



## Energy Efficiency Action Plan

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# Acronyms and Abbreviations

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AB	Assembly Bill
BAU	Business as Usual
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy
Cal/EPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCA	Community Choice Aggregation
CEESP	California Long Term Energy Efficiency Strategic Plan
CEQA	California Environmental Quality Act
CO <sub>2</sub>	Carbon Dioxide
CPUC	California Public Utilities Commission
EEAP	Energy Efficiency Action Plan
EECBG	Energy Efficiency and Conservation Block Grant Program
EO	Executive Order
ESP	Energy Service Provider
FED	Functional Equivalent Document
GHG	Greenhouse Gas
IOU	Investor-Owned Utility
LCFS	Low Carbon Fuel Standard
LGOP	Local Government Operations Protocol
MPO	Metropolitan Planning Organization
MW	Megawatt
MT CO <sub>2</sub> e	Metric Tons CO <sub>2</sub> equivalents
NSPS	New Source Performance Standards
OBF	On-Bill Financing
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plans
SB	Senate Bill
SCE	Southern California Edison
TDM Program	Transportation Demand Management Program
VMT	Vehicle Miles Traveled

## EXECUTIVE SUMMARY

The City of Goleta (City) recognizes the challenges that California faces in meeting the long-term energy demand of a growing population. The City also recognizes that global climate change, caused from an increasing level of atmospheric carbon dioxide emissions, threatens the health and welfare of people and the environment. The City is thus committed to assisting the State in meeting its greenhouse gas (GHG) and energy efficiency goals as articulated in Assembly Bill 32 (AB 32) and the California Public Utilities Commission's (CPUC) long-term energy efficiency strategic plan. To that end, the City is working to reduce local energy use through the enactment of policies, strategies, and actions that are both cost-effective and environmentally sound.

The City's commitment is evidenced by its history of adopting and implementing environmentally conscious policies in their General Plan/Coastal Land Use Plan (General Plan) and by continuing to leverage funding opportunities for energy efficiency projects that result in cost savings and lower emissions. As a continuation of those efforts, the City applied for and was awarded funds from Southern California Edison (SCE) to prepare this Energy Efficiency Action Plan (EEAP)<sup>1</sup>. The goal of this EEAP is to provide a comprehensive guiding policy document for all City-related operations as they relate to energy efficiency, specifically electricity and GHG emissions. This EEAP establishes a protocol for tracking energy use, provides an analysis of past, current, and future energy-related projects, and provides potential actions to further reduce the City's electricity and energy consumption. Through this EEAP, the City will serve as an example to other public and private entities, and will be a leader in energy efficiency in the community.

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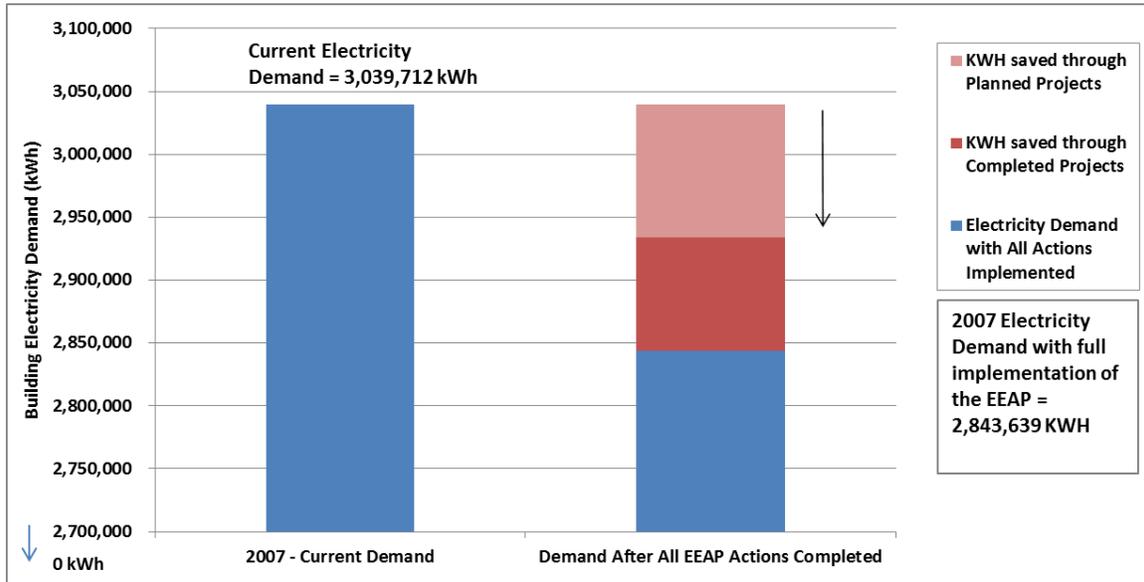
<sup>1</sup> Please note that the SCE funding strictly focuses on building energy efficiency actions for purposes of quantification and over which the City of Goleta has control for implementation. The SCE funding does not cover the GHG benefits associated with actions not associated with building electricity such as waste reduction. In addition, GHG reduction measures achieved through state and/or federal mandates were not completed as part of this analysis, although the results are presented here.

This EEAP focuses on the following areas:

- All City municipal facilities and operations.
- Electricity use by facility.
- Existing and/or future funded energy efficiency actions.
- Additional potential future energy efficiency actions.
- Tools to track and reward energy efficiency improvements and related GHG reductions and electricity bill savings.

With full implementation of this EEAP, the City will save 196,073 kilowatt/hours (kWh) of electricity annually (relative to a 2007 baseline), and avoid emitting 58 metric tons of carbon dioxide equivalents (MT CO<sub>2</sub>e) of GHGs annually. The EEAP includes a 10% electricity consumption reduction target and a 15% GHG reduction target. The savings of 196,073 kWh (equivalent to 58 MT CO<sub>2</sub>e) represents 65% of the electricity target (or 32% of the GHG target). This reduction in electricity use will save the City an estimated \$30,000 per year. The City has already saved 90,205 kWh and avoided 27 MT CO<sub>2</sub>e in GHG emissions annually due to the energy efficiency actions it has already completed as of June 2012. The electricity savings from completed and planned EEAP actions are shown in Figure ES-1. Note that additional un-quantified and unplanned energy efficiency actions are listed in this EEAP to facilitate future decision making efforts.

**Figure ES-1: Electricity Savings of Completed and Planned Projects Relative to 2007 Electricity Demand**



The GHGs avoided annually as a result of the building energy efficiency actions described in this EEAP are equivalent to any one of the following<sup>2</sup>:

- The annual GHGs emitted from 11 passenger vehicles.
- The GHGs emitted from consuming 6,502 gallons of gasoline.
- The GHGs emitted from consuming 135 barrels of oil.
- The GHGs emitted from the annual electricity consumption of 7 typical homes.

This EEAP is one component of the City’s larger plan to reduce municipal GHG emissions by 15% relative to 2007 levels, which is consistent with the amount recommended by the California Air Resources Board<sup>3</sup>. The GHGs avoided as a result of the actions identified in this EEAP, 58 MT CO<sub>2</sub>e, represent 4.8% of the City’s total

<sup>2</sup> Equivalencies estimated using EPA’s Greenhouse Gas Equivalencies Calculator (<http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>)

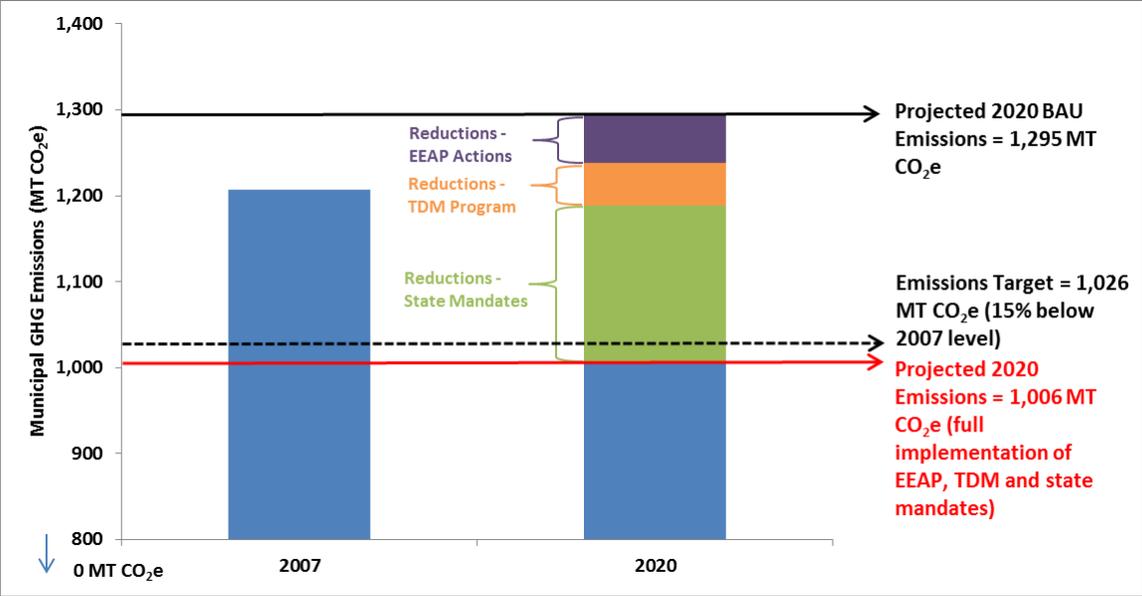
<sup>3</sup> In response to AB 32, the California Air Resources Board prepared the *AB 32 Scoping Plan*, the state’s road map to achieving the GHG reductions goals of AB 32 by 2020. The Scoping Plan recommends that local governments reduce the GHG emissions associated with both their municipal operations and the community at large by 15% relative to current levels before 2020, consistent with

municipal GHG emissions in the baseline year (2007) and 4.4% in the forecast year (2020). The City's Transportation Demand Management Program (TDM Program, discussed in Section 4.3), will result in an additional 49 MT CO<sub>2</sub>e of avoided GHGs annually, relative to 2007 conditions. Programs and policies implemented at the state level will further reduce GHGs by 183 MT CO<sub>2</sub>e, for a total of 290 MT CO<sub>2</sub>e of avoided GHG emissions in 2020 associated with Goleta's municipal operations. The avoided GHG emissions from all City of Goleta efforts are shown in Figure ES-2.

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the state's goals. Available at:  
<http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>.

**Figure ES-2: Municipal GHG Emissions in 2007; Forecasted Emissions in 2020 and Avoided GHG Emissions due to City and State Level Programs in 2020**



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## SECTION 1 — INTRODUCTION

In October of 2009, the CPUC authorized several energy efficiency programs including the Energy Leader Partnership Program<sup>4</sup>. SCE, as an implementer of the Energy Leader Partnership Program, provided financial support to the City of Goleta to conduct activities identified in the CPUC's *California Long Term Energy Efficiency Strategic Plan* (CEESP)<sup>5</sup>.

The CEESP identifies the following goals for local governments:

1. Goal 1 – Local governments lead adoption and implementation of “reach” codes stronger than Title 24, on both mandatory and voluntary bases.
2. Goal 2 – Strong support from local governments for energy code compliance enforcement.
3. Goal 3 – Local governments lead by example with their own facilities and energy use practices.
4. Goal 4 – Local governments lead their communities with innovative programs for energy efficiency, sustainability and climate change.
5. Goal 5 – Local government energy efficiency expertise becomes widespread and typical.

The City of Goleta's General Plan<sup>6</sup> includes *Conservation Element Implementation Action 5 (CE-IA-5) – Preparation of a Greenhouse Gas (GHG) Reduction Plan*, reflecting goals 3 and 4 of the CEESP. Essential to CE-IA-5 is the GHG Inventory and Reduction Plan, which is required to include a community-wide GHG Inventory and Reduction Plan (or Climate Action Plan) and municipal facilities and

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<sup>4</sup> The Energy Leader Partnership Program encompasses three broad areas of activity for local governments: 1) Retrofit of local government buildings, 2) Promotion of utility core programs, and 3) Financial support for strategic energy efficiency activities as identified in the strategic plan. California utilities, including Southern California Edison, are allocating these funds through various programs, of which the City of Goleta is a recipient. A description of the Energy Leader Partnership is available at: <http://www.cpuc.ca.gov/NR/rdonlyres/E29398ED-75C5-406E-AAA4-350C49284ACD/0/EE5GovernmentPartnershipProgram0710.pdf>

<sup>5</sup> California's Long Term Energy Efficiency Strategic Plan (CEESP). 2008. CPUC. Available at: <http://www.cpuc.ca.gov/NR/rdonlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf>

<sup>6</sup> City of Goleta General Plan. 2006. Available at: <http://www.cityofgoleta.org/index.aspx?page=192>.

operations-specific plan (or municipal Energy Efficiency Action Plan [EEAP]). The community-wide GHG Inventory and Reduction Plan (hereafter referred to as *Climate Action Plan*) is intended to address GHG emissions of the entire community of Goleta, including the activities of residents, businesses and municipal government operations. This EEAP addresses only the energy consumption (and inherently, the related GHG emissions) of the City's municipal operations, primarily its buildings and outdoor lighting. The EEAP was prepared first, as one component of the larger Climate Action Plan, and strictly focuses on municipal building energy efficiency. GHG reduction actions that are unrelated to building efficiency, such as waste reduction, are addressed in the Climate Action Plan and are referred to in the EEAP for discussion purposes only. Additionally, GHG reductions achieved through state and/or federal mandates are referred to in this EEAP but are not included in the analysis.

This EEAP supports Goals 3 and 4 of the CEESP and satisfies *both* Tasks 5 and 6 of the City's contract with SCE, consistent with the terms of the contract.

### **1.1 History of Energy Planning in Goleta**

Since incorporation in February of 2002, the City has strived to establish energy efficiency as a community priority and integral consideration in all City planning decisions. The City's General Plan reflects this community priority through policies in the Conservation Element and Housing Element. As a result of progressive General Plan policies, the City has received funding in support of energy efficiency improvements (including but not limited to this EEAP). The City has also contributed General Fund monies to implement energy efficiency programs. Existing funded energy improvements are reviewed in Section 3.3, *Current Energy Programs and Policies*.

### **1.2 Other Agency Goals**

The City's goals to increase the energy efficiency of its operations and facilities will exist alongside energy goals being developed at the federal and state

level, and by other local agencies and entities, including public utilities. This EEAP is one component of the City's community-wide Climate Action Plan (see Section 1.3). Other federal, state and local efforts to reduce GHG and improve energy efficiency will complement and in some cases support the City's EEAP and community Climate Action Plan.

As detailed in Section 4, the City is seeking to maximize energy efficiency in its own operations, to prioritize energy use in decision making, and to demonstrate leadership in energy efficiency to the community at large. In the short term, the City's goals are to reduce municipal electricity consumption by 10% relative to 2007 levels consistent with goals established for local governments in the *California Long Term Energy Efficiency Strategic Plan*; create a framework and protocol for considering energy in City decisions, including establishing a baseline for energy use and GHG emissions; and to increase awareness of and education on energy use among City staff and the community. A 10% reduction in electricity consumption relative to 2007 levels would achieve the Gold Level in CPUC's Energy Leader Partnership, which is described in more detail below and in Section 4.1. In light of the many other energy efficiency activities at the state, federal, regional and utility levels, the City recognizes the need for flexibility and cooperation in its own efforts to achieve both short-term and long-term goals.

A complete list of relevant federal and state policy initiatives is in Appendix B. Of particular importance to this EEAP are the following activities:

*AB 32 and AB 32 Scoping Plan* – Assembly Bill (AB) 32, commonly referred to as the California Global Warming Solutions Act, was signed into law in 2006; it established a goal for the state of California to return to 1990 levels of GHG emissions by the year 2020. The AB 32 Scoping Plan articulates a specific role for local governments, recommending that they seek to reduce GHG emissions from municipal operations and the community at a rate similar to state reductions (15% of base year emissions).

*SB 1078 and SB 107* – Senate Bill (SB) 1078, passed in 2002, established California’s Renewable Portfolio Standard (RPS). SB 107, passed in 2006, expanded and accelerated the goals of the RPS. Through these laws, investor owned utilities, electric service providers and community choice aggregators are required to increase their procurement of approved renewable energy sources to 33% of total procurement by 2020. California’s RPS, one of the most ambitious renewable standards in the nation, means that even the electricity that the City of Goleta uses in 2020 will have significantly lower carbon content.

*CPUC Energy Leader Partnership Program* – As described above, this program identifies the unique role and specific tasks in achieving the goals of the CPUC’s CEESP. Development of this EEAP was completed under this program. The continuation of CPUC Energy Leader Partnership Program will over time strengthen goals statewide and steer energy efficiency initiatives in Goleta.

*Title 24* – California’s Energy Efficiency Standards for Residential and Non-Residential Buildings (Title 24, Part 6 of California Code of Regulations) establishes minimum energy efficiency standards for new construction in California. The code is updated every 3 years, ensuring that California buildings incorporate the latest technologies available in energy efficiency. Local governments are required to adopt the latest codes and can voluntarily exceed the code. On November 2, 2010, the City of Goleta adopted *Ordinance No. 10-06 Local Energy Efficiency Standards – Goleta Reach Code*, exceeding Title 24 energy efficiency requirements by 15%.

### **1.3 Energy Efficiency Action Plan Process and Relationship to Goleta’s Climate Action Plan**

The City’s General Plan<sup>7</sup> *Conservation Element Implementation Action 5 (CE-IA-5) – Preparation of a GHG Reduction Plan* (also known and referred to in this document as a Climate Action Plan) was included in the General Plan in November 2009 and requires that the City develop a Climate Action Plan within 24 months of adopting the General Plan, and commence implementation of the plan within the

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<sup>7</sup> City of Goleta General Plan. 2006. Available at: <http://www.cityofgoleta.org/index.aspx?page=192>.

following 12 months. Per CE-IA-5, the Climate Action Plan is to include: 1) a community-wide GHG reduction plan, and 2) a municipal facilities and operations-focused EEAP.

This EEAP partially fulfills the requirements of CE-IA-5 as well as the City's contractual requirements with SCE, which funded this EEAP. This EEAP meets the following requirements under the SCE contract:

- Create a comprehensive municipal GHG inventory for 2007 and 2020 business as usual (BAU) forecast for GHG emissions in 2020.
- Establish baseline electricity use (2007) for City of Goleta facilities.
- Identify opportunities for energy efficiency in City of Goleta facilities.
- Conduct an energy savings analysis for all identified energy efficiency actions relative to the baseline year of 2007, including GHG savings.
- Establishes an energy reduction goal of 10% for municipal buildings and operations.
- Identify funding and tracking mechanisms for implementation of identified actions.

Per CE-IA-5, this EEAP represents one component of the Climate Action Plan. The Climate Action Plan will include both community-wide and municipal GHG emissions inventories and forecasts, and GHG reduction measures for both the community at large and municipal operations. The City's community-wide Climate Action Plan (expected completion in early 2013) addresses the recommendation in the AB 32 Scoping Plan for local governments to reduce GHGs in the community by 15% below the 2007 community GHG emissions level. The inventory base year is 2007 for both the community and municipal operations plans. The municipal GHG reduction actions primarily focus on building energy efficiency improvements and savings as identified in this EEAP with a 10% energy consumption reduction goal.

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## SECTION 2 — CITY OF GOLETA MUNICIPAL GHG INVENTORY

This section describes the City of Goleta’s municipal GHG inventory for the year 2007. As described in Section 1, 2007 is the base year (consistent with State recommendations). The inventory reflects all of the City-owned building energy use, street and traffic light energy use, vehicle fleet fuel consumption, employee commutes and City employee waste generation and water use. As the City does not operate or own a wastewater treatment plant, landfill, water delivery system or stationary combustion source, emissions associated with these facilities are not included.

The City’s municipal GHG inventory for the year 2007 is shown by sector in Table 2.1 and Figure 2.1. Also shown in Table 2.1 is the projected municipal GHG emissions in 2020 if the City takes no action to reduce emissions, i.e., the BAU scenario. The municipal GHG inventory was completed according to the standard protocol developed by the California Air Resources Board (CARB)<sup>8</sup>. The GHG inventory in Table 2.1 will become part of the City’s Climate Action Plan and be discussed in that document in the context of the community’s emissions.

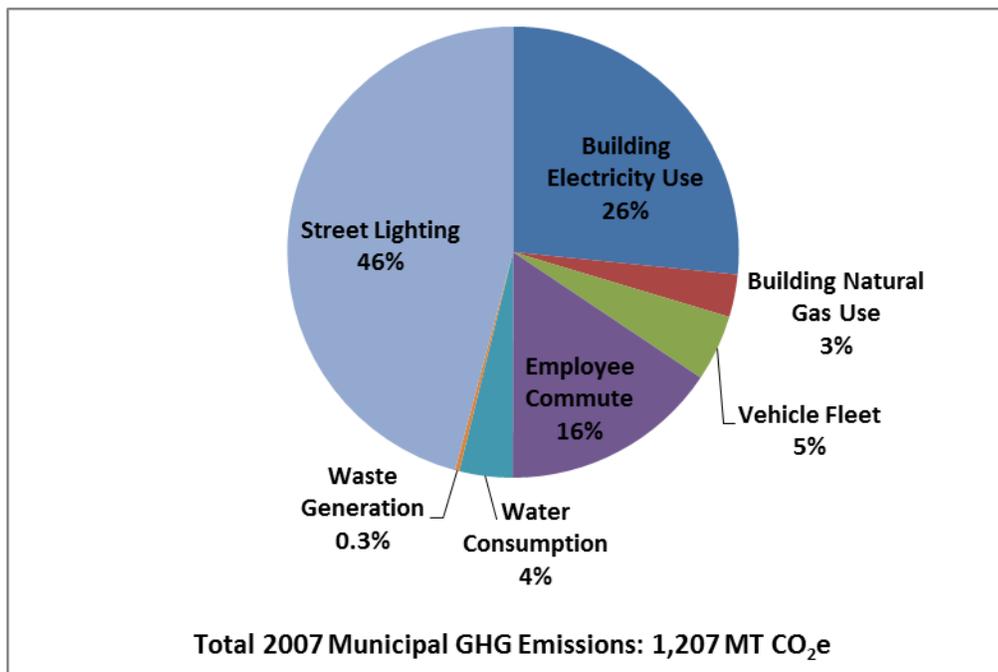
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<sup>8</sup> CARB. 2010. *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories*. V 1.1. May 2010. Developed in partnership and adopted by: California Air Resources Board, California Climate Action Registry, ICLEI – Local Governments for Sustainability, and the Climate Registry. Available at: <http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm>.

**Table 2.1: City of Goleta Baseline GHG Inventory and 2020 BAU GHG Emissions Projection (Metric Tons CO<sub>2</sub> equivalents [MT CO<sub>2</sub>e])**

Sector	(MT CO <sub>2</sub> e)	
	2007	2020
Building Energy Total	358	380
<i>Electricity</i>	321	341
<i>Natural Gas</i>	37	39
Vehicle Fleet	57	39
Employee Commute	189	202
Water Consumption	46	46
Waste Generation	4	4
Lighting	553	625
<b>Total</b>	<b>1,207</b>	<b>1,295</b>

**Figure 2.1: City of Goleta Municipal GHG Emissions Inventory 2007**



As shown in Table 2.1, electricity consumed to power municipal buildings and street lights is the largest contributor to the City’s total municipal GHG emissions, both in 2007 (26%) and in 2020 (26%). Employee commute is the third largest source of GHG emissions in Goleta’s municipal GHG inventory. Due to the limited size of the City’s vehicle fleet and relatively small number of employees, fleet and employee waste-related GHG emissions are a small component of total municipal GHG emissions. For comparison, the total GHG emissions of several other municipalities are shown in Table 2.2, along with the number of employees and number of residents served. Only the building energy sector is explored in greater detail in Section 3 of this EEAP, consistent with SCE requirements.

**Table 2.2: Comparison of Municipal GHG Emissions Inventories**

	<b>Municipal GHG Emissions</b>	<b>Population</b>	<b>Employees</b>	<b>Inventory Year</b>
City of Sacramento <sup>1</sup>	78,584	442,662 <sup>2</sup>	Unavailable	2005
County of Contra Costa <sup>3</sup>	54,133	1,001,216	Unavailable	2006
County of Monterey <sup>4</sup>	21,461	106,117	Unavailable	2005
City of San Luis Obispo <sup>5</sup>	6,580	44,625	370	2005
City of Goleta	1,518	29,750	47	2007

<sup>1</sup> City of Sacramento 2010

<sup>2</sup> California Department of Finance 2011

<sup>3</sup> County of Contra Costa 2008

<sup>4</sup> County of Monterey 2010

<sup>5</sup> City of San Luis Obispo 2009

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## SECTION 3 — CITY OF GOLETA ENERGY USE

### 3.1 Energy Use by Facility

Table 3.1 and Figure 3.1 show the City of Goleta’s electricity consumption and cost by facility for calendar year 2007 or the closest year with available data. The largest consumers of electricity are Goleta streetlights and signals, the Goleta Library, the Goleta Valley Community Center and Goleta City Hall. Highest electricity users are also listed in Table 3.2. A total of 3,039,712 kWh were consumed to support Goleta municipal operations in 2007. The City of Goleta also consumes electricity indirectly through its consumption of water, as energy is required to move water to the City boundary, treat water, distribute water locally and treat wastewater. Much of this energy is consumed outside the City boundaries and is reflected in the City’s water bill, and thus is not captured in the City’s electricity bill or electricity tracking. However, this energy is reported in Table 3.1 in order to highlight the indirect energy savings that will result from the City’s on-going water conservation efforts. All data are presented on a calendar year basis, as opposed to a fiscal year basis, consistent with GHG accounting protocols. As previously described, because the baseline year for the City of Goleta’s community GHG inventory and Climate Action Plan is 2007, every effort was made to collect and report building energy data for 2007. Annual electricity expenditures for 2007 were not available for the Goleta Valley Community Center. Electricity expenditures from 2010 were used as an alternative.

**Table 3.1: City of Goleta Baseline Municipal Energy Use (Calendar Year 2007)**

<b>Municipal Facility</b>	<b>Electricity Use (kWh<sup>1</sup>)</b>	<b>Estimated Annual Cost<sup>2</sup></b>
<b>City Hall</b>	200,100	\$30,615
<b>Corporate Yard Bond Building</b>	21,546	\$3,297
<b>Goleta Rail Station<sup>3</sup></b>	Not applicable	Not applicable
<b>Goleta Valley Community Center</b>	190,787	\$29,190
<b>Goleta Library</b>	692,229	\$105,911
<b>Historic Goleta Depot<sup>3</sup></b>	Not applicable	Not applicable
<b>Rancho La Patera and Stow House</b>	223	\$34
<b>Stow Grove Park</b>	10,834	\$1,658
<b>Street Lights</b>	1,923,993	\$294,371
<b>Total</b>	<b>3,039,712</b>	<b>\$465,076</b>
Indirect Electricity Use due to Water Consumption <sup>4</sup>	159,571	Not applicable

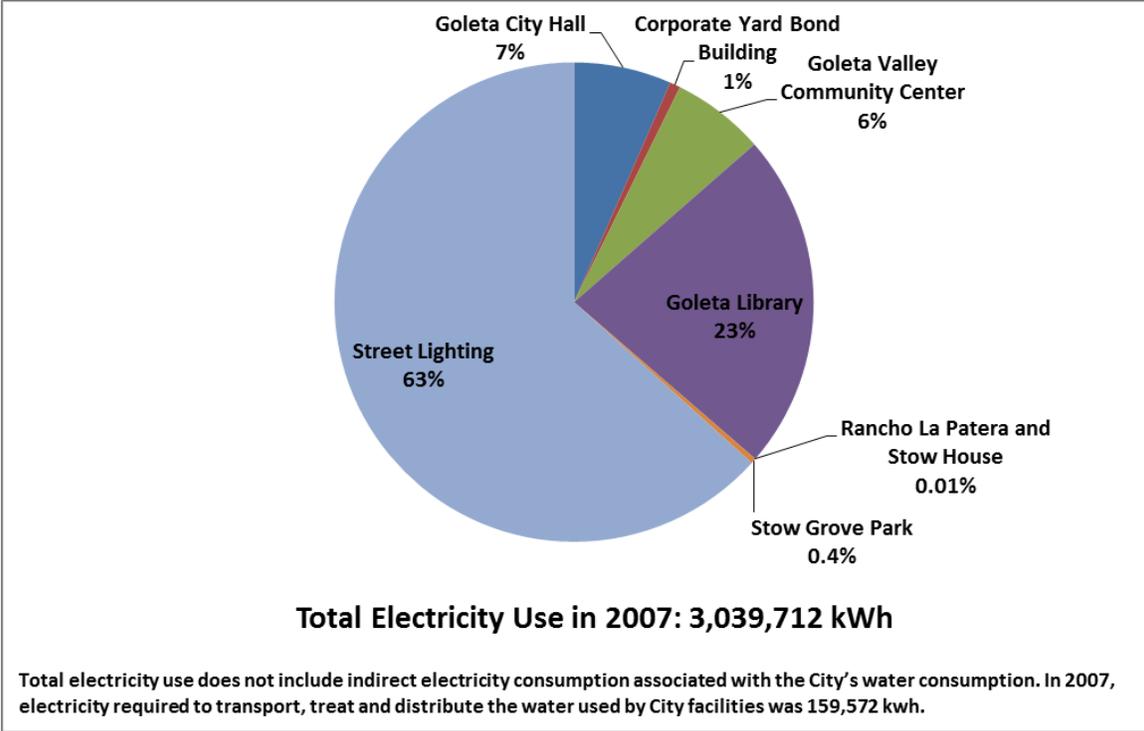
<sup>1</sup> kWh = kilowatt hour

<sup>2</sup> Costs estimated using CPUC peak rates for 2007 (California Public Utilities Commission 2011)

<sup>3</sup> City of Goleta maintains the restrooms at Historic Goleta Depot and Rail Station but does not pay for the electricity use in these facilities. As such, electricity use and cost is not included.

<sup>4</sup> This value captures the energy needed to bring water to the City boundary (conveyance), energy needed to distribute water and energy needed to treat water locally. The City does not pay for this indirect electricity consumption in its energy bill, but rather these costs are embedded in the City's water bill and not broken out explicitly. City water bills provide the total water consumed, not the associated energy intensity. The associated electricity is calculated from total water consumption and CEC (2005) data for energy intensity of all water sources in the state of California. This value is provided because energy savings are associated with the City's water conservation efforts, even if these energy savings occur in locations outside the City's direct control.

Figure 3.1: Electricity Consumption in 2007 for All City Facilities



3.2 Highest Users

The municipal facilities that consume the most electricity present the greatest opportunities for energy efficiency projects. The municipal facilities with the highest annual electricity consumption are shown in Table 3.2.

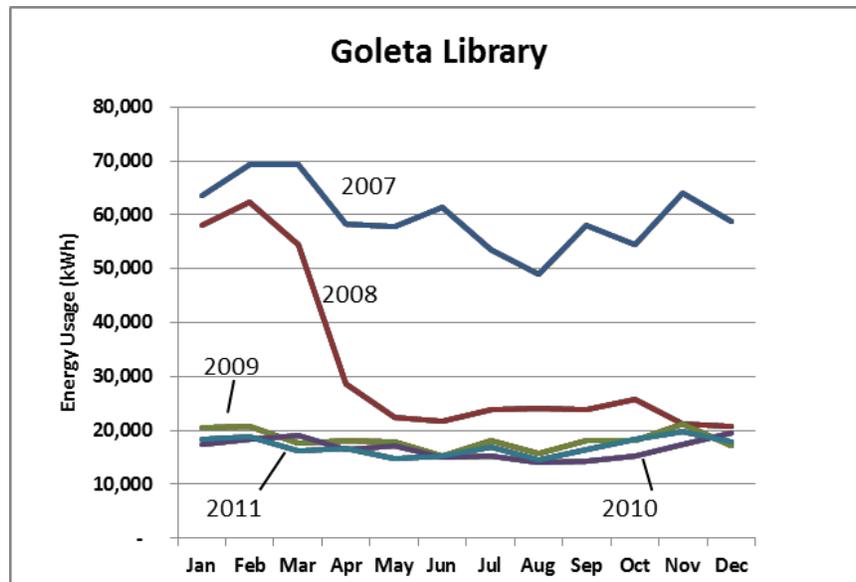
**Table 3.2: City of Goleta Municipal Facilities with Highest Annual Electricity Consumption (Calendar Year 2007)**

City of Goleta Facility	Energy Use
Street Lighting	1,923,993 kWh
Goleta Library	692,229 kWh
Goleta City Hall	200,100 kWh
Goleta Valley Community Center	190,787 kWh
Goleta Corporate Yard Bond Building	21,546 kWh

kWh = kilowatt hours

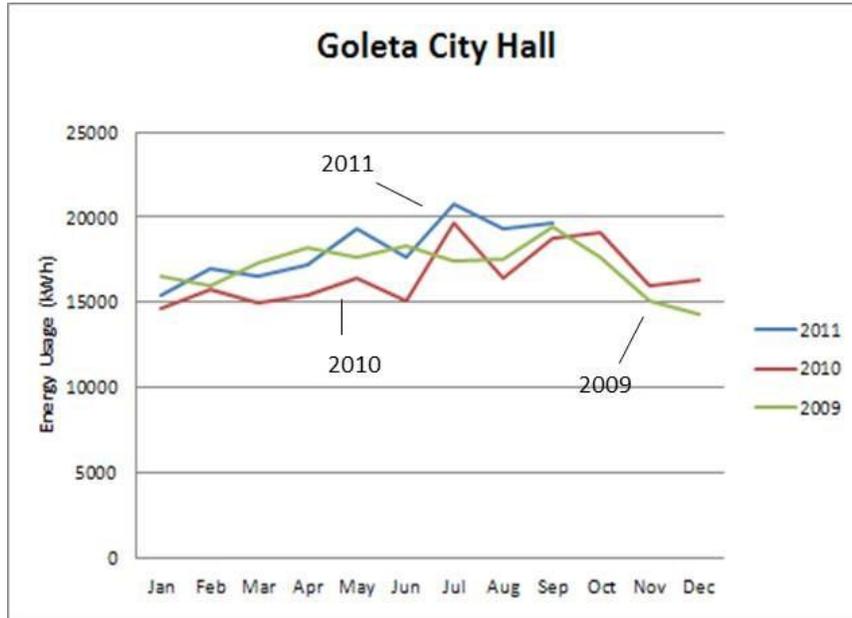
Baseline annual energy use for the Library, City Hall and the Corporate Yard Bond Building are shown in Figures 3.2–3.4 below. Complete information is available in Appendix C. Monthly data were not available for the Goleta Valley Community Center (Figure 3.5), however the baseline of annual electricity use in 2007 was 190,787 kWh.

**Figure 3.2: Annual Electricity Use – Goleta Library**

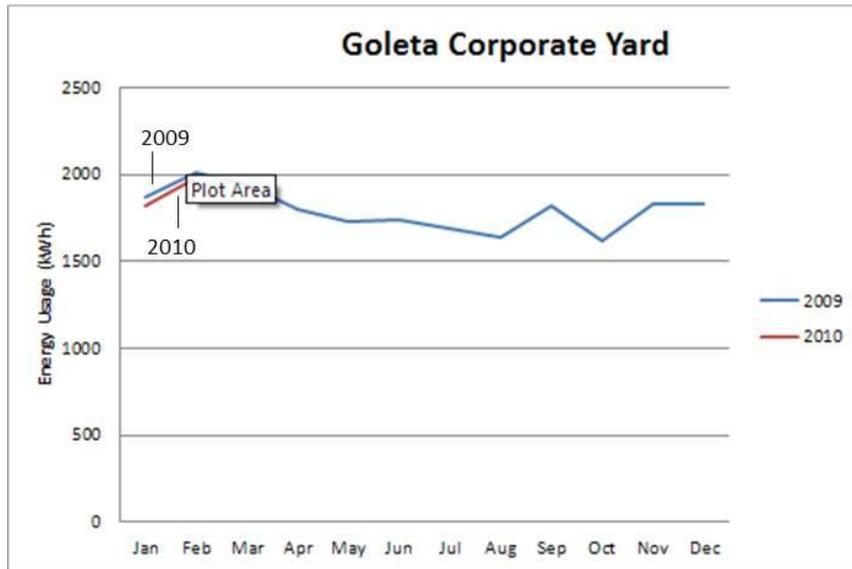


Note that Figure 3.2 shows that energy use by the library decreased sharply in 2008 and again in 2011. This decrease reflects the installation of HVAC in 2008 and the cool roof in 2011.

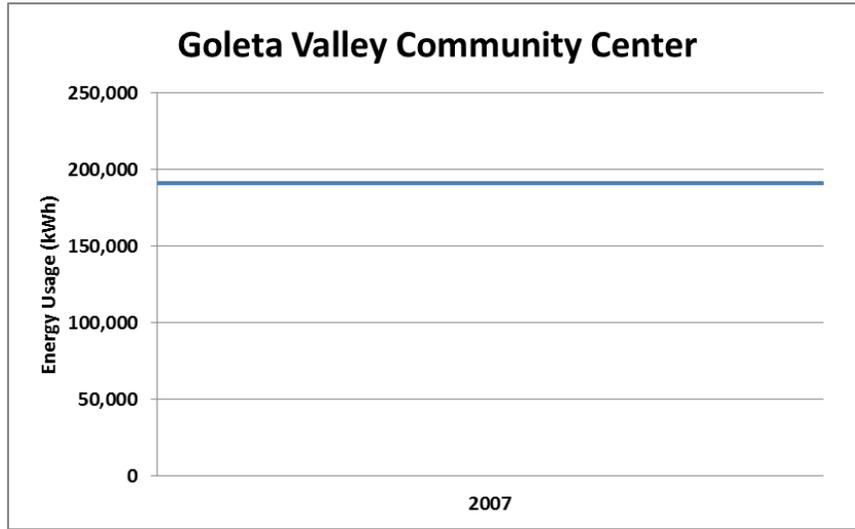
**Figure 3.3: Annual Electricity Use – Goleta City Hall**



**Figure 3.4: Annual Electricity Use – Corporate Yard Bond Building**



**Figure 3.5: Annual Electricity Use – Goleta Valley Community Center  
(Monthly data not available, annual average shown)**



### **3.3 Current Energy Programs and Policies**

Due to the City’s relatively recent incorporation, all policies developed and programs undertaken since incorporation are considered “current.” Current energy programs and policies are described as 1) those related to the General Plan, 2) those related to other activities in support of CEESP goals (SCE funding for activities other than this EEAP), 3) activities completed with Energy Efficiency and Conservation Block Grant Program (EECBG) funds or 4) other energy efficiency and resource conservation initiatives.

#### ***General Plan Policies Related to Energy Efficiency***

The City of Goleta’s General Plan polices related to energy efficiency and efficient resource management are listed in Table 3.3. These policies and programs guide the City’s energy efficiency regulatory framework and support the development of plans such as this EEAP. City actions that are identified in this EEAP for the purpose of increasing energy efficiency and lowering GHG emissions were developed in response to General Plan direction.

**Table 3.3: City of Goleta General Plan Policies that Support Energy Efficiency**

<b>Policy #</b>	<b>Policy Name</b>
CE1 13.1	Energy Efficiency in Existing and New Residential Development
CE 13.2	Energy Efficiency in Existing and New Commercial and Industrial Development
CE 13.3	Use of Renewable Energy Sources (new projects)
CE 13.4	Energy Conservation for City Facilities and Operations
CE 13.5	Public Information and Education
CE-IA-5	Preparation of a GHG Reduction Plan
HE2 9.4	Resource Conservation (as part of construction standards)
HE 9.5	Renewable Energy Technologies
HE-IP3 9B	Promote Solar Design
HE-IP 9C	Establish Green Building Standards and Processes
VH4-4.16	Green Building Practices in Design

Complete General Plan Policies are available in Appendix A.

CE = Conservation Element

HE= Housing Element

IA = Implementation Action

IP= Implementation Program

VH = Visual and Historic Element

### ***Other Activities in Support of CEESP Goals***

The City is currently completing the following activities that fulfill CEESP goals, as required of the City under the SCE contract:

*Develop and Adopt a Green Building Program* – In November 2010, the City Council adopted the 2010 California Green Building, Electrical, Plumbing, Mechanical Code, Residential and Green Building Codes. In addition to the state building code requirements, the City of Goleta is currently developing a Green Building Program that consists of two paths for private development applicants depending on the category of their project: legislative projects and ministerial/quasi-judicial projects.

The legislative category comprises those projects that require action by the City Council because they include elements that amend existing legislation or ordinances such as General Plan amendments, Rezones, Development Agreements

and Specific Plans. Under the pending Green Building Program, these legislative projects would trigger mandatory requirements of the proposed CalGreen+ component of the state legislation. Such requirements would increase overall building efficiency in these legislative projects. In addition, legislative projects would be incentivized, on a voluntary basis, to achieve certification in any of the following rating schemes: LEED, Green Point Rated, or Built Green (Supports CEESP Goal 2).

In addition to the existing mandatory Title 24 and State requirements, ministerial/quasi-judicial projects would also be incentivized to achieve CALGreen+ standards, but these projects would pursue CalGreen+ on a voluntary basis. These projects are those that adhere to current ordinances and guidelines that do not require legislative action as noted above.

CALGreen+ proposes standards that exceed the existing mandatory CALGreen requirement. Possible incentives for ministerial/quasi-judicial projects participating in CalGreen+ could be an expedited plan check through the Building Department fixed residential PV building permit fees, participation in the County of Santa Barbara's Innovative Building Review Program, reduced application fees and potential rebates/refunds. Please note that incentives are still to be determined.

		Program	
		Mandatory	Voluntary
Legislative Action	No	N/A	Incentivized: CALGreen+ CALGreen Reach Code
	Yes	CALGreen+	Incentivized: Certification

**Proposed Green Building Program**

The proposed Green Building Program also includes a proposed policy for certain municipal buildings to meet the LEED NC Silver (LEED-NC) certification standard.

*Develop and Deliver an EEAP Training Program to Community Leaders* – The City developed a training curriculum, tools and resource templates designed to give participants the ability to develop an EEAP specific to their own agency. The audience for the series of trainings include decision-makers at the Goleta and Santa Barbara Unified School Districts, Goleta Water District, Goleta Sanitary District, Santa Barbara County Fire Department, UC Santa Barbara, City of Santa Barbara, Goleta City and other stakeholders or employees of local public agencies. Training activities occurred in July and August 2012 (Supports CEESP Goal 4).

### ***Activities Completed with Energy Efficiency and Conservation Block Grant Program Funds***

*Energy Efficiency and Conservation Block Grant Program (EECBG)* – In 2009, the American Recovery and Reinvestment Act funded the EECBG. This federal program is for state, city and county governments. Grants are intended to be used to implement a broad range of energy efficiency and conservation strategies, including but not limited to retrofits, energy audits and financial incentives for energy efficiency.

Of the \$3.2 billion made available through the EECBG program, \$1.9 billion was made available to cities and counties throughout the U.S. In 2010, the City of Goleta prepared an EECBG grant application and received \$159,293 to complete the projects listed in Table 3.4 and discussed in more detail in Section 5. The energy efficiency gains of these retrofits are described in the EEAP because they support the goals of the EEAP and are part of Goleta’s GHG Emissions Inventory and Climate Action Plan.



**Lighting Retrofits at City Hall**

**Table 3.4: Completed Energy Efficiency Projects through the EECBG Program**

<b>Location</b>	<b>Description</b>	<b>Annual Energy Savings (kWh)</b>	<b>Capital Cost</b>	<b>Implementation Status</b>
City Hall – private office, conference rooms	Replace 144W lamp with 64W lamp	4,400	\$2,083	Completed
City Hall – private office, conference rooms	Replace 108W lamp with 64W lamp	8,833	\$7,604	Completed
City Hall – private office, conference rooms	Replace 72W lamp with 64W lamp	572	\$2,708	Completed
City Hall – private office, conference rooms	Replace 36W lamp with 32W lamp	33	\$312	Completed
City Hall – private office, conference rooms	Replace 78W lamp with 34W lamp	5,324	\$4,248	Completed
City Hall – private office, conference rooms	Replace 173W lamp with 128W lamp	2,846	\$3,196	Completed
City Hall – private office, conference rooms	Replace 40W lamp with 5W lamp	1,050	\$390	Completed
Roadway Intersection Lights <sup>1</sup>	Replace 220W high pressure sodium bulb with 137W LED	6,225	\$24,033	Completed
Roadway Intersection Lights <sup>1</sup>	Replace 295W high pressure sodium bulb with 137W LED	26,544	\$53,834	Completed
Roadway Intersection Lights <sup>1</sup>	Replace 365W high pressure sodium bulb with 137W LED	2,052	\$2,884	Completed
<b>Total</b>		<b>57,879</b>	<b>\$101,292</b>	

Note: All kWh savings are estimated and rely on assumptions about use hours and patterns at the facility. This EEAP relies on several different energy audits, each of which may have made slightly different assumptions about the use patterns at a particular facility. Following completion of energy efficiency projects listed above, the City will monitor actual energy consumption and compare to pre-project conditions (see Section 5.4).

<sup>1</sup> Roadway intersection lights include light fixtures in the traffic signals and highway safety lights. Highway safety lights were upgraded as part of the EECBG program. Traffic signal light fixtures were converted to LED bulbs before the City was involved with the EECBG program.

### ***Other Energy Efficiency and Sustainability Initiatives (non-buildings)***

As mentioned previously, although the SCE contract focuses exclusively on increasing electricity efficiency of Goleta's municipal buildings, the City is committed to reducing energy consumption and GHG emissions across its range of operations. The combined benefits of all of these efforts will be described in the Climate Action Plan, while this EEAP focuses primarily on building energy efficiency. A brief overview of the City's efforts to reduce energy use and GHG emissions in sectors other than building electricity use are described here.

*Transportation Demand Management Program (TDM Program)* – In 2011, the City completed a comprehensive employee commute study as a basis for establishing an effective TDM Program. The TDM Program was offered to employees in 2012 and includes incentives for walking, biking, public transit, car-pooling coordination and van-pooling coordination, as well as opportunities for flexible work scheduling and telecommuting. As part of the TDM Program's biking incentives, the City purchased three bicycles for use by City staff. During the month of May, the City also partners with the Santa Barbara County Association of Governments, Traffic Solutions division, to encourage City staff to commute to work using bicycles as part of their "CycleMaynia" event. Based upon recent commute statistics, the City estimates that the TDM Program will avoid 180,086 commuter-vehicle miles in 2012 and 187,590 commuter-vehicle miles in 2020.

*Climate Action Plan* – The City is also completing a community Climate Action Plan, also referred to as the citywide GHG Emissions Inventory and Reduction Plan. This plan will address GHG emissions and energy consumption by the community at large, including the City's municipal operations. The Climate Action Plan has a target completion date of early 2013. Key policies and programs under consideration related to building-energy use in the draft Climate Action Plan include: 1) a residential and commercial building code that further exceeds Title 24 CalGreen requirements, 2) increased incentives and education for performing retrofits to a standard equivalent to Title 24 or better, and 3) incentives and programs for

increased residential solar installations and/or other energy efficient design features.

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## SECTION 4 — CITY OF GOLETA ENERGY EFFICIENCY AND GHG REDUCTION GOALS

As described previously, this EEAP is one component of the City’s larger Climate Action Plan. As such, this EEAP articulates specific goals exclusively related to building energy efficiency but also supports the achievement of the City’s larger goals to reduce GHG emissions across all sectors, not just building energy. The City’s primary goals are listed in Table 4.1.

**Table 4.1: City of Goleta Primary Energy Efficiency and GHG Reduction Goals**

	<b>Goal</b>	<b>Implementation Plan</b>	<b>Sectors Addressed by Plan</b>	<b>Notes</b>
<b>Energy Efficiency</b>	Reduce electricity use by Goleta buildings and facilities by 10% relative to a 2007 baseline, and achieve Gold status with CPUC Energy Leader Partnership	EEAP	Building Electricity Lighting	Goal selected by Goleta in consultation with SCE
<b>GHG Reductions</b>	Reduce GHG emissions due to all municipal operations by 15% relative to a 2007 baseline	Climate Action Plan	Building Electricity Vehicle Fleet Employee Commute Waste Generation Lighting Water Consumption	Goal recommended for local governments by the CARB in the AB 32 Scoping Plan

The energy efficiency gains achieved through this EEAP will help the City reach its electricity consumption goals and GHG reduction goals shown in Figure 4.1 and Figure 4.2, respectively. The City of Goleta’s electricity consumption in 2007 was 3,039,712 kWh. The City of Goleta’s emissions in 2007 were 1,207 MT CO<sub>2</sub>e. An emissions level 15% below 2007 levels would mean that the City of Goleta’s

Municipal GHG emissions in 2020 will be 1,026 MT CO<sub>2</sub>e. This is the City of Goleta's GHG emissions target. The City needs to identify 181 MT CO<sub>2</sub>e in avoided GHG emissions to reach this target. This EEAP will achieve 58 MT CO<sub>2</sub>e (196,073 avoided kWh) of the needed 181 MT CO<sub>2</sub>e (meeting the 10% electricity reduction goal).

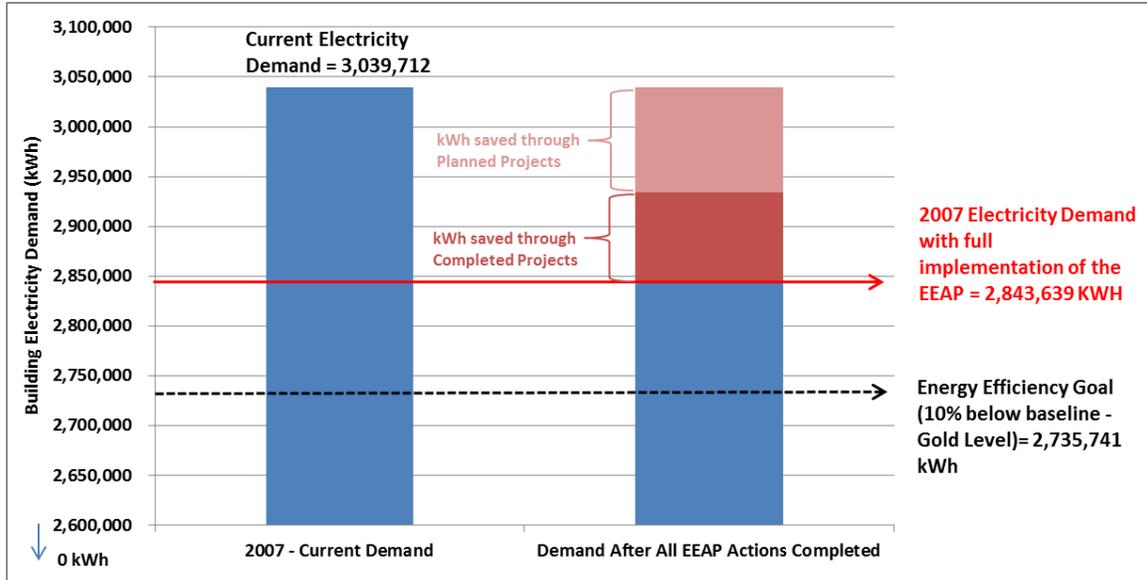


**City Hall**



**Goleta Depot**

**Figure 4.1: Municipal Facility Electricity Consumption in 2007; Forecasted Consumption in 2020 and Energy Savings due to City Programs in 2020**



This EEAP establishes the following primary and supporting goals with respect to Energy Efficiency and GHG Reductions.

#### 4.1 Energy Efficiency Goals

1. The City's current (2007) energy demand totals 3,039,712 kWh of electricity. The future (2020) energy demand based on BAU projections is 3,357,604 kWh. The City will reduce annual energy consumption of Goleta's municipal buildings by at least 10% relative to the 2007 level as measured in 2020, which corresponds to the Gold Level of achievement through CPUC's Energy Leader Partnership Program. Achieving Gold Level would result in a reduction of 303,971 kWh of electricity relative to the 2007 level, and 2,735,741 kWh of electricity consumed in 2020. (The City's municipal GHG emissions goal for 2020 is 1,026 MT CO<sub>2</sub>e). A 10% target is recommended by the State, and is obtainable based on the actions set forth in this EEAP and intended updates of this EEAP.
2. Reaching the Gold Level through CPUC's Energy Leader Partnership Program, along with a 10% reduction in energy consumption relative to the baseline year,

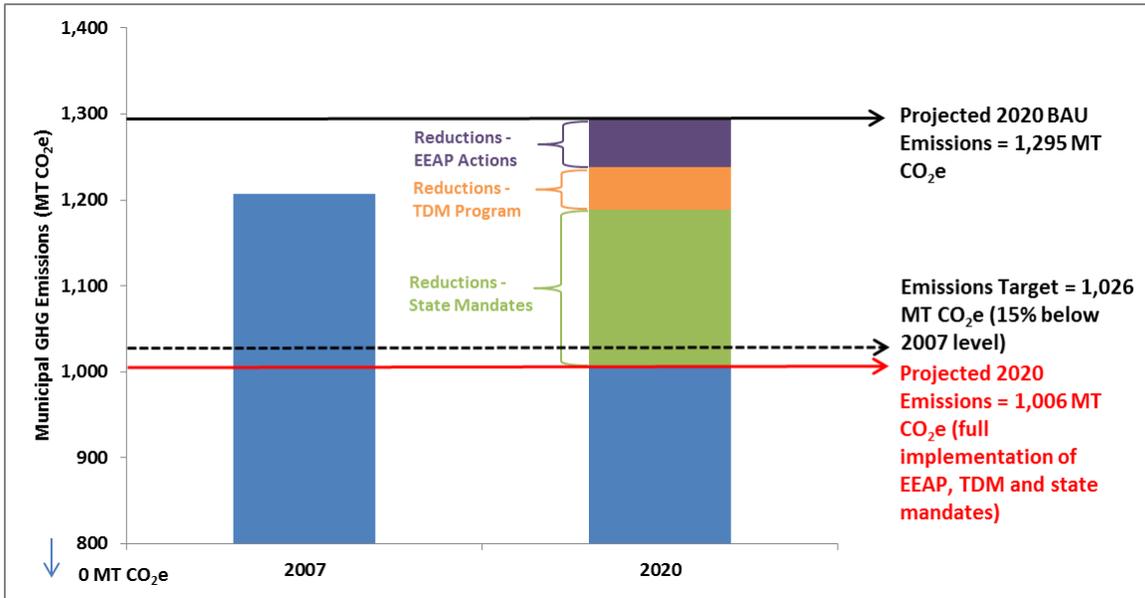
also requires that 50% of municipal facilities are targeted to receive an energy efficiency upgrade, and that the City cosponsor marketing and outreach to the community that highlights energy efficiency programs.

3. The EEAP is to provide a comprehensive guiding policy document for all City-related operations. The EEAP is intended to be updated as needed.
4. The City will serve as an example to the community as a whole for energy conservation by sharing the experience of developing and implementing an EEAP and the energy savings achieved in its municipal buildings.

#### **4.2 GHG Reduction Goals**

1. Before 2020, the City will reduce GHG emissions due to municipal operations to a level that is 15% below current levels through a range of programs across the following sectors: building energy use, streetlight energy use, employee commute, vehicle fleet and waste generation.
2. The City will make building energy efficiency and streetlight energy efficiency (as achieved through the EEAP) the cornerstone of the municipal GHG reduction effort.
3. The City will build on this effort to complete the community Climate Action Plan and fulfill the requirements of CE-IA-5.
4. The City will seek to exceed the 15% goal where possible by identifying other City operations-focused opportunities for GHG reduction, such as conducting a waste study and maximizing diversion of City generated waste, continuing to increase participation in the TDM program and periodically re-evaluating buildings for more energy efficiency improvement opportunities.

**Figure 4.2: Municipal GHG Emissions in 2007; Forecasted Emissions in 2020 and Avoided GHG Emissions due to City and State Programs in 2020**



### 4.3 Other Related Goals

The City will develop a Green Building Program and related policy that exceeds Title 24, ensuring a high level of energy efficiency in residential and commercial new construction, and achieving both energy savings and GHG savings for the Goleta community at large.

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## SECTION 5 — CITY OF GOLETA ACTION STEPS

The actions that the City will take to reach its energy efficiency goals are described in Sections 5.1 through 5.5. These actions include identifying projects, securing funding and monitoring and tracking progress.

### 5.1 Municipal Facility Energy Efficiency Actions

#### *2007–2012 Actions (EECBG-Funded)*

As described previously, the EECBG program provided Goleta with \$159,293 to complete energy efficiency projects. The projects that the City has completed and the corresponding energy savings, GHG reductions and capital costs are summarized in Table 5.1.



**HVAC Replacement at Goleta Public Library (2008)**

**Table 5.1: 2007-2012 Actions (EECBG Funded)**

Location	Description	Energy Savings (kWh)	GHG Reduction	Capital Cost	Implementation Status
City Hall – private office, conference rooms	Replace 144W lamp with 64W lamp	4,400	1.3	\$2,083	Completed
City Hall – private office, conference rooms	Replace 108W lamp with 64W lamp	8,833	2.5	\$7,604	Completed
City Hall – private office, conference rooms	Replace 72W lamp with 64W lamp	572	0.2	\$2,708	Completed
City Hall – private office, conference rooms	Replace 36W lamp with 32W lamp	33	0.01	\$312	Completed
City Hall – private office, conference rooms	Replace 78W lamp with 34W lamp	5,324	1.5	\$4,248	Completed
City Hall – private office, conference rooms	Replace 173W lamp with 128W lamp	2,846	0.8	\$3,196	Completed
City Hall – private office, conference rooms	Replace 40W lamp with 5W lamp	1,050	0.3	\$390	Completed
Roadway Intersection Lights <sup>1</sup>	Replace 220W high pressure sodium bulb with 137W LED	6,225	1.8	\$24,033	Completed
Roadway Intersection Lights <sup>1</sup>	Replace 295W high pressure sodium bulb with 137W LED	26,544	7.6	\$53,834	Completed
Roadway Intersection Lights <sup>1</sup>	Replace 365W high pressure sodium bulb with 137W LED	2,052	0.6	\$2,884	Completed
<b>Total</b>		<b>57,879</b>	<b>17</b>	<b>\$101,293</b>	

Note: All kWh savings are estimated and rely on assumptions about use hours and patterns at the facility. This EEAP relies on several different energy audits, each of which may have made slightly different assumptions about the use patterns at a particular facility. Following completion of energy efficiency projects listed above, the City will monitor actual energy consumption and compare to pre-project conditions (see Section 5.4).

<sup>1</sup> Roadway intersection lights include light fixtures in the traffic signals and highway safety lights. Highway safety lights were upgraded as part of the EECBG program. Traffic signal light fixtures were converted to LED bulbs before the City was involved with the EECBG program.

### 2007-2012 Actions (Non-EECBG-Funded)

The City has completed several energy efficiency projects outside the scope of the EECBG program. Details of each project including cost, kWh savings and GHG reductions are listed in Table 5.2. Some, but not all, of these opportunities were identified as part of this EEAP. The energy and GHG savings for all projects were quantified as part of this EEAP. These projects are listed in Table 5.2.

**Table 5.2: 2007-2012 Actions (Non-EECBG-Funded)**

Location	Description	Energy Savings (kWh)	Energy Savings (Therms)	GHG Reduction	Capital Cost	Implementation Date
Library	Roof replacement	13,247	-52	3.5	\$161,896	Completed
Library	HVAC upgrades	12,620	Not applicable	2.3	\$191,440	Completed
Goleta Valley Community Center	Furnace upgrades	Not applicable	535	2.8	\$1,565	Completed
City Hall (spaces other than private offices and conference rooms captured in EECBG project)	Lighting retrofits	5,621	Not applicable	1.6	\$6,843	Completed
City Hall, Stow Grove and Corp Yard	Water fixture upgrades <sup>1</sup>	837 <sup>2</sup>	Not applicable	0.24	\$6,924	Completed
Roadway intersections <sup>3</sup>	LED upgrades in traffic signals		Not applicable	-	\$99,108	Completed
<b>Total</b>		<b>32,326</b>	<b>483</b>	<b>11</b>	<b>\$467,776</b>	

Note: All kWh savings are estimated and rely on assumptions about use hours and patterns at the facility. This EEAP relies on several different energy audits, each of which may have made slightly different assumptions about the use patterns at a particular facility. Following completion of energy efficiency projects listed above, the City will monitor actual energy consumption and compare to pre-project conditions (see Section 5.4).

- <sup>1</sup> Capital costs were estimated from typical costs for installation of similar fixtures in other facilities in Santa Barbara County. Actual data for this project were not available.
- <sup>2</sup> Monetary savings were estimated from the use of similar fixtures in other facilities in Santa Barbara County. A rate of \$4.58 per Hundred Cubic Feet of water was then used to estimate energy savings.
- <sup>3</sup> This project was completed before 2007, so the energy savings were not calculated.

### **Future Unfunded Actions**

The City's Building Energy Audit (Appendix C) established a 2007 baseline by building, identified energy efficiency retrofit opportunities, quantified the associated expected kWh savings on an annual basis, identified cost and cost savings information and quantified associated GHG savings for additional retrofit opportunities beyond those already completed through the EECBG program. These include projects that the City would like to pursue but has not yet identified a funding mechanism or has not scheduled the project. These potential projects are described below. Table 5.3, *Future Unfunded Actions*, also lists the future unfunded actions and the corresponding energy savings, GHG reduction, capital cost, anticipated implementation year and payback time.

- **Corporate Yard lighting retrofits:** This project will retrofit 33 light fixtures in the Corporate Yard building at an average cost per unit of \$78.44. The project's estimated total cost is \$2,588.50, and the total kWh savings is 2,866 kWh.
- **Goleta Valley Community Center lighting retrofit projects:** Projects at GVCC will replace existing lighting fixtures with more energy-efficient fixtures. Forty 128-watt lamps and 114 64-watt lamps will be installed in the kitchen area at an average cost per unit of \$153. The estimated total cost of the kitchen-area GVCC retrofits is \$17,433, and the total kWh savings is 22,260 kWh. There is an additional energy savings potential of 1,569 kWh in other areas of the GVCC, as identified by AESC during the City's Building Energy Audits in October of 2011 (Appendix C). The estimated cost of these additional improvements is \$7,776, which is the difference between the total cost of the retrofits in all areas of the GVCC suggested by AESC (\$25,208.55), and the total cost of the kitchen improvements (\$17,433).
- **Library lighting retrofits:** This project will retrofit 298 light fixtures in the Goleta Library building at an average cost per unit of \$79.39. The total

estimated cost of the project is \$23,656.98, and the total kWh savings is 29,813 kWh.

- **Stow Grove Park lighting retrofits:** This project will retrofit 114 light fixtures in the building at Stow Grove Park at an average cost per unit of \$32.12. The estimated total cost of the project is \$3,661.50, and the total kWh savings is 3,424 kWh.
- **Train Depot:** This project will retrofit 95 light fixtures in the Train Depot building at an average cost per unit of \$61.33. The estimated total cost of the project is \$5,826.15, and the total kWh savings is 5,114.50 kWh.
- **New City Hall:** This project will construct a new 25,000 square foot LEED Silver certified City Hall building, with 4,000 SF commercial space.<sup>9</sup> The total kWh savings is estimated to be 40,821 kWh.
- **New Fire Station:** This project will construct a new 9,000 square foot LEED Silver certified fire station building.

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<sup>9</sup> Source: Final Mitigated Negative Declaration for City Hall Purchase, May 29, 2012

**Table 5.3: Future Unfunded Actions**

Location	Description	Estimated Energy Savings (kWh)	GHG Reduction	Capital Cost	Implementation Schedule Goal	Payback <sup>1,2</sup>
<b>Existing Buildings</b>						
Corporate Yard	Lighting retrofits	2,866	0.8	\$2,589	By 2020	5.9 years
Goleta Valley Community Center kitchen	Replace 173W lamp with 128W lamp	4,500	1.3	\$5,559	By 2020	8.1 years
Goleta Valley Community Center kitchen	Replace 144W lamp with 64W lamp	17,200	4.9	\$8,958	By 2020	3.4 years
Goleta Valley Community Center kitchen	Replace 72W lamp with 64W lamp	560	0.2	\$2,917	By 2020	34.0 years
Goleta Valley Community Center (Remaining Rooms)	Lighting retrofits	1,569	0.5	\$7,776	By 2020	32.4 years
Library	Lighting retrofits	29,813	8.6	\$23,657	By 2020	5.2 years
Stow Grove	Lighting retrofits	3,424	1.0	\$3,662	By 2020	7.0 years
Train Depot	Lighting retrofits	5,115	1.5	\$5,826	By 2020	7.4 years
<b>New Buildings</b>						
City Hall Building	LEED Silver	40,821 <sup>3</sup>	11.74	\$5,000,000 <sup>4</sup>	By 2019	N/A
Fire Station	LEED Silver	unavailable	unavailable	\$4,690,000 <sup>5</sup>	By 2014	unavailable
<b>Total</b>		<b>105,867</b>	<b>30</b>	<b>\$9,750,942</b>		

Note: All kWh savings are estimated and rely on assumptions about use hours and patterns at the facility. This EEAP relies on several different energy audits, each of which may have made slightly different assumptions about the use patterns at a particular facility. Following completion of energy efficiency projects listed above, the City will monitor actual energy consumption and compare to pre-project conditions (see Section 5.4).

<sup>1</sup> Payback time was estimated using a simple payback formula and an electricity cost of \$0.153 per kWh.

<sup>2</sup> “Payback” is the amount of years it takes to recoup capital cost of the applicable improvement. The “payback” provides another metric for decision makers and additional information to City Staff in order to make educated decisions towards the development and implementation of energy efficiency upgrades and/or capital improvements.

<sup>3</sup> Estimated based on assumed average gains in Title 24 energy efficiency statewide, the City’s commitment to exceed Title 24 Standards by 15%, and current electricity use at City Hall. Actual gains may be more or less (CEC, 2012).

<sup>4</sup> Source: Capital Improvement Project List, January 17, 2012

<sup>5</sup> Per County of Santa Barbara Capital Improvement Program

### ***Other Potential Actions***

Additional energy efficiency actions will be considered by the City in the future. These potential actions have not been studied in detail by the City, and the City has no obligation to pursue any of the actions. Implementation of some or all of the potential actions would result in additional energy savings, GHG reductions and financial savings. The savings and reductions amounts have not been determined at the time of this EEAP. The potential actions that the City may choose to pursue are listed in Table 5.4 *Other Potential Actions*. As a tool for prioritizing the potential actions, general cost and savings information has been included in Table 5.4 on the following page from studies of similar projects implemented by other jurisdictions.

**Table 5.4: Other Potential Actions**

<b>Facility Name</b>	<b>Description</b>	<b>Estimated kWh, GHG and \$ Savings</b>	<b>Estimated Cost Savings</b>
All facilities	Participate in SCE’s Demand Response Program (CA Flex Alert) or other similar program that identifies peak energy demand times and requires certain measures/protocols/behaviors in response to these demand times	In an EEAP completed by the City of Huntington Beach, participation in the Demand Response Program was shown to yield energy savings in the range of 10%-20%. <sup>1</sup>	Cost savings would result from the reduced energy consumption at each participating facility. Capital costs for this project would be negligible.
All facilities	Identify outdoor lighting improvements at City facilities	The California Air Pollution Control Officer’s Association (CAPCOA) notes that the range of reduction in annual energy usage of public street and area lighting outfitted with higher efficiency lighting systems is 16–40%. <sup>2</sup>	Capital costs will vary by facility or outdoor location.
All facilities	Optimize HVAC setting/controls	Optimization of HVAC settings will provide varying levels of energy savings, depending on the conditions at each facility and local AC needs. Because HVAC systems typically account for 44% of a commercial building’s energy consumption, the potential for energy savings from HVAC optimization are promising. <sup>3</sup>	Cost benefits from optimizing HVAC settings include lower energy bills, lower repair costs and reduced capital costs due to extended lifetimes of equipment. SCE provides financial incentives to aid with the costs of optimization. <sup>3</sup>
All City-owned facilities	Monitoring-based commissioning relies on measurements of energy use to diagnosis problems, account for savings and help ensure that savings persist over time. This process gives users the ability to make informed and effective energy decisions.	According to a Lawrence Berkeley Lab study, median energy savings from monitoring-based commissioning projects at multiple university campuses were 9%. <sup>4</sup>	Lawrence Berkeley Lab found that the normalized median cost for monitoring-based commissioning projects at university campuses is \$1.00 per square foot, while also noting that the median simple payback time for the projects is 2.5 years. <sup>4</sup>
City Hall	Install auto sensors in City Hall restrooms	Lighting occupancy sensors can reduce energy consumption from lighting by up to 50% for a restroom, according to the U.S. Department of the Interior <sup>5</sup> .	The U.S. Department of Interior notes that occupancy sensors typically have a payback time of between 1 and 3 years <sup>5</sup> .

**Table 5.4: Other Potential Actions**

<b>Facility Name</b>	<b>Description</b>	<b>Estimated kWh, GHG and \$ Savings</b>	<b>Estimated Cost Savings</b>
City Hall	Install timers on lighting fixtures in City Hall for over weekends	Lighting occupancy sensors can reduce energy consumption from lighting by up to 55% for a large work room or office, according to the U.S. Department of the Interior <sup>5</sup> .	The U.S. Department of Interior notes that occupancy sensors typically have a payback time of between 1 and 3 years. <sup>5</sup>
City Hall	Apply automatic shut-off by 9 p.m. to computers	Shutting off computers by 9 p.m. would save approximately 810 kWh per computer per year <sup>6</sup> .	Yale University discovered that shutting off their computers at night saved approximately \$40 per computer per year. Capital costs for this project would be negligible <sup>7</sup> .
City Hall	Implement weekend protocol – All staff shuts down all printers, computers, etc. by close of business on Friday	Shutting off computers by close of business on Friday would save approximately 842 kWh per computer per year <sup>8</sup> .	More than \$40 per computer per year would be saved, per the findings by Yale University, in addition to the savings resulting from shutting computers off nightly <sup>7</sup> .

<sup>1</sup> Huntington Beach 2011

<sup>2</sup> California Air Pollution Control Officer’s Association 2010.

<sup>3</sup> Southern California Edison 2011

<sup>4</sup> Mills, E. and P. Matthew 2009.

<sup>5</sup> U.S. Department of the Interior n.d.

<sup>6</sup> Savings are based on a PC and monitor that use 120 and 150 watts, respectively, and are shut off for 12 hours (9 p.m.–9 a.m.) for all 250 workdays per year.

<sup>7</sup> U.S. Environmental Protection Agency n.d.

<sup>8</sup> Savings are based on a PC and monitor that use 120 and 150 watts, respectively, and are shut off for 60 hours every weekend (9 p.m. Friday–9 a.m. Monday) for all 52 weekends per year.

## 5.2 Energy Savings Analysis

An Energy Savings Analysis was prepared as part of the EEAP. The scope of the analysis included City-owned and operated buildings and streetlights. The Energy Savings Analysis is based on the data provided in the municipal Building Energy Audit (Appendix C), EECBG grant information and other data as provided by the City on completed projects. The avoided GHG emissions for a single year for each project are previously listed in Tables 5.1, 5.2 and 5.3. For each energy efficiency action listed in these tables, the amount of avoided GHG emissions was calculated according to standard GHG and electricity usage accounting protocols and procedures, including the Local Government Operations Protocol (LGOP) (CARB 2010) and General Reporting Protocol (CCAR 2009).

### *Electricity Savings*

Through energy efficiency projects completed between 2007 and 2012 using both EECBG and other funds, the City has saved 90,205 kWh (Tables 5.1 and 5.2). With the completion of all future—but currently unfunded—energy efficiency projects on existing facilities (Table 5.3), the City will save an additional 65,046 kWh, relative to its 2007 electricity baseline. When the City completes construction of a new City Hall to LEED Silver standard and completely relocates all City Hall operations to the new facility, an estimated additional 40,821 kWh will be saved, for a total of 105,867 kWh savings. The savings at the new City Hall are estimated based on the City's commitment to exceed Title 24 standards for new construction by a minimum of 15%. City municipal electricity demand will be 6% lower than 2007 levels as a result. The City will reach its goal to increase energy efficiency by 10%, which would result in an electricity consumption amount of 2,735,741 kWh in 2020.

### *GHG Savings*

Through energy efficiency projects completed between 2007 and 2012 using both EECBG and other funds, the City has saved 28 MT CO<sub>2e</sub> in GHG emissions (Tables 5.1 and 5.2). With the completion of all future, but currently unfunded, energy efficiency

projects on existing facilities (Table 5.3), the City will save an additional 19 MT CO<sub>2</sub>e in GHG emissions, relative to its 2007 electricity baseline. When the City completes construction of a new City Hall to LEED Silver standard and completely relocates all City Hall operations to the new facility, an additional 12 MT CO<sub>2</sub>e will be saved for a total of 30 MT CO<sub>2</sub>e savings from building energy and streetlight improvements identified as part of this EEAP.

Additional GHG reductions will be realized through the City's TDM Program (49 MT CO<sub>2</sub>e), and through State programs including the RPS and the state's vehicle standards (183 MT CO<sub>2</sub>e). In total, the City, through its own actions and state mandates, will reduce its 2020 emissions level from 1,295 MT CO<sub>2</sub>e under a BAU scenario to 1,006 MT CO<sub>2</sub>e, approximately 17% below 2007 levels. The City will exceed the recommended GHG reduction goals. A complete discussion of the City's total GHG reductions will be included in the City's Climate Action Plan.

### **5.3 Funding of Projects**

The City continually monitors and takes advantage of grant monies and incentive programs as they become available to local governments from the federal government, state government, utility providers and other entities.

The City is currently pursuing the following funding mechanisms to implement unfunded actions outlined in Table 5.3. These funding mechanisms are available to local governments for their own facilities:

- Federal, state and private grants; and
- Additional funding as available through the Energy Leader Partnership Program (<http://www.sce.com/business/energy-solutions/energy-efficiency-partnerships.htm>). This program provides support to local governments to assist them in achieving a joint vision on long-term energy efficiency; and

- CEC Low Interest Local Government Loans for Local Governments<sup>10</sup>. <http://www.energy.ca.gov/efficiency/financing/>; and
- On-Bill Financing (OBF), zero interest rate financing for energy efficient equipment<sup>11</sup>; and
- Electricity bill savings from implemented actions; and
- SCE *Savings By Design* program. This program assists with providing incentive money to building owners to offset the upfront costs of more efficient technology. [www.savingsbydesign.com/](http://www.savingsbydesign.com/); and
- SCE *Business Solutions Program*. This program provides assistance in reducing overall energy use and provides money back to its customers that perform upgrades; and
- Bond measures.

#### 5.4 Policies and Programs

The Goleta General Plan policies and programs support energy efficiency and conservation efforts, including the preparation and implementation of this EEAP. While the General Plan does not require updating, the following actions are identified to further effectuate the energy efficiency efforts identified in the General Plan:

- Energy Star benchmarking for City-owned buildings utilizing the Energy Star Portfolio Manager online tool; and

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<sup>10</sup> The California Energy Commission (CEC) provides 3% interest rate loans for amounts up to \$3 million to fund installation of proven energy- or capacity-saving equipment per the eligibility requirements. Eligible loan recipients include cities, counties, public care institutions, public hospitals, public schools and colleges, and special districts. Some examples that are relevant to Goleta: Lighting systems, streetlights and LED traffic signals, building insulation, combined heat and power projects, and heating and air conditioning modifications. Loans must be repaid within 15 years. Information is available at: <http://www.energy.ca.gov/efficiency/financing/index.html>.

<sup>11</sup> On-Bill Financing (OBF) is a zero interest rate loan program available to the City of Goleta through SCE for energy efficiency retrofit projects. SCE stopped accepting applications for this program in April of 2011, but may open the program again in the future. Information is available at: <http://www.sce.com/business/onbill/on-bill-financing.htm>

- Coordination of City efficiency goals and programs with the efficiency projects and incentive programs of other agencies, including fee adjustments or rebates to local businesses and residents, in support of those efforts; and
- Modification to the City's lighting standards to discourage excessive lighting; and
- Support and facilitate the implementation of the Goleta City Council, Energy Issues Standing Committee's recommended Green Building Ordinance(s); and
- Support local, state and federal legislation that is consistent with the policies of Goleta's General and Strategic Plans; and
- Provide support to City staff to work with the Goleta City Council Energy Issues Standing Committee and work under the direction of the City Manager; and
- Research and monitor the status of state and federal regulations, programs, and funding opportunities; and make recommendations for new programs and opportunities based on changes (e.g., direct access). Staff will work with the community to assist them in obtaining information, funding and support from those programs.

The programs presented above support the implementation of energy efficiency actions identified in Section 5.1 and complement direction provided in the General Plan. The programs address City-owned facilities consistent with the scope of this EEAP.

## **5.5 Energy Efficiency Tracking**

To facilitate the implementation of the City's energy efficiency actions as identified in this EEAP, energy consumption will be tracked against the goals outlined in Section 4 of this EEAP. Tracking mechanisms and protocols vary depending on the goal. The following are possible mechanisms for tracking:

- Utility grants and rebates templates; and
- Building performance data with the Energy Star Portfolio Manager (Energy Efficiency Goal 1 and 2, GHG Goals 1 and 2); and
- Tracking spreadsheets to track energy efficiency projects at City facilities (Energy Efficiency Goal 1 and 2, GHG Goals 1 and 2); and
- Energy use updates at staff meetings (Energy Efficiency Goal 3 and 4); and
- Rotating subjects with seasonal changes (Energy Efficiency Goal 3 and 4); and
- Quarterly Reports to staff and community with energy efficiency updates and results (Energy Efficiency Goal 3 and 4).

In lieu of frequent and comprehensive building energy audits, the City of Goleta will monitor electricity and natural gas use on all municipal facilities on a monthly basis to identify its highest energy users. The City will utilize the Energy Star Portfolio Manager online tool to benchmark and track building performance (The Energy Star Portfolio Manager benchmarks building performance against other similar types of buildings and provides a score from 1 to 100). With this benchmarking information, the City can determine what buildings within their portfolio are in need of upgrades to improve overall building performance. The ongoing tracking will also show improvements made over time and determine each building's Energy Utilization Index (EUI) or kWh/sf.

Data collected in preparation of this EEAP are currently tracked and managed by several departments at the City of Goleta. For example, utility billing records are often processed and maintained by one person, contracting and completion of capital improvement projects tracked by another, and participation rate in the TDM Program tracked by someone else. Tracking of the City's numerous sustainability programs will continue to be a group effort, as is appropriate for a relatively small, integrated City with an overarching sustainability focus, but with more staff communication and coordinated tracking. One staff person will be

responsible for maintaining the central tracking spreadsheet (monthly energy use by facility or other reports from the Portfolio Manager, completed retrofits, scheduled retrofits, projects under consideration, TDM Program participation, other GHG benefits, etc.), although all staff will have access to it and will be familiar with the tracking system such that they can enter actions and information under their direct control. It is the City's intent that tracking and communication of progress on energy efficiency achievements will be a group effort, discussed at staff meetings and publicized through the City's community newsletter.

A multi-department effort supports internal efficiency while promoting ownership and buy-in by all staff. To reflect this efficient, joint effort and to reward participation, various staff will be responsible for updates to City staff and the community, including cost and energy use updates such that the energy tracking becomes a community effort. The following are suggested best practices regarding the EEAP and energy efficiency related projects:

- Annual reports on the progress of the EEAP implementation, completion, scheduled and potential projects and current energy use of all facilities compared to previous years will be provided to the Planning Commission and City Council as part of the General Plan Annual Report; and
- All City projects are currently and will continue to be tracked through the Capital Improvement Program (CIP). Energy savings, where appropriate, will be included in the CIP Annual Report to the Planning Commission and City Council; and
- The EEAP will be updated, as needed, according to best available resources and standard practice at the time. The timing of the update may correspond with the CIP updates to ensure consistency between the documents and to ensure that CIP projects have the opportunity to be evaluated based on energy efficiency effectiveness.

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## SECTION 6 — CONCLUSIONS

This EEAP describes actions that the City of Goleta has identified to improve municipal building energy efficiency, and charts a path for future energy efficiency upgrades by providing potential future actions and implementation packages in addition to planned future energy efficiency projects. A baseline energy use for municipal facilities is established based on detailed building-energy audit data. Funding mechanisms are presented to support and encourage the City's efforts to increase energy efficiency. Programs are presented that will further existing City policy directives regarding energy efficiency. Protocols for tracking the energy-efficiency actions and relaying municipal energy efficiency accomplishments to City staff and the community are provided, along with directions for monitoring City energy use as part of standard operations. This EEAP is thus a guiding policy document for both short-term and long-term energy efficiency planning for the municipal facilities and operations of the City of Goleta. With the implementation of planned and potential future actions, the City of Goleta will fulfill and support specific objectives regarding energy-efficient and sustainable practices, as articulated in the City's Strategic Plan and General Plan.

This EEAP and the completed actions are only one phase of the City's comprehensive strategy to lessen its environmental footprint. First, as mentioned above, the City is preparing a community Climate Action Plan which, when implemented, will yield benefits to energy efficiency and GHG emissions for the community at large. By lowering energy use in its own municipal buildings, the City is leading by example, reducing emissions and meeting the GHG emissions reductions goals of the Climate Action Plan and AB 32. Second, in addition to electricity consumption, the City is lessening the carbon footprint of other aspects of its operations. The City has implemented a TDM Program to reduce the amount of vehicle trips taken by City employees, which improves local air quality and reduces GHG emissions. The City also has many future planned and potential actions to further their energy efficiency, as discussed in Section 5 of this EEAP. Finally, the

City's General Plan and Strategic Plan contain numerous policies and guidelines that promote conservation and sustainable practices.

The City of Goleta is dedicated to reducing energy consumption and improving the environment, both in their municipal operations and facilities, and throughout the community. The City takes seriously its role as an example to the community and as an active participant in regional cooperation on these issues. The completion of this EEAP is further evidence of the City of Goleta's commitment to sustainable operations and leadership in energy efficiency throughout the community.



**Staff in Front of City Hall**

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## **APPENDIX A – GOLETA GENERAL PLAN ENERGY EFFICIENCY POLICIES**

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**CE 13.1 Energy Efficiency in Existing and New Residential Development. [GP]**

The City shall promote the following practices in existing and new residential construction:

- a. Retrofitting of existing residential structures to reduce energy consumption and costs to owners and tenants is encouraged. These retrofits may include: increased insulation, weather stripping, caulking of windows and doors, low-flow showerheads, and other similar improvements. Master metering is discouraged, and conversions to individual metering where practicable is preferred.
- b. The City shall enforce the state's residential energy conservation building standards set forth in Title 24 through its plan check and building permit issuance processes.
- c. New residential development and additions to existing homes shall be designed to provide a maximum solar orientation when appropriate, and shall not adversely affect the solar access of adjacent residential structures. Use of solar water heating systems, operational skylights, passive solar heating, and waste heat recovery systems is encouraged.

**CE 13.2 Energy Efficiency in Existing and New Commercial and Industrial Development. [GP]**

The following measures shall be employed to reduce energy consumption in existing and new commercial and industrial buildings:

- a. Reduction of energy consumption in existing buildings through improved design and management of heating, ventilation, air conditioning systems, and lighting is encouraged. Master metering is discouraged, and conversions to metering for individual tenant spaces shall be promoted where feasible.
- b. The City shall enforce the state's residential energy conservation building standards set forth in Title 24 through its plan check and building permit issuance processes.
- c. The City shall encourage nonresidential buildings to be designed in a manner that is appropriate for local climate conditions, taking into account natural light and ventilation, placement of landscaping, and use of integrated energy systems. This encompasses concepts such as cogeneration, waste heat systems, and other similar technologies.

**CE 13.3 Use of Renewable Energy Sources. [GP]**

For new projects, the City encourages the incorporation of renewable energy sources. Consideration shall be given to incorporation of renewable energy sources that do not have adverse effects on the environment or on any adjacent residential uses. The following considerations shall apply:

- a. Solar access shall be protected in accordance with the state Solar Rights Act (AB 2473). South wall and rooftop access should be achievable in low-density residential areas, while rooftop access should be possible in other areas.

- b. New development shall not impair the performance of existing solar energy systems. Compensatory or mitigation measures may be considered in instances where there is no reasonable alternative.
- c. Alternative energy sources are encouraged, provided that the technology does not contribute to noise, visual, air quality, or other potential impacts on nearby uses and neighborhoods.

**CE 13.4 Energy Conservation for City Facilities and Operations. [GP]** The City shall implement energy conservation requirements for City-owned facilities at the time of major improvements. Energy conservation measures may include energy-efficient interior and exterior building lighting, energy-efficient street lighting, natural ventilation and solar hot water systems, and landscaping with drought-tolerant species and deciduous trees to shade streets and the south and west sides of buildings in summer. For all City construction projects, the City shall comply with the state's energy conservation building standards set forth in Title 24. The City vehicle fleet shall use a mix of fuels that best achieves energy efficiency while meeting operational needs.

**CE 13.5 Public Information and Education. [GP]** The City shall prepare an informational program to advise building contractors and the public regarding energy conservation measures and practices.

**CE-IA-5 Preparation of a Greenhouse Gas Reduction Plan.** Within 24 months of the adoption of the Track 3 GP/CLUP Amendments, the City of Goleta will develop a Greenhouse Gas Reduction (GHG) Plan with implementation to commence 12 months thereafter. The Plan is intended to address City activities, as well as activities and projects subject to ministerial and/or discretionary approval by the City.

At a minimum, the Plan will:

- a. Establish an inventory of current GHG emissions in the City of Goleta including, but not limited to, residential, commercial, industrial, and agricultural emissions.
- b. Forecast GHG emissions for 2020 for City operations.
- c. Forecast GHG emissions for areas within the jurisdictional control of the City for business-as-usual conditions.
- d. Identify methods to reduce GHG emissions.
- e. Quantify the reductions in GHG emissions from the identified methods.
- f. Establish requirements for monitoring and reporting of GHG emissions.
- g. Establish a schedule of actions for implementation.
- h. Identify funding sources for implementation.
- i. Identify a reduction goal for the 2030 Planning Horizon.
- j. Consider a biological resource component.

During preparation of the GHG Reduction Plan, the City will also continue to implement City policies regarding land use and circulation as necessary to further achieve the 2020 and 2030 reduction goals and measures to promote urban forestry and public awareness concerning climate change.

In addition to the above, the GHG Reduction Plan will include a plan for City Operations that will address, but is not limited to, the following measures: an energy tracking and management system; energy-efficient lighting; lights-out-at-night policy; occupancy sensors; heating, cooling, and ventilation system retrofits; ENERGY STAR appliances; green or reflective roofing; improved water pumping energy efficiency; central irrigation control system; energy-efficient vending machines; preference for recycled materials in purchasing; use of low or zero-emission vehicles and equipment and recycling of construction materials in new city construction; conversion of fleets (as feasible) to electric and hybrid vehicles; and solar roofs.

Time Period: 2009 through 2014

Responsible Party: Planning and Environmental Services Department  
(Added per Reso. 09-59, 11/17/09)

## Housing Element

**HE 9.4 Resource Conservation. [GP]** The City will promote development and construction standards that provide resource conservation by encouraging housing types and designs that use renewable and/or sustainable materials, cost-effective energy conservation measures, and fewer resources (water, electricity, etc.) and therefore cost less to operate over time. The City shall require individual residential units within multifamily housing projects to be separately metered for all utilities, including, but not limited to, water, natural gas, and electricity.

**HE 9.5 Renewable Energy Technologies. [GP]** Promote the use of sustainable and/or renewable materials and energy technologies, such as solar, in new and rehabilitated housing when possible.

### Implementation Programs [GP]

**IP-9B Promote Solar Design.** Develop design standards adapted to Goleta's climate relating to solar orientation, including lot layout for subdivisions, location and orientation of new structures, landscaping, fences, and impervious surfaces to conserve energy.

**IP-9C Establish "Green" Building Standards and Processes.** Adopt a "Green Building Program" to encourage the use of green building materials and energy conservation measures in new construction.

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**APPENDIX B – FEDERAL, STATE AND OTHER REGULATIONS/RULINGS  
RELATED TO ENERGY EFFICIENCY AND GHG EMISSIONS**

<b>Federal</b>	
Massachusetts et al. vs. U.S. Environmental Protection Agency (2007)	Twelve states and cities including California, in conjunction with several environmental organizations, sued to force EPA to regulate GHGs as a pollutant pursuant to the Clean Air Act (CAA) in Massachusetts et al. v. Environmental Protection Agency 549 US 497 (2007). The court ruled that the plaintiffs had standing to sue, GHGs fit within the CAA's definition of a pollutant, and the EPA's reasons for not regulating GHGs were insufficiently grounded in the CAA. This ruling set the legal foundation that the USEPA is currently using to regulate GHGs under the CAA.
U.S. Environmental Protection Agency Endangerment Finding (2009)	In its "Endangerment Finding," the Administrator of the EPA found that GHGs, as described above, threaten the public health and welfare of current and future generations. The Administrator also found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare. Although the Finding of Endangerment does not place requirements on industry, it is an important step in EPA's process to develop regulation. This measure is a prerequisite to finalizing EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009 (U.S. Environmental Protection Agency 2010). EPA and NHTSA are currently working on the next round of vehicle standards, scheduled for publication in 2012.
U.S. Environmental Protection Agency Cause or Contribute Finding (2010)	In its "Cause or Contribute Finding" the EPA Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare (U.S. Environmental Protection Agency 2010).
U.S. Environmental Protection Agency Mandatory Reporting Rule for GHGs (2009)	Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 MT or more per year of GHGs are required to report annual emissions to the EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to the EPA in 2011. The mandatory reporting rule does not limit GHG emissions but establishes a standard framework for emissions reporting and tracking of large emitters (U.S. Environmental Protection Agency 2010).

<p>U.S. Environmental Protection Agency Settlement Agreements to Address GHG Emissions from Refineries and Electricity Generation (2010)</p>	<p>In December 2010, the EPA entered into two settlement agreements to issue rules that will address GHG emissions from fossil-fueled power plants and refineries. On March 27, 2012, EPA proposed a Carbon Pollution Standard for New Power Plants that would, for the first time, set national limits on the amount of carbon pollution that power plants can emit. The rule has not yet been adopted. Per the settlement agreement, the EPA scheduled to release draft regulations in December 2011 (refineries), however the EPA has delayed release of the new regulations. They are not expected in 2012. Regulations on both types of facilities were coordinated with regulatory action on traditional types of pollutants and promulgated through the New Source Performance Standards (NSPS). The authority to issue regulations is under the Clean Air Act as confirmed by the U.S. Supreme Court ruling.</p>
<p>Update to Corporate Average Fuel Economy (CAFE) Standards (2009)</p>	<p>The new Corporate Average Fuel Economy (CAFE) standards incorporate stricter fuel economy standards promulgated by the State of California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25% by 2016. These standards are in effect today. California committed to allowing automakers that show compliance with the national program to also be deemed in compliance with state requirements. (U.S. Environmental Protection Agency 2010).</p>

<b>State</b>	
<p>Executive Order S-03-05 (2005)</p>	<p>Executive Order (EO) S-03-05 established the following GHG emission reduction targets for California’s state agencies.            By 2010, reduce GHG emissions to 2000 levels.            By 2020, reduce GHG emissions to 1990 levels.            By 2050, reduce GHG emissions to 80% below 1990 levels.            Executive orders are binding only on state agencies and not on local governments or private properties. Accordingly, EO S-03-05 will guide state agencies’ efforts to control and regulate GHG emissions but will have no direct binding effect on local efforts. The Secretary of the California Environmental Protection Agency (Cal/EPA) is required to report to the Governor and state legislature biannually on the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions to meet the targets established in this executive order.</p>
<p>Assembly Bill 1493—Pavley Rules (2002, amendments 2009)</p>	<p>Known as “Pavley I,” Assembly Bill (AB) 1493 standards are the nation’s first GHG standards for automobiles. AB 1493 requires the California Air Resources Board (CARB) to adopt vehicle standards that will lower GHG emissions from new light duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (Pavley II) has been proposed for vehicle model years 2017–2020. Together, the two standards are expected to increase average fuel economy to roughly 43 mpg by 2020 and reduce GHG emissions from the transportation sector in California by approximately 14%. In June 2009, the EPA granted California’s waiver request, enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year. The new federal CAFE standards, described above, are the analogous national policy.</p>
<p>Senate Bills 1078/107 and Executive Order S-14-08—Renewable Portfolio Standard (2002, 2006)</p>	<p>Senate Bills (SB) 1078 and 107, California’s Renewable Portfolio Standard (RPS), obligates investor-owned utilities (IOUs), energy service providers (ESPs), and Community Choice Aggregations (CCAs) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The California Public Utilities Commission (CPUC) and CEC are jointly responsible for implementing the program. EO S-14-08 set forth a longer range target of procuring 33% of retail sales by 2020.</p>

<p>Assembly Bill 32—California Global Warming Solutions Act (2006)</p>	<p>AB 32 codified the state’s GHG emissions target by requiring that the state’s global warming emissions be reduced to 1990 levels by 2020. Since being adopted, the CARB, CEC, CPUC, and Building Standards Commission have been developing regulations that will help meet the goals of AB 32 and EO S-03-05. The Scoping Plan for AB 32 identifies specific measures to reduce GHG emissions to 1990 levels by 2020, and requires CARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHGs. Specifically, the Scoping Plan recommends (but does not require) that local governments establish GHG reduction goals for both their municipal operations and the community consistent with those of the state. At the time of the 2008 Scoping Plan, CARB recommended reductions of approximately 15% below current levels, based on GHG emissions estimates for 2005 to 2008 at the time. Subsequent actual inventories of emissions for 2005 to 2008 turned out to be lower than estimated, and reductions of 9 to 11% below 2005 to 2008 levels are now roughly equivalent to 1990 levels.</p>
<p>CARB Local Governments Operations Protocol (LGOP) (2008)</p>	<p>On September 25, 2008, the Local Government Operations Protocol (LGOP) was adopted by CARB. The protocol, prepared by CARB, California Climate Action Registry, ICLEI<sup>1</sup>, and the Climate Registry, provides methods and techniques for the preparation of GHG emissions inventories for local government municipal operations. The adopted protocol does not contain recommendations for GHG reductions by local governments (California Air Resources Board 2008b).</p>
<p>Executive Order S-01-07—Low Carbon Fuel Standard (2007)</p>	<p>EO S-01-07 essentially mandates: (1) that a statewide goal be established to reduce the carbon intensity of California’s transportation fuels by at least 10% by 2020, and (2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California.</p>

<sup>1</sup> International Council for Local Environmental Initiatives, or ICLEI. The organization's name is "ICLEI - Local Governments for Sustainability". In 2003, ICLEI's Members voted to revise the organization's mission, charter and name to better reflect the current challenges local governments are facing. The "International Council for Local Environmental Initiatives" became "ICLEI - Local Governments for Sustainability," with a broader mandate to address sustainability issues. <http://www.iclei.org/index.php?id=about>.

<p>Assembly Bill 939, title 27 (2009)— Landfill Methane Regulation</p>	<p>At its June 25, 2009, public hearing, CARB approved for adoption California Code of Regulations, Title 17, article 4, sub-article 6, sections 95460 to 95476, Methane Emissions from Municipal Solid Waste Landfills. This regulation is a discrete early action GHG reduction measure, as described in the California Global Warming Solutions Act of 2006 (AB 32; Stats. 2006, chapter 488). It will reduce methane emissions from landfills primarily by requiring owners and operators of certain uncontrolled landfills to install gas collection and control systems, and by requiring existing and newly installed gas collection and control systems to operate optimally.</p>
<p>Senate Bill 375— Sustainable Communities Strategy (2008)</p>	<p>SB 375 provides for a new planning process that coordinates land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans, developed by metropolitan planning organizations (MPOs) to incorporate a “sustainable communities strategy” (SCS) in their Regional Transportation Plans (RTPs). The goal of the SCS is to reduce regional vehicle miles traveled (VMT) through land use planning and consequent transportation patterns. CARB set regional GHG reduction targets that will focus each SCS. The regional targets were released by CARB in September 2010. SB 375 also includes provisions for streamlined California Environmental Quality Act (CEQA) review for some infill projects such as transit-oriented development. SCS have been adopted in the San Diego region (by SANDAG), Sacramento region (by SACOG) and in Southern California (by SCAG). Santa Barbara County Association of Governments is presently working on the SCS for Santa Barbara County and expects to adopt its plan in 2013.</p>
<p>California Energy Efficiency Standards for Residential and Non-Residential Buildings— Title 24 (2008)</p>	<p>On July 17, 2008, the California Building Standards Commission adopted the nation’s first green building standards. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code (24 California Code of Regulations). Part 11 establishes voluntary standards that will become mandatory in the 2010 edition of the code, including planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.</p>

<p>CARB GHG Mandatory Reporting Rule Title 17 (2009)</p>	<p>In December of 2007, the CARB approved a rule requiring mandatory reporting of GHG emissions from certain sources, pursuant to AB 32. Facilities subject to the mandatory reporting rule must report their emissions from the calendar year 2009 and have those emissions verified by a third party in 2010. In general the rule applies to facilities emitting more than 25,000 MT CO<sub>2</sub>e in any given calendar year or electricity generating facilities with a nameplate generating capacity greater than 1 megawatt (MW) and/or emitting more than 2,500 MT `e per year. Additional requirements also apply to cement plants and entities that buy and sell electricity in the state.</p>
<p>California Cap and Trade Program (October 2011)</p>	<p>In October 2011, CARB adopted the California Cap and Trade program, formalizing a complex market system designed to help California reach the GHG emissions reductions targets set forth in AB 32. The regulation, which went into effect on January 1, 2012 and was identified as a key strategy in the AB 32 Scoping Plan, sets a cap on the annual GHG emissions from the state’s largest emitters, stationary sources such as oil refineries, power plants, fuel distribution centers, cement plants and other industrial processes. The regulation establishes a price signal that will drive long-term investment in cleaner fuels and efficient energy use. The first compliance period begins in 2013.</p>
<p>January 17, 2012</p>	<p>On January 17, 2012, CalRecycle adopted the Mandatory Commercial Recycling Measure. This measure, identified in the AB 32 Scoping Plan as a key strategy for reaching the state’s GHG reduction goal, will increase the recovery of recyclable material from the commercial waste stream. Commercial waste currently represents about 75% of total waste generated in California. The regulation articulates key roles for local governments, waste service providers, and businesses. The regulation is pending adoption as of May 2012.</p>
<p>AB 32 Scoping Plan Functional Equivalent Document (FED) (2011)</p>	<p>In 2009, and in accordance with CEQA requirements, CARB prepared a Functional Equivalent Document (FED) analyzing the environmental impacts of the full implementation of the AB 32 Scoping Plan. The 2008 Scoping Plan and FED were approved by CARB Board of Directors in May 2009. A supplement to the FED was released in June 2011. The FED contains revised BAU GHG emissions projections that reflect the economic downturn.</p>

**APPENDIX C – CITY OF GOLETA BUILDING ENERGY AUDIT REPORTS**

**Building Energy Audit**

***City of Goleta***

130 Cremona Drive, Suite B

Goleta, CA

Prepared By:

AESC, Inc.

September 2011



## Executive Summary

A comprehensive energy audit was performed on eight (8) buildings for the City of Goleta, including the following: Goleta Corporate Yard, Goleta Rail Station, Goleta Valley Community Center, Goleta Library, Historic Goleta Depot, Rancho La Patera and Stow House, Stow Grove Park and City Hall.

The audit found few opportunities for energy savings primarily due to a combination of low occupancy hours and little to no use of HVAC in many of the buildings audited. Buildings such as the Goleta City Hall did present some HVAC potential, however due to lease restrictions the City would be unable to act on any recommendations.

As a result of the low HVAC potential, the primary focus of the audit was moved to available lighting opportunities. The lighting analysis demonstrated a total savings of 75,953 kWh and 28 kW DEER peak demand savings for all buildings investigated. Incentive program eligibility reduced the actual incentive eligible savings to 69,618 kWh and 24.9 kW. Using a typical cost of \$0.14 per kWh and estimated project cost of \$71,624.98, the estimated simple payback period for this project is 7.3 years without incentive and 6.5 years with incentives. The incentive rate reflects the City of Goleta’s ‘Valued’ level within the South Coast Energy Efficiency Partnership Program (SCEEP) which allows for a rate of (\$0.08/kWh) for qualified lighting measures.

## Facility Information

Relevant building information collected during the energy audit is summarized in the table below. Currently the City of Goleta does not own, or pay utility bills, on four (4) buildings included in this audit. As a result, data could not be provided for these locations. However, based on the type of energy efficiency measure involved (lighting), the lack of information will not likely degrade the accuracy of the estimated savings shown in this report.

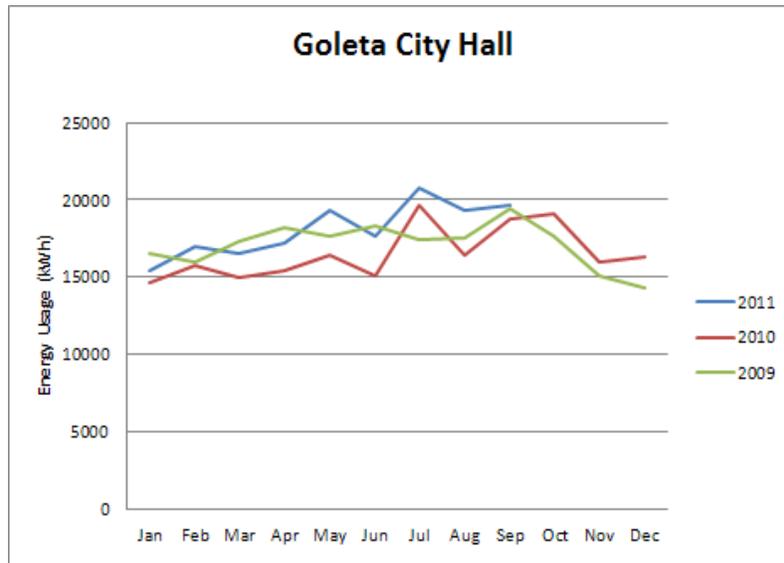
<b>Building</b>	<b>Area (sq ft)</b>	<b>Address</b>	<b>Annual Energy Usage (kWh)</b>	<b>Energy Intensity (kWh/sq ft)</b>
Goleta City Hall	19,125	130 Cremona Drive	200,100	10.46
Corporate Yard Bond Building	4,000	6735 Hollister Ave	21,546	5.39
Goleta Rail Station	128	25 South La Patera Lane	Unavailable	Unavailable
Goleta Valley Community Center	38,652	5679, 5681, 5689 and 5717 Hollister Ave	Unavailable	Unavailable
Goleta Library	15,773	500 North Fairview Ave	Unavailable	Unavailable
Historic Goleta Depot	5,000	300 North Los Carneros Road	Unavailable	Unavailable
Rancho La Patera and Stow House	12,960	304 North Los Carneros Road	223	N/A <sup>1</sup>
Stow Grove Park	800	580 La Patera Lane	10,834	13.54

<sup>1</sup> Billing data were provided for only (1) of (5) buildings at this address. The city was unable to identify which building.

Additional building information and utility billing data are discussed in the following sections.

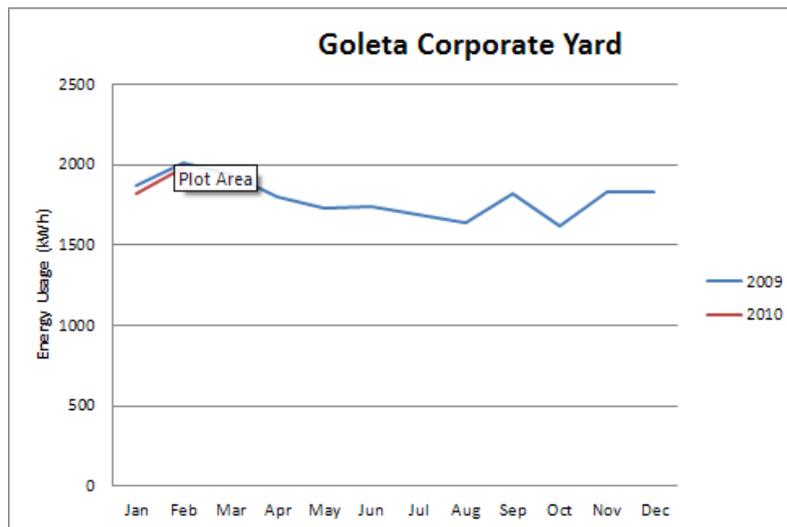
*City Hall*

The City Hall is a 19,125 ft<sup>2</sup> office space located at 130 Cremona Drive, Goleta, CA. The city currently leases the space and is not able to make any changes to the building’s exterior lighting and HVAC units. The average annual energy usage of this facility is 200,100 kWh of electricity based on available utility data from 2009 through 2011. The facility’s average energy usage intensity is 10.46 kWh/ft<sup>2</sup> of building area.



*Corporate Yard Bond Building*

The Corporate Yard Bond Building is 4,000 ft<sup>2</sup> and is located at 6735 Hollister Ave, Goleta, CA. The average annual energy usage of this facility is 21,546 kWh of electricity based on available utility data from 2009 through 2010. The facility’s average energy usage intensity is 5.39 kWh/ft<sup>2</sup> of building area.



### *Goleta Rail Station*

The Goleta Rail Station has a 128 ft<sup>2</sup> restroom and is located at 25 South La Patera Lane, Goleta, CA. The main portion of the rail station is owned and operated by Amtrak. The city's main responsibility at this location is maintenance of the restroom for the station. Annual electrical billing data for this location is unavailable to the city; as a result, an energy intensity analysis could not be performed.

### *Goleta Valley Community Center*

The Goleta Valley Community Center consists of five (5) buildings with a total area of 38,652 ft<sup>2</sup> and is located at 5679, 5681, 5689, and 5717 Hollister Ave, Goleta, CA. The community center is comprised of three (3) separate groups, the main community center, the CAC classrooms and Rainbow preschool. The classrooms and preschool are located at the rear of the facility. According to city personnel, the city of Goleta will not own the community center until 2014. Annual electrical billing data for this location is unavailable to the city. At this time, the City of Goleta is not the owner of the building and not listed on the utility bill. As a result, an energy intensity analysis could not be performed.

### *Goleta Library*

The Goleta Library is 15,773 ft<sup>2</sup> and is located at 500 North Fairview Ave, Goleta, CA. Annual electrical billing data for this location is unavailable to the city. At this time, the City of Goleta is not the owner of the building and not listed on the utility bill. As a result, an energy intensity analysis could not be performed.

### *Historic Goleta Depot*

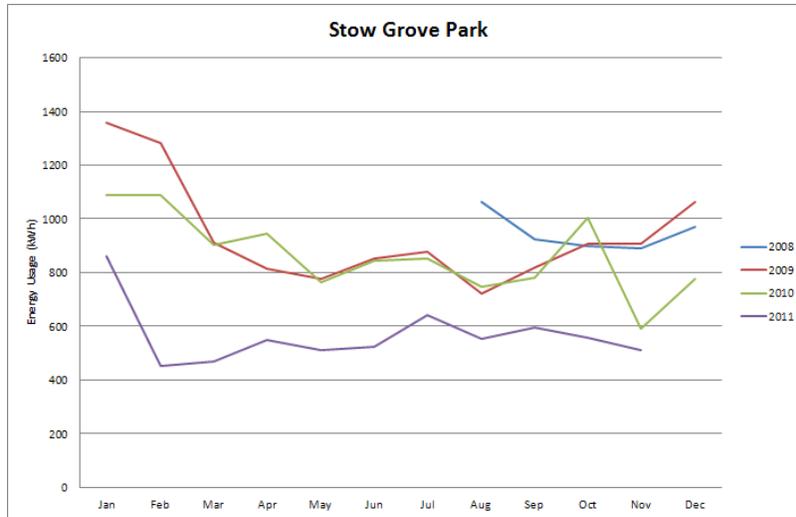
The Historic Goleta Depot is 5,000 ft<sup>2</sup> and located at 300 North Los Carneros Road, Goleta, CA. Annual electrical billing data for this location is unavailable to the city. At this time, the City of Goleta is not the owner of the building and not listed on the utility bill. As a result, an energy intensity analysis could not be performed.

### *La Patera and Stow House*

The Rancho La Patera and Stow House consist of five (5) buildings with a total area of 12,960 ft<sup>2</sup> and are located at 304 North Los Carneros Road, Goleta, CA. The City of Goleta was able to provide a utility bill for one (1) of the five (5) buildings at this location. However, the city was not able to determine which building was metered. Based on the available information, an energy intensity analysis would not be reliable and has not therefore been included.

### *Stow Grove Park*

The Stow Grove Park has an 800 ft<sup>2</sup> house located at 580 La Patera Lane, Goleta, CA. The average annual energy usage of this facility is 10,834 kWh of electricity based on available utility data from 2008 through 2011. The facility's average energy usage intensity is 13.54 kWh/ft<sup>2</sup> of building area.



**Existing HVAC Equipment and Conditions**

Many of the sites visited do not utilize air conditioning to cool spaces. The Goleta Library and Goleta City Hall are the only sites that were found to have any significant amounts of cooling equipment serving the building.

The Goleta Library is served by ten (10) 5-ton heat pumps, 13 SEER, which were recently installed in early 2011 to replace the existing multi-zone system. The system utilizes a time clock to start and stop the heat pumps and “energize” the temperature controls which use the sensors located throughout the library.

The Goleta City Hall is served by approximately fourteen (14) split units located on the roof of the building. The actual number could not be verified as there were no available drawings and available labeling was inadequate during the inspection. However, it was determined that the building owner manages the air conditioning systems and as a result, no changes to the system would be allowed by the city.

**Existing Lighting Equipment and Conditions**

The city primarily uses inefficient T12 and T8 fixtures with magnetic ballasts as well as incandescent and halogen fixtures for lighting. The lighting table below contains specific information regarding fixture retrofits. Please see the attached lighting table spreadsheet “Goleta Lighting audit final.xls” for a more detailed, room by room break down.

Area Description / Lighting SPC Code	Quantity	Cost	Baseline kW	Proposed kW	Baseline kWh	Proposed kWh	kW Savings	kWh Savings
<b>City Hall</b>								
F42WXLL-R(G4)	85	\$5,355.00	5.10	3.23	12,199.20	7,726.16	1.87	4,473.04
F43WXLL-R(G4)	65	\$5,720.00	5.98	3.77	14,304.16	9,017.84	2.21	5,286.32
F44WXLL(G4)	16	\$1,488.00	1.92	1.44	4,592.64	3,444.48	0.48	1,148.16
<b>Area Total</b>	<b>166</b>	<b>\$12,563.00</b>	<b>13.00</b>	<b>8.44</b>	<b>31,096.00</b>	<b>20,188.48</b>	<b>4.56</b>	<b>10,907.52</b>
<b>Corporate Yard</b>								
F41WXLL(G4)	1	\$58.00	0.03	0.03	88.66	77.22	0.00	11.44
F42WXLL-R(G4)	8	\$504.00	0.47	0.30	1,349.92	869.44	0.17	480.48
F43WXLL-R(G4)	10	\$880.00	0.89	0.58	2,545.40	1,658.80	0.31	886.60
F44WXLL(G4)	12	\$1,116.00	1.42	1.08	4,049.76	3,088.80	0.34	960.96
CF38/2D	2	\$30.50	0.28	0.09	789.36	263.12	0.18	526.24
<b>Area Total</b>	<b>33</b>	<b>\$2,588.50</b>	<b>3.09</b>	<b>2.08</b>	<b>8,823.10</b>	<b>5,957.38</b>	<b>1.00</b>	<b>2,865.72</b>
<b>Stow Grove</b>								
F42WXLL-R(G4)	5	\$315.00	0.30	0.19	390.00	247.00	0.11	143.00
F44WXLL(G4)	23	\$2,139.00	2.76	2.07	3,588.00	2,691.00	0.69	897.00
CF/SI/15	80	\$1,116.00	2.71	1.20	3,523.00	1,560.00	1.51	1,963.00
CF38/2D	6	\$91.50	0.60	0.28	780.00	358.80	0.32	421.20
<b>Area Total</b>	<b>114</b>	<b>\$3,661.50</b>	<b>6.37</b>	<b>3.74</b>	<b>8,281.00</b>	<b>4,856.80</b>	<b>2.63</b>	<b>3,424.20</b>
<b>Community Center</b>								
F42WXLL-R(G4)	159	\$10,017.00	9.46	6.04	27,433.38	17,527.12	3.42	9,906.26
F44WXLL(G4)	159	\$14,787.00	18.73	14.31	53,562.08	40,926.60	4.42	12,635.48
CF/SI/15	29	\$404.55	0.89	0.44	2,531.10	1,244.10	0.45	1,287.00
<b>Area Total</b>	<b>347</b>	<b>\$25,208.55</b>	<b>29.07</b>	<b>20.79</b>	<b>83,526.56</b>	<b>59,697.82</b>	<b>8.28</b>	<b>23,828.74</b>
<b>Train Depot</b>								
F41WXLL(G4)	27	\$1,566.00	1.16	0.73	1,509.30	947.70	0.43	561.60
F42WXLL-R(G4)	24	\$1,512.00	1.97	0.91	2,558.40	1,185.60	1.06	1,372.80
F44WXLL(G4)	27	\$2,511.00	3.23	2.43	4,201.60	3,159.00	0.80	1,042.60
CF/SI/15	17	\$237.15	0.93	0.26	2,889.00	751.50	0.68	2,137.50
<b>Area Total</b>	<b>95</b>	<b>\$5,826.15</b>	<b>7.29</b>	<b>4.33</b>	<b>11,158.30</b>	<b>6,043.80</b>	<b>2.97</b>	<b>5,114.50</b>
<b>Library</b>								
F42WXLL-R(G4)	60	\$2,825.00	3.54	2.28	12,333.36	7,943.52	1.26	4,389.84
F43WXLL-R(G4)	229	\$20,152.00	20.38	13.28	71,007.40	46,274.49	7.10	24,732.92
F44WXLL(G4)	9	\$679.98	1.01	0.81	3,511.87	2,822.04	0.20	689.83
<b>Area Total</b>	<b>298</b>	<b>\$23,656.98</b>	<b>24.93</b>	<b>16.37</b>	<b>86,852.64</b>	<b>57,040.05</b>	<b>8.56</b>	<b>29,812.59</b>
<b>Grand Total</b>	<b>1,020</b>	<b>\$73,504.68</b>	<b>83.75</b>	<b>55.74</b>	<b>229,737.60</b>	<b>153,784.33</b>	<b>28.00</b>	<b>75,953.27</b>
<b>Incentive Qualified Total</b>	<b>919</b>	<b>\$71,624.98</b>	<b>78.35</b>	<b>53.49</b>	<b>219,225.14</b>	<b>149,606.81</b>	<b>24.86</b>	<b>69,618.33</b>

## Analysis Approach

Due to the lack of available HVAC opportunities, the primary focus of the audit was lighting. The attached lighting audit accounts for all lights found at each site visited.

### ECM 1 - Interior Linear Fluorescent Retrofits

Retrofit lighting selection is based on typical industry standard retrofits for the existing lighting types found. Hours of operation are based on available building schedules and interviews with site staff. This data was used to estimate the annual usage of lighting at the facilities visited and to determine savings associated with the selected, reduced wattage fixtures.

- *Estimated annual savings 75,953.27 kWh and 28.00 kW*

### Recommended Action

The lighting table analysis demonstrates a total savings of 75,953 kWh and 28 kW DEER peak demand savings for all buildings investigated. Due to eligibility restrictions for lighting measures, screw-in CFLs are not eligible for an incentive; the actual incentive eligible savings is 69,618 kWh and 24.9 kW. The cost estimate for this effort is \$71,624.98 based on typical costs for the type of lighting retrofits investigated which involved a total of 1,020 fixtures. Using an average electricity cost of \$0.14 per kWh, the estimated payback period for this project is 7.3 years without incentive and 6.5 years with an incentive. Incentive calculation is based on the current premium SCEEP rate for lighting retrofits (\$0.08/kWh) as of 2011. Based on this estimated payback period, ECM 1 - LT-51003 - Interior Linear Fluorescent Retrofits is recommended.

### Limitations and Disclaimer

The intent of this energy analysis report is to estimate energy savings associated with recommended energy efficient measures. Appropriate detail is included in this report to make decisions about implementing energy efficiency measures at this facility. However, this report is not intended as a detailed engineering design document. While the recommendations in this report have been reviewed for technical accuracy and are believed to be reasonably accurate, the findings are estimates and actual results may vary.

### Additional Files



Goleta Lighting audit  
final.xlsx

Detailed Lighting Table

EEM #	Based on EEM	Recommended Y?	EEM	Electrical Savings (kWh)	Electrical Savings (kW)	Electrical Energy Cost Savings (\$)	Natural Gas Energy Cost Savings (\$)	Total Cost Savings (\$)	Electrical Incentive w/o cap (\$)	Natural Gas Incentive w/o cap (\$)	Total Incentive w/o cap (\$)	Install & Design Costs (\$)	Total Incentive w/ cap (\$)	Simple Payback Time w/o Incentive (Yrs)	Simple Payback Time w/ Incentive (Yrs)
1	0	Y	Lighting	69,618	24.9	\$9,747	\$0	\$9,747	\$8,055	\$0	\$8,055	\$59,964	\$8,055	7.3	6.5
			Recommended	69,618	24.9	\$9,747	\$0	\$9,747	\$8,055	\$0	\$8,055	\$59,964	\$8,055	7.3	6.5

Notes:

Based on an average cost of \$0.14/kWh and Incentive rate of \$0.08/kWh for lighting

Pictures



Goleta City Hall



Packaged AC units located on City Hall Roof



Goleta Council Chambers



Existing T12 fixture located in the City Hall Garage



Single incandescent fixture serving Amtrak Station Restroom



Goleta Community Center



Existing T8 fixture found in the Goleta Community Center



Existing T8 fixtures found in the Goleta Community Center



Existing CFL in the Community Center



T8 fixtures located in the Train Depot Gift Shop



Ceiling fixture located in the historic Train Depot



Goleta City Library



HVAC units serving the Goleta Library



Sample Thermostat for Goleta Library



Ballast Type for T8 fixtures serving the Goleta Library



Goleta City Library Main Area Lighting



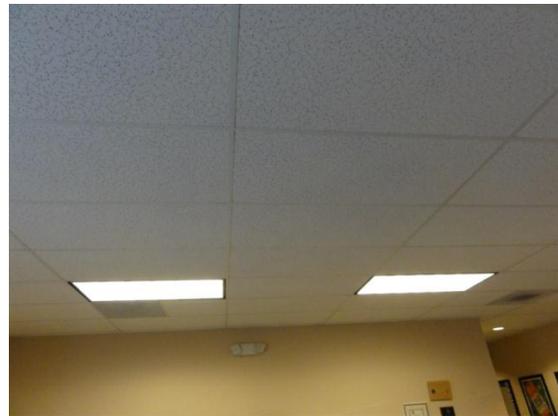
Stow House



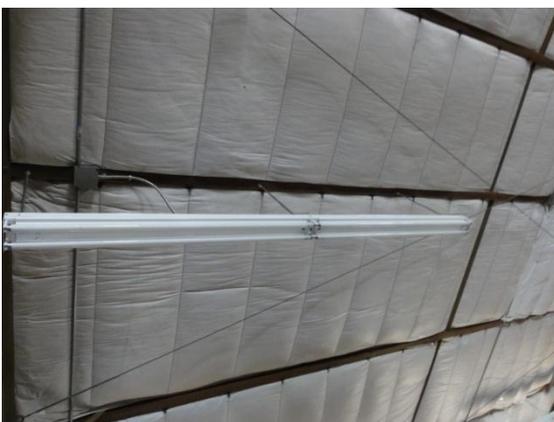
Sample Fixture Type for Stow House



Goleta Corporation Yard



Fixtures located in the Corporation Yard Office



Fixtures located in the Corporation Yard Garage



Fixtures Located in Corporation Yard Garage

*Electronic copies of this Energy Efficiency Action Plan  
can be accessed at <http://www.cityofgoleta.org/index.aspx?page=1027>  
under the Advance Planning Division link of the City of Goleta's website.*

