

# Sustainable

for County  
Operations

# Action Plan

AUGUST 2008



PIMA COUNTY SUSTAINABILITY PROGRAM



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*“Our ideals, laws and customs should be based on the proposition that each generation, in turn, becomes the custodian rather than the absolute owner of our resources and each generation has the obligation to pass this inheritance on to the future.”*

*– Charles A. Lindbergh*

## **Acknowledgments**

This plan was made possible by the Pima County Board of Supervisors and the contributions of many dedicated employees representing a variety of disciplines and Departments, including:

Community and Economic Development  
Community Development and Neighborhood Conservation  
Community Services  
County Administrator’s Office  
Cultural Resources & Historic Preservation Office  
Department of Transportation  
Development Services  
Environmental Quality  
Facilities Management  
Fleet Services  
Graphic Services  
Institutional Health  
Natural Resources, Parks and Recreation  
Neighborhood Reinvestment  
Pima County Public Library  
Pima County Sheriff’s Department  
Procurement  
Public Works  
Real Property Services  
Regional Flood Control District  
Regional Wastewater Reclamation Department  
Tourism and Economic Development

*Special thanks also to the Pima County residents and organizations who critiqued and commented on the draft during the public review process. Their comments have further enhanced the County’s strategic path to operational sustainability.*



# Sustainable Action Plan for County Operations

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# Plan Overview

***This plan represents*** a systematic approach to integrating the goals of sustainability into virtually all facets of the way Pima County government operates—from the cars we drive, to the energy and water we consume, to the construction of our buildings, to the products we purchase, to the way in which we view and handle our “used” materials.

For the last several months, we have asked employees throughout our organization to examine our existing sustainability “success stories,” and then identify ways in which the County can build upon, and enhance, our sustainable practices. The Board of Supervisors provided the inspiration and direction for this planning effort with their unanimous adoption of Resolution No. 2007-84 on May 1, 2007. The resolution establishes a far-reaching set of sustainability initiatives, many of which set specific goals for the way Pima County departments operate – like shifting at least half of our fleet vehicles to more environmentally-friendly fuels by 2010; powering our facilities with at least 15% renewable energy by 2025; and building all new County-funded facilities to meet the U.S. Green Building Council’s LEED Silver standards.

The outcome is this “Sustainable Action Plan for County Operations,” which recommends specific actions for enhancing County performance in the following seven areas: Water Conservation and Management, Green Building, Renewable Energy and Energy Efficiency, Alternative Fuel Vehicles, Green Purchasing, Waste Reduction, and Land Conservation and Management. Each chapter of the plan is devoted to a separate topic area, and includes the following key components:

## **Sustainability Goals**

The goals describe the specific targets and aspirations contained in Resolution No. 2007-84 for each topic area.

## **Guiding Principles**

These principles provide a policy framework for implementing the sustainability goals. New activities and proposals will be measured by their ability to achieve the guiding principles and sustainability goals.

## **Five-Year Action Plan**

The action plan recommends

specific activities and programs designed to achieve the goals and principles, establishes an implementation schedule, and identifies the lead and supporting departments responsible for overseeing the activities.<sup>1</sup> The action items appear in chronological order according to their implementation schedule, which is based on fiscal year quarters.<sup>2</sup>

## **Success Indicators**

The success indicators will provide feedback about the County’s progress toward greater operational

sustainability. The indicators will be monitored, with annual reports presented to the Board of Supervisors and the public.

## **Current Sustainability Successes**

This section presents a “snapshot” of existing County programs that contribute to sustainability. Employees on the Sustainable Action Teams (“S-Teams”) conducted a comprehensive inventory of current programs during the initial phase of this planning effort.

*The Sustainable Action Plan for County Operations is intended to be an adaptive plan that will be responsive to new ideas, technologies, partnerships, and shifts in available resources, with the goal of every new adaptation taking us down an even BETTER and MORE SUSTAINABLE path. Major updates will be conducted every five years, with smaller adjustments occurring as needed, based on the results of an ongoing monitoring and evaluation program.*

<sup>1</sup> Should a substantive conflict arise between two activities, it will be resolved in favor of the activity that provides the greatest advancement of the County’s sustainability initiatives.

<sup>2</sup> A County fiscal year runs from July 1 through June 30.

## Specific Results to be Achieved

Full implementation of the plan will achieve numerous results, including:

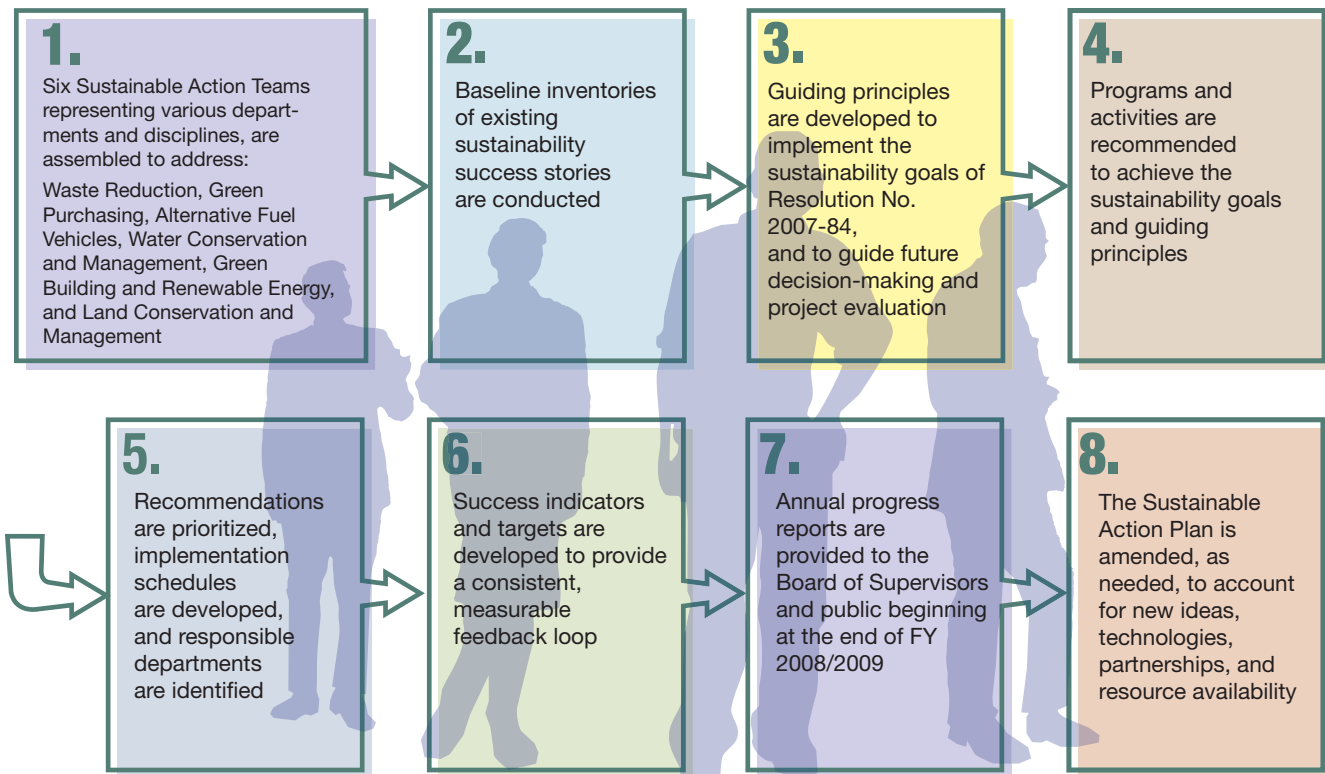
- Creating a “greener” and more healthful built environment;
- Increasing water and energy efficiency and energy independence;
- Improving air quality and reducing greenhouse gas emissions;
- Conserving irreplaceable natural and cultural resources;
- Encouraging the growth of markets for environmental products and services;
- Increasing employee participation and decision-making in workplace sustainability; and
- Reducing County expenses over the long term.

To encourage the full engagement of all employees in these successes, Pima County will offer sustainability training as part of new employee orientations, appoint “green purchasing” representatives and eco-champions for each department, and develop a program to recognize employees who contribute practical and cost-effective suggestions for improving sustainability.

We also look forward to forging new partnerships and relationships in the community. By working with other public agencies, educational institutions, businesses and organizations in the pursuit of many of our sustainability goals, we hope to multiply our successes, develop new innovations, and incorporate the most effective sustainable practices into our day-to-day operations.

## The Action Planning Process

The following flowchart summarizes key steps in the Sustainable Action Planning process.



# Alternative-Fuel Vehicles

## *Resolution No. 2007-84 Sustainability Goals*

- Use alternative fuels in 25% of fleet vehicles or a minimum of 100 vehicles (excluding patrol cars) by 2008; and
- Increase percentage of fleet vehicles using alternative fuels to 30% by 2009 and 50% by 2010.

## Guiding Principles

### THE COUNTY WILL:

- Purchase and use greener vehicles;
- Use greener, cleaner burning fuels;
- Increase the efficiency of the fleet regardless of the fuel used;
- Reduce the vehicle miles traveled (VMT) by the fleet;
- Allow employees to go to different work sites from home and return (minimize trips to downtown or other office locations);
- Encourage alternatives to driving for short work trips;
- Educate County employees about green fleets and the impact of vehicles on the environment and the community;
- Expand incentives to encourage employees to use alternative forms of transportation to travel to and from work;
- Clearly mark County vehicles so they can be easily identified by the public and in doing so, reduce the potential for unofficial use resulting in more vehicle miles traveled; and
- Identify County vehicles that use alternative fuels.



# Alternative Fuel Vehicles

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
1. Continue to track County fleet VMTs; consider developing a success indicator to measure progress						Fleet Services	Facilities Management
2. Develop anti-idling policy						Fleet Services	Administration, All Departments
3. Expand marking of County vehicles						Fleet Services	All Departments
4. Right-size fleet (number and size of vehicles; purchase vehicles no larger than necessary to optimize gas mileage)						Fleet Services	All Departments
5. Purchase and install nitrogen tire inflation systems						Fleet Services	Facilities Management, Procurement
6. Create a Green Bike Program (for localized work trips)						Departments of Transportation, Fleet Services, Departments of Environmental Quality, Human Resources, Risk Management	All Departments
7. Purchase hybrid replacement vehicles (vehicles powered by both gas and electricity) (\$)						Fleet Services	All Departments
8. Evaluate impact of biodiesel on County fleet and County customer fleets and make decision on feasibility of biodiesel use						Fleet Services	Facilities Management, Procurement
9. Expand Driver Energy Conservation Awareness Training ( DECAT)						Fleet Services, Department of Environmental Equality, Trip Reduction Program	Risk Management, All Departments
10. Expand Trip Reduction Program including exploring all of the following: <ul style="list-style-type: none"> <li>expanding flex time;</li> <li>installing bicycle racks at all County facilities;</li> <li>adding a telecommuting program (for consideration in FY 2011 and FY 2012);</li> <li>allowing modification of work locations based on employees' resident location, where possible; and</li> <li>adopting a flex parking space program (i.e., reduce the cost of parking passes for those that ride bikes or take the bus most days, but occasionally have to drive).</li> </ul>						Human Resources	Administration
11. Provide web conferencing opportunities to reduce employee miles traveled						Information Technology	All Departments
12. Educate County employees about green fleets and the impact of vehicles on the environment and the community						Fleet Services, Department of Environmental Quality	All Departments

(\$)= Requires substantial new funding or resources to implement.

# Alternative-Fuel Vehicles

## Success Indicators

### 1. Number of environmentally-friendly fleet vehicles

- Target:**
- 100 vehicles, or 25% of vehicle fleet, by 2008; 30% of the fleet by 2009; and 50% of the fleet by 2010 (excluding Sheriff's vehicles)

### 2. Education of County employees

- Targets:**
- 100% of new employees using County vehicles trained on how to drive more efficiently and reduce vehicle miles traveled
  - 100% of employees enrolled in Defensive Driving Class trained on how to drive more efficiently
  - Articles promoting travel reduction, alternative-fuel vehicles and fuel-efficient driving techniques published in employee newsletter and on County-websites

### 3. Participation of County employees in trip reduction programs

- Baseline:**  
Historical participation rate of 25%
- Target:**  
Achieve a minimum 30% participation rate by FY 2010



*On the path to progress ...*

### Highlights of Current Successes

#### *Pima County already:*

- Manages a growing inventory of alternative-fuel vehicles, having purchased or ordered 73 hybrid or E85 vehicles to date, in furtherance of the County's sustainability initiatives.
- Provides education to County employees on fuel conservation as part of the Driver Energy Conservation Awareness Training course.
- Encourages employees to reduce work-related trips through participation in the Pima County Travel Reduction Program, and by offering special programs such as subsidized bus passes, subsidized carpool parking, the provision of bicycle racks and lockers at some facilities, and the Guaranteed Ride Home Program. A 2007 survey of County employees indicated that 28.5% of those responding used alternative modes of travel during their workday commute.

# Green Building

## *Resolution No. 2007-84 Sustainability Goals*

- Adopt and promote the use of LEED (Leadership in Energy and Environmental Design) Silver principles in new and existing buildings;
- Build all new occupied County buildings designed after July 1, 2007, including additions over 5,000 square feet, to achieve a minimum of LEED Silver certification level;
- Construct one medium-size building with a net zero energy consumption; and
- Apply LEED principles to all buildings funded through County bonds, regardless of jurisdiction

## Guiding Principles

### THE COUNTY WILL:

#### DESIGN AND CONSTRUCTION

Design, construct and operate buildings to:

- minimize natural resource consumption through the use of renewable resources;
- achieve maximum efficiencies in energy use and energy performance;
- minimize emissions and negative indoor and outdoor air quality impacts;
- reduce the amount of water used by occupants and mechanical systems, and maximize on-site water harvesting, re-use, and recharge;
- reduce or eliminate construction waste, solid waste, and liquid effluence;
- maximize the reuse and recycling of materials;
- avoid or minimize negative impacts on site ecosystems, the Conservation Land System, designated riparian habitat and cultural resources;
- actively protect, enhance and restore wildlife habitat and landscape connectivity;
- maximize the quality of the indoor environment for the comfort, health, safety, and productivity of occupants and visitors;
- preserve natural dark sky conditions, to the maximum extent possible, through the selection of outdoor lighting fixtures that reduce sky glow impacts;
- maximize use of existing buildings, thereby conserving resources and the embodied energy from prior construction; and
- encourage the rehabilitation and adaptive use of historic buildings.

#### PROJECT MANAGEMENT AND CONTRACTING

- Support and encourage education in sustainable design and LEED principles for employees and residents.
- Use a procurement selection process that actively seeks firms with experience in designing LEED-certified structures, the integrated design process, and building commissioning.
- Encourage innovation in building technologies, materials and methods to meet LEED credits and respond to the Sonoran Desert environment.
- When warranted by the scope and complexity of the project, employ third-party project managers to monitor construction to ensure LEED principles are followed.

**Guiding Principles continued on p. 13**

# Green Building

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
1. Create a brown bag lunch series on Green Building for County employees, the public, and private partners and cooperators						Development Services, Facilities Management	Pima County Public Library, Procurement
2. Provide LEED training and accreditation for DSD and Facilities Management staff (\$)						Development Services, Facilities Management	Human Resources
3. Develop a comprehensive outfitting guideline and administration procedure for County offices, with the goal of enhancing employee comfort and health, and reducing CO <sub>2</sub> emissions.						Facilities Management	
4. Develop and offer “Business of Construction Course—Pima County Green Building Principles”						Procurement	Development Services, Facilities Management
5. Sponsor a “Living Building Challenge” competition to achieve a building with net zero energy and water consumption (which exceeds maximum LEED certification levels)						Development Services, Facilities Management	Procurement
6. Assemble multi-disciplinary design teams on a project-by-project basis that are comprised of: (1) design and engineering professionals trained in sustainable design; (2) natural and cultural resource specialists; (3) a commissioning agent; and (4) a “green champion” who ensures LEED and environmental standards are met						Facilities Management	Cultural Resources, Development Services, Procurement, Regional Flood Control District
7. Design and construct new occupied County buildings and new additions greater than 5,000 square feet to a achieve a minimum of LEED Silver standards, with an emphasis on maximum water and energy efficiency <sup>1</sup> (\$)						Facilities Management	Development Services, Procurement
8. After building occupancy, provide training to employees about the building’s “green” features and technologies						Facilities Management, Development Services	All Departments
9. Employ enhanced and ongoing building commissioning and post-occupancy evaluations on an annual basis for all facilities (as required under LEED for Existing Buildings) (\$)						Facilities Management	Development Services

(\$) = Requires substantial new funding or resources to implement.

<sup>1</sup> Please refer to Renewable Energy Indicator No. 3 and Water Conservation Indicator No. 1.

# Green Building

## Guiding Principles, continued

### FINANCING

- Explore all utility credits, grants and other incentives for financing green building construction and maintenance.
- Explore public/private financing options.

### CONSTRUCTION MATERIALS AND RECYCLING

- Consider long-term costs and benefits of material purchases by employing life-cycle cost analysis.
- Support and encourage the formation of local recycling industries and markets.
- Incorporate appropriate facilities for reuse and recycling of materials in all Pima County buildings.
- Provide employee education and incentives for recycling.

### CONTRACTOR OUTREACH AND EDUCATION

- Convey LEED principles and requirements to the contracting community.
- Provide special training opportunities for women and minority-owned business enterprises and other contractors.

### STAKEHOLDER PARTICIPATION

- Involve stakeholders in the sustainable design and decision-making process through public information sessions, outreach to affected parties and neighborhood groups, other jurisdictions, and community educational forums.

### POST-OCCUPANCY MAINTENANCE & EVALUATION

- Utilize building commissioning and occupant evaluations to guide building maintenance expenditures.
- Maintain all LEED-certified buildings as closely as possible to the original specifications unless advances in technology dictate revisions.
- Program funds to properly maintain the building by using the cost savings achieved through the application of “green” technologies so that the building is a model of both fiscal and environmental sustainability.



*On the path to progress ...*

## Highlights of Current Successes

### *Pima County already:*

- Designs new buildings to achieve the U.S. Green Building Council’s nationally-recognized LEED Silver principles. The first two such buildings—the Jackson Employment Center in South Tucson and the Catalina Community Center in Catalina—are slated to open in 2009.
- Administers its own “Regional Residential Green Building Rating System”—the first of its kind in Southern Arizona—and plans to unveil a similar green building rating system for commercial structures.
- Pursues green building practices in its “I’m Home” program by planning for the replacement of substandard housing units with homes that feature Energy Star-rated equipment and appliances.
- Provides building safety personnel with LEED accreditation training to facilitate implementation of its green building standards.
- Rehabilitates historic buildings for productive, continued uses, such as Robles Ranch and the Augua Caliente Park facilities.

## Success Indicators

### 1. Attendance at green building educational series

**Target:**

- Minimum of 20 in attendance per program

### 2. LEED Accreditation of County employees

**Target:**

- Minimum of 30 LEED-Accredited Professionals by 2010

### 3. Percentage of LEED Silver-Certified Buildings

**Target:**

- 100% of all new occupied County-funded buildings and 100% of all building additions greater than 5,000 square feet

# Renewable Energy and Conservation

## *Resolution No. 2007-84 Sustainability Goals*

- 15% of energy used by all County facilities shall come from renewable resources by 2025; and
- Maximize the use of methane as a renewable energy source in wastewater and landfill operations in order to offset non-renewable energy sources.

## Guiding Principles

### THE COUNTY WILL:

- Support and actively promote the development of renewable energy resources and the reduction of greenhouse gas emissions;
- Strive for innovative ways to procure renewable energy for County facilities, including the use of power purchase agreements;
- Work with public and private partners to identify suitable sites for renewable energy facilities;
- Conduct a cost-benefit analysis of various renewable energy resources to determine the most beneficial and cost-effective energy source for a particular site given its location, features, land use, and infrastructure requirements;
- Explore opportunities for the mining of methane as part of landfill closure procedures;
- Systematically upgrade its facilities with energy-conserving equipment and features to reduce its overall energy consumption;
- Explore opportunities to coordinate and cooperate with other large power users in order to maximize the use of renewable energy and expand the market for renewable energy alternatives in the region;
- Identify grant opportunities and special funding sources to help offset the cost of providing renewable energy to County facilities;
- Track energy consumption for each County facility on a regular and ongoing basis, and use the data to evaluate and make improvements to the energy efficiency of each facility;
- Employ benchmarking principles that establish best management practices based on lessons learned from other entities so that the County can continue to economize its energy use;
- Educate employees about ways they can increase energy efficiency in the workplace; and
- Recognize employees who identify new energy-conserving programs that are both practical and cost-effective.

# Renewable Energy and Conservation

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
1. CREATE AN ENERGY CONSERVATION & INFORMATION PROGRAM FOR EMPLOYEES						All Departments	Facilities Management, Administration
a. Identify "Energy Champions" for each Department							
b. Create and post signage for behavioral reminders ("Turn off lights," etc.)						Departmental "Energy Champions", Facilities Management	Graphic Services
c. Provide dimmable personal climate devices at work stations (\$)						Facilities Management	Procurement
d. Create an administrative policy on energy conservation						Facilities Management, Renewable Energy S-Team, Administration	
e. Develop an energy training program for new and existing staff						Energy Champions, Facilities Management	Human Resources
f. Create an employee recognition program						Energy Champions, Human Resources, Facilities Management, Administration	All Departments
2. CREATE AN ENERGY CONSERVATION PROGRAM FOR COUNTY FACILITIES AND PROGRAMS						Procurement, Facilities Management	Finance
a. Create a policy using life-cycle analysis in the procurement and prioritization of energy projects							
b. Appoint/ hire an energy manager						Facilities Management	Human Resources
c. Create an Energy Conservation Program for county-funded affordable housing, home replacement, and home repair & weatherization projects						Community Development & Neighborhood Reinvestment	Facilities Management, Procurement, Development Services
d. Emphasize energy conservation measures that also conserve water						Facilities Management, Development Services	
e. Incorporate passive energy measures into design and remodel projects (solar shades, proper glazing, passive solar orientation, landscaping, daylighting, etc.)						Facilities Management	Procurement
f. Sequence retrofits and remodeling for maximum energy benefits						Facilities Management	All Departments
g. Prioritize energy efficiency credits in County LEED Silver projects (\$)						Facilities Management	Procurement, Development Services

# Renewable Energy and Conservation *cont.*

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
h. Conduct a Countywide energy audit						Facilities Management	Renewable Energy S-Team
i. Consider using performance-based energy management consultants						Facilities Management	
j. Explore feasibility of HVAC automated telephone dial-in system for employees working evenings and weekends. Also promote use of "remote access" software to eliminate need to heat/cool areas						Information Technology, Facilities Management	All Departments
k. Expand Central Plant monitoring to all facilities (\$)						Facilities Management	Procurement
<b>3. INCREASE USE OF RENEWABLE ENERGY</b>							
a. Emphasize on-site renewable energy credits in County LEED buildings						Energy Manager, Department of Environmental Quality	Regional Wastewater Reclamation Department, Administration
b. Solicit proposals for Renewable Energy Power Purchase Agreements (PPAs)						Facilities Management	Development Services, Procurement
c. Explore developing cooperative RFPs with large energy users to take advantage of economies of scale in the purchase of renewable energy						Facilities Management, Department of Environmental Quality, Regional Wastewater Reclamation Department, Administration	Procurement
d. Establish renewable energy taskforce to review emerging technologies and assess their value toward meeting the 15% goal						Facilities Management, Administration	Procurement
e. Evaluate potential methane gas capture projects at Pima County landfills, especially Tangerine, to generate electricity and reduce greenhouse gas emissions						Facilities Management, Administration	

(\$)= Requires substantial new funding or resources to implement.



# Renewable Energy and Conservation

## Success Indicators

### 1. County expenditures for energy

**Baseline:**

- Energy expenditures for FY 2006/2007 (Approximately \$9.4 million for electricity and \$4.4 million for gas)

**Target:**

- No increase in energy expenditures over baseline year (i.e. through energy savings, neutralize the effect of future rate increases)

### 2. Energy consumed by county buildings and facilities

**Baseline:**

- Establish baseline electrical use in FY 2008/2009

**Target:**

- To be determined based on energy efficiency goals established in Action (2h)

### 3. LEED Silver energy credits in County projects

**Baseline:**

- Projects designed after June 30, 2008

**Target:**

All new buildings obtain a minimum of 65% of available energy credits in LEED-New Construction (NC)

### 4. Renewable energy use in county buildings, parks, and other facilities.

**Baseline:**

- Establish baseline in FY 2008/2009

**Target:**

- Provide 5% renewable energy for county facilities by 2012; 10% renewable by 2017; 15% by 2025

### 5. Methane as an energy source

**Baseline:**

- Methane use in FY 2006/2007 (169.84 million cubic feet)

**Target:**

Increase use by FY 2010/2011



*On the path to progress ...*

### Highlights of Current Successes

*Pima County already:*

- Captures and uses methane gas, a renewable energy source, at the Ina Road and Roger Road Wastewater Treatment Plants, which reduces the County's consumption of natural gas. In addition, County staff are conducting an inventory of County-owned parcels to identify additional sites for renewable energy facilities.
- Continuously strives to upgrade existing facilities with energy-conserving equipment.
- Uses a centralized energy management system to monitor heating and cooling systems in downtown buildings to ensure peak operating efficiency and quick trouble-shooting.

# Green Purchasing

## *Resolution No. 2007-84 Sustainability Goals*

- Apply a green purchasing emphasis to all County facilities.

## Guiding Principles

### THE COUNTY WILL:

- Encourage purchases that provide a positive impact on the environment, economy, and community;
- Seek out the best, overall product values by using cost-benefit and life-cycle cost analyses;
- Support the identification, evaluation, use and measurement of innovative, environmentally-friendly products, services and practices;
- Develop specifications for products and services that beneficially impact the environment through such things as: increased energy and water efficiency; reduced waste generation; reduced consumption of non-renewable natural resources; improved public health; and increased durability and economy;
- Purchase equipment and products that meet or exceed Energy Star efficiency standards;
- Consider purchasing products that optimize the use of recycled materials;
- Consider the energy required to produce, manufacture, and transport the product to market and, if all other product attributes are equal, give preference to those products with the lowest overall energy use (i.e., “low-embodied energy products”);
- Eliminate or minimize the use of toxic or potentially toxic or hazardous materials, including those used in the manufacture or subsequent use of certain products;
- Consider the ultimate disposition of purchased materials and, when feasible, acquire products that can be recycled or re-used;
- Encourage employees to use surplus equipment or adaptively re-use existing equipment when the equipment can safely and efficiently satisfy the objectives of the department;
- Encourage suppliers to use appropriate green supplies and environmentally-preferable products;
- Encourage employee awareness regarding opportunities to make “green-friendly” purchasing decisions; and
- Apply the County’s living wage policies and procedures to eligible contracts to advance economic growth and opportunities for individuals, families, and the community.

# Green Purchasing

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
1. Update BOS Procurement Policy D29.2 by requiring: (a) new contract specifications to achieve the sustainability objectives of Resolution 2007-84; and (b) provide a 5% Sustainable Community Preference for proposals that optimize the objectives			<b>Completed</b>			Procurement	Administration
2. Designate a Green Purchasing Representative for each Department						All Departments	Administration
3. Prepare a website page devoted to informing employees about the availability of green products and supplies						Green Purchasing Representatives from all Departments; Administration; Graphic Services	Information Technology
4. Train department personnel who procure services and products on how to develop green specifications						All Departments (Procurement to train department representatives; then department representatives to train additional department staff.)	Procurement
5. Prepare an administrative procedure for paper purchases with the goal of buying 100% post-consumer recycled paper products. Create Success Indicator No. 6 based on compliance with the policy. Subtasks: • Consider graduated increases in recycled paper content, as may be necessary • Research desirability of using FSC and/or FSI-certified products						Graphic Services, Information Technology	Administration, Procurement
6. Prepare an administrative guideline that identifies innovative information technologies and equipment that can be purchased to achieve environmental benefits (e.g., reducing paper, storage, and travel miles). Expand e-commerce opportunities for staff and public. Subtasks: • Meet with departments to assess needs • Research and implement technologies • Create a web page devoted to innovative information technologies in use and available at the County • Update guideline annually						Information Technology	Procurement
7. Prepare and distribute quarterly reports comparing how much each Department spends on "green" versus "non-green" office supply products						Procurement	Green Purchasing Representatives
8. Review and update contract specifications in accordance with the revised BOS Procurement Policy D29.2, the Sustainable Action Plan for County Operations, the Guiding Principles, and applicable administrative guidelines						All Departments (New contracts to include green specifications by January 2009; existing contracts to be updated by January 2010)	Procurement
9. Establish target for Indicator 2 regarding percentages of green products purchased						Green Purchasing S-Team	Procurement
10. Purchase or lease appliances and equipment that meet or exceed Energy Star ratings						Facilities Management	All departments to process work orders through Facilities Management, Procurement
11. Require employees to provide comments when they do not select a "green" product alternative when ordering on-line under the current supply contract. Use the feedback to identify "green" products that will satisfy future purchasing needs and to dispel myths, when applicable.						All Departments, Procurement	Green Purchasing Representatives

(\$) = Requires substantial new funding or resources to implement.



On the path to progress ...

# Green Purchasing

## Success Indicators

<p><b>1. New and existing contracts include “green” specifications pursuant to Action No. 8</b></p>	<p><b>Targets:</b></p> <ul style="list-style-type: none"> <li>• 100% of <b>new</b> contracts to include specifications by January 2009; all contracts in subsequent years to include green specifications, whenever applicable</li> <li>• 100% of <b>existing</b> contracts updated with green specifications by January 2010</li> </ul>
<p><b>2. Percentage of green products purchased on Corporate Express</b></p>	<p><b>Baseline:</b></p> <ul style="list-style-type: none"> <li>• Products purchased in 2008</li> </ul> <p><b>Target:</b></p> <ul style="list-style-type: none"> <li>• To be determined by Action No. 9</li> </ul>
<p><b>3. Purchase of Energy Star-rated appliances and equipment</b></p>	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>• 100% of appliances and equipment purchased to meet or exceed Energy Star standards by June 2010</li> </ul>
<p><b>4. Use of non-toxic products for janitorial services</b></p>	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>• 100% of janitorial service contracts to be updated with non-toxic and environmentally-friendly product specifications by June 2009</li> </ul>
<p><b>5. Availability of “green purchasing” training opportunities for employees</b></p>	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>• Department Trainers to offer at least one training session a year for employees with purchasing responsibilities</li> </ul>
<p><b>6. Purchase of recycled and/or Forest Stewardship Council paper</b></p>	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>• To be determined by Action No. 5</li> </ul>

## Highlights of Current Successes

### *Pima County already:*

- Encourages employees to purchase environmentally-friendly office supplies using a custom website, which provides information about whether a product is made of compostable or recycled materials, meets “Green Seal” or “Energy Star” standards, or is considered an “Environmentally Preferable Product” by the federal government.
- Requires janitorial companies that service County sites to use environmentally-preferable cleaning products.
- Promotes the re-use of office furniture, and the health and comfort of employees, by buying re-usable components that create ergonomically-correct work spaces.
- Installs environmentally-friendly floor treatments by replacing traditional carpet rolls with carpet tiles that have a longer life and provide better indoor air quality. The County also uses linoleum and rubber flooring made of natural and renewable materials.
- Buys digital technologies to reduce paper consumption, printing costs, landfill waste and office storage space. For example, the Sheriff’s Department recently issued digital cameras to deputies and forensic technicians as a replacement for the old 35-millimeter cameras, eliminating the need for film and the use and disposal of processing chemicals.

# Land Conservation and Management

## *Resolution No. 2007-84 Sustainability Goals*

- Support sustainable development and the continual emphasis on sustaining a livable community.

### Guiding Document

- Sonoran Desert Conservation Plan

## Guiding Principles

### THE COUNTY WILL:

#### LAND AND FACILITY ACQUISITION

- Acquire land and facilities that are best suited for the intended use and will most effectively achieve the goals of the Sonoran Desert Conservation Plan; and
- Acquire or set aside County lands for conservation to offset unavoidable County operational impacts to the Conservation Lands System, designated riparian habitat, and cultural resources.

#### FACILITY AND INFRASTRUCTURE SITING

- Evaluate and track the siting of new facilities and infrastructure to avoid or minimize impacts to the Conservation Lands System, designated riparian habitat, floodplains and cultural resources.

#### MANAGEMENT OF LAND, FACILITIES, AND INFRASTRUCTURE

- Monitor and manage its land, facilities, and infrastructure to achieve the goals of the Sonoran Desert Conservation Plan;
- Manage lands purchased for the conservation of biological and cultural resources to ensure the integrity, diversity and long-term viability of the resources;
- Monitor and control invasive species to minimize impacts on natural ecological systems, protect public safety, and maintain economic viability;
- Assess the impacts on natural and cultural resources prior to the decision to modify or dispose of any County land, facilities, or infrastructure;
- Implement informational and educational programs to improve cultural resources and environmental literacy in the County; and
- Encourage smart growth decisions to promote the most efficient use of infrastructure.

# Land Conservation and Management

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
1. Develop education curricula and training program for Department heads, project managers and their staff on the Conservation Lands System, cultural resources, designated riparian habitats, and floodplains. Develop target for Success Indicator 4 upon completion of education program. Provide training to designated employees.						Natural Resources, Parks and Recreation; Cultural Resources; Regional Flood Control District	Public Works, Community Services, Facilities Management
2. Develop scoping and environmental review process for capital improvement projects so that potential impacts to the Conservation Lands System, cultural resources, designated riparian habitats, and floodplains are assessed at the feasibility stage (includes purchasing land for capital projects, siting, and converting facilities) Subtasks: • Evaluate need for centralized environmental review office or coordinator • Monitor review process/protocol to identify strengths, weaknesses, opportunities and threats						Natural Resources, Parks and Recreation; Cultural Resources; Regional Flood Control District	Public Works, Community Services, Facilities Management
3. Review procedures for disposal of surplus properties and sale/donation of properties to Pima County						Real Property	Natural Resources, Parks and Recreation, Regional Flood Control District, Development Services, Community Services, Facilities Management
4. Track and evaluate impacts to natural and cultural resources and conserved areas using Geographic Information Systems (GIS) and on-the-ground monitoring activities. Evaluate how conserved areas are contributing to the goals of the Sonoran Desert Conservation Plan. Subtasks: • Develop database and standards for tracking impacts • Develop monitoring plans and protocols						Community Services, Facilities Management, Administration, Cultural Resources; Natural Resources, Parks and Recreation; and Regional Flood Control District	Geographic Information Systems, Real Property
5. Establish a Pima County inter-agency invasive species work group to coordinate and prioritize problem species identification, develop risk assessments, species distributions, map and prioritize high-priority buffelgrass infestation areas, map control efforts, and implement a public information campaign on potential impacts of buffelgrass invasion and how the community can help.						Natural Resources, Parks and Recreation	Public Works Departments
6. Develop new ordinances that address the need to manage buffelgrass and give the county authority to take appropriate management actions in the unincorporated parts of the county.						Natural Resources, Parks and Recreation	Public Works Departments
7. Develop alternative funding strategies to assist with monitoring and management of land, facilities and infrastructure containing important natural and cultural resources Subtasks: • Inventory possible funding sources available to County governments • Review and update funding strategy every 3 years						Natural Resources, Parks and Recreation; Cultural Resources; Regional Flood Control District	
8. Develop and implement best management practices for management of land, infrastructure and facilities						Natural Resources, Parks and Recreation; Cultural Resources, Regional Flood Control District	Public Works, Cultural Resources, Facilities Management
9. Continue land conservation efforts to offset County project impacts						Administration, Cultural Resources	Geographic Information Systems, Real Property, Natural Resources, Parks and Recreation; Regional Flood Control District; Cultural Resources; Development Services Department

(\$) = Requires substantial new funding or resources to implement.

# Land Conservation and Management



*On the path to progress ...*

## Success Indicators\*

<b>1. Acreage of Conservation Lands System conserved</b>	<b>Target:</b> <ul style="list-style-type: none"> <li>• Acres conserved &gt; Acres impacted</li> </ul>
<b>2. Number of Cultural Resources sites conserved</b>	<b>Target:</b> <ul style="list-style-type: none"> <li>• Sites conserved &gt; Sites impacted</li> </ul>
<b>3. Acreage of Designated Riparian Habitat conserved</b>	<b>Target:</b> <ul style="list-style-type: none"> <li>• Acres conserved &gt; Acres impacted</li> </ul>
<b>4. Education of County Employees</b>	<b>Target:</b> <ul style="list-style-type: none"> <li>• To be established by Action No. 1</li> </ul>

\* Applies to County owned and managed lands.

## Highlights of Current Successes

### *Pima County already:*

- Owns and manages over 150,000 acres for conservation, including ranches, mountain parks and preserves.
- Acquires lands to further the goals of the national-renowned Sonoran Desert Conservation Plan using voter-approved bond funds. These acquisitions conserve wildlife habitat, protect cultural and historic resources, expand recreational opportunities, and protect a ranching heritage that is unique to the West.
- Applies to the Regional Transportation Authority's (RTA) Wildlife Linkage program for funding to reduce the impacts of roadways on wildlife movement.
- Partners with public agencies and non-profit organizations to reintroduce native wildlife to their natural habitats, including the reintroduction of spade-foot toads to the Swan Riparian Area, native fish to the Bingham Cienega Preserve, and burrowing owls to the Raul M. Grijalva Canoa Ranch.
- Applies special design guidelines to the construction of roads in environmentally-sensitive areas in order to avoid or mitigate impacts to the region's natural and cultural resources.
- Applies the Conservation Lands System (CLS) policies of the Pima County Comprehensive Plan to direct infrastructure investments to areas that are most suited for new growth, and to guide conservation efforts within the CLS.
- Applies riparian habitat guidelines to new development projects.

# Waste Reduction

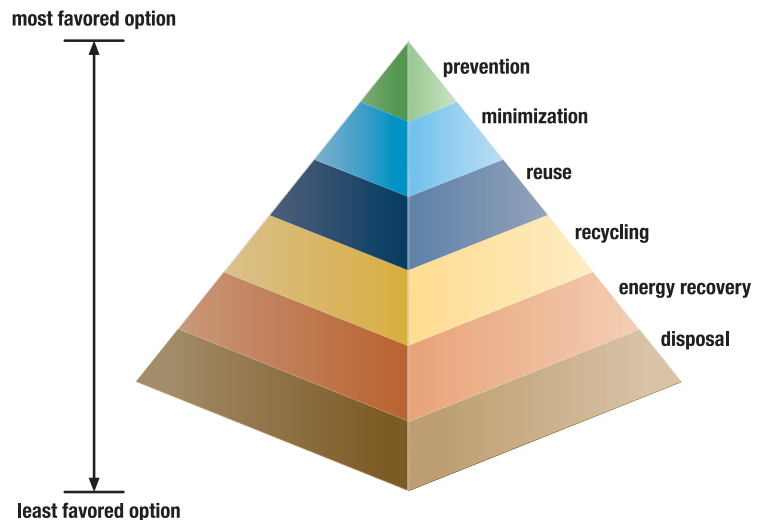
## Resolution No. 2007-84 Sustainability Goals

- Apply a waste reduction emphasis to all County facilities.

## Guiding Principles

### THE COUNTY WILL:

- Employ the Integrated Waste Management (IWM) hierarchy as its waste reduction ethic. IWM is a hierarchy of progressive steps emphasizing waste prevention as the first step, and disposal in a landfill as the final, and least desirable, alternative;



- Regard and treat waste as a valuable commodity, rather than garbage, and seek innovative, groundbreaking waste reduction programs that become a model for other communities;
- Employ IWM in its advanced planning for all County operations, and make waste reduction an imperative throughout the life cycle of the operation;
- Include dedicated and secure space for recycling bins in all new County facilities, as well as encourage other forms of waste reduction, such as the use of reused or recycled materials in building construction. When opportunities for waste reduction and recycling exist that are not in the LEED design standards for a project, they shall be reviewed and implemented whenever feasible;
- Design and operate landfill programs to facilitate waste reduction by maximizing on-site recycling and reuse/exchange opportunities;
- Make waste reduction an integral part of every County employee's job. Resources and mechanisms will be created or strengthened to better communicate to employees waste reduction opportunities;

**Guiding Principles continued on p. 27**



# Waste Reduction

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
1. Design and solicit proposals for waste-hauling services and an expanded Pima County recycling program, implemented in planned phases, that ultimately services all Pima County worksites						Facilities Management	Procurement, Administration
2. Designate "Eco-Champions" for each Department and provide them with training in integrated waste management						All Departments	Administration, Waste Reduction S-Team
3. Create sites for central recycling stations on each building floor						Eco-Champions, Facilities Management	Procurement
4. Create and hire a full-time recycling manager position to coordinate and publicize the recycling program, including the surplus furniture and equipment program (\$)						Facilities Management	
5. Prepare and distribute administrative policy for all staff introducing new recycling program						Waste Reduction S-Team, Administration	
6. Develop an "integrated waste management plan" template for use by event organizers, vendors and lessees. (See also Action No. 17)						Eco-Champions, Facilities Management, Environmental Quality	Economic Development and Tourism
7. Waste/recycling vendors to provide monthly waste audits and reports for each County Department, including information about the final disposition of waste materials						Facilities Management, Vendors	Procurement
8. Conduct a feasibility/pilot study for closed-loop recycling of food waste at the Pima County Jail and La Posada (food waste-to-compost-to-organic produce for meals)  Explore partnerships with Desert Survivors, Native SEEDS/Search, Tucson Organic Gardeners (\$ - pursue grants)						Natural Resources, Parks and Recreation	Sheriff's Department, Pima Health Systems, Facilities Management
9. Add "Integrated Waste Management" training to new employee orientations						Waste Reduction S-Team, All Departments	Graphic Services, Human Resources
10. Develop and maintain a waste management website to provide information to employees about waste reduction programs						Eco-Champions, Waste Reduction S-Team, Information Technology, Administration	Graphic Services
11. Prepare waste reduction plans for each department and provide an annual performance report						All Departments	
12. Establish landfill diversion targets for County operations based on prior year's performance. (See Success Indicator No. 2)						Administration, Environmental Quality	Waste Reduction S-Team
13. Create a program that recognizes vendors and contractors for implementing innovative ways of disposing of waste material created by a contract's use, or for having integrated waste management programs established for their operations						All Departments, Facilities Management	Waste Reduction S-Team

# Waste Reduction *cont.*

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
14. Design and solicit proposals for the recycling of specialty items like tires, metal and green waste, and require vendors to provide information about final disposition of waste materials						Department of Environmental Quality, Facilities Management	Eco-Champions, Procurement
15. Develop design standards for outdoor recycling container enclosures that serve County facilities						Facilities Management, Development Services Department	
16. Place easily-accessible, highly visible recycling bins at County facilities that are used daily by the public, including libraries and park and recreation sites (\$)						Facilities Management	All Departments
17. Require all vendors, lessees and special event organizers on County properties to prepare and implement an integrated waste management plan to show how materials are to be re-used, recycled, and/or composted. Licenses, lease agreements, and special use permits shall be updated to include such terms.						Facilities Management, Real Property, and all Departments that oversee events/leases/licenses on County properties, including Economic Development & Tourism.	
18. Educate employees who regularly deal with the public on Integrated Waste Management to better assist the public with proper disposal of materials						Environmental Quality	Eco-Champions, All Departments
19. Develop employee recognition program and provide incentives to sustain waste reduction						Waste Reduction S-Team, Eco-Champions	Administration
20. Explore feasibility of creating "community exchange center" at entrance of County-owned landfill stations. All vehicles entering the landfill would pass by this staffed recycling center before dumping loads directly into the landfill.						Environmental Quality	Facilities Management
21. Explore opportunities for public and private partnerships to design-build-operate-maintain a material recovery facility						Environmental Quality, Facilities Management	Procurement

(\$) = Requires substantial new funding or resources to implement.



*On the path to progress ...*

# Waste Reduction

## Guiding Principles, continued

- Encourage employees to suggest new ways of reducing waste in their work area; and
- Extend the IWM ethic to its relationships with vendors and contractors.

## Success Indicators

### 1. Amount of waste diverted from landfills

**Baseline:**

- Tons of landfill waste generated by County operations in FY 2007-2008

**Target:**

- 10% reduction by end of FY 2009; targets for future years to be established by Action No. 12

### 2. Green events at County facilities

**Target:**

- 100% of special events to implement an Integrated Waste Management Plan

## Highlights of Current Successes

### *Pima County already:*

- Actively recycles paper, newspaper, and cardboard in 10 downtown facilities, saving an estimated 12,000 trees, 2.8 million gallons of water, 335,000 kilowatt hours of energy, and nearly \$28,000 in disposal costs from October 2007 through May 2008.
- Manages a surplus property program that recycled more than 6,000 pieces of furniture and equipment over a three-year period in cooperation with various County Departments and 13 non-profit organizations.
- Offers surplus vehicles and machines to the public via an internet auction. Since going on-line in October 2005, 318 vehicles and machines have been sold.
- Finds new homes for more than 350,000 used library books a year through the Friends of the Pima County Public Library, a non-profit organization that raises funds for special programs that are not covered in the library's annual budget.
- Reduces construction waste by: paving roads with concrete made from recycled tires, landscaping with salvaged native plants, and applying Environmentally Sensitive Roadway Design Guidelines to reduce the size of roadway "footprints."
- Recycles specialty materials such as scrap metal, ammunition, and oil.
- Transforms green waste into landfill cover that is used daily by the Tangerine Landfill.

# Water Conservation and Management

## *Resolution No. 2007-84 Sustainability Goals*

- **Cut water use in all County facilities by 15% by 2025;<sup>1</sup>**
- **Double the number of County parks served by reclaimed water by 2018, subject to voter approval of bond funds to extend reclaimed water lines; and**
- **Maximize County water resource assets including groundwater rights, surface rights and production and use of effluent to sustain and protect the natural environment.**

<sup>1</sup>The Water Conservation S-Team recommends that this goal be interpreted in the following manner: that the County shall cut water use in existing county facilities by 15% by 2025, and new County facilities shall adhere to the Guiding Principles set forth in this document, which include the requirement that new facilities emphasize water conservation and use state-of-the-art fixtures to maximize LEED Silver water conservation credits.

## Guiding Principles

### COUNTY BUILDINGS

- Emphasize water conservation in the design of all new County facilities and use state-of-the-art fixtures to maximize LEED Silver water conservation credits;
- Maximize the use of greywater for restroom facilities, landscape irrigation, and other uses as may be appropriate, by installing greywater piping and on-site greywater treatment systems in new facilities, when practicable;
- Employ a cost-benefit analysis to determine the type of water fixtures and systems to install in existing County buildings; whenever practicable, replace outdated or damaged water fixtures with state-of-the-art, water-conserving fixtures; and
- Construct wastewater facilities to anticipate and accommodate emerging water conservation trends and technologies, whenever practicable.

### COUNTY LANDSCAPING & PARKS

- Reduce to the maximum extent practicable, the amount of potable, non-potable and reclaimed water used for landscape irrigation at County facilities and along public roadways;
- Require that ornamental landscaping use appropriate, native and drought-tolerant plants where feasible and meet or exceed the requirements of the County's Native Plant Preservation Ordinance;
- Explore additional opportunities to extend reclaimed water lines to new parks by identifying creative funding mechanisms that would augment the use of any voter-approved public bond monies;
- Plant species that are indigenous to the local area when landscaping next to natural open space or riparian corridors, where feasible;
- Require that turf only be used for functional landscapes, such as play areas and ball fields, when it is determined to be the most suitable material after considering the type and amount of use it will receive, its maintenance needs, life-cycle costs, and water and energy consumption. Turf shall not be used for purely aesthetic purposes;
- Use water-conserving practices and technologies including

# Water Conservation and Management

## Guiding Principles, continued

rainwater harvesting, “smart” irrigation timers and controls, drip irrigation, flow meters, master valves, water audits, and hydrozoning.

### EMPLOYEE AND CONTRACTOR EDUCATION

- Encourage a “maintenance and management” culture through training opportunities and recognition programs for employees and contractors; and
- Incorporate a public education component in major County landscape projects where feasible, such as native plant demonstration gardens and rainwater harvesting techniques.

### TRACKING AND MONITORING

- Ensure that water consumption and water utility expenditures be separately tracked for each County facility on a regular and ongoing basis, and the data shall be used to evaluate, make improvements, and track the water efficiency of each facility;
- When preparing cost-benefit analyses, and tracking and monitoring water conservation programs, recognize both the apparent benefits and “hidden savings” that occur, including lower utility costs, reduced maintenance needs, reduced water run-off and, in some cases, reduced road damage; and
- Require the contractor to perform water audits on landscape and irrigation installations to show that they have been installed per specifications and are working as specified. If the audit identifies deficiencies, the contractor shall be required to correct them.

### PROTECTION & PERPETUATION OF NATURAL RESOURCES

- Use pervious surface materials on roads and parking lots, when practical, to increase ground-water recharge opportunities;
- Maintain the ability of the Santa Cruz River to support riparian and aquatic life by improving water quality, especially through nutrient reduction, and working with partners to maintain base flows;
- Integrate wastewater reclamation and water rights, where practicable, with multi-purpose goals such as recharge, riparian restoration, habitat protection, wildlife viewing, use of interpretive trails and environmental education and research;
- Emphasize the maintenance and protection of riparian areas in a natural state and avoid the use of artificial channels, levees, and stream diversions; and
- Encourage flood control projects to serve multiple purposes, including maintaining and creating wildlife habitat and habitat connectivity.



On the path to progress ...

# Water Conservation and Management

## Success Indicators

<p><b>1. New buildings maximize LEED Silver water efficiency credits.</b></p>	<p><b>Baseline:</b></p> <ul style="list-style-type: none"> <li>Projects designed after September 1, 2008</li> </ul> <p><b>Target:</b></p> <ul style="list-style-type: none"> <li>All new buildings obtain at least 60% of the water efficiency credits available</li> </ul>
<p><b>2. Percentage of new County landscaping projects relying exclusively on rainwater harvesting, reclaimed water, greywater, and/or other non-potable sources (includes landscaping for parks, buildings, roadways and medians, but excludes turf).</b></p>	<p><b>Baseline:</b></p> <ul style="list-style-type: none"> <li>Projects designed after September 1, 2008</li> </ul> <p><b>Target:</b></p> <ul style="list-style-type: none"> <li>100% after initial establishment</li> </ul>
<p><b>3. Water consumed by existing County buildings, ornamental landscaping, and roadway landscaping.</b></p>	<p><b>Baseline:</b></p> <ul style="list-style-type: none"> <li>Establish baseline in FY 2008/2009</li> </ul> <p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Reduce baseline water use by at least 5% by 2012; 10% by 2017; and 15% by 2025</li> </ul>
<p><b>4. Water consumed by existing County park and recreation facilities.</b></p>	<p><b>Baseline:</b></p> <ul style="list-style-type: none"> <li>900 AF of water used in 2006 (includes potable, reclaimed, and non-potable sources)</li> </ul> <p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Reduce baseline water use by at least 5% by 2012; 10% by 2017; and 15% by 2025</li> </ul>
<p><b>5. County parks served by reclaimed water.</b></p>	<p><b>Baseline:</b></p> <ul style="list-style-type: none"> <li>10 parks served by reclaimed water in FY 2006-2007 (285 AF of reclaimed water)</li> </ul> <p><b>Target:</b></p> <ul style="list-style-type: none"> <li>20 parks served by 2018 (subject to bond approval)</li> </ul>
<p><b>6. Acre-feet of effluent used for restoration and number of surface water rights and groundwater rights (including retired rights) used to protect or sustain the natural environment.</b></p>	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>To be determined by Action No. 26</li> </ul>

## Highlights of Current Successes

### *Pima County already:*

- Reduces water consumption in County facilities by employing best practices for maintenance and engineering, updating old technologies, and incorporating water-conserving fixtures in new construction and remodeling specifications.
- Uses reclaimed water to irrigate nine County parks and approximately 20 miles of trail along the Rillito River Park.
- Makes use of both stormwater harvesting and County-owned effluent to recharge groundwater, increase riparian habitat, and provide for public recreation.
- Partners with the University of Arizona to evaluate the water-saving benefits of the latest version of irrigation “Smart Controllers” installed at 16 parks.
- Has eliminated acres of non-functional turf at County parks, replacing it with drought-tolerant plants on drip irrigation, pathways and/or decomposed granite.
- Provides training to staff to learn about new technologies for water conservation such as water auditing and water-efficient turf irrigation systems.
- Uses reclaimed water to irrigate landscaped medians along portions of three roadways—Wetmore Road, Ajo Way and River Road.

# Water Conservation and Management

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
<b>Facilities</b>							
1. Include language in County bond measures requiring new facilities to maximize LEED Silver water conservation credits						Administration	
2. Assemble a Utility Coordination Team to develop new methods for receiving, evaluating and tracking utility bills for existing facilities Substep: • Develop or acquire “utility consumption tracking software” that provides water use and cost information, and reports anomalous use patterns to allow for immediate trouble-shooting of potential problems (\$)						Facilities Management, Finance, Information Technology	
3. Develop uniform water fixture standards that will maximize LEED Silver water conservation credits, and install such fixtures in new buildings, renovations and tenant improvements.						Facilities Management, Development Services	Procurement
4. Include installation of a separate meter, or submeter as may be applicable, to new construction standards so that water and energy use can be accurately tracked for each new facility (\$)						Facilities Management	
5. Develop new wastewater conveyance standards that account for lower flows due to greywater re-use & other emerging conservation trends						Regional Wastewater Reclamation Department	Development Services
6. Conduct a feasibility study on the use of treated greywater inside County buildings, including the use of potable/greywater treatment systems for new facilities. Require dual plumbing for greywater and potable water inside County buildings, if supported by the feasibility study. (\$)						Facilities Management, Development Services	
7. Prioritize and conduct building water audits. Prioritize water conservation projects based on factors such as (a) projected water savings; and (b) cost of the improvement, based on a life-cycle cost-benefit analysis. The repair of water leaks will remain a top priority.						Facilities Management	
8. Add provisions to new property leases and lease extensions that require tenants to comply with County standards for water-conserving fixtures						Real Property, County Attorney's Office	

# Water Conservation and Management *cont.*

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
<b>Parks and Landscaping</b>							
9. Develop regional design criteria and efficiency standards for potable, reclaimed water, and greywater irrigation systems. The standards should: <ul style="list-style-type: none"> <li>• address flow meters, master valves, rain sensors and smart controllers;</li> <li>• establish criteria for determining when greywater irrigation is appropriate; and</li> <li>• require contractors to hire a third-party certified auditor to ensure newly-installed irrigation systems function properly and meet specifications.</li> </ul>						Natural Resources, Parks and Recreation, Regional Wastewater Reclamation Department	
10. Develop design specifications and grading standards for the use of passive and active rainwater harvesting						Natural Resources, Parks and Recreation; Regional Flood Control District, Facilities Management, Development Services, Department of Transportation	
11. Develop new design standards for County roads, median and parking lots that use: <ul style="list-style-type: none"> <li>• pervious surface materials;</li> <li>• rainwater harvesting;</li> <li>• native plants; and</li> <li>• ensure the selection of the proper-sized plants for the area given the projected size at maturity.</li> </ul>						Department of Transportation, Development Services	Natural Resources, Parks and Recreation
12. Investigate the functionality of artificial turf and native sod grasses and where it might be applied at County parks, buildings and flood control facilities						Natural Resources, Parks and Recreation, Development Services	
13. Install rain sensors on existing irrigation systems						Natural Resources, Parks and Recreation; Facilities Management	
14. Install rain gutters and cisterns on buildings to facilitate rainwater harvesting, when applicable						Facilities Management	Natural Resources, Parks and Recreation, Development Services
15. Continue building research partnerships with public and private entities, such as the University of Arizona Agriculture Center and Rainbird						Natural Resources, Parks and Recreation, Facilities Management, Regional Flood Control District, Department of Environmental Quality, Regional Wastewater Reclamation Department	
16. Adopt an updated list of native plant species for use in public and private development projects						Development Services	Natural Resources, Parks and Recreation; Regional Flood Control District



# Water Conservation and Management cont.

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
<b>Parks and Landscaping, continued</b>							
17. Create a self-guided public demonstration project – such as a native plant garden, composting facility, or rainwater harvesting system – for major new County landscaping projects that are readily-accessible and viewable by the public						Natural Resources, Parks and Recreation	
18. Designate a reclaimed water line in close proximity to the landfills as a water source for landfill operations (or, alternatively, implement action No. 20)						Department of Environmental Quality	Regional Wastewater Reclamation Department
19. Create a County Landscape Team to conduct a landscape audit of County facilities to determine opportunities for turf replacement, water harvesting, smart irrigation technology, flow meters, master valves, and other water-conserving measures. Prioritize projects based on factors such as (a) projected water savings; and (b) cost of improvement, based on a cost-benefit analysis. Conduct pilot project January – June 2009; begin regular landscape audits July 2009						Natural Resources, Parks and Recreation, Development Services, Facilities Management	
20. Explore the feasibility of extending reclaimed water lines to landfill facilities (excluding Ina Road landfill, which is already served) (\$)						Regional Wastewater Reclamation Department, Department of Environmental Quality	
21. Require the installation of reclaimed and/or greywater lines for landscape irrigation as part of new facility construction (\$)						Natural Resources, Parks and Recreation, Facilities Management	
<b>Natural Resource Protection</b>							
22. Modify the Regional Flood Control District design standards to better achieve water harvesting and riparian buffer goals that: (a) emphasize retaining watercourses in a natural state; and (b) achieve multiple objectives with consideration for groundwater recharge, aesthetics, natural open space, recreation areas, flora, fauna, and other wildlife habitat resources						Regional Flood Control District	Natural Resources, Parks and Recreation; Regional Wastewater Reclamation Department
23. Conduct suitability studies and prepare concept designs for additional multi-purpose detention basin areas such as the Kino Environmental Restoration Project (KERP). When possible, locate such facilities near areas with high water demand, such as parks, schools and golf courses.						Regional Flood Control District, Regional Wastewater Reclamation Department	Natural Resources, Parks and Recreation
24. Develop water policies and IGAs that preserve the base flow of the Santa Cruz River, enhance riparian habitat, and improve water quality, especially through nutrient reduction						Natural Resources, Parks and Recreation; Regional Flood Control District, Regional Wastewater Reclamation Department	County Attorney's Office, Administration
25. Monitor and report conditions at key groundwater-dependent ecosystems (including Arivaca, Cienega Creek, San Pedro River, and Sabino Creek)						Natural Resources, Parks and Recreation, Regional Flood Control District	

# Water Conservation and Management cont.

## 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
<b>Natural Resource Protection, continued</b>							
26. Develop success indicator targets for water rights allocations and effluent use for the protection of the natural environment						Real Property, Natural Resources, Parks and Recreation, Regional Flood Control District	Administration
27. Develop a water rights data base that includes an inventory of the County's water resource assets (including groundwater, surface water and effluent rights) (\$)						Real Property, Natural Resources, Parks and Recreation, Regional Flood Control District	
28. Continue to acquire water rights associated with open space and other properties and reallocate to the environment at Cienega Creek, Arivaca Creek, Davidson Canyon, San Pedro River and other ecologically important streams. In addition, ensure all County water rights are protected and secured in the Gila River adjudication. (Subject to lands acquired with bond funds)						Administration, Real Property	Natural Resources, Parks and Recreation, Regional Flood Control District
29. Explore the feasibility of extending the reclaimed water system to Rincon Creek and Cienega Creek. In addition, allocate water to Paseo de las Iglesias Ecosystem Restoration Project (subject to bond funding). (\$)						Regional Flood Control District	Administration
<b>Education</b>							
30. Develop a County web page that provides: <ul style="list-style-type: none"> <li>• An "E-Manual" with the Water Conservation and Management Guiding Principles and action items so they can be easily reviewed, distributed and updated; and</li> <li>• A list of water conservation and management training opportunities for employees.</li> </ul>						Facilities Management, Information Technology, Graphic Services	Administration
31. Provide employees and, when applicable, contractors with a variety of training opportunities, including: <ul style="list-style-type: none"> <li>• water auditor training;</li> <li>• best management practices for landscape irrigation, as recommended by the Water Management Committee of The Irrigation Association;</li> <li>• the proper maintenance of water-conserving fixtures in buildings; and</li> <li>• "Smartscape Training" through Pima County Cooperative Extension.</li> </ul> In addition, offer hands-on experience conducting water audits at various County facilities.						Natural Resources, Parks and Recreation, Facilities Management	Development Services
32. Develop a recognition program for employees and contractors who identify practical and effective methods for improving water conservation and management practices in County facilities						Administration, Natural Resources, Parks and Recreation, Facilities Management, Regional Flood Control District, Development Services	

(\$)= Requires substantial new funding or resources to implement.

# Reducing the Carbon Footprint of County Government

## Sustainability Goal

- Join communities throughout the world in confronting global climate change by identifying and implementing programs that will reduce the County's carbon footprint.

## Guiding Principles

### THE COUNTY WILL:

- Inventory and monitor greenhouse gas emissions (GHG) as an overarching measure of the County's progress toward sustainability;
- Seek out the best information and research on new and emerging technologies, financing options, and partnership opportunities that will foster measurable reductions in the County's GHG emissions and associated carbon footprint; and
- Stay abreast of new developments in the science of global climate change and ways to adapt to, and mitigate, the effects of climate change on the health and quality-of-life of Pima County residents, natural ecosystems, and our economy.

### 5-Year Action Plan

Activity	FY 2009 Quarters	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	Responsible Department(s)	Supporting Department(s)
1. Complete a GHG emissions inventory for County operations and establish success indicators and measurable targets for reducing GHG emissions	█					Department of Environmental Quality to coordinate with Pima Association of Governments	Facilities Management, Development Services, Regional Wastewater Reclamation Department, and Administration
2. Update the GHG emissions inventory on an annual or bi-annual basis and amend or modify the Sustainable Action Plan, as needed, to achieve the success indicators and targets			█	█	█	Department of Environmental Quality to coordinate with Pima Association of Governments	Facilities Management, Development Services, Regional Wastewater Reclamation Department, and Administration
3. Offer support and assistance to the City of Tucson Climate Change Committee, and evaluate the Committee's future recommendations for possible adaptation and action by Pima County	█	█	█	█	█	Department of Environmental Quality, Development Services, Facilities Management, Administration	Other Departments as needed



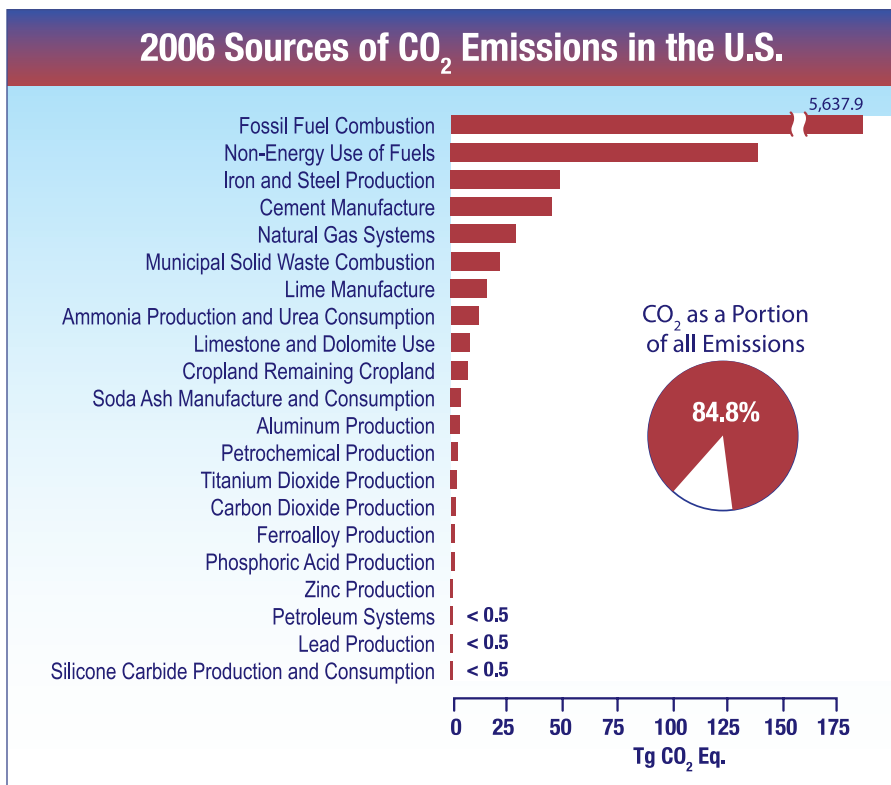
On the path to progress ...

# Reducing the Carbon Footprint of County Government

## Facts about CO<sub>2</sub>

Every individual, organization, and community has a “carbon footprint,” which is the sum of all of the carbon dioxide emitted as a result of the daily activities of that individual or entity. Most carbon dioxide is generated as a result of the burning of fossil fuels for such things as power plants, transportation, the heating and cooling of buildings, and for industrial activities.

Although carbon dioxide is just one of the greenhouse gases associated with global warming, it is by far the most prevalent. The others are methane, nitrous oxide and fluorinated gases (all are “heat-trapping” gases). The chart below shows the most common sources of carbon dioxide emissions in the U.S.



Source: Environmental Protection Agency

## Highlights of Current Successes

### Pima County already:

- Spearheaded the first greenhouse gas emissions (GHG) inventory for Pima County in partnership with the Pima Association of Governments (PAG) and the City of Tucson. The following variables are currently being examined to determine the approximate amount of GHG emissions generated by County government operations:
  - electricity and natural gas used by County facilities;
  - vehicle miles traveled by employees commuting to work;
  - vehicle miles traveled by the County’s vehicle fleet (by vehicle and fuel type);
  - electricity consumed by street lights;
  - electricity and natural gas used by County wastewater treatment facilities; and
  - landfill waste generated by County government operations.
- Created a drought response plan and water wasting ordinance that requires water conservation during times of declared drought and also prohibits the wasting of water (County Code Chapter 8.70).
- Establishes measurable targets to increase energy efficiency, reduce water use, develop renewable energy sources, use hybrid and other alternative fuel vehicles, expand employee use of trip reduction programs, build and maintain “greener” buildings, and reduce landfill waste, all of which collectively contribute to lowering GHG emissions and reducing the County’s carbon footprint.

## Success Indicators

### 1. Reduction in the carbon footprint of County government

#### Target:

- To be determined by Action No. 1, and continually monitored and refined, as necessary

# Pima County's Sustainability Initiatives

## Resolution No. 2007-84

**P**ima County is committed to creating and maintaining a sustainable community that promotes individual well-being and opportunity, sound resource conservation and stewardship, and a strong and diverse economy for all of its residents.

The breadth and scope of this commitment is reflected in Resolution No. 2007-84, which the Board of Supervisors unanimously adopted on May 1, 2007. Key elements of the resolution are highlighted below.

1. The Pima County Board of Supervisors supports sustainable development and the continual emphasis on sustaining a livable community.
  2. The Pima County Board of Supervisors supports implementation of a green building initiative and other sustainable initiatives regarding county facilities and vehicles, including the following goals and aspirations:
    - a. Shifting to more environment-friendly alternative fuels for its vehicular fleet such that: 25%, or a minimum of 100 vehicles, of the County's fleet of vehicles, excluding Sheriff patrol vehicles, shall consist of Alternative Fuel Vehicles by 2008. This percentage shall increase to 30% by 2009 and 50% by 2010.
    - b. Applying a green purchasing and waste reduction emphasis to all County facilities.
    - c. Maximizing County water resource assets including groundwater rights, surface rights and production and use of effluent to sustain and protect the County's natural environment.
    - d. Reducing water consumption by 15% in all County facilities by 2025. Water reduction strategies will include conducting water audits, replacing high water-use fixtures and replacing high water-use decorative landscaping with drought-tolerant native landscaping.
    - e. Doubling the number of County parks served by reclaimed water by 2018, subject to voter approval of bond funds to extend reclaimed water lines.
    - f. Designing and building all new occupied County buildings, including additions over 5,000 square feet, for which design is initiated after July 1, 2007, to achieve a minimum of LEED Silver certification level.
    - g. Maintaining all LEED certified County facilities under LEED for Existing Buildings and attempting to apply the same standard to all existing facilities.
    - h. Applying the above LEED criteria to all projects funded through County bonds as a condition
  - of funding and regardless of jurisdictional project sponsorship.
  - i. Designing and constructing at least one medium size County building with a net zero energy consumption.
  - j. Adhering to the Renewable Energy Standard adopted by the Arizona Corporation Commission such that 15% of all County facilities electrical energy consumption shall be generated from renewable resources by 2025.
  - k. Maximizing renewable energy resources from the production of methane in County wastewater treatment and landfill operations and use them to offset nonrenewable energy needs.
  3. Pima County will encourage the construction of new residential, commercial, and industrial facilities employing green building concepts throughout the County by embracing a sustainable development emphasis and by considering:
    - a. The creation of incentive based green building residential and commercial programs.
    - b. The incorporation of solar systems, solar orientation of structures, solar access, and smart growth principles into County development planning including exploring the possibility of requiring that a minimum of 50% of homes constructed after 2010 include direct solar assisted energy through solar hot water or photovoltaic elements.
    - c. The amendment of land use regulations to require that all new houses discharging to septic systems also be provided with a grey water reuse system.
    - d. The revision of design and construction standards to capture and mitigate stormwater generated on-site for purposes of water harvesting and the incorporation, into the pavement of parking lots and roads, of light-colored permeable materials to reduce heat-island effects, water runoff, and dust emissions.
- Through the implementation of these programs, as well as others undertaken as a result of the Board resolution, Pima County will strive to set an example for other communities desiring to achieve a high quality-of-life for their residents, protect their natural and cultural heritage, and provide meaningful economic opportunities.

**Sustainability (sə -'stā-nə-'bi-lə-tē). Improving the quality of life for current generations without compromising the resources needed by future generations.**

# Sustainable Action Plan for County Operations FY 2009—First Quarter Status Report

Department: \_\_\_\_\_

Please check all actions your department is responsible for this fiscal quarter.

**Alternative Fuel Vehicles**

- 1     2     3     4     5     6     7     8     9     10     11     12     13     14

**Green Building**

- 1     2     3     4     5     6     7

**Renewable Energy and Energy Efficiency**

- 1a     1b     1c     1d     1e     1f     2a     2b     2c     2d     2e     2f     2g     2h
- 2i     2j     2k     3a     3b     3c     3d     3e

**Green Purchasing**

- 1     2     3     4     5     6     7     8

**Land Conservation and Management**

- 1     2     3     4     5     6     7

**Waste Reduction**

- 1     2     3     4     5     6     7     8     9     10     11     12     13     14
- 15     16     17     18     19     20     21

**Water Conservation and Management**

- 1     2     3     4     5     6     7     8     9     10     11     12     13     14
- 15     16     17     18     19     20     21     22     23     24     25     26     27     28
- 29     30     31     32

Please describe your department's progress and accomplishments to date for each of the activities checked above.

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Please describe your department's progress and accomplishments (continued).

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**Have any issues arisen that require additional assistance or resources? If so, what are your recommendations for proceeding?**

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**Submitted by:**

**Date:**

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*Thank you very much for your contributions to Pima County's Sustainability Initiatives.*