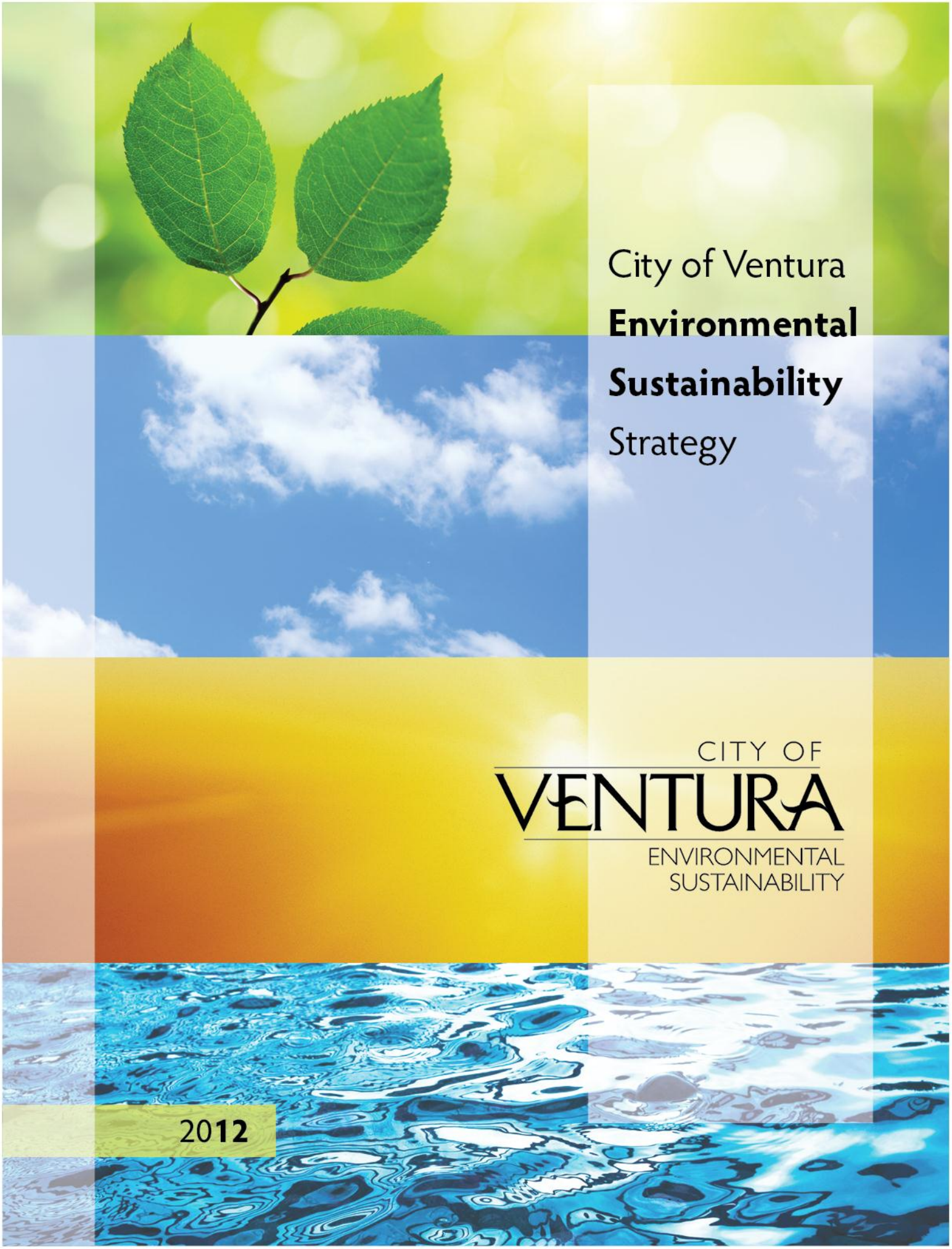


# City of Ventura **Environmental Sustainability** Strategy

CITY OF
VENTURA
ENVIRONMENTAL
SUSTAINABILITY

2012

# City of Ventura **Environmental Sustainability** Strategy

**F**leet **S**ervices

Reduce fuel use by the City fleet.

**F**acilities

Reduce energy consumption at City facilities.

**W**astewater

Treat municipal wastewater as efficiently as possible and utilize treatment processes that reduce chemical use.

**W**ater **T**reatment & **D**istribution

Treat and convey municipal water as efficiently as possible and utilize treatment processes that reduce chemical use.

**P**arks & **U**rban **F**orestry

Operate City parks in a resource efficient manner and increase urban tree planting.

**P**urchasing

Purchase products, equipment and materials that are environmentally preferable and reduce the amount purchased through effective source reduction practices.

**G**reen Building/**I**nfrastructure

Increase green building practices for new municipal construction projects, including remodels and Capital Improvement Projects (CIP).

**R**enewable **E**nergy

Increase renewable energy used by City facilities.

**W**aste **R**eduction

Reduce waste generated by city operations.

Some of the accolades and memberships that Ventura boasts include: a proud member of the Climate Registry with a Climate Action Leader status, was awarded the 11th city to be named a California Green Community, a Beacon Award recipient, and a recipient of the Southern California Edison Energy Leader Award. All of the city's environmental accolades and memberships can be found on the city's environmental sustainability division webpage (www.cityofventura.net/environmental).

## Table of Contents

Executive Summary ..... 3
Fleet Services ..... 8
Facilities ..... 12
Wastewater ..... 16
Water Treatment & Distribution ..... 20
Parks & Urban Forestry ..... 24
Purchasing ..... 29
Green Building/Infrastructure ..... 33
Renewable Energy ..... 36
Solid Waste Reduction ..... 39

## Appendices

A – Fleet Services ..... 42
B – Facilities ..... 44
C – Wastewater ..... 46
D – Water Treatment & Distribution ..... 47
E – Parks & Urban Forestry ..... 49
F – Purchasing ..... 51
G – Green Building/Infrastructure ..... 53
H – Renewable Energy ..... 54
I – Solid Waste Reduction ..... 55

# Executive Summary

### *Background*

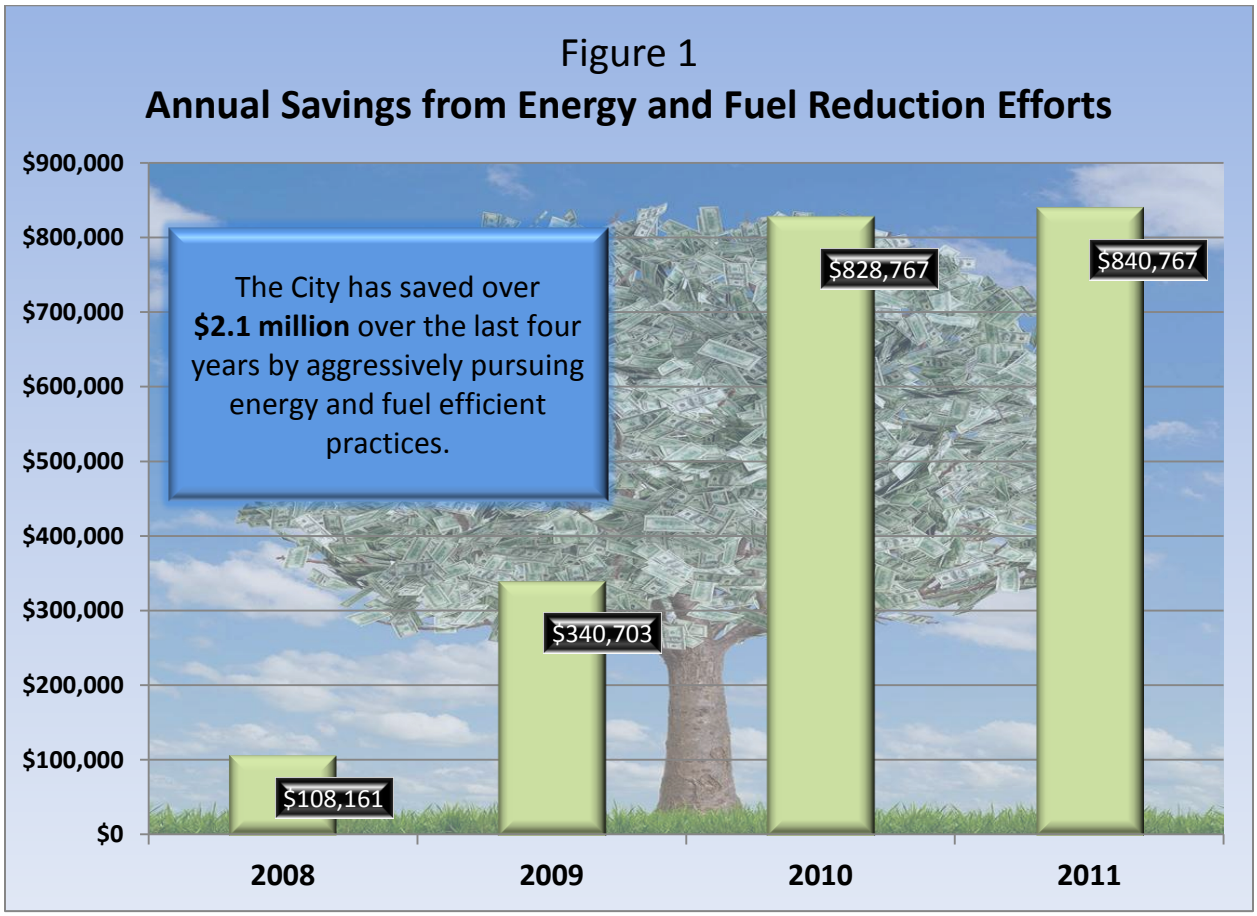
The Ventura community has long maintained a strong environmental ethic. Whether it's conserving our hills and open space, encouraging smart growth, protecting our picturesque rivers and beaches, or keeping our City safe and clean, Ventura residents value our natural assets and believe that they should be preserved and protected. Not surprisingly, this desire to protect Ventura's environment is reflected in the policies and practices of the City Council and staff.

In an effort to improve the City's environmental performance, the City Council passed the "Green Initiative" in 2007. This 10-point action plan was designed to reduce environmental impacts from the City's municipal operations, including reducing energy and vehicle fuel use; developing a green purchasing policy; educating employees about green practices; and forming a Green Team to help implement these programs. Currently, all 10 points of the action plan have been achieved and the City continues to implement environmentally sustainable practices.

### *Purpose – Why do we need an Environmental Sustainability Strategy?*

Despite the successes of the Green Initiative, there has not been a centralized process for tracking and facilitating progress towards common environmental goals. The Environmental Sustainability Strategy (ESS) is intended to improve Ventura's environmental performance and reduce operating costs by improving the City's operational efficiency and reducing resource consumption. This will be achieved by identifying strategies and projects that reduce energy, fuel, chemical and water use; reduce solid waste and hazardous waste generation; and, increase the purchase of environmentally preferable products. The ESS will consolidate the efforts of individual City divisions into a single document, establish goals and strategies, and provide a process for tracking progress over time. These environmentally sustainable practices will not only reduce the City's environmental footprint, but will also create budget savings by cutting operation costs. **Figure 1** on the next page illustrates the cost savings achieved by the City since the implementation of the Green Initiative in 2007.

This strategy was developed as a collaborative effort with the Environmental Sustainability Division, the Green Team, and representatives responsible for each focus area. It is intended to be used as a resource that will be frequently updated as new goals, targets, objectives, strategies and actions are identified.




***Content – What's in the ESS and how to use it?***

The ESS consists of 8 focus areas – each with corresponding goals for reducing the environmental footprint of the City's municipal operations (see **Table 1**). Each goal is assigned a specific measurable target and various strategies and actions are provided as a means of achieving the targets. Each focus area also includes a list of specific projects and activities that should be undertaken in order to achieve each goal (**Figure 2**). The project and activities are displayed in a table, which will be updated as the project status changes.

## TABLE 1 – ESS Focus Areas and Goals

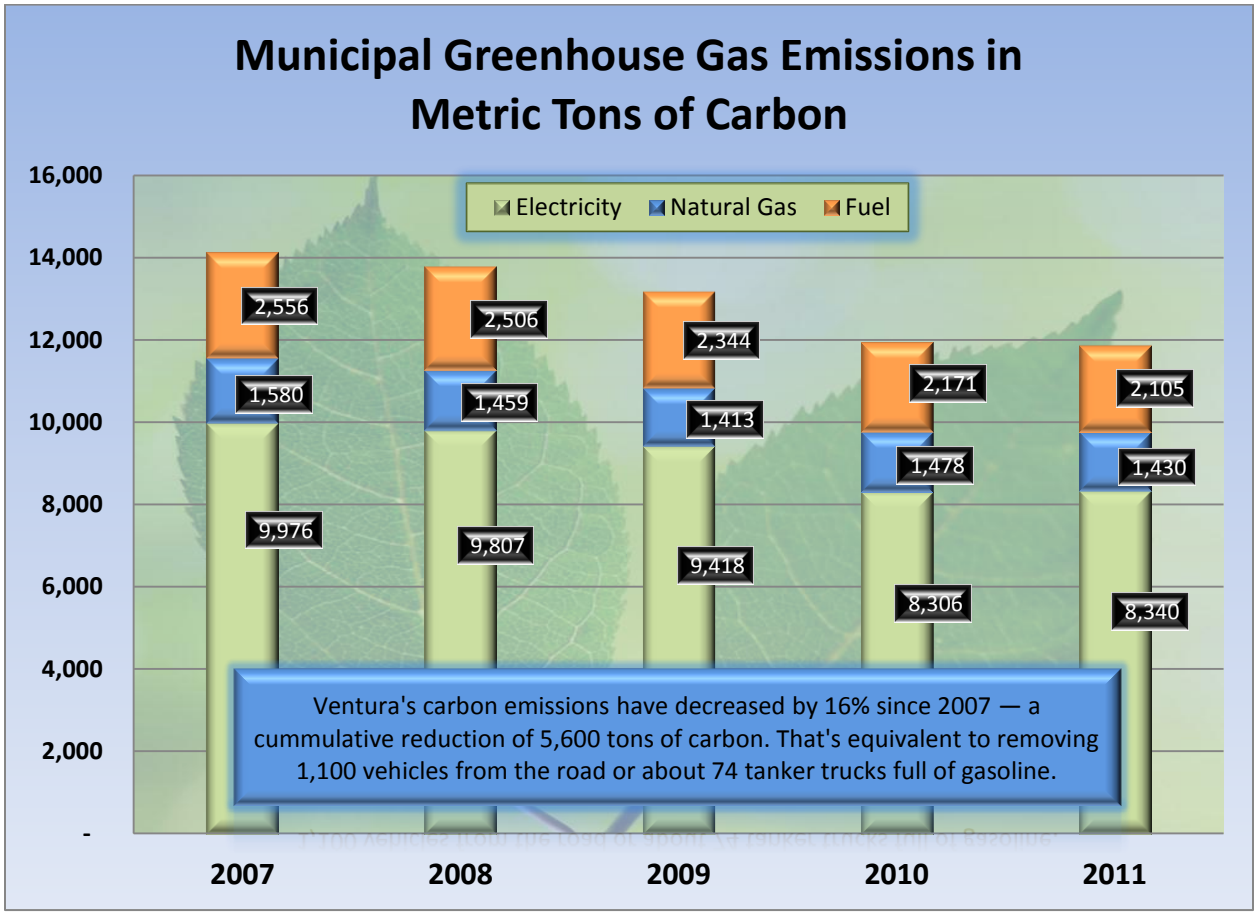
| FOCUS AREA | GOALS |
|---|---|
| **Fleet Services** | ❖ Reduce fuel use by the City fleet vehicles.<br>❖ Reduce vehicle miles traveled by City fleet vehicles. |
| **Facilities** | ❖ Reduce energy use at City facilities.<br>❖ Reduce water consumption at City facilities. |
| **Wastewater** | ❖ Reduce energy use at the Ventura Water Reclamation Facility.<br>❖ Reduce chemical use at the Ventura Water Reclamation Facility.<br>❖ Increase use of municipal reclaimed water. |
| **Water Treatment & Distribution** | ❖ Reduce energy used to treat and pump drinking water.<br>❖ Reduce per capita water consumption.<br>❖ Reduce chemical use at the Avenue Water Treatment Plant. |
| **Parks & Urban Forestry** | ❖ Reduce water use at City parks.<br>❖ Increase energy efficient lighting in City parks.<br>❖ Reduce pesticide use at City parks.<br>❖ Increase urban tree planting.<br>❖ Increase recycling in parks. |
| **Purchasing** | ❖ Purchase products, equipment and materials that are environmentally preferable.<br>❖ Reduce the amount of goods purchased through effective source reduction practices. |
| **Green Building** | ❖ Include green building practices for new municipal construction projects, including remodels and Capital Improvement Projects.<br>❖ Obtain Energy Star© certification for existing building, including City Hall and Police / Fire Headquarters.<br>❖ Work with the building community to determine feasibility of optional building codes that exceed current state standards. |
| **Renewable Energy** | ❖ Increase renewable energy sources at City facilities. |
| **Waste Reduction** | ❖ Reduce solid waste generated by City operations. |

**Figure 2 - Strategy Organization Flow**


The ESS also includes appendixes that detail many of the City's past and present environmental achievements. Although this is an impressive list of accomplishments the City must continue to improve upon current efforts, as well as plan and implement new projects and activities.

***Environmental Sustainability and Climate Change***

In 2006, the State passed the Global Warming Solutions Act, which established a statewide goal of reducing greenhouse gas (GHG) emissions to 1990 levels by 2020. Although individual jurisdictions are not yet required to comply with this ambitious goal, Ventura has joined the Climate Registry, the premier organization for verifying GHG emissions, and has established a performance measure goal of reducing municipal GHG emissions by 2.8% annually. If the City is able to reduce its annual emissions by 2.8% each year it will achieve the AB32 goal of reducing emissions to 1990 levels by 2020. Thus far, the City has achieved the annual GHG reduction goal. A 15% reduction in municipal electricity use and a 20% reduction in vehicle fuel use since 2007 have resulted in a 16% reduction in municipal GHG emissions. These efforts have also saved over $2.1 million in four years; clearly demonstrating reducing GHG emissions through more sustainability practices makes financial sense and reflects a smart, efficient government.


Municipal Greenhouse Gas Emissions in Metric Tons of Carbon
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
Electricity
Natural Gas
Fuel
2,556
1,580
9,976
2,506
1,459
9,807
2,344
1,413
9,418
2,171
1,478
8,306
2,105
1,430
8,340
2007
2008
2009
2010
2011
Ventura's carbon emissions have decreased by 16% since 2007 — a cummulative reduction of 5,600 tons of carbon. That's equivalent to removing 1,100 vehicles from the road or about 74 tanker trucks full of gasoline.

# FLEET SERVICES

**Key Staff:**
Mary Joyce Ivers, *Fleet and Facilities Manager*
Kate Whan, *Management Analyst*
Dennis Kulzer, *Fleet Maintenance Supervisor*

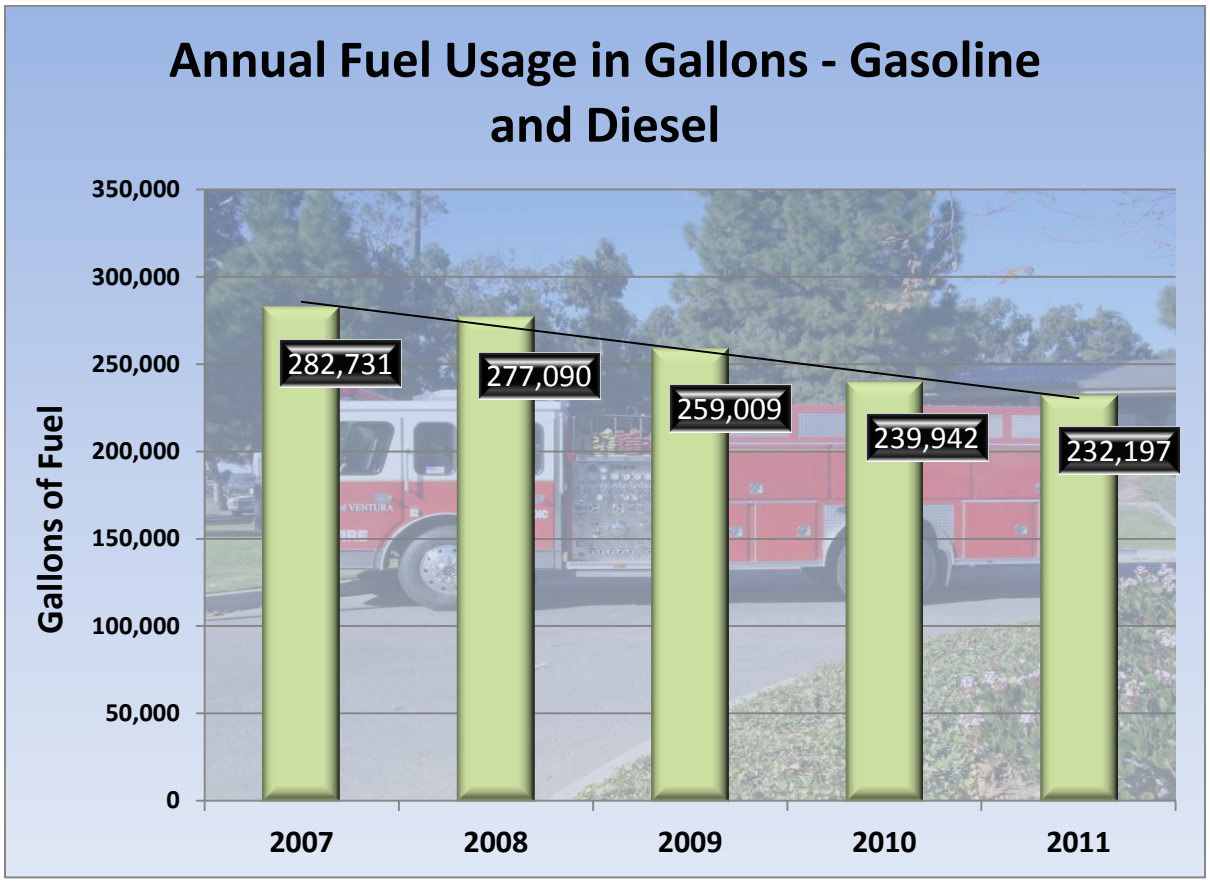
**Background:**

Fleet Services currently manages over 600 vehicles and small equipment. In 2007, Fleet vehicles consumed over 280 thousand gallons of fuel, resulting in 2,555 metric tons (MT) of carbon emissions. Through various fuel reduction efforts, including purchasing more fuel efficient vehicles and eliminating underutilized vehicles, annual fuel use decreased to 232 thousand gallons in 2011. This 18% reduction in fuel use cut fuel costs by over $135,000 and reduced municipal carbon emissions by 450 MT. In recognition of these fuel efficiency efforts and other sustainable practices, Fleet Services received the national Top Green Shop award from Fleet Equipment Magazine in 2009.

The City currently has 19 hybrid vehicles: four in Community Development; three in the Fire Department; one in Finance and Technology; four in the Police Department; three in Public Works; four in the general Motor Pool; four electric utility carts; and one electric vehicle in Environmental Sustainability for a total of 24 green vehicles. Fleet has also facilitated the installation of 10 electric vehicle charging stations and will purchase three new plug-in hybrid vehicles in FY2012-2013.

Fleet Services supports the City's green initiatives and seeks to improve air quality, reduce dependence on non-renewable resources, reduce GHG emissions, promote fuel conservation, and reduce vehicle emissions by partnering with its customers and environmental replacement strategies.

Appendix A provides details of historical gasoline and diesel usage, current projects, and potential future projects for Fleet Services.




**Goals:**

1. Reduce fuel use by the City fleet vehicles.
2. Reduce vehicle miles traveled by City fleet vehicles.

**Targets:**

1. Reduce fuel usage by 5% annually from 2007 baseline; do not exceed the 224,284 gallons usage goal.
2. Reduce citywide City fleet vehicle miles traveled (2.1 million miles in FY2012) by 5% annually from 2007 baseline.

**Objectives:**

- Reduce operational costs through efficiencies.
- Offset rising fuel costs with further fuel use reduction.
- Reduce the use of non-renewable fossil fuels.
- Reduce municipal carbon emissions by reducing fuel use.

**Strategies and Actions:**

- Measure the percent of vehicles that are in extended life.
- Decrease the number of assigned vehicles and increase the use of shared vehicles in the motor pool.

- When purchasing replacement vehicles, select most fuel efficient vehicle type in its class, while adhering to the usage needs and budget of the user.
- Maintain full compliance with vehicle emissions regulatory requirements.
- Consider the use of alternative fuels such as electric or biodiesel.
- Stay current on the feasibility of alternative fuels.
- Develop an employee education campaign to promote a comprehensive fuel conservation policy, fleet efficiency efforts, and responsible use of city resources. This would include: minimal idling; optimizing routes; carpooling; using transit; and potentially shared city commuter rideshare.
- Expand the use of GPS Telemetrics to support efficient vehicle operations.

## Fleet Services

| | Responsible | Goals | | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Responsible Division | Reduce Fuel | Reduce Miles Traveled | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Increase the amount of fuel efficient vehicles used for non-patrol vehicles at the Police Department. This could also be implemented for Fire Suppression support vehicles.** | Fleet | X | | Ongoing | | Funded | |
| **Prioritize high fuel use vehicles for replacement based on fuel use as main priority.** | Fleet | X | | Ongoing | | Unfunded | Per Fleet Policy |
| **Encouraging ride sharing to and from work as well as to meetings and conferences.** | Env. Sust. | X | X | Ongoing | | | Bring to Green Team in FY13 |
| **Provide training to employees to encourage fuel efficient and safe driving behavior.** | Fleet & Env. Sust. | X | X | Ongoing | | | Bring to Green Team in FY13 |

*Short (active in FY13), Medium (3-5 years), Long (5+ years)

# FACILITIES

**Key Staff:**
Mary Joyce Ivers, *Fleet and Fac. Manager*
Kate Whan, *Management Analyst*
Patrick Stock, *Facilities Supervisor*
Keith Fowler, *PW Supervisor*

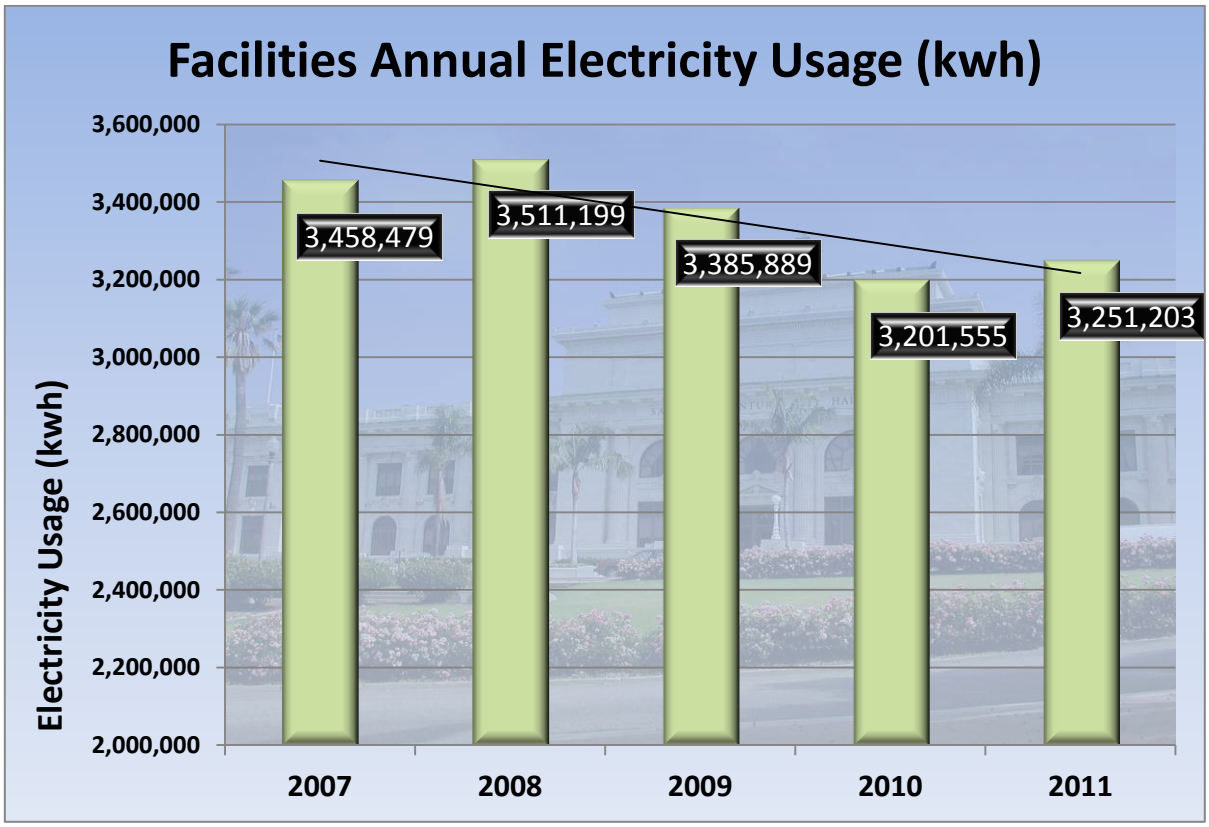
**Overview:**

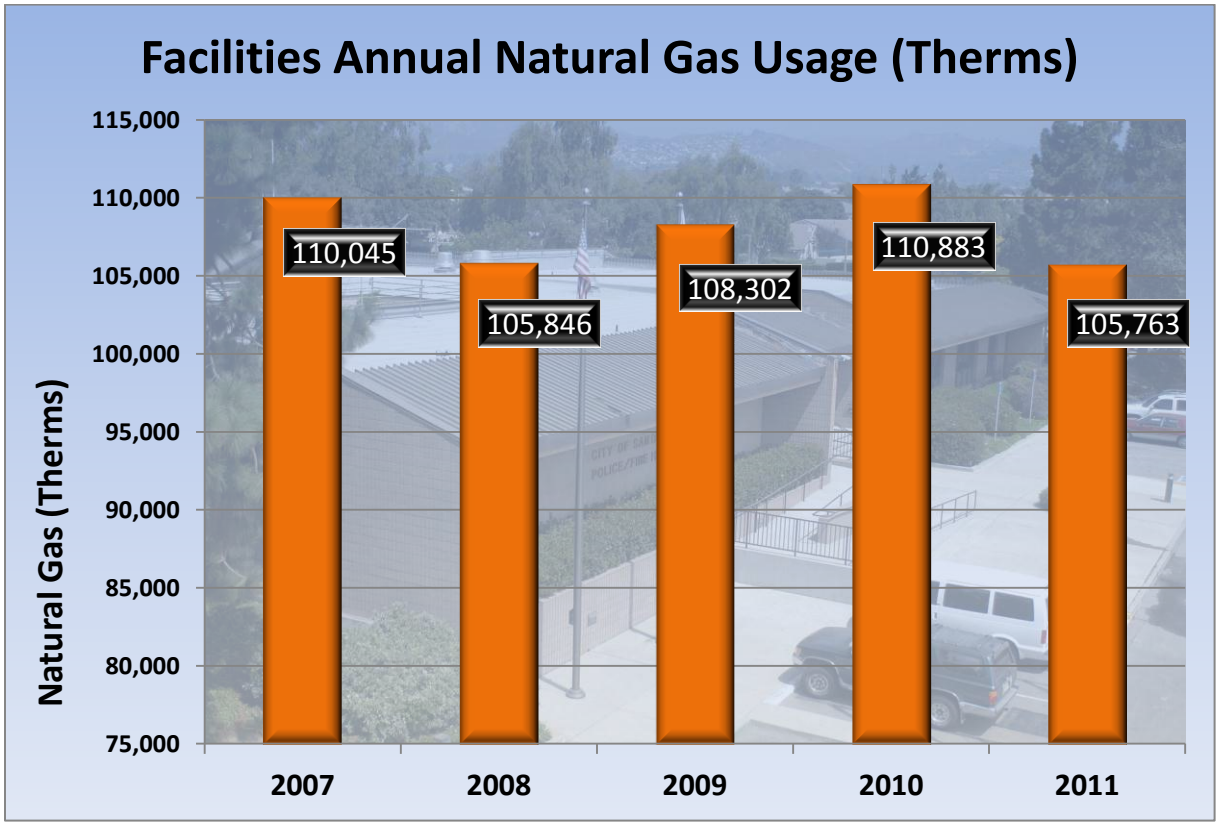
The Facilities Division manages and maintains 83 City-owned structures including the historical City Hall building, Police/Fire Headquarters, and the Sanjon Maintenance Yard. Facilities staff ensures that all of the buildings operate safely and efficiently to ensure a comfortable environment for City staff and the public. The buildings operated and maintained by Facilities represent 13% of the City's municipal carbon emissions, 8% from electricity use and 5% from natural gas use.

Facilities has aggressively pursued energy efficiency projects, such as lighting and HVAC upgrades, to reduce building and outside lighting electricity use. In fact, building energy use decreased by 6% from 2007 through 2011, saving over $28,000 in 2011. Facilities continues to pursue energy efficiency projects, including multiple projects funded by a $350,000 one percent loan provided by the California Energy Commission.

Facilites also utilizes solar panels at the City Maintenance Yard to produce about 180,000 kilowatt hours of electricity each year -- about 45% of the facilities electricity needs and the amount used by 30 homes.

Appendix B provides details of historical energy usage, current projects, and potential future projects for Facilities.
.


Facilities Annual Electricity Usage (kwh)
Electricity Usage (kwh)
3,600,000
3,400,000
3,200,000
3,000,000
2,800,000
2,600,000
2,400,000
2,200,000
2,000,000
3,458,479
3,511,199
3,385,889
3,201,555
3,251,203
2007
2008
2009
2010
2011


Facilities Annual Natural Gas Usage (Therms)
Natural Gas (Therms)
115,000
110,000
105,000
100,000
95,000
90,000
85,000
80,000
75,000
110,045
105,846
108,302
110,883
105,763
2007
2008
2009
2010
2011

**Goals:**

1. Reduce energy use at City facilities.
2. Reduce water consumption at City facilities.

**Targets:**

1. Reduce facility energy use by 2% annually from 2010 baseline; achieving a 20% reduction by 2020 (Tier 1, City Performance Measure).
2. Reduce facility water use by 2% annually from 2011 baseline.

**Objectives:**

- Reduce operating costs and offset rising energy and water costs by conserving energy and water.
- Reduce the use of non-renewable fossil fuels.
- Reduce municipal carbon emissions by reducing electricity and natural gas use.

**Strategies and Actions:**

- Take advantage of time of day electrical rates to minimize energy use and costs.
- Conduct regular energy and water audits.
- Pursue funding opportunities such as loans, grants, and on-bill financing.
- Maintain and maximize partnerships with Southern California Edison, Southern California Gas Company, Regional Energy Alliance, and other agencies and organizations.
- Implement a comprehensive, resource efficient, operating and maintenance program for all municipal facilities.
- Seek additional opportunities for “cool roofs” and natural day lighting.
- Set desktop computer and monitors to utilize energy saving settings.
- Research new energy and water efficiency technologies to implement in City facilities (e.g. Plug-In Sensors).
- Provide energy saving tips for all employees.
- Raise awareness and develop programs among City staff on the importance of energy efficiency and responsible use of City resources through the Green Team.
- Install water efficient devices in City kitchens, bathrooms, and locker rooms.
- Replace all mechanical lighting clocks with energy efficient astronomical timer clocks.
- Retrofit City Fire Stations with water efficient landscaping.

## Facilities

| | Responsible | Goals | | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Resp. Division | Energy Reduction | Water Conservation | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Upgrade PD/FD Air Handler System on the 1st Floor to increase energy efficiency.** | Facilities | X | | | | Funded | |
| **Upgrade City Hall West Wing HVAC system to increase energy efficiency.** | Facilities | X | | | | Funded | |
| **Retrofit safety lighting at signalized intersections to increase energy efficiency.** | Traffic | X | | Ongoing | | Funded (stimulus) | |
| **Install energy efficient lights at Hillside Lighting District.** | Traffic | X | | Medium | | Unfunded | |
| **Identify potential solar tube installations at City facilities to replace existing electric lighting.** | Facilities | X | | Ongoing | | Funded | Implement during replacement projects |
| **Install low flow and/or waterless (Title 24 compliant) urinals, faucets, shower heads, etc.** | Facilities | | X | Ongoing | | Funded | City Standard |
| **Create an educational campaign through emails, staff meetings, new employee orientation, and supervisor training.** | Green Team | X | X | Ongoing | | | |
| **Replace Turnout Extractor at Fire Station 6 to a more efficient system.** | Fire w/support from Facilities | X | | Short | | Funded | |
| **Maintain updated list of water efficiency standards.** | Facilities & Engineering | | X | Ongoing | | | |

*Short (active in FY13), Medium (3-5 years), Long (5+ years)

# WASTEWATER

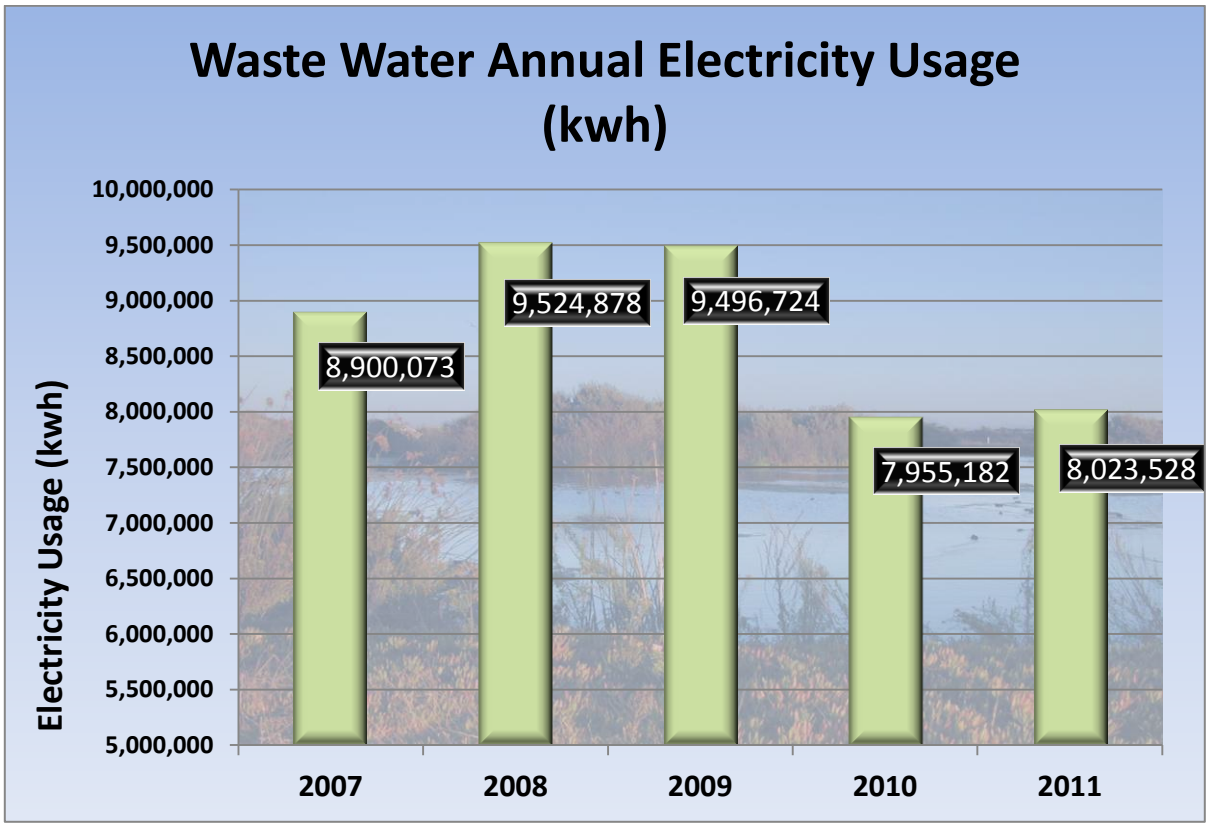
**Key Staff:**
Dan Pfeifer, *Wastewater Manager*
John Willis, *Wastewater Plant Supervisor*

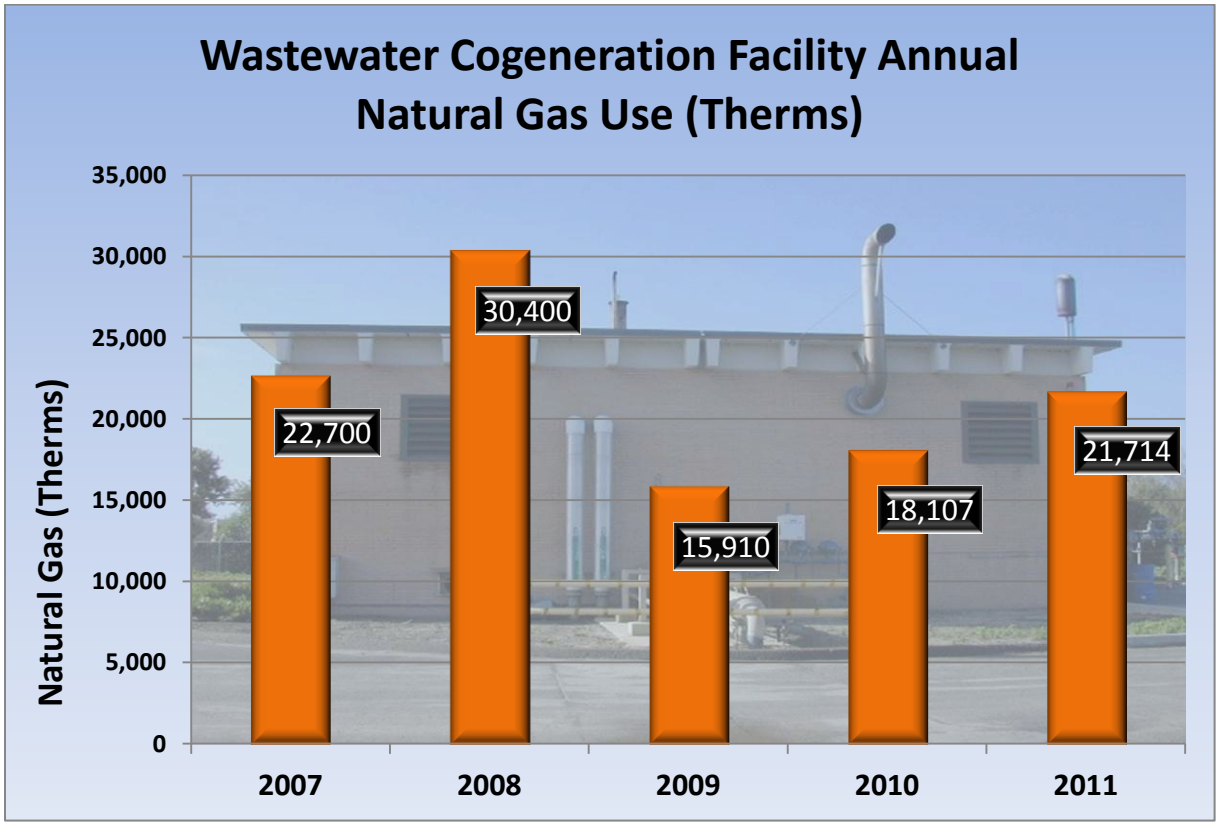
**Overview:**

The Wastewater Treatment Plant (WWTP) processed over 3,123 million gallons of water in 2011 from Ventura homes, businesses and industry. The wastewater drains to the plant through sewer pipes via gravity and a series of lift stations. The wastewater treatment process is very energy intensive and also requires an assortment of chemicals, including chlorine, to effectively treat the wastewater before it's discharged to the environment or reclaimed for beneficial use.

In 1994, the City installed a co-generation unit that uses waste gas to generate electricity. The co-generation system, which provides about 40% of the electricity used at the WWTP, and other energy efficiency efforts have reduced the WWTP's electricity use by 5.3 million kWh, saving over $450,000 annually. WWTP staff are also pilot testing a system to disinfect water using heated water (pasteurization) instead of chlorine. The WWTP represents 19% of the City's municipal carbon emissions.

Appendix C provides details of historical electricity use, current projects, and potential future projects at the WWTP.


Waste Water Annual Electricity Usage (kwh)
Electricity Usage (kwh)
10,000,000
9,500,000
9,000,000
8,500,000
8,000,000
7,500,000
7,000,000
6,500,000
6,000,000
5,500,000
5,000,000
8,900,073
9,524,878
9,496,724
7,955,182
8,023,528
2007
2008
2009
2010
2011


Wastewater Cogeneration Facility Annual Natural Gas Use (Therms)
Natural Gas (Therms)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
22,700
30,400
15,910
18,107
21,714
2007
2008
2009
2010
2011

**Goals:**

1. Reduce energy use at the WWTP.
2. Reduce chemical use at the WWTP.
3. Increase use of municipal reclaimed water.

**Targets:**

1. Reduce energy use at the WWTP by 2% annually from 2008 baseline.
2. Reduce chemical use at the WWTP below 2011 levels.
3. Reuse 100% of municipal reclaimed water by 2025.

**Objectives:**

- Reduce operating costs and offset rising energy costs by conserving energy.
- Establish reliable renewable energy sources to reduce reliance on fossil fuels and stabilize energy costs.
- Establish WWTP as model of energy efficiency operation.
- Reduce cost of purchasing chemicals.
- Reduce risk associated with chemical storage and use.
- Offset rising energy costs by reducing electricity use.
- Reduce the use of non-renewable fossil fuels.
- Reduce municipal carbon emissions by reducing electricity use.

**Strategies and Actions:**

- Identify vendor to establish a “performance contract” to identify, assess, fund, and implement energy efficiency measures.
- Continue to identify opportunities for high efficiency pumps/motors and variable frequency drives in plant operations.
- Conduct a study to identify energy efficiency opportunities by improving processes and equipment.
- Continue to implement preventative maintenance program to ensure that equipment is operating efficiently.
- Work with Southern California Edison to identify opportunities to reduce energy demand.
- Conduct a pilot project to test waster disinfection system using heated water (pasteurization) instead of chlorine (completed in October 2012).
- Identify additional opportunities for reclaimed water reuse.

## Wastewater

| | Responsible | Goals Targeted | | | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Resp. Division | Energy Reduction | Reduce Chemical Use | Reclaimed Water Use | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Pasteurization and co-generation unit replacement** | Wastewater | X | X | | Medium | | | Currently Testing |
| **Upgrade Blowers** | Wastewater | X | | | Long | | | |
| **Install new digester – accept FOG/Food Waste to increase methane for co-generation unit** | Wastewater | X | | | Long | | | |
| **UV Disinfection System** | Wastewater | | X | | Long | | Funded | |

*Short (active in FY13), Medium (3-5 years), Long (5+ years)

# WATER TREATMENT AND DISTRIBUTION

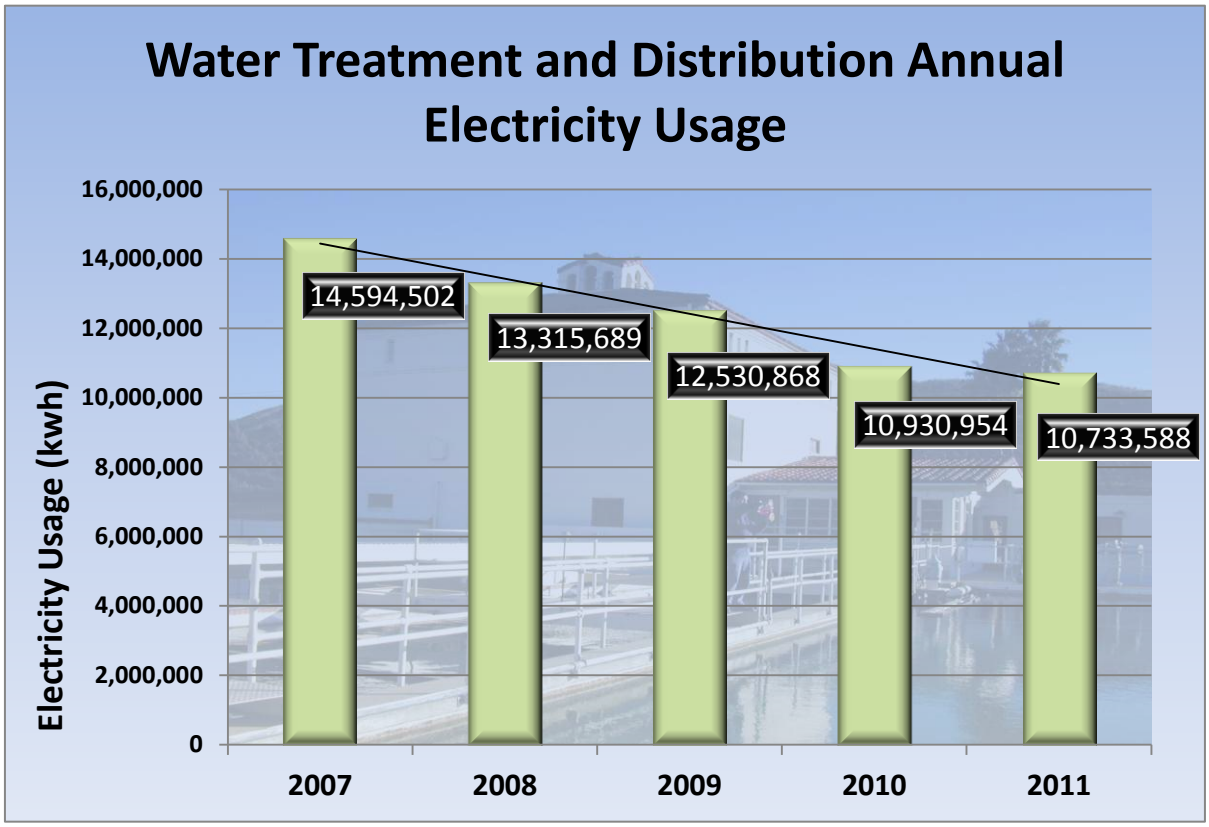
**Key Staff:**
Omar Castro, *Water Manager*
Mike Oakley, *Water Purification/Production Supervisor*

**Overview:**

Ventura receives all of its municipal water supplies from local sources, including Lake Casitas, the Ventura River and groundwater wells. While this allows Ventura to be more sustainable and independent in the way it provides water for the community, it also presents additional costs associated with the pumping, treating, and distribution of water. The pumping, treatment, and distribution of Ventura's drinking water supply represents over 25-30% of the City's municipal carbon emissions.

Ventura Water has aggressively pursued more efficient practices, including using pumps controlled by efficient variable frequency drives, pumping water during off-peak hours, and using gravity for distribution from storage tanks. These efforts have cut water treatment and distribution electricity use by 25% since 2007. Ultimately, Ventura Water would like to be "off the grid" – reduce energy through more efficient operations and using renewable energy to produce the remaining balance.

Appendix D provides details of historical electricity use, current projects, and potential future projects for Water Treatment and Distribution.




**Goals:**

1. Reduce energy used to treat and pump drinking water.
2. Reduce per capita water consumption.
3. Reduce chemical use at the Avenue Water Treatment Plant (AWTP).

**Targets:**

1. Decrease energy use by 2% annually from 2008 baseline.
2. Surpass state water efficiency for gallons used per person per day seasonal average.
3. Reduce chemical use at AWTP below 2011 levels.

**Objectives:**

- Reduce operating costs and offset rising energy costs by conserving energy.
- Protect operations budget against rising energy costs.
- Reduce City municipal carbon footprint by reducing electricity use.
- Establish Ventura Water as a model of energy efficiency operations.
- Reduce cost of purchasing chemicals.
- Reduce risk associated with chemical storage and use.
- Establish reliable renewable energy sources to reduce reliance on fossil fuels and stabilize energy costs.

**Strategies and Actions:**

- Identify vendor to establish a “performance contract” to identify, assess, fund, and implement energy efficiency measures.
- Implement the existing Water Efficiency Plan.
- Continue to implement a preventative maintenance program to ensure equipment is operating efficiently.
- Work with Southern California Edison to identify opportunities to reduce energy demand and maximize the off-peak pricing incentive.
- Summarize and prioritize opportunities for generation for independent renewable power within the current operations as well as opportunities outside of the operations.

## Water Treatment and Distribution

| | Responsible | Goals Targeted | | | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Resp. Division | Reduce Energy Use | Reduce Municipal Water Consumption | Reduce Chemical Use | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Replace well pump motor & install VFD at Golf Course #5** | Water | X | | | Medium | | | |
| **Replace well pump motor & install VFD at Golf Course #6** | Water | X | | | Medium | | | |
| **Replace golf course BPS #3 & #4 motor and install VFD** | Water | X | | | Medium | | | |
| **Replace well pump motor & install VFD at Nye Well #7** | Water | X | | | Medium | | | |
| **Replace well pump motor & install VFD at Nye Well #8** | Water | X | | | Medium | | | |
| **Pump and motor efficiency improvements for Golf Course Booster Pump Station and Wells** | Water | X | | | Medium | | | |
| **Conduct solar energy study to reduce power consumption** | Water | X | | | Medium | | | |
| **Install solar panels or wind turbines at the Avenue Water Treatment Plant** | | X | | | Long | | | |
| **Conduct study to use water outflow from elevated tanks to produce hydroelectricity** | | X | | | Long | | | |
| **Install VFDs and replace pump control valves at Hall Canyon Booster Pump Station** | | X | | | Long | | | |

*Short (active in FY13), Medium (3-5 years), Long (5+ years)

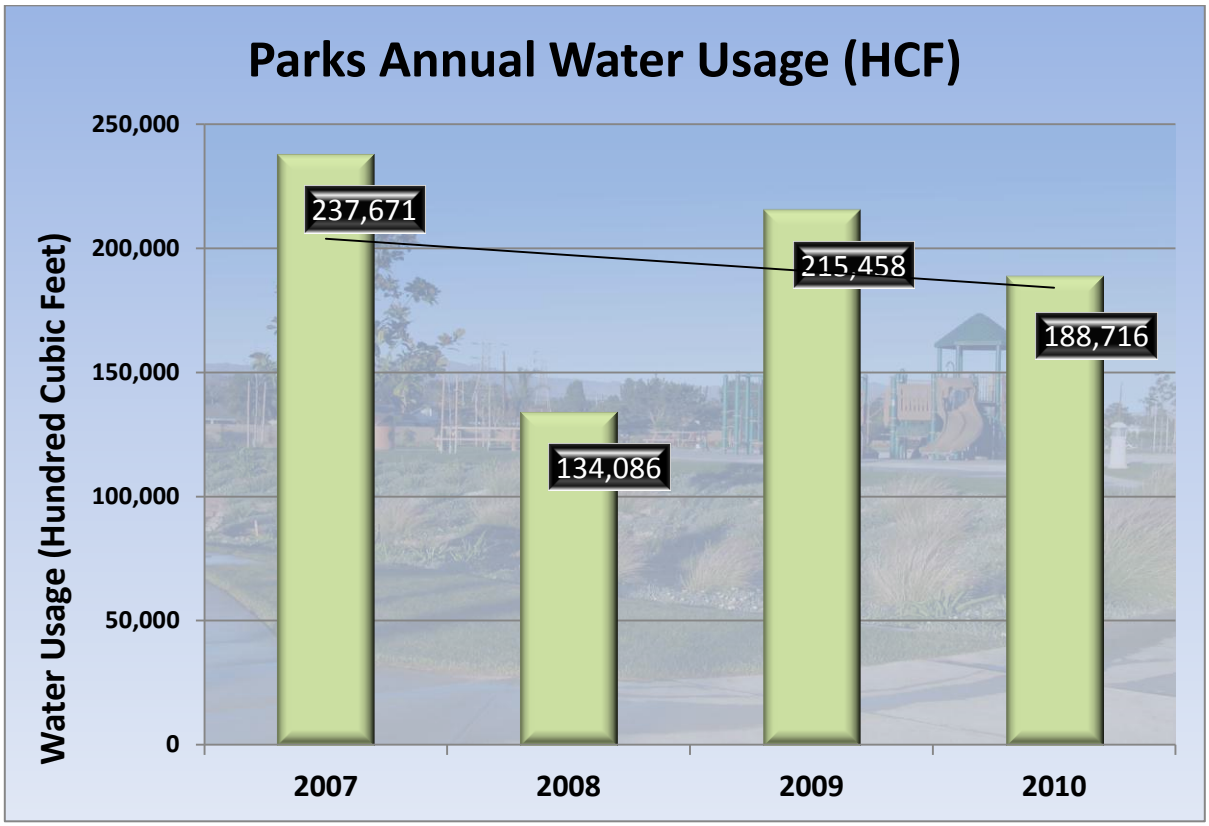
# PARKS AND URBAN FORESTRY

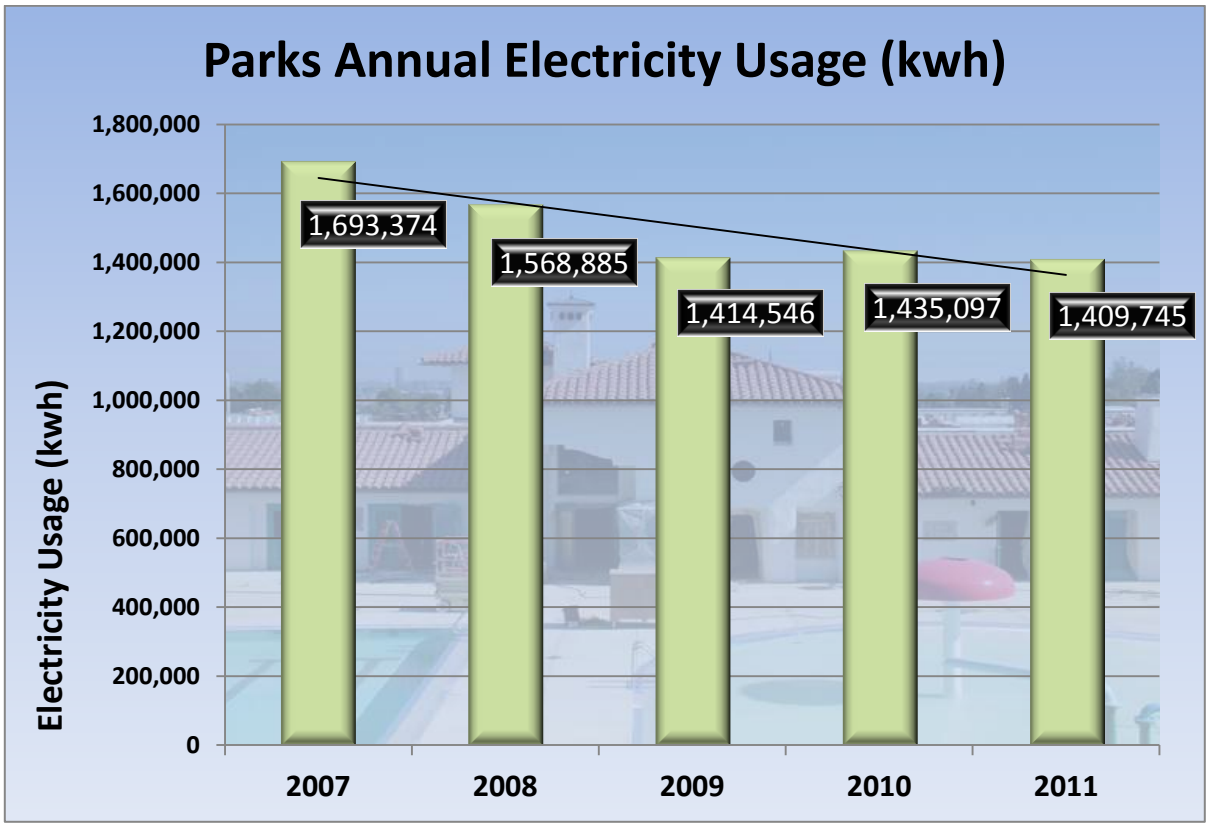
**Key Staff:**
Nancy O'Connor, *Parks Manager*

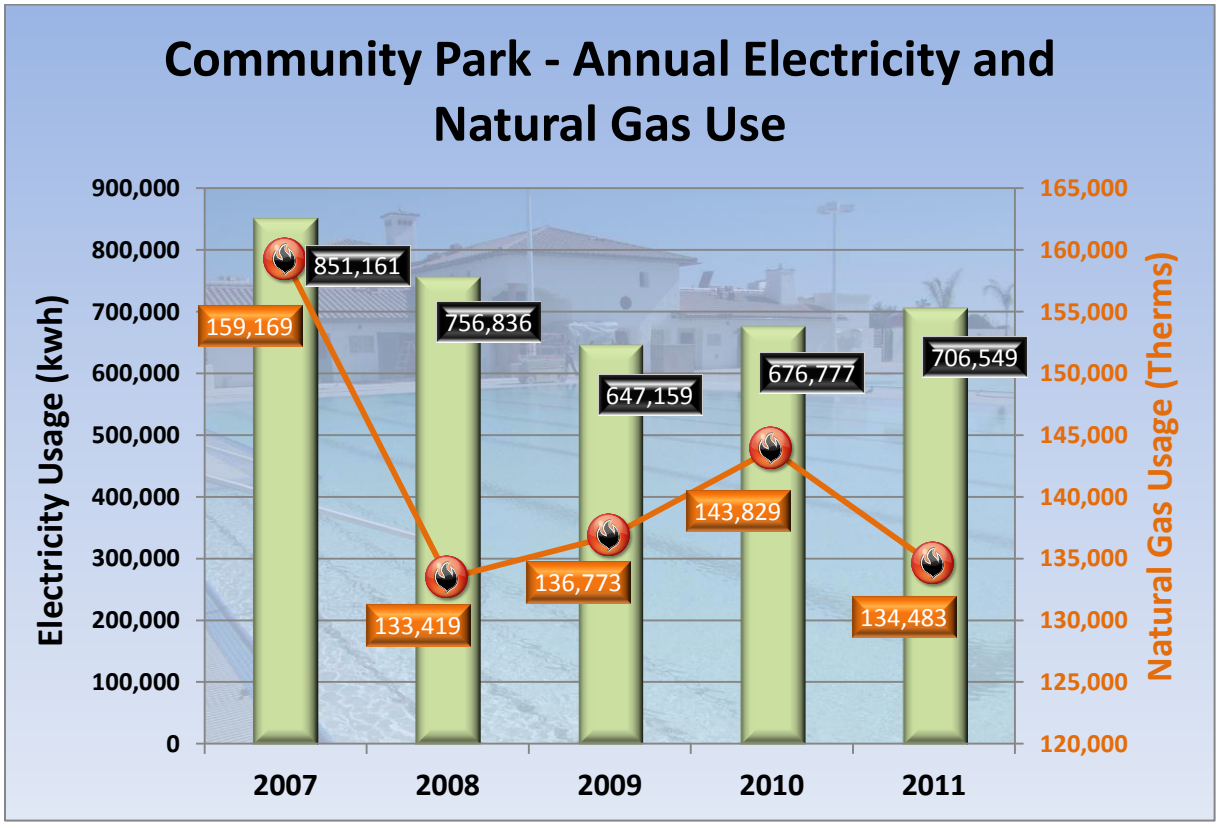
**Overview:**

The Parks Division maintains more than 800 acres of parkland and facilities, which includes over 35 parks and recreation facilities serving various interests from sailing, surfing, tennis, league sports, skateboard parks, playgrounds and picnic areas. Parks also maintains over 29,000 park and street trees throughout the City. Parks uses a significant amount of water to maintain acres of turf and landscape; however, water use has decreased since 2007 as water efficiency measure have been implemented (see pg. 50). The Ventura Aquatic Center uses a significant amount of natural gas and electricity to heat and pump water, which results in over 900 MT of carbon emissions annually or about 8% of the City's municipal carbon emissions. Overall, Parks represents about 9% of the municipal carbon emissions.

Appendix E provides details of historical water and energy usage, current projects, and potential future projects for Parks and Urban Forestry.




Parks Annual Electricity Usage (kwh)
Electricity Usage (kwh)
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1,693,374
1,568,885
1,414,546
1,435,097
1,409,745
2007
2008
2009
2010
2011


Community Park - Annual Electricity and Natural Gas Use
Electricity Usage (kwh)
Natural Gas Usage (Therms)
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
165,000
160,000
155,000
150,000
145,000
140,000
135,000
130,000
125,000
120,000
851,161
756,836
647,159
676,777
706,549
159,169
133,419
136,773
143,829
134,483
2007
2008
2009
2010
2011

**Goals:**

1. Reduce water use at City parks.
2. Increase energy efficient lighting in City parks.
3. Reduce pesticide use at City parks.
4. Increase urban tree planting.
5. Increase recycling in parks.

**Targets:**

1. Reduce water consumption by 25% by 2014 from 2011 baseline (15% in 2012, additional 10% in 2013).
2. Decrease energy use in City parks by 2% annually.
3. Reduce pesticide usage by 25% annually, with zero usage by 2016.
4. Increase the number of trees planted in public parks and open spaces to 250 annually, as budget allows.
5. Add 10 recycling containers in City parks each year.

**Objectives:**

- Reduce operational costs.
- Protect operations budget against rising energy and water costs.
- Reduce City municipal carbon footprint.
- Increase carbon sequestration by planting trees.

**Strategies and Actions:**

- Convert non-essential turf to drought tolerant plants.
- Lower watering times for every irrigation station.
- Reduce watering times by at least 10% to determine the threshold of stress tolerance upon the turf.
- Require all new developments and CIP overseen by the Parks to install smart meter irrigation systems.
- Identify energy efficiency and renewable energy opportunities at the Ventura Aquatic Center.
- Replace old park lights with energy efficient ones.
- Reduce use of pesticides and herbicides through integrated pest management program.
- Conduct a study to quantify the amount of carbon sequestered by public street trees.
- Create an Urban Forestry program to increase tree planting and promote community action.
- Educate the public on how to use a park/how they can help.
- Survey parks for recycling opportunities and add new recycling containers.

Parks & Urban Forestry

| | Responsible | Goals Targeted | | | | | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Responsible Division | Reduce Water Use | Reduce Energy Use | Reduce Pesticide Use | Urban Tree Planting | Increase Recycling in Parks | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Convert pole lights to fluorescent at pool #2 (69,231 kWh annual savings).** | Parks | | X | | | | Short | | Unfunded | |
| **Pilot test "Pack it in, pack it out" program at City park.** | Parks | | X | | | | Short | | Unfunded | |
| **Increase mulching to eliminate the use of grass on medians.** | Parks | X | | X | | | Short | | Funded | |
| **Place recycling containers in City parks.** | Environmental Sustainability & Parks | | | | | X | Short | | Funded | ES will use grant funding to purchase containers |
| **Upgrade metal halide lights at Westpark (38,462 kWh annual savings).** | Facilities & Parks | | X | | | | Short | | Funded | |
| **Update equipment with fuel efficient technology (e.g. hybrid trucks that can tow).** | Fleet & Parks | | X | | | | Medium | | Unfunded | |

| Planned Projects/Activities | Responsible Division | Reduce Water Use | Reduce Energy Use | Reduce Pesticide Use | Urban Tree Planting | Increase Recycling in Parks | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Use solar energy for buildings within parks that house the equipment to reduce transportation needs.** | Facilities & Parks | | X | | | | Medium | | Unfunded | |
| **Develop an "adopt a park" program.** | Parks | X | X | | | | Medium | | Unfunded | |
| **Expand the use of motion sensors and/or solar power to reduce energy consumption.** | Facilities | | X | | | | Medium | | Unfunded | |
| **Install energy efficient path and parking lot lights (153,846 kWh annual savings)** | Facilities & Parks | | X | | | | Medium | | Unfunded | |
| **Install energy-efficient lighting and water saving fixtures in restrooms (76,923 kWh annual savings).** | Facilities | X | X | | | | Medium | | Unfunded | |
| **Use goats as a way to control vegetation.** | Parks | X | X | X | | | Medium | | Unfunded | |
| **Pilot Test Composting toilets.** | Parks | X | | | | | Long | | Unfunded | |
| **Lease equipment instead of purchasing new.** | Fleet | | X | | | | Long | | Unfunded | |

Short (active in FY13), Medium (3-5 years), Long (5+ years)

# PURCHASING

**Key Staff:**
Vicki Boswell, *Purchasing Manager*
Burris DeBenning, *Senior Buyer*

**Overview:**

The City Purchasing and Contracts Division is responsible for the acquisition of all non-professional services and goods, including office supplies and equipment such as post-consumer office paper, toner cartridges, and miscellaneous office supplies. In 2007, the City's Green Initiative program detailed action items to promote environmentally responsible purchasing, including:

- Developing a Green Purchasing Policy;
- Purchasing only 100% recycled office paper;
- Purchasing Energy Star© certified office equipment and appliances;
- Replacing toxic cleaning products with environmentally friendly alternatives.

In 2009, City Council approved an updated Procurement Manual that included a Green Product/Service Preference section (Chapter 6). This section outlines recommended actions for reducing the environmental footprint associated with the products purchased by the City.

Appendix F provides details of historical purchasing practices, current projects, and potential future projects for Purchasing.

**Goals:**

1. Purchase products, equipment and materials that are environmentally preferable (e.g. recycled content, green certified).
2. Reduce the amount of goods purchased through effective source reduction practices.

**Targets:**

1. 80% of office products purchased through office products suppliers will have recycled content and/or approved environmental certification.
2. Purchase post-consumer recycled content office paper for all general use paper – 80% of usage should be 100% recycled content paper.
3. By 2014, develop bid document language that prefers environmentally sustainable parts and commodities.

**Objectives:**

- Reduce the amount of products purchased; thereby reducing operational costs.
- Protect operations budget against rising energy costs.
- Reduce City municipal carbon footprint.

**Strategies and Actions:**

- Continue to implement green purchasing practices by working with City staff to purchase only 100% post-consumer recycled paper, remanufactured ink cartridges, and environmentally preferable office supplies, etc.
- Implement Chapter 6 of the Procurement Manual entitled “Green Product/Service Preference” when purchasing multi-purpose paper and other paper items.
- Partner with office products supplier to develop programs to increase the purchase of environmentally preferable products.
- Work with the City’s contracted warehouse operator to prefer environmentally preferable items for purchases.
- Collect data for performance tracking and evaluation of the green purchasing practices. Produce an annual summary, and evaluate the effectiveness of these actions.
- Update existing procurement preferences and specs to facilitate the use of environmentally preferable products.
- Educate departments about vendors that provide environmentally preferable products and services.
- Encourage employees to use reusable dishware, bottles and cups.
- Where feasible, use products that perform and have the least damaging/most beneficial environmental impact including: new environmentally preferred products, reusable products, recycled content, and recycled products.
- Commit to buying foods and services from manufacturers and suppliers who share the City’s commitment to sustainable procurement.
- Purchase Energy Star© certified office equipment and appliances. A cost-analysis should be completed to justify the purchase of uncertified appliances and equipment.
- Consider the following environmental attributes when selecting products:
    - Pollution reduction
    - Waste generation
    - Carbon emissions
    - Recycled content
    - Energy conservation
    - Resource conservation
- Support pilot testing new products that may be environmentally preferable.
- Add an environmental approval process on the form for office supply products.
- Establish “re-use” areas for staff to share unused office products

Purchasing

| | Responsible | Goals Targeted | | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Resp. Division | Environ. Preferable Products | Source Reduction | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Purchase or lease EPEAT and/or Energy Star© products, whenever feasible.** | IT | X | | Medium | PCs: $500/each LCDs: $250/each | Funded | Need to meet w/IT manager |
| **Educate staff about purchasing 100% recycled content paper.** | Purchasing & Env. Sust. | X | | Ongoing | Varies | Funded | New eWay system in place to buy 100% recycled content paper |
| **Develop bid document language to promote locally sourced materials and products for Capital Improvement Projects and City maintained infrastructure for new developments.** | Public Works | X | | Short | N/A | N/A | |
| **Develop "reuse" areas for staff to share unused office products.** | All | | X | Short | N/A | N/A | Start w/announcements to dept. secretaries |
| **Purchase re-refined motor oil for City vehicles** | Fleet | X | | Ongoing | | Funded | Used oil is recycled and then purchased from the same supplier, thus closing the loop on oil procurement process. |
| **Research energy use of new software and existing software.** | IT | X | | Long | $5-100K | Funded | Need to meet w/IT |
| **Educate staff about product life cycle costs.** | Env. Sust. | X | X | On-going | Varies | Funded | |

| Planned Projects/Activities | Resp. Division | Environ. Preferable Products | Source Reduction | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
|---|---|---|---|---|---|---|---|
| **Research capital-intensive "green" equipment / hardware that competes in value and quality w/ current infrastructure.** | PW & Water | X | X | Long | Capital assets over $5K | Funded | |
| **Consider implementation of electronic contracts and purchase orders.** | City Attorney, Purchasing & Risk Management | | X | Long | N/A | N/A | |
| **Reuse office modular and furniture equipment that is in good condition before buying new.** | Facilities | | X | Ongoing | N/A | N/A | Mary Joyce to reassess; should we buy new from Tri-County? |
| **Develop program to donate/sell used furniture to public and private.** | Facilities & Purchasing | | X | Long | N/A | N/A | |
| **Develop language for identifying environmentally preferable products to include in bid documents.** | Purchasing, PW & Water | X | | Long | N/A | Funded | |

*Short (active in FY13), Medium (3-5 years), Long (5+ years)

# GREEN BUILDING/INFRASTRUCTURE

**Key Staff:**
Andrew Stuffler, Building Official
Mary Joyce Ivers, Fleet and Facilities Superintendent

**Overview:**

Green building and infrastructure includes the planning and construction of City owned and supported projects. Green buildings reduce environmental impacts because they use more environmentally friendly materials, emit less pollution and are healthier for its occupants. Green buildings also have better indoor air quality and are less expensive to operate due to reduced demand for heating, cooling, and water. In fact, the average green building uses 30% less energy and 30-50% less water than a comparable building. In 2007, City Council approved a green building resolution that encourages and incentivizes green building for private developments and requires all new City facilities to incorporate green building components.

In September of 2010, the solar permitting fee was dropped from $254 to $1 per kilowatt installed. As a result, permit applications went up 50%. This resulted in an estimated loss of $3,500 in permitting fees; however, the City facilitated $105,000 in improvements due to this incentive.

Appendix G provides details of past, current, and future projects related to Green Building/Infrastructure.

**Goals:**

1. Include green building practices for new municipal construction projects, including remodels and Capital Improvement Projects (CIP).
2. Obtain Energy Star© certification for existing building, including City Hall and Police / Fire Headquarters.
3. Work with the building community to determine feasibility of optional building codes that exceed current CalGreen standards.

**Targets:**

1. Obtain Energy Star© certification for City Hall by 2013.
2. Review 100% of all new residential and commercial structures for compliance with 2010 CalGreen.
3. Review 100% of CIPs for opportunities to incorporate green building components.
4. Determine if construction economy can support standards that exceed Title 24 (CalGreen).

**Objectives:**

- Ensure long-term efficiency and indoor air quality of any new municipal buildings.
- Serve as an example to the community by constructing green municipal buildings.
- Obtain recognition for environmental achievements through Energy Star© certification.
- Ensure compliance with new CalGreen code standards, which will result in reducing the community-wide carbon emissions.

**Strategies and Actions:**

- Review all maintenance projects for opportunities to incorporate green building components.
- Identify existing City buildings for Energy Star© Certification.
- Ensure that all new City owned buildings over 5,000 square feet are built to Leadership in Energy and Environmental Design (LEED) certified or equivalent standard.
- Evaluate the existing green building resolution and identify opportunities for improvement.
- Work with local builders to consider more stringent green building options.

Green Building/Infrastructure

| | Responsible | Goals Targeted | | | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Resp. Division | New Building | Existing Building | CalGreen | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Obtain Energy Star® certification for City Hall** | Facilities | | X | | Short | $5,000 | Funded | |
| **Implement green standards for renovations including low VOC paints, finishes, carpeting, etc.** | Facilities | | X | | On-going | N/A | N/A | In queue |
| **Adopt a more stringent optional state building code; conduct outreach for Tier 1 in two years.** | | | | X | Medium | TBD | TBD | Not started |
| **Facilitate Cal Green Standards in education.** | Building & Safety | X | | X | Short | N/A | N/A | On-going |
| **PD/FD HQ Energy Star Certification.** | Facilities | | X | | Medium | $5,000 | Unfunded | |
| **Electronic plan review and submittal; reduces trips necessary to City Hall.** | Building & Safety | | | X | Long | TBD | TBD | Not started |
| **Remote inspections (similar to video surveillance) reduces necessary trips (reduced or no fee).** | Building & Safety | | | X | Short | N/A | N/A | On-going |

*Short (active in FY13), Medium (3-5 years), Long (5+ years)

# RENEWABLE ENERGY

**Key Staff:**
Joe McDermott, *Senior Civil Engineer*
Joe Yahner, *Environmental Sustainability Supervisor*
Mary Joyce Ivers, *Fleet and Facilities Superintendent*
Nancy O'Connor, *Parks Manager*
Dan Pfeifer, *Purification/Production*
Omar Castro, *Water Manager*

**Overview:**

Although efficient lighting, air conditioning systems and office equipment provide the most cost effective way to reduce energy use, there is a limit to how far these technologies can reduce an organization's overall energy footprint. The City has completed numerous energy saving projects, essentially picking the "low hanging fruit." Although City staff will continue to pursue efficiency projects as new technologies develop, renewable energy must continue to play a role in the City's efforts to reduce its municipal energy use and GHG emissions.

Ventura currently has two large scale renewable energy projects in place. Installed in 2005, the 110 kilowatt solar electric system at the Sanjon Maintenance Yard produces about 45% of the electricity used at the facilities. The co-generation unit at the Wastewater Treatment Plant uses waste gas to produce about 45% of the electricity used at the facility. Although renewable energy projects tend to have long payback periods, new funding tools, such as Power Purchase Agreements, allow public agencies to fund these projects with low upfront costs.

Appendix H provides details of current and potential future projects for Renewable Energy.

**Goals:**

1. Increase use of renewable energy sources at City facilities.

**Target:**

1. Utilize renewable energy sources to provide 20% of municipal facility energy use by 2020.

**Objectives:**

- Establish reliable renewable energy sources to reduce reliance on fossil fuels and stabilize energy costs.
- Protect operations budget against rising energy costs.
- Reduce municipal carbon emissions.

**Strategies and Actions:**

- Continue to identify potential funding sources such as power purchase agreements, grants, and Federal and State loans.
- Identify opportunities for solar electric and solar hot water systems on City facilities.
- Identify alternative renewable opportunities such as wind, co-generation, etc.

Renewable Energy

| | Responsible | Goals Targeted | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Resp. Division | Increase Renewable Energy | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Solar hot water system at Community Pool** | Engineering, Parks | X | Medium | $150,000 | Funded | Preliminary discussions with SoCal Gas and REA |
| **Solar panels at the WWTP** | Engineering, Wastewater | X | Long | $3,400,000 | Unfunded | |
| **Solar panels and/or wind turbines at the Avenue Water Treatment Plant** | Engineering, Water | X | Long | $2,700,000 | Unfunded | |
| **Solar panels for water distribution (330 Booster Station and Bailey Treatment Plant)** | Engineering, Water | X | Long | $1,300,000 | Unfunded | |
| **Additional solar panels at the Maintenance Yard** | Engineering, Facilities | X | Long | $350,000 | Unfunded | |
| **Solar panels at the Westpark gymnasium** | Engineering, Facilities | X | Long | $215,000 | Unfunded | |
| **Solar panels at the Barranca Vista Community Center** | Engineering, Parks | X | Long | $190,000 | Unfunded | |
| **Solar panels at the existing Avenue Senior Center** | Engineering, Parks | X | Long | $400,000 | Unfunded | |
| **250 kw solar panels at Police/Fire HQ** | Engineering, Facilities | X | Long | $1,350,000 | Unfunded | |
| **Solar panels at Fire Stations** | Facilities | X | Long | $1,100,000 | Unfunded | |
| **Solar panels for Corbett Tank/Kimball Booster Pump Station** | Engineering, Water | X | Long | $325,000 | Unfunded | |
| **Conduct a study to determine the feasibility of generating electricity by using hydropower from water output from storage tanks.** | Engineering, Water | X | Long | | Unfunded | |

Short (active in FY13), Medium (3-5 years), Long (5+ years)

# SOLID WASTE REDUCTION

**Key Staff:**
Courtney Lindberg, *Environmental Specialist*
Keith Fowler, *PW Supervisor Facilities Contracts*

**Overview:**

In 1989, California mandated that all cities and counties divert at least 50% of their solid waste stream into recycling or reuse by year 2000. In 1992, Ventura had a 10% diversion rate. After implementing its waste management programs Ventura easily exceeded the state goal, diverting 70% of its waste in 2006. This is achieved through Ventura's partnership with our local, private waste hauler, E.J. Harrison & Sons, Inc., and implementation of various programs including residential and business recycling, household hazardous waste collections, and education and outreach to the schools and general public.

In order to serve as a leader in this community-wide effort, the City has adopted waste diversion programs to reduce municipal solid waste, including office recycling, outdoor recycling in public areas, street sweepings composting, and using City tree waste as mulch.

Appendix I provides details of current and potential future projects for Solid Waste Reduction.

**Goals:**

1. Reduce waste generated by City operations.

**Targets:**

1. Reduce solid waste disposal volume at major City facilities by 10% by 2015.
2. Reduce the amount of office paper purchased by 5% annually.

**Objectives:**

- Reduce City's solid waste disposal costs.
- Reduce cost of purchasing new products through source reduction efforts.
- Support statewide goal of diverting 75% of solid waste from landfill disposal.
- Educate employees and citizens using City facilities about the value of reducing waste through recycling and reuse.

**Strategies and Actions:**

- Conduct annual solid waste assessments at City facilities to ensure effective diversion of recyclable materials.
- Educate, train, and empower housekeeping contractor to properly manage the disposition of trash and recyclables.

- Promote the use of reusable dishware and beverage containers.
- Provide desk side recycling containers for all staff work stations.
- Ensure that 75-100% of all printers and copiers have dual-sided capabilities.
- Report office paper purchasing amounts quarterly to Green Team.
- Conduct an inventory of copiers and printers and give printing preference to those that have two-sided printing capability.
- All new printers and copiers must have two-sided printing capabilities.
- Implement a best management practice that requires staff to print double-sided.
- Continue to implement projects that support statewide goal of reaching and maintaining a 75% diversion rate.
- Provide public recycling, wherever feasible.
- Provide education, encouragement, and incentives to existing and new employees to enhance participation.

## Solid Waste Reduction

| | Responsible | Goals Targeted | Timeline | Cost | Funding | Status |
|---|---|---|---|---|---|---|
| **Planned Projects/Activities** | Resp. Division | Waste Diversion | Short, Medium, Long*, or Ongoing | | Funded or Unfunded | |
| **Install the "side-car" garbage cans at all City employee workstations.** | Facilities | X | Short | | As budget allows | Currently implemented at the Yard, expanding to City Hall |
| **Incorporate recycling program and reusable containers into new employee orientation to gain additional buy-in from employees.** | Env. Sust. & Human Resources | X | Short | | Funded | |
| **Conduct periodic solid waste assessments of City buildings to ensure recycling is maximized.** | Env. Sust. | X | Ongoing | | Funded | Done annually or as requested |
| **Add additional recycling containers as needed.** | Env. Sust. & Facilities | X | Ongoing | | Funded | |
| **Continue to publish weekly articles on various environmentally related topics.** | Env. Sust. | X | Ongoing | N/A | N/A | "Open Line" and City Newsletters |

*Short (active in FY13), Medium (3-5 years), Long (5+ years)

# Appendices

## Appendix A – Fleet Services

Return to Fleet Services Section

Fuel Usage

| Year | Gasoline | Diesel | Total |
|---|---|---|---|
| 2007 | 234,354 | 48,377 | 282,731 |
| 2008 | 228,342 | 48,748 | 277,090 |
| 2009 | 212,324 | 46,685 | 259,009 |
| 2010 | 197,170 | 42,772 | 239,942 |
| 2011 | 188,026 | 44,171 | 232,197 |

**Completed Projects**

- Retrofitted heavy-duty trucks by installing CARB certified exhaust systems (Completed in 2005; 5 years ahead of schedule, resulting in additional fuel savings).
- No idle devices (2009) installed in all black and white police vehicles.
- Hook-Lift modular system (2007-2012) changes the bed of the truck instead of having multiple trucks for individual use; thus, making them multi-use; eliminated three trucks and three trailers from the fleet.
- Moved the City's contracted warehouse operator to be onsite (2010). This eliminated the need to make several trips to pick up parts and tools for repairs.
- Installed Networkfleet GPS system (2008). This was installed in vehicles thus reducing vehicle miles travelled where it was deemed cost effective for the operating departments.
- Purchase hybrid and fuel efficient vehicles, when possible.
- Received Green Fleet Award in 2009 from Fleet Equipment Magazine.
- Pilot program to use B-20 biodiesel fuel. The underground storage tanks and valves were not certified for biodiesel under fire code requirements, in addition to being more expensive and harder to obtain.
- Implemented No-Idle policy that states that vehicles should not idle for more than 5 minutes.
- Replaced City fleet sedans with 21 hybrid gas/electric vehicles saving over 2,800 gallons of fuel per year.

**Projects That Are in Place**

- Completed a pilot study in 2008 using a specially equipped GPS system (Networkfleet). This improved efficient routing services, preventative maintenance schedules and saved money.

- INVERS motor pool software used at City Hall and the Maintenance Yard with a planned for a stand-alone key box for a hybrid at the Police/Fire Department.
- Installed 10 Electric Vehicle charging stations throughout the City (grant funded).
- Complying with Tier 3 and Tier 4 standards when replacing diesel engines.
- Select replacement vehicles with highest environmental scorecard rating.
- Recycle used oil and purchase re-fined oil from same company – closes the loop on motor oil.

**Planned Projects**

- Increase the amount of hybrid vehicles used for non-patrol vehicles at the Police Department. This could also be implemented for Fire Suppression support vehicles.
- Prioritize vehicles with high fuel use for replacement based on fuel use as main priority.
- Replace the biodiesel tanks with certified tanks and valves so that City diesel vehicles can use biodiesel use.

**Potential Future Projects (3+ years)**

- Implement ride sharing program for City employees.
- Continue to purchase alternative fuel and fuel-efficient vehicles.

Return to top of this appendix

# Appendix B – Facilities

Return to Facilities Section

**Energy Usage within Facilities (kWh)**

| | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| City Hall | 1,061,337 | 943,570 | 848,540 | 839,527 | 791,785 |
| Police/Fire HQ | 1,113,605 | 1,161,962 | 1,160,071 | 932,675 | 1,012,623 |
| Maintenance Yard | 285,887 | 270,176 | 243,511 | 265,641 | 278,063 |
| Other | 997,650 | 1,135,491 | 1,133,767 | 1,163,712 | 1,168,732 |
| **Total** | **3,458,479** | **3,511,199** | **3,385,889** | **3,201,555** | **3,251,203** |

| Completed Projects | kWh Saved |
|---|---|
| Energy efficient lights and motion sensors. | 153,846 |
| Energy efficient fluorescent ceiling lights at City Hall. | 220,000 |
| Energy efficient fluorescent ceiling lights at City Hall North (1st, 2nd, and 3rd floors). | 20,000 |
| HVAC improvements at City Hall. | 130,769 |
| Fluorescent lighting upgrades at Police/Fire HQ. | 144,000 |
| HVAC upgrades and new Energy Management Software at Police/Fire HQ. | 153,846 |
| Fluorescent lighting upgrades and motion sensors in the Downtown and Beachfront Parking Structures. | 210,000 |
| Replaced Maintenance Yard heat pumps with variable refrigerant HVAC system. | |
| West Park gymnasium lighting upgrade. | 16,208 |
| Abinger Library lighting upgrade. | 712 |
| Fire Station 1 lighting upgrade. | 23,490 |
| Avenue Adult Center outdoor lighting upgrade. | 7,000 |
| LED Energy efficient lights in City owned street lights | 400,000 |
| LED/energy efficient traffic signals. | 1,8000,000 |
| Wastewater admin. and operator building HVAC system upgrade; brought them all online to be controlled by an auto-controlled system. This system is 30-40% more efficient than the previous system (FY10-11; 30-40% energy efficiency improvement). | |
| Honored by the California Energy Commission for conservation efforts. | |
| Honored with the Governor's annual "Flex Your Power" award for outstanding leadership in energy efficiency. | |
| Replaced damaged weather stripping on doors and windows to increase energy efficiency. | |
| Utilized window film in City facilities for added reduction in energy loss and solar heat emissions. | |
| Installed LED exit signs at all large facilities. | |
| Lowered thermostat settings. | |

| Completed Projects | kWh Saved |
|---|---|
| Lowered water heater temperature settings. | |
| Replaced standard light bulbs with compact fluorescents or other energy efficient lighting. | |
| Utilizate occupancy sensors throughout City facilities. | |
| Perform preventative maintenance on HVAC systems. | |
| Replaced inefficient water heating systems. | |

| Projects That Are in Place | kWh Saved |
|---|---|
| Low flow toilets (1.6 gpf), which is the CalGreen Uniform Plumbing Code. | |
| Green Seal cleaning products used within facilities. | |
| Completed an Energy Action Plan for SCE Energy Leader program. | |

| Energy Efficient and Conservation Block Grant (EECBG) | kWh Saved |
|---|---|
| LED Energy efficient lights in City owned street lights | 400,000 |
| Energy Efficiency Programs for Non-Profit Organizations | |
| GHG Emissions Reduction Modeling and Cost Effective Strategy Development Project | |
| **California Energy Conservation (CEC) 1% Loan Projects** | |
| City Hall chiller replacement. | 154,257 |
| Server virtualization – efficient computer server project. | 65,700 |
| Energy efficient lighting upgrade at City Hall and other facilities. | 134,160 |

| Planned Projects | kWh Saved |
|---|---|
| PD/FD HVAC Renovations | |
| City Hall HVAC Improvements | |
| Downtown Lighting Improvements | |

| Potential Future Projects (3+ years) | kWh Saved |
|---|---|
| Lighting renovations at Police/Fire HQ. | |
| HVAC, lights and air pumps at existing fire stations. | |
| Replace existing lights with energy efficient lighting at Hillside Lighting District. | |
| Install cool roofs. | |
| Install solar thermal hot water heating. | |
| Utilize natural lighting in new renovations. | |
| Install solar tubes at Fire Stations | |
| Utilize waterless urinals. | |

Return to top of this appendix

# Appendix C – Wastewater

Return to Wastewater Section

**Wastewater Division Energy Usage (kWh)**

| | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| **WW Treatment Plant** | 8,326,969 | 8,845,987 | 8,887,845 | 7,333,269 | 7,501,927 |
| **Figueroa Lift Station** | 213,947 | 216,394 | 207,777 | 229,240 | 228,698 |
| **Other** | 359,157 | 462,497 | 401,102 | 392,673 | 292,903 |
| **Total** | **8,900,073** | **9,524,878** | **9,496,724** | **7,955,182** | **8,023,528** |

| Completed Projects | Est/Annual kWh Saved |
|---|---|
| Utilize co-generation Unit. | 1,153,846 |
| Installed VFDs/other efficiencies. | 3,461,538 |
| Took 500-horsepower blower offline. | 769,231 |
| Reduced chlorine demand pounds per day from 2,400 to 700. | N/A |
| Replaced magnesium hydroxide with biological odor control products, thus eliminating the need for one semi-truck driving 120 miles per week. | N/A |
| 10,648 wet tons of biosolids were disposed of in the Toland landfill and 1,452 wet tons were processed in heated drying units, brought to Class A biosolids quality, and used for daily cover at the landfill. | N/A |
| Increased the number of in-house repairs to sewer mains contributed to reducing Sanitary System Overflows from 48 in 2000 to 2 in 2012. | N/A |

| Current Projects | Est/Annual kWh Saved |
|---|---|
| Water Pasteurization Pilot[1] (CIP#96895) | N/A |

| Future Projects | Est/Annual KWh Saved |
|---|---|
| Upgrade Blowers[2] | |
| New Digester – FOG/Food Waste[3] (CIP#96878) | |
| UV Disinfection System | |
| Co-generation Replacement | |

[1] *There is a pilot project in the works with Pasteurization Technology Group (PTG). Pasteurization occurs through using hot water to disinfect the water instead of adding chlorine. The pilot will be using natural gas to heat the water, however, if the project is expanded to full scale, they will use the co-gen to heat the water along with natural gas.*

[2] *Upgrade the blowers and controls to save energy. A study was done in late 2008/early 2009 by Saddleback Environmental Equipment, Inc. The proposal included removing the existing blowers and installing new with a new advanced control system. This system estimated a payback period of just under seven years.*

[3] *Develop project at Wastewater Treatment Plant to accept fats, oils, and greases (FOG) and food waste to increase methane production and energy production from the co-generation unit.*

Return to top of this appendix

# Appendix D – Water Treatment & Distribution

Return to Water Treatment and Distribution Section

**Energy Usage for Water Treatment and Distribution (kWh)**

| | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| Avenue Treatment Plant | 919,581 | 906,590 | 780,240 | 890,354 | 976,792 |
| 10975 Telephone | 1,349,746 | 806,362 | 694,080 | 352,107 | 639,146 |
| 3750 Olivas Drive 5 | 5,189,442 | 4,529,399 | 4,634,341 | 3,655,721 | 3,580,038 |
| 6001 Webster | 2,192,098 | 1,531,909 | 882,674 | 355,241 | 11,127 |
| 6399 Webster | 435,400 | 1,045,779 | 909,688 | 1,035,193 | 980,289 |
| 6380 Loma Vista Rd. | 1,026,191 | 1,037,912 | 959,009 | 702,245 | 691,083 |
| 2701 Hall Canyon | 623,538 | 485,082 | 509,333 | 539,550 | 746,574 |
| 5880 Olivas Park Dr. | 585,220 | 581,633 | 666,739 | 551,386 | 520,969 |
| 1 Poli St. Seaward | 444,636 | 566,136 | 494,691 | 598,958 | 440,354 |
| Other | 1,828,650 | 1,824,887 | 2,000,073 | 2,250,199 | 2,147,216 |
| **Total** | **14,594,502** | **13,315,689** | **12,530,868** | **10,930,954** | **10,733,588** |

| Completed Projects | Est/Annual kWh Saved |
|---|---|
| Installed 7 VFDs and high efficiency motors. | 269,231 |
| Replaced 2 constant speed motors with 2 VFDs and high efficiency motors at the Golf Course. | 461,538 |
| Booster upgrade in 2001. | N/A |
| Installation of VFD and high efficiency motor. | 346,154 |
| Replaced 2 EM drive variable speeds with 2 VFDs and high efficiency motors. | 53,846 |
| More efficient operation with the new 330 zone suction line. | 84,615 |
| Reduced the Hp from a constant speed motor from 500 to 350 and added a VFD and efficiency motor at the Saticoy Water Treatment Plant. | 269,231 |
| Installed a VFD and high efficiency motor at the County Yard Well. | 284,615 |
| Replaced 3 constant speed, soft-starts with 3 VFDs and high efficiency motors at the 330 Booster Pump Station. | 92,308 |
| Installed a VFD and high efficiency motors at Nye 11. | 7,692 |
| Replaced well pump after pump efficiency testing at Saticoy Well #2. | 92,308 |
| Replaced well pump after pump efficiency testing at Victoria Well #2. | 284,615 |
| Replaced 3 inefficient pump motors with 3 energy efficient motors at Seaward and Poli Booster Pump Station. | 69,231 |
| Provided training on water efficiency behavior to City staff and management. | |

| Completed Projects | Est/Annual kWh Saved |
|---|---|
| Utilized knowledge of water sources that are significantly affected by withdrawal of water in decision-making. | |
| Obtained knowledge of total water withdrawal by source. | |
| Integrated county-wide water resource management. The City is a member of the Water Coalition of Ventura County (WCVC) and participated in the submittal of the County-wide Integrated Resource Management Plan to the Department of Water Resources (DWR). The WCVC qualified for a Prop 50 $25,000,000 grant for 11 projects in Ventura County. Ventura County was one of 7 counties in California to qualify for the first round of Prop 50 grant funds. One project included in Prop 50 funding is the Ventura River Watershed Management Plan. | |

| Current Projects | Est/Annual kWh Saved |
|---|---|
| Pumping efficiency testing: Done with Edison every two years. This is the biggest effort currently taken to reduce energy usage. | Ongoing |
| Identified potential contaminants through a 2005 Sanitary Survey of the Lower Ventura River Watershed (issues like septic tanks, horse manure, household hazardous waste, etc.) The survey also analyzed contaminants in the watershed that may affect the drinking water supply in Foster Park. This survey was conducted again in 2010. | |

| Future Projects | Est/Annual kWh Saved |
|---|---|
| Two potential solar panel locations, identified and coordinated through Joe McDermott-Senior Civil Engineer (2-3 years ago)<br>**a.** 330 Booster Station<br>**b.** Bailey Treatment Plant | Unknown |
| Solar panels and wind turbines at the AWTP. | Unknown |
| Hydroelectricity on the outflow of water (needs a study). | Unknown |
| Installation of VFD and replace pump control valves at Hall Canyon Booster Pump Station. | 30,769 |
| Replace well pump motor and install VFD at Golf Course #5. | 130,769 |
| Replace well pump motor and install VFD at Golf Course #6. | 130,769 |
| Replace golf course BPS #3 & #4 motor and install VFD. | 153,846 |
| Replace well pump motor and install VFD at Nye Well #7. | 15,385 |
| Replace well pump motor and install VFD at Nye Well #8. | 15,385 |
| Energy efficiency study/improvements for Golf Course Booster Pump Station and Wells. | 123,077 |

| Potential Future Projects (3+ years) | Est/Annual kWh Saved |
|---|---|
| Potential solar panel applications; if these were to be approached again, install batteries to ensure it is off the grid. | Unknown |

Return to top of this appendix

# Appendix E – Parks and Urban Forestry

Return to Parks and Urban Forestry Section

Water usage for irrigation (City parks, contract non-park areas, contract park areas, and assessment districts).

| Year | Hundred Cubic Feet (HCF) |
|---|---|
| 2007 | 237,671 |
| 2008 | 134,086 (missing 08-09 contract park areas) |
| 2009 | 215,458 |
| 2010 | 188,716 |

| Park Location | Energy Usage (kWh) | | | | |
|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 | 2011 |
| Community Park | 851,161 | 756,836 | 647,159 | 676,777 | 706,549 |
| Camino Real | 263,335 | 230,005 | 217,593 | 210,177 | 215,130 |
| Cameron Street Park | 29,307 | 26,474 | 25,429 | 16,853 | 18,552 |
| Other | 549,571 | 555,570 | 524,365 | 532,290 | 469,514 |
| Total | **1,693,374** | **1,568,885** | **1,414,546** | **1,435,097** | **1,409,745** |

| Completed Projects | Cost |
|---|---|
| Turf upgrade, replacement, and ball field improvements; absorbs water faster and uses less water. | |
| Installed cover at pool to reduce evaporation and heat loss. | |
| Mulch grass back into the turf to recycle nutrients and eliminate disposal of grass clippings. | |
| Installation of VFDs for each of the three pool circulation pumps (238,462 kWh annual savings) at Ventura Aquatic Center. | |

| Projects That Are in Place | Cost |
|---|---|
| Utilize Maxicom irrigation system that automatically shuts off during precipitation to avoid over-watering. | |
| Utilize Integrated Pest Management practices to reduce the use of pesticides and fertilizers. Utilize energy efficiency indoor and outdoor lights. | |

| Planned Projects | Cost |
|---|---|
| Updating equipment with newer technology/energy efficient; hybrid trucks that can tow. | |
| Use solar energy for buildings within parks that house the equipment to reduce transportation needs. | |
| Educate the public on how to use a park/how they can help. | |

| Potential Future Projects (3+ years) | Est/Annual kWh Saved |
|---|---|
| Convert pole lights to fluorescent at the pool #2 | 69,231 |
| Adopt a park: much like adopt a highway, this would be a way to encourage ownership in maintaining the aesthetics. | |
| Pack it in, pack it out: remove all trash cans as a way to teach visitors to take responsibility for all of their trash. | |
| Utilize mulch to eliminate the use of grass on medians. | |
| Expand the use of motion sensors and/or solar power to reduce energy consumption. | |
| Lease equipment instead of purchasing. | |
| Energy efficient path and parking lot lights. | 153,846 |
| Restroom renovations; energy-efficient lighting and water saving fixtures. | 76,923 |
| Upgrade Metal Halide lights at Westpark | 38,462 |
| Using goats as a way to control vegetation. | |
| Install composting toilets. | |

Return to top of this appendix

# Appendix F – Purchasing

Return to Purchasing Section

**Recycled Content in Printer Paper**

| Year | 30% Recycled Content or More | Total Amount Spent | Percentage |
|---|---|---|---|
| 2007 | $90 | $292 | 30% |
| 2008 | $3,840 | $4,355 | 88% |
| 2009 | $6,863 | $7,010 | 97% |
| 2010 | $6,462 | $6,620 | 97% |
| 2011 | $5,404 | $6,089 | 88% |

**Remanufactured Ink/Toner Cartridges**

| Year | Remanufactured | Total Amount Spent | Percentage |
|---|---|---|---|
| 2007 | $3,562 | $15,982 | 22% |
| 2008 | $2,200 | $11,196 | 19% |
| 2009 | $999 | $8,114 | 12% |
| 2010 | $1,271 | $10,520 | 12% |
| 2011 | $971 | $10,234 | 9% |

## Completed Projects

- Use office products vendor that provides a wide array of recycled content and environmentally friendly products.
- Implemented Green Purchasing Policy section for the Procurement Manual.
- Purchase mostly100% post-consumer recycled content for general uses. All other paper contains at least 30% post-consumer recycled content.
- Purchase 100% recycled content paper towels and toilet paper.
- Purchase re-manufactured inkjet and toner cartridges.

## Projects That Are in Place

- Purchase Energy Star© certified products, whenever feasible.
- Lease new Xerox copiers with the most energy saving features.
- Upgrade digital publishing machines; this is applicable to the print shop as well as general department copiers.
- Purchase re-refined oil from the oil recycling company, thus closing the loop on the oil procurement process.

## Potential Future Projects (3+ years)

- Researching energy use of software (Agresso, MMS, Inquesta, TMA, Fleet Anywhere, Intergov, etc.).

- Education on green purchasing having an upfront cost, need Life-Cycle Analysis information to show payback.
- Research capital-intensive green equipment/hardware that competes in value and quality with current infrastructure (plumbing/sewage, light poles, metals, aggregates, roofing, insulation, mechanical devices, etc.).
- Research modifying current contract and purchase order signatures to become electronic, thus, radically reduce paper usage.
- Reuse office modular and furniture equipment that is in good condition before buying new; require contract manager to approve with good cause new capital office upgrade purchases.
- Identify a simpler way to donate/sell used furniture to public and private entities.
- For new office systems - recommend better alternative value than Herman Miller and Steelcase. These tend to be the priciest. Look into Allsteel, et al. pre-bid national contracts. Could bring costs down quite a bit for future refurbs.
- Improve e-waste recycling program w/ IT.

Return to top of this appendix

# Appendix G – Green Building/Infrastructure

Return to Green Building/Infrastructure Section

**Completed Projects**

- Front of the line permitting for green building projects.
- Reduced solar installation permitting fee to $1.

**Projects That Are in Place**

- All structures are reviewed for compliance with the 2010 California Green Building Code (CalGreen).
- Require all new projects over 2,000 square feet to recycle 50% of construction and demolition debris.
- Engineering projects required contactors to recycled construction and demolition waste.
- Review applicable CIP projects for potential environmental impacts.
- Use warm-mix asphalt in City paving projects, which decreases the emission of harmful fumes and reduces the energy used to heat traditional “hot mix” asphalt.
- Recycle aggregate from street projects.

**Planned Projects**

- Obtain Energy Star® certification for City Hall (lighting improvements, HVAC improvements, etc.).
- Implement green standards for renovations including low VOC paints, finishes, carpeting, etc.

**Potential Future Projects (3+ years)**

- Adopt a more stringent optional state building code: do outreach – Tier 1 in 2 years & determine if construction economy can support higher standard.
- New Cal Green Standards will be out in 2013-2014.
- PD/FD HQ Energy Star® Certification.

Return to top of this appendix

# Appendix H – Renewable Energy

Return to Renewable Energy Section

| Completed Projects | Annual Savings (kWh) |
|---|---|
| Solar panels at the Maintenance Yard | 180,000 |
| Solar Bee at Bailey Reservoir | |
| Installed solar power for water mixing system | 30,769 |
| Use of co-generation at the WWTP | 2,202,400 |

| Planned Projects | Annual Savings |
|---|---|
| Wind turbine, solar water heater project at Community Pool | 230,769 |

| Potential Future Projects (3+ years) | Annual Savings |
|---|---|
| Solar panels at the WWTP | |
| Solar panels and wind turbines at the AWTP | |
| Additional solar panels for water distribution (330 Booster Station and Bailey Treatment Plant) | 923,077 |
| Additional solar panels at the Maintenance Yard | 100,000 |
| Solar panels at the Westpark gymnasium | 61,538 |
| Solar panels at the Barranca Vista Community Center | 53,846 |
| Solar panels at the existing Avenue Adult/Senior Center | 115,385 |
| 250 kW solar panels at Police/Fire HQ | 384,615 |
| Solar panels at existing Fire Stations | 307,692 |
| Solar panels for Corbett Tank/Kimball Booster Pump Station | 92,308 |
| Solar panels for supplemental power at AWTP | 769,231 |
| Conduct a study to determine the feasibility of generating electricity by using hydropower from water output from storage tanks. | |

Return to top of this appendix

# Appendix I – Solid Waste Reduction

Return to Solid Waste Reduction Section

## Completed Projects

- Solid waste assessment done at City Hall, the Maintenance Yard, Police/Fire Headquarters (2009 & 2011).
- Successfully replaced all Styrofoam usage in City Council/City Manager's Office.
- Provide recycling containers at all employee workstations.

## Projects That Are in Place

- Piloted a project in the Maintenance Yard replacing all desk-side garbage cans with small, "side-car" garbage cans to encourage recycling over landfilling.
- Installation of Reverse Osmosis machines encourages refilling containers over plastic bottles.
- Weekly environmentally related articles in the "Open Line".
- Mulch all green waste and donate for public use.
- Require all new construction projects to develop a solid waste management plan. Work with contractors to increase diversion rate to at least 60% of construction and demolition waste from the landfill.
- Divert street sweeping debris to composting; estimated additional diversion of 2-3 thousand tons per year.
- Dry biosolids from the WWTP providing beneficial reuse of alternative daily cover at Toland landfill.

## Planned Projects

- Full implementation for the "side-car" garbage cans in all City buildings.
- Incorporate recycling program and reusable containers into new employee orientation to gain additional buy-in from employees.
- Continue the periodic solid waste assessments at City buildings to ensure recycling is maximized.
- Add additional recycling containers as needed.

Return to top of this appendix