Mitigation Measures; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.

Source: Data compiled by Ascent in 2011

Action 1.1.1: 35% VMT/Capita Reduction Standard in New Development					
This measure would require new development within the City to demonstrate that it would generate VMT/capita 35% below the statewide average VMT/capita.					
Calculation method: top-down					
Year	Portion of Inventory Affected (MT CO ₂ e/yr)	Projected Citywide VMT/capita (annual) ¹	% Below 2009 Statewide Average ^{2,3}	Measure Performance	GHG Reduction (MT CO ₂ e/yr)
2020	179,954	8,367	6.4%	28.6%	51,507
2030	299,924	7,912	11.5%	23.5%	70,572
2050	539,863	7,451	16.6%	18.5%	99,193
Notes: ¹ Fehr & Peers 2011; ² Federal Highway Administration 2009, Table VM-2 - Highway Statistics; ³ U.S. Census Bureau, 2005-2009 American Community Survey; MT CO ₂ e/yr = metric tons carbon dioxide equivalent per year. Source: Data compiled by Ascent in 2011					

Action 2.7.1: City Employee Furlough Days								
The City of Sacramento has implemented regular employee furloughs, estimated at 71,847 furloughed employee-days per year. It was assumed that 2-one-way trips of average distance 12.45 miles per trip per furloughed employee would be avoided per furlough day. It was assumed that furloughed employees would complete other vehicle trips on their day-off, with an average distance of 7.22 miles/trip. The estimated avoided VMT minus the substituted VMT would yield a difference of 764,452 avoided VMT/year. Allocating for Internal-Internal, External-Internal, and Internal-External VMT according to the method with which the City's transportation sector of the GHG inventory was developed yields 493,072 VMT attributable to the City. The same mobile-source emission factor as was used to develop the transportation sector of the City's GHG inventory was used to calculate the avoided GHG emissions associated with employee furloughs. The City anticipates that the furlough days used in this calculation would be permanent.								
Calculation method: bottom-up								
Year	Furloughed employee days/year	Home-based work trips avoided (trips/year)	VMT avoided (VMT/year)	Home-other VMT substituted per year	Avoided VMT/year	Avoided VMT/year with I-I, X-I, I-X Allocation ³	Emission factor (MT CO ₂ e/mile) ²	GHG reduction (MT CO ₂ e/yr)
2020	71,847	143,694	1,801,923	1,307,471	764,452	493,072	0.000452	223
2030	Same assumptions applied for future years.							223
2050	Same assumptions applied for future years.							223
Notes: ¹ City of Sacramento. Email from Mary Ann Turner in Payroll, to Helen Selph, June 27, 2011. ² EMFAC 2007. Weighted emission factor by speed bin for Sacramento County; ³ Fehr & Peers 2011. I-I = Internal to Internal vehicle trip; I-X = Internal to External vehicle trip; MT CO ₂ e/yr = metric tons carbon dioxide equivalent per year; VMT = vehicle miles traveled; X-I = External to Internal vehicle trip. Source: Data compiled by Ascent in 2011								

Action 2.5.1: Transport City Solid Waste to Keifer Landfill Instead of Exporting Out-of-state									
Under existing conditions, 156,023 tons of waste generated by the City of Sacramento annually (community-wide) is exported out-of-state for disposal. If that waste were disposed of at Keifer Landfill instead, this could result in a reduction of approximately 1,279,389 VMT per year associated with waste hauling. It was assumed that each waste haul truck would carry an average of 15 tons of waste per trip, and that waste would be disposed of in Sparks, Nevada under existing conditions.									
Calculation method: bottom-up									
Year	Tons waste transported out-of-state ¹	tons/waste hauling truck	# waste hauling truck trips	average distance to Sparks, NV (miles)	average distance to Keifer landfill (miles)	VMT reduction/trip	VMT reduction	Emission factor (MT CO ₂ e/mile) ²	GHG reduction (MT CO ₂ e/yr)
2020	156,023	15	10,402	135	12	123	1,279,389	0.0014101	1,804
2030	Same assumptions applied for future years.								1,804
2050	Same assumptions applied for future years.								1,804
Notes: ¹ CalRecycle. 2005. Disposal Reporting System. http://www.ciwbm.ca.gov/LGCentral/Reports/DRS/Destination/JurDspFa.aspx ; ² EMFAC 2007. Emission Factor for Heavy-Duty Trucks; MT CO ₂ e/yr = metric tons carbon dioxide equivalent per year; VMT = vehicle miles traveled. Source: Data compiled by Ascent in 2011									

Action 2.6.1: Traffic Signal Coordination

This measure assumes that the City could improve traffic flow and associated fuel economy of vehicles traveling on City streets. According to the Federal Highway Administration, there is evidence of 4-13% reductions in fuel consumption for signal coordination projects and a specific 8.6% reduction in fuel consumption based on the California Fuel Efficient Traffic Signal Management Program. According to the City of Sacramento, approximately 50% of traffic signals could be synchronized by 2035. It was conservatively assumed that only internal-internal (I-I) VMT would be affected by signal coordination. An average GHG reduction per year was calculated in 2035 and linearly extrapolated to calculate GHG reduction from signal coordination in 2020, 2030, and 2050.

Calculation method: bottom-up

Year	Measure Performance ¹	Portion of Signals Eligible for Coordination by 2035 ²	Scaled Measure Performance	Portion of VMT Affected (I-I) (VMT/day) ³	Gallons of Fuel (assumes 22 mpg) ³	Fuel Reduction (gallons/day)	Emission factor (MT CO ₂ e/mile) ⁴	Cumulative GHG reduction (MT CO ₂ e/yr)	Average GHG Reduction (MT CO ₂ e/yr)
2020								10,431	
2030								22,021	
2035	22,021	50%	4.3%	4,425,645	201,166	8,650	8.81	27,816	1,159
2050								27,816	

Notes: ¹ FHWA 2011. http://www.fhwa.dot.gov/environment/glob_c5.pdf; ² Ryan Billeci, Telecommunication Engineer City of Sacramento - DOT. July 11, 2011 Email to Helen Selph and Ed Cox stating that 10-15 signals per year are added to coordination; ³ Fehr & Peers 2011; ⁴ California Climate Action Registry 2009; I-I = Internal to Internal vehicle trip; mpg = miles per gallon; MT CO₂e/yr = metric tons carbon dioxide equivalent per year; VMT = vehicle miles traveled.

Source: Data compiled by Ascent in 2011

Solid Waste and Recycling Strategies

The following strategy would result in GHG emission reductions associated with solid waste disposal by increasing diversion. These calculations do not account for increased energy associated with recycling diverted solid waste because that assumption was not known at this time. These calculations focus on the avoided GHG emissions at affected landfills associated with reduced disposal rates. A variety of qualitative strategies will support the City's achievement of the waste disposal targets.

Action 4.2.1: Per Capita Waste Disposal Target

The City has currently achieved a diversion rate of 43% under existing conditions, and aims to increase diversion by 32% to meet a 75% per capita waste diversion requirement by 2020. This would result in disposal rate of 3.45 lb/capita per day in 2020. In addition, the City aims to achieve a 1.38 lb/capita/day disposal rate (90% diversion rate by 2030), which represents an increase of 47% in diversion above the existing 43%. Finally, the City's General Plan includes a policy to achieve zero waste (100% diversion) by 2040, which represents a 57% increase in diversion above existing conditions. The GHG emission reductions that would be achieved through reduced per capita disposal rates apply to the net increase in GHG emissions in the solid waste sector over the projection period, and do not apply to waste-in-place.

Calculation method: top-down

Year	Portion of Inventory Affected (MT CO ₂ e/year)	Measure Performance	GHG Reduction (MT CO ₂ e/yr)
2020: 75% diversion (3.45 lb/person/day disposal rate) from the waste stream by 2020	248,137	32.0% ¹	79,404
2030: 90% diversion (1.38 lb/person/day disposal rate) from the waste stream by 2030	276,242	47.0% ¹	129,834
2050: 100% diversion (0 lb/person/day disposal rate) from the waste stream by 2040	341,599	57.0% ²	194,711

Notes: ¹ City of Sacramento; April 27, 2011 email from Helen Selph; ² City of Sacramento 2030 General Plan. MT CO₂e/yr = metric tons carbon dioxide

equivalent per year.
Source: Data compiled by Ascent in 2011

Water Consumption and Waste Water Strategies

The following strategies would result in GHG emission reductions associated with water consumption and waste water through water conservation. A variety of qualitative and quantitative strategies will support the City's achievement of the water conservation targets, as presented later in this section.

Action 5.1.1: Recycled Water for Outdoor (non-potable) Water Use

This strategy was derived from derived from ICF GHG Reduction Measure Analysis for SMUD Measure Wastewater-1 (ICF 2011). It was assumed that recycled water would be feasible for approximately 2% of the City by the year 2030. Recycled water infrastructure was anticipated to be cost-prohibitive, and thereby, infeasible in 2020.

Calculation method: top-down

Year	Measure Performance ¹	Sector (water/wastewater)	Subsector (outdoor) ²	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	0%	1.8%	67%	0.0%	-
2030	2%	1.8%	67%	0.0%	1,310
2050	2%	1.9%	67%	0.0%	1,587

Notes: ¹ August 26, 2011 email from Jim Peifer, Sacramento Department of Utilities, to Helen Selph, regarding recycled water; ² City of Sacramento 2010. Draft Interim Water Conservation Plan pages 16-17; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.

Source: Data compiled by Ascent in 2011

Action 5.1.1: 20% Reduction in Water Consumption by 2020

This measure is based on the State's plan to achieve a 20% reduction in per-capita water use by 2020. The 20x2020 Water Conservation Plan was released by the State Water Resources Control Board in February 2010.

Calculation method: top-down

Year	Measure Performance ¹	Sector (water/wastewater)	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	20%	1.8%	0.4%	17,267
2030	20%	1.8%	0.4%	19,647
2050	20%	1.9%	0.4%	23,806

Notes: ¹ State Water Resources Control Board. 2010 (February). 20x2020 Water Conservation Plan. Available:

http://www.swrcb.ca.gov/water_issues/hot_topics/20x2020/docs/20x2020plan.pdf; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.

Source: Data compiled by Ascent in 2011

Water Consumption and Waste Water Sub-Gap Analysis

The following strategies would help the City achieve the mandate of 20% reduction in per-capita water consumption by 2020, and would result in GHG emission reductions of approximately 16,700 MT CO₂e/year by 2020.

Water Meters and Automated Meter Infrastructure

The City is in the process of installing water meters and automated meter infrastructure (AMI) in residential land uses. Water meters will result in City residents paying for water according to their usage and AMI will give residents information about inefficient uses of water (e.g., "water-wise" calls, which will help customers identify and repair leaks). The program would apply to residential water consumption only, since most commercial customers are already metered in Sacramento. In addition, homes constructed after 1992 are already metered, so this strategy was only applied to residential housing stock constructed prior to 1992. The City's Interim Water

Management Plan estimates that residential customers reduce water consumption by an average of 20% per meter. The water meter installation program would be completed by 2025.

Calculation method: top-down

Year	Water Meters Installed ¹	Proportion of Customers Affected	% of pre-1992 homes (unmetered) ²	Measure Performance ³	Sector (water/wastewater)	Subsector (Residential) ³	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2011	33,800	20.2%	81.0%	20%	1.7%	62%	0.0%	1,418
2020	71,600	63.1%	63.5%	20%	1.8%	62%	0.1%	4,261
2030	61,700	100%	54.5%	20%	1.8%	62%	0.1%	6,601
2050	-	100%	42.5%	20%	1.9%	62%	0.1%	6,237

Notes: ¹ City of Sacramento. April 20, 2011 email from Helen Selph; ² City of Sacramento Housing Element. 2008; City of Sacramento 2030 General Plan Buildout Model; ³ City of Sacramento. Interim Water Management Plan; MT CO₂e/yr = metric tons carbon dioxide equivalent per year.
Source: Data compiled by Ascent in 2011

CalGreen Tier 1 Water Efficiency Standards in New Development

This strategy would require new construction to implement CalGreen Tier 1 Water Efficiency measures as mandatory standards. In nonresidential development, this would result in 30% improvement in indoor water efficiency and reduce the use of outdoor potable water to a quantity that does not exceed 60% reference evapotranspiration (ET_o) times the landscape area plus 1 elective measure. 60% was assumed as a proxy for reduction in nonresidential outdoor water consumption. For new residential development, kitchen faucets shall have a maximum flow rate of no greater than 1.5 gallons per minute and shall reduce the use of outdoor potable water for landscaping to a quantity that does not exceed 65% ET_o times the landscape area, in addition to 2 electives. The CalGreen mandatory baseline requires a 20% increase in indoor water efficiency for residential uses. Therefore, 20% and 65% reductions were assumed for residential indoor and outdoor water consumption, respectively.

Calculation method: top-down

Year	Portion of Inventory Affected (MT CO ₂ e/yr)	Land Use Category	Indoor/Outdoor	Measure Performance ¹	Subsector (Indoor/Outdoor) ²	Subsector (Residential, Nonresidential) ²	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)
2020	16,146	Nonresidential	Indoor	30%	33%	24%	2.4%	380
			Outdoor	65%	67%	24%	10.2%	1,646
	16,146	Residential	Indoor	20%	33%	62%	4.1%	663
			Outdoor	60%	67%	62%	24.6%	3,979
Total 2020								6,669
2030	28,044	Nonresidential	Indoor	30%	33%	24%	2.4%	660
			Outdoor	65%	67%	24%	10.2%	2,859
	28,044	Residential	Indoor	20%	33%	62%	4.1%	1,152
			Outdoor	60%	67%	62%	24.6%	6,911
Total 2030								11,583
2050	48,841	Nonresidential	Indoor	30%	33%	24%	2.4%	1,149
			Outdoor	65%	67%	24%	10.2%	4,980
	48,841	Residential	Indoor	20%	33%	62%	4.1%	2,006
			Outdoor	60%	67%	62%	24.6%	12,037
Total 2050								20,172

Notes: ¹ State of California. CalGreen. CCR Title 24, Part 11; ² City of Sacramento 2010. Draft Interim Water Conservation Plan. MT CO₂e/yr = metric tons carbon dioxide equivalent per year; This strategy was applied to emissions from new development only.
Source: Data compiled by Ascent in 2011

CalGreen Water Efficiency Standards in RECO (Option 2: Building Permit Trigger)							
This strategy accounts for the required the baseline CalGreen water efficiency measures as part of the Residential Energy Conservation Ordinance (RECO) option 2 (building permit trigger) (described above under Energy Strategies). The baseline CalGreen water efficiency standards would reduce residential water consumption by 20%.							
<i>Calculation method: top-down</i>							
Year	Measure Performance ¹	Sector (water/wastewater)	Subsector (Residential) ²	% Units undergo RECO ³	Scaled % Reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	20%	1.8%	62%	2.1%	0.00%	229	229
2030	20%	1.8%	62%	2.0%	0.00%	249	478
2050	20%	1.9%	62%	3.2%	0.01%	471	949
Notes: ¹ State of California. CalGreen. CCR Title 24, Part 11; ² City of Sacramento. Interim Water Management Plan; ³ City of Sacramento Housing Element. 2008; City of Sacramento 2030 General Plan Buildout Model; MT CO ₂ e/yr = metric tons carbon dioxide equivalent per year; RECO = Residential Energy Conservation Ordinance. Source: Data compiled by Ascent in 2011							

CalGreen Water Efficiency Standards in Rental Housing Energy and Water Efficiency Program (Option 2: Mandatory Basic Weatherization)											
This strategy accounts for the required baseline CalGreen water efficiency measures as part of the Rental Housing Energy and Water Efficiency Program option 2 (mandatory basic weatherization) (described above under Energy Strategies). The baseline CalGreen water efficiency standards would reduce residential water consumption by 20%.											
<i>Calculation method: top-down</i>											
Year	Measure Performance ¹	Sector (water/wastewater)	Subsector (Residential) ²	Subsector (Renter Occupied) ³	Eligible Housing Stock ³	Inspection Rate (annual) ⁴	# of years	Participation rate ³	Scaled % reduction	GHG Reduction (MT CO ₂ e/yr)	Cumulative GHG Reduction (MT CO ₂ e/yr)
2020	20%	1.8%	62%	47%	50.9%	8%	9	75%	0.03%	1,313	1,313
2030	20%	1.8%	62%	47%	29.7%	7%	10	75%	0.02%	831	2,144
2050	20%	1.9%	62%	47%	27.0%	5%	20	75%	0.02%	1,428	3,572
Notes: ¹ California Building Standards Commission. CalGreen. CCR Title 24, Part 11; ² City of Sacramento. Interim Water Management Plan; ³ City of Sacramento Housing Element. 2008; City of Sacramento 2030 General Plan Buildout Model; ⁴ US Department of Energy. April 2011; CO ₂ e/yr = metric tons carbon dioxide equivalent per year. Source: Data compiled by Ascent in 2011											

A summary of the collective performance of the individual water conservation strategies is provided below in Table 6. These strategies would be expected to reduce GHG emissions associated with water consumption and wastewater treatment by approximately 13,889 MT CO₂e/year of the 17,267 MT CO₂e/year associated with the state-mandated 20% per-capita water conservation improvement. Thus, additional strategies or increased participation would be needed to demonstrate that this goal could be achieved through City-initiated programs. In addition, the City has identified other strategies to reduce water consumption for inclusion in the CAP that could not be quantified at this time. These “qualitative” strategies would support the success of those quantified here. However, please note that this analysis also shows that the benefits of City-initiated programs would achieve greater emission reductions than would be expected from the State’s legislative requirement in the longer-term (i.e., 2030-2050).

Table 6
Summary of Water Consumption and Waste Water Sub-Gap Analysis

Strategy	GHG Emission Reduction (MT CO ₂ e/yr)		
	2020	2030	2050
Water Meters and Automated Meter Infrastructure	5,678	6,601	6,237
Calgreen Tier I Standards in new development	6,669	11,583	20,172
CalGreen water efficiency standards in RECO	229	478	949
CalGreen water efficiency standards in Rental Housing Energy and Water Efficiency Program	1,313	2,144	3,572
Total	13,889	20,805	30,930
GHG Reductions Anticipated from 20% Water Consumption Reduction Target ¹	17,267	19,647	23,806

Notes: MT CO₂e/yr = metric tons carbon dioxide equivalent per year; RECO = Residential Energy Conservation Ordinance; Totals may not sum exactly due to rounding.
Source: Data compiled by Ascent in 2011

State and Federal Emissions Reduction Programs

Existing federal regulations addressing GHG emissions from passenger cars and trucks (e.g., Corporate Average Fuel Economy [CAFE]) standards revised in the 2007 House Energy Bill; State and federal Advanced Clean Cars programs) and State-issued regulations to increase the amount of electricity generated from renewable sources (e.g., California Renewable Energy Portfolio Standard Program) will likely reduce the rate of GHG emissions increase associated with mobile sources and energy consumption.

In December 2008, ARB adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) of CO₂e, or approximately 22% from the state's projected 2020 emission level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, or almost 10%, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO₂e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). In August 2011, the Scoping Plan was re-approved by ARB, and includes the Final Supplement to the Scoping Plan Functional Equivalent Document (FED), which further-examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by implementing the following measures and standards (ARB 2011):

- improved emissions standards for light-duty vehicles (estimated reductions of 30.1 MMT CO₂e),
- the Low-Carbon Fuel Standard (15.0 MMT CO₂e),
- energy efficiency measures in buildings and appliances (11.9 MMT CO₂e), and
- a renewable portfolio and electricity standards for electricity production (23.4 MMT CO₂e).

ARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the *Scoping Plan* does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG

emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The *Scoping Plan* states that the ultimate GHG reduction assignment to local government operations is to be determined (ARB 2008). With regard to land use planning, the *Scoping Plan* expects approximately 3.0 MMT CO₂e will be achieved associated with implementation of SB 375, which is discussed further below (ARB 2011).

At the local level, ARB issued the Sacramento Area Council of Governments (SACOG) GHG emission reduction targets for light-duty mobile-sources of 7% by 2020 and 16% by 2035, pursuant to Senate Bill 375 (SACOG 2010). For the purposes of this CAP, the City will be quantifying the GHG emission reduction benefits of individual land use and transportation measures. Because measures implemented by SACOG to achieve the SB 375 GHG reduction targets would likely be similar to programs implemented by the City as identified in the CAP, it is possible that some double-counting would occur if both the City's CAP measures and SB 375 targets were credited. Therefore, no legislative reductions were assumed from SB 375.

In addition, SMUD achieved 12% renewable energy in its portfolio in 2006 (SMUD 2008). SMUD plans to meet the 33% renewable energy portfolio standard by 2020, which would result in an additional 21% reduction in GHG emissions from electricity consumption in the City. For other applicable programs, Ascent applied the emission reductions estimated in the Scoping Plan to the associated emission sectors in the City's inventory. See Table 7 for a summary of estimated emission reductions from State and federal programs that would affect the City's projected GHG emissions.

If all programs are implemented as described in the Scoping Plan and by SMUD, the City's 2020 emissions would be reduced by a maximum of 13.6% from projected levels, leaving approximately 14.4% to be accomplished by the City's CAP. The effect of legislation on the City's GHG emissions projections is summarized in Table 7. It is anticipated that future legislation will be introduced to support longer-term GHG emissions reductions beyond 2020, but the effects of future legislation on the City's GHG emissions inventory is unknown at this time. Therefore, no additional reductions from legislation were accounted for beyond 2020.

Table 7
Estimated Effects of State and Federal Programs on City of Sacramento
Greenhouse Gas Emissions Projections

Scoping Plan Measure	Emissions Sector	Scoping Plan- Estimated Emission Reduction (MMT CO ₂ e by 2020)	Projected 2020 Emissions of Sector (MMT CO ₂ e by 2020)	Statewide % Reduction	Local % Reduction	Inventory Subsector	% of City's Inventory Affected in 2020	Scaled % Reduction from 2020 Projected Emissions
Federal Fuel Economy Standards; AB 1493 (Pavley) and Advanced Clean Cars	Transportation	30.1	210.0	14.3%	-	80.3% (light-duty vehicles)	45.4%	5.2%
Energy Efficiency Measures; California Green Building Code	Energy	11.9	167.7	7.1%	-	-	46.9%	3.3%
Renewable Electricity Standard; Renewable Portfolio Standard	Energy	21.3	185.9	11.5%	21%	51.6% (electricity)	46.9%	5.1%
Total								13.6%

Notes: ¹ Energy Efficiency Measures and Green Building Code assumes that development would implement the basic Green Building Code Standards (CalGreen); grey cells contain statewide data for information purposes, but calculations rely solely on local % reduction; CO₂e = carbon dioxide

equivalent; MMT= million metric tons.
Source: ARB 2011; SACOG 2010; SMUD 2008. Data compiled by Ascent in 2011

Conclusion

The GHG reductions estimated for the City's identified strategies, as described above and detailed in the attached supporting calculations, sum to approximately 711,737 MT CO₂e/year below projected 2020 GHG emission levels. Legislation would reduce 2020 projected emissions by approximately 659,415 MT CO₂e/year by 2020. Collectively, these would reduce GHG emissions by 1.371 million MT CO₂e/year in 2020, which meets the City's GHG reduction target of 1.365 million MT CO₂e/year in 2020. These results are summarized below in Table 8.

	2020 (MT CO ₂ e/year)	2030 (MT CO ₂ e/year)	2050 (MT CO ₂ e/year)
Total (all strategies, reduction from projected)	711,737	1,063,048	1,557,148
Legislative Reductions (reduction from projected)	659,415 (13.6%)	728,156 (13.6%) ¹	877,392 (13.8%) ¹
Total (all strategies plus legislative, reduction from projected)	1,371,151	1,791,203	2,434,540
GHG Emissions Reduction Target/Goal (from Tables 2 and 3, reduction from projected)	1,364,924	2,792,470	5,653,713
Gap/(Surplus)	(6,227)	1,001,267	3,219,174

Notes: ¹ Legislative reductions calculated in Table 7 were applied to the City's GHG emissions projections for 2030 and 2050. The percent reduction associated with legislation increases slightly due to changes in the composition of the City's GHG inventory (increase in energy and mobile-source emissions sectors relative to other sectors); MT CO₂e/year = metric tons carbon dioxide equivalent per year.
Source: Data compiled by Ascent in 2011

It is anticipated that long-term interim benchmarks will need to rely heavily on introduction of additional GHG-reducing legislation, evolution of new technologies, and the ability to quantify GHG reduction benefits of strategies that are evaluated qualitatively in this initial version of the CAP.

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TECHNICAL MEMORANDUM

Date: May 27, 2011

To: Honey Walters, Ascent

From: Ronald T. Milam - Fehr & Peers

Subject: *City of Sacramento 2035 VMT Forecast*

RS11-2878

Fehr & Peers has completed a forecast of year 2035 vehicle miles of travel (VMT) for the City of Sacramento. The forecast was generated by capturing the VMT generated by the City using the current version of the regional SACSIM travel forecasting (TDF) model. This version of the model is being used for the SACOG Metropolitan Transportation Plan (MTP) update and, as such, is still subject to change as the MTP process advances.

The VMT forecasts are summarized in Table 1 and 2 and are derived from the following trip types.

- Internal–Internal (I-I) – Trips that begin and end in the City
- Internal–External (I-X) – Trips that begin in the City and end in another City
- External–Internal (X-I) – Trips that begin outside the City and end inside the City

The allocation of VMT includes 100 percent responsibility for all I-I trips and 50 percent of I-X and X-I trips. This methodology is consistent with the Regional Target Advisory Committee (RTAC) recommendations. The resulting average weekday VMT in 2035 for the City of Sacramento is approximately 14,379,400. This value is lower than the previous 2030 VMT forecast that was prepared for the City as part of the Sacramento County General Plan analysis despite a longer-term horizon year. The lower value is mainly a result of the revised socioeconomic projections contained in the current SACSIM model. These projections reflect the effects of the 2008/09 recession and are the most current for the region.

Please contact us with any questions.

TABLE 1 – 2035 CITY OF SACRAMENTO VMT BY TRIP TYPE

VMT Trip Type	AM Peak Period	PM Peak Period	Midday Period	Evening Period	Daily
Internal-Internal	813,187	1,005,825	1,413,779	1,192,854	4,425,645
Internal-External ¹	814,357	1,239,864	1,518,535	1,429,800	5,002,556
External-Internal ¹	1,172,883	959,324	1,531,775	1,287,239	4,951,221
Total	2,800,427	3,205,013	4,464,089	3,909,893	14,379,422

1. These values reflect half of the responsibility from the VMT as the external jurisdictions would be responsible for the other half.

Source: Fehr & Peers, 2011 – SACSIM 2035 Regional Travel Demand Forecasting Model.

TABLE 2 – 2035 CITY OF SACRAMENTO VMT SUMMARY BY SPEED

VMT Speed Bins (MPH)	AM Peak Period	PM Peak Period	Midday Period	Evening Period	Daily
0 - 5	485	273	65	76	899
5 - 10	4,338	8,144	804	233	13,519
10 - 15	19,653	26,608	10,952	2,850	60,063
15 - 20	101,500	142,638	133,729	98,065	475,932
20 - 25	387,282	474,872	572,164	437,373	1,871,691
25 - 30	258,342	328,576	310,318	216,094	1,113,330
30 - 35	379,943	423,639	561,541	471,731	1,836,854
35 - 40	308,983	433,029	492,277	514,198	1,748,487
40 - 45	243,942	339,615	220,596	183,956	988,109
45 - 50	359,864	308,138	498,650	139,422	1,306,074
50 - 55	432,115	402,949	715,951	345,437	1,896,452
55 - 60	213,437	262,633	842,140	1,282,267	2,600,477
60 - 65	75,776	40,194	79,787	164,113	359,870
65 - 70	14,767	13,705	25,115	54,078	107,665
70 - 75	0	0	0	0	0
>75	0	0	0	0	0
Total	2,800,427	3,205,013	4,464,089	3,909,893	14,379,422

Source: Fehr & Peers, 2011 – SACSIM 2035 Regional Travel Demand Forecasting Model.