MEMORANDUM

Date: January 26, 2018

To: The Honorable Chairman and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: **Sustainable Action Plan for County Operations: Report Card for Fiscal Year 2016/17**

Attached is the Sustainability Report Card for Fiscal Year (FY) 2016/17. This report is prepared by the Office of Sustainability and Conservation with input and involvement of the Sustainable Action Plan for County Operations (SAPCO) Steering Committee and respective sustainability teams representing various departments. Report cards are submitted annually to the Board in fulfillment of the 2014 SAPCO.

Efforts undertaken by County departments and staff to improve the sustainability of our operations have resulted in the avoidance of significant costs by adopting sustainable practices and sources of renewable energy, in lieu of conventional ones for its internal operations. These actions also conserve resources and reduce the impact of operations on the environment. The attached Progress Summary: FY 2016/17 indicates performance improvement for 14 target areas and a decline in seven areas.

In FY 2016/17, highlights of County sustainability accomplishments include the following:

- Generated 18,779,262 kWh of solar energy, avoiding approximately 11,000 $MtCO_2e$ from being released into our atmosphere.
- Passed Resolution 2017-39, which the County committed to align its operation efforts with the Paris Agreement by reducing its carbon emissions 40 percent by the year 2025.
- Achieved and surpassed two out of four FY 2018/19 Renewable Energy and Energy Efficiency target areas.
- Continued renovations at the Historic County Courthouse to include updated and energy efficient water and light fixtures for its planned future uses.
- Direction to purchase 20 additional electric vehicles to integrate into the County's fleet. This effort marks the first major step toward the conversion of the County fleet to electric vehicles.
- Improved the water quality and clarity of the effluent-dependent lower Santa Cruz River; increased its recharge levels to about 36,600 acre-feet per year, nearly double the pre-upgrade rate; and significantly reduced odors leaving Regional

Wastewater Reduction Department facilities, as detailed in *The Living River Report*.

- Achieved and surpassed three out of four FY 2018/19 Water Conservation and Management target areas.
- Improved the County's office supply vendor website by highlighting ecofriendly products in a way that will make finding and purchasing these products more effective and efficient.
- Implemented Self-Care Essentials in September 2016 with 605 participants. A second series was initiated in January 2017 with 258 participants. As a consequence of both series, there was an increase in staff's Personal Health Record completion, Primary Care Provider utilization and appropriate care facility usage.

With the release of the FY 2016/17 Report Card, I would like to affirm and commend County departmental efforts and ongoing commitments to making measurable progress in sustainability initiatives across our operations. The County is making considerable progress in meeting and even exceeding our targets in multiple areas and we will continue to pay special attention to those areas needing improvement.

The Sustainability Division will continue working with department directors and designated staff to meet the Plan's targets and to accomplish the Action Items outlined in the 2014 Plan. I request that all Departments continue their support for and participation in these efforts.

CHH/lab

Attachments

c: Jan Lesher, Chief Deputy County Administrator
Tom Burke, Deputy County Administrator for Administration
Carmine DeBonis Jr., Deputy County Administrator for Public Works
Nanette Slusser, Assistant County Administrator for Public Works
Linda Mayro, Director, Sustainability and Conservation
Julie Robinson, Sustainability Program Manager
Members of the SAPCO Steering Committee

PIMA COUNTY
SUSTAINABILITY & CONSERVATION

Sustainable Action Plan for County Operations

PCSP
PIMA COUNTY SUSTAINABILITY PROGRAM

PROGRESS SUMMARY: FY 2016/2017

The following summarizes the progress made during FY 2016/2017 toward achieving the targets outlined in the Sustainable Action Plan.

Greenhouse Gas Emissions Avoided: 11,000 $MtCO_2e$, equivalent to burning 11.7 million pounds of coal.
Renewable Energy Generated: 18,779,262 kWh, enough to power more than 2,000 average Tucson homes for one year.
Water Efficiency Improvements: Conserved enough water to meet the needs of more than 1,000 Tucson residents for one year.
Dollars Saved: Combined, County sustainability efforts saved more than $1 million in avoided costs.

Performance improved for 14 targets

Target	Percent improvement (relative to baseline)
Minimizing the Carbon Footprint of County Government	
Target 1: Facility Operations	12%
Renewable Energy & Energy Efficiency	
Target 1: Renewable Energy	30%
Sub-Target 1: Biogas	233%
Sub-Target 2: Solar	45%
Target 2: Energy Efficiency	17%
Water Conservation & Management	
Target 1: Water Consumption in Facilities	8%
Target 2-1: Parks served by reclaimed water	23%
Target 2-2: Miles of trail served by reclaimed water	22%
Target 3: Establishing and Maintaining Natural Habitat	69%
Green Purchasing	
Target 3: Equipment Purchased	11%
Target 5-2: Printer Paper-30% recycled content paper	2%
Target 5-3: Printer Paper-Less than 30% recycled content paper	16%
Health & Wellness	
Target 1: Healthy Lifestyle Premium Discounts	23%
Target 3: Tobacco-free workforce	41%

Performance declined for 7 targets

Target	Percent decline (relative to baseline)
Renewable Energy and Energy Efficiency	
Target 2: Wastewater Treatment	15%
Target 3: Fleet Operations	4%
Green Building	
Target 2: Facility Construction	33%
Alternative Fuel Vehicles	
Target 1: Greenhouse Gas Emissions	14%
Waste Reduction	
Target 1: Solid Waste Diversion	5%
Green Purchasing	
Target 4: Employee Training	50%
Target 5-1: Printer Paper-100% recycled content paper	31%

4890-012218 RTP HT

REPORT CARD: FY 2016/2017

Sustainable Action Plan
for County Operations

PCSP
PIMA COUNTY SUSTAINABILITY PROGRAM

PIMA COUNTY

4890-012418 RTP-HT

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REPORT CARD: FY 2016/2017

Sustainable Action Plan

for County Operations

On May 17, 2014, the Pima County Board of Supervisors adopted the 2014 Sustainable Action Plan for County Operations. This plan seeks to achieve a "balance between economic development, social well-being and environmental protection to ensure the needs of current generations can be met without compromising the ability of future generations to meet their own needs." Measuring progress is crucial to the success of Pima County's sustainability efforts. The purpose of this report card is to inform County decision makers and the broader community about Pima County's progress toward meeting the goals and targets outlined in the Sustainable Action Plan. It is meant to highlight areas where the County is meeting its targets and to help identify areas needing additional attention. This report card charts the Action Plan's progress for Fiscal Year 2016/2017.

Construction workers restore and preserve the Pima County Historic Courthouse.

Visit www.pima.gov to view the 2014 Sustainable Action Plan for County Operations

How to use this report

The nine chapters in this Report Card represent the nine focus areas of the Sustainable Action Plan. Data is collected annually to report on the progress of meeting the Plan's goals and objectives. The following measures are discussed in each chapter:

TARGET/S:
A measurable milestone in pursuing the chapter Goal(s) meant to be achieved within the five-year timeframe of the Plan.

INDICATOR/S:
Quantitative or qualitative measures used to assess performance relative to a Target.

BASELINE/S:
A starting point or benchmark used to assess progress toward reaching a Target.

PROGRESS SUMMARY: FY 2016/2017

Sustainable Action Plan

for County Operations

The following summarizes the progress made during FY 2016/2017 toward achieving the targets outlined in the Sustainable Action Plan.

Greenhouse Gas Emissions Avoided: 11,000 $MtCO_2e$, equivalent to burning 11.7 million pounds of coal.

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Health & Wellness	
Target 1: Healthy Lifestyle Premium Discounts	23%
Target 3: Tobacco-free workforce	41%

Performance declined for 8 targets

Target	Percent decline (relative to baseline)
Minimizing the Carbon Footprint of County Government	
Target 2: Wastewater Treatment	15%
Target 3: Fleet Operations	4%
Green Building	
Target 2: Facility Construction	33%
Alternative-Fuel Vehicles	
Target 1: Greenhouse Gas Emissions	14%
Waste Reduction	
Target 1: Solid Waste Diversion	5%
Green Purchasing	
Target 4: Employee Training	50%
Target 5-1: Printer Paper-100% recycled content paper	31%

CHAPTER 1

Minimizing the Carbon Footprint of County Operations

Bicycling helps to curb carbon emissions while providing exercise and other benefits to riders and society.

Climate change is one of the greatest challenges facing society. It poses threats to infrastructure, food production, human health and the economy. Human activities that cause the release of greenhouse gases are driving this process at an unprecedented rate. Every individual, organization and community has a "carbon footprint," which is the sum of all the greenhouse gases emitted as a result of the daily activities of that individual or entity. Pima County recognizes the importance of reducing greenhouse gas emissions resulting from its operations and has established targets to reduce these emissions.

During FY 2016/2017, the carbon intensity of the County's facility operations remained about the same compared to the previous year, a 12% improvement over the baseline. The carbon intensity of wastewater treatment operations was 15% higher than the baseline due to increased electricity and natural gas consumption needed to treat effluent to a higher standard. Carbon emissions intensity of the fleet increased due to a greater reliance on trucks and SUV's. Progress toward meeting the County's carbon emissions targets is detailed below.

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Passed Resolution 2017-39, in which the County committed to align its operation efforts with the Paris Agreement by reducing its carbon emissions by 40% by 2025.
- Contract documents for the design and construction of the biogas cleaning facility are expected to be complete by December of 2017. Groundbreaking for the facility should occur by the end of FY17/18. Construction and commissioning is expected to last approximately 6 months.

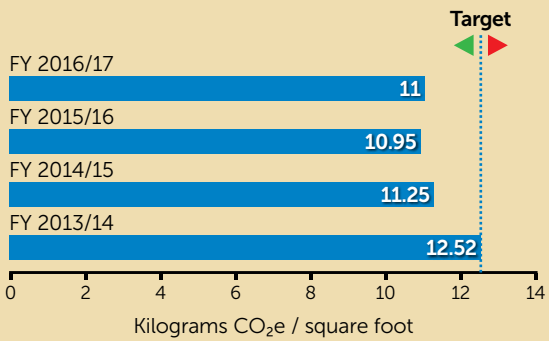
Green works

The 15% reduction in carbon emissions intensity in County facilities avoids 11,454.5 $MtCO_2e$ emissions annually equivalent to taking 2,453 passenger vehicles off the road for one year (Environmental Protection Agency, 2017).

TARGET 1

Facility Operations: By June 30, FY 2018/2019, the carbon intensity of County facility operations will not exceed the carbon intensity of County facility operations in FY 2013/2014.

INDICATOR: Carbon intensity of County facility operations measured in kilograms of CO_2e/square foot of building space.
BASELINE: 12.52 kilograms CO_2e/square foot.



Performance

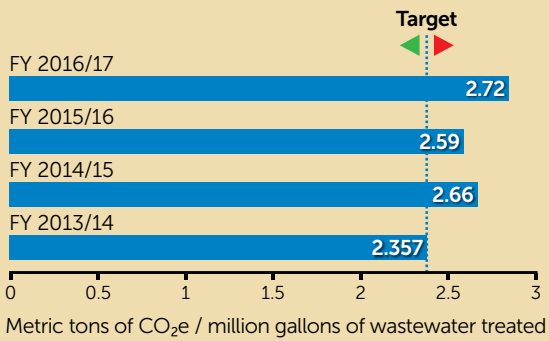
11.00* kilograms of CO_2e/square foot of building space.

Improved: 12% relative to the baseline.

TARGET 2

Wastewater Treatment Operations: By June 30, FY 2018/2019, the carbon intensity of County regional wastewater collection and treatment operations will not exceed the carbon intensity of County wastewater collection and treatment operations in FY 2013/2014.

INDICATOR: Carbon intensity of County regional wastewater collection and treatment operations measured in metric tons of CO_2e/million gallons of water treated.
BASELINE: 2.357 metric tons of CO_2e/million gallons of water treated.



Performance

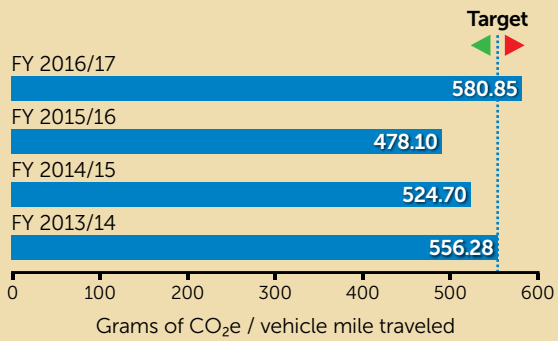
2.72 metric tons of CO_2e/million gallons of wastewater treated.

Declined: 15% relative to the baseline.

TARGET 3

Fleet Operations: By June 30, FY 2018/2019, the carbon intensity of County fleet operations will not exceed the carbon intensity of County fleet operations in FY 2013/2014.

INDICATOR: Carbon intensity of County fleet operations measured in grams of CO_2e/vehicle mile traveled
BASELINE: 556.28 grams of CO_2e/vehicle mile traveled.



Performance

580.85 grams of CO_2e/vehicle mile traveled.

Declined: 4% relative to the baseline.

* This excludes emissions from Pima County wastewater treatment operations.

CHAPTER 2

Renewable Energy & Energy Efficiency

Pima County approved several contracts for solar-covered parking structures. These contracts will result in approximately $4.5M in savings over the 20-year period. The Pima County Juvenile Courts (pictured above) was one of the designated installation sites.

The consumption of traditional energy sources results in significant negative consequences for both environmental and human health. In addition, relying on these sources of energy is growing increasingly expensive. Making a smooth transition to renewable energy sources, while increasing efficiency, will reduce long-term operating costs and increase energy security while protecting the environment and health of Pima County residents.

Pima County's renewable energy and energy efficiency initiatives celebrated notable improvements during FY 2016/17. The County surpassed the FY 2018/2019 target for sub-target 2, consuming nearly 2 million kWh more of solar energy than the previous year. This helped push the percentage of renewable electricity to nearly 13%, a 30% improvement over the baseline. Additionally, operational changes at the County's Central Plant cut natural gas consumption by 22% helping to drive down energy use intensity of County Facilities by 17% compared to the baseline, surpassing the FY 2018/19 target. Progress toward meeting the County's renewable energy and energy efficiency targets is detailed below:

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Initiated the process of incorporating solar installations on various County sites as part of Resolution 2017-51, with the intention of bringing 40-42 MW of solar energy production online
- Achieved and surpassed Sub-Target 2: Increase the use of solar energy by 4 million kWh by June 30, FY 2018/2019
- Achieved and surpassed Target 2: Increase the overall energy efficiency of County facilities 10% by June 30, FY 2018/2019

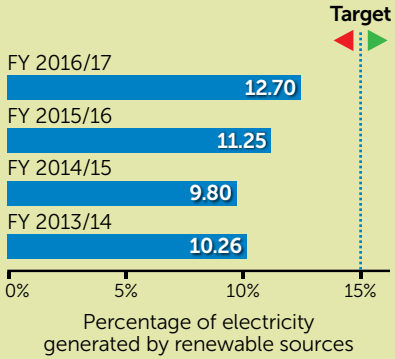
Green works

Electricity generated from renewable sources in FY 2016/17 produced enough electricity to power 2,095 average Tucson homes for one year (Westmoreland Associates, 2011).

TARGET 1

Renewable Energy: By 2025, at least 15% of the electricity consumed by County facilities will be generated or offset by renewable sources.

INDICATOR: Percentage of electricity consumed by County facilities generated by renewable sources.
BASELINE: 9.78% was generated by renewable sources.



Performance

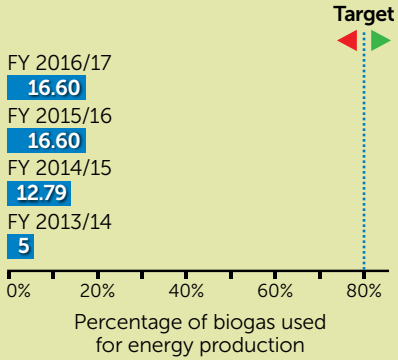
12.70% was generated by renewable sources

Improved: 30% relative to the baseline.

SUB-TARGET 1

Biogas : Beneficially use 80% per year by June 30, FY 2018/2019.

INDICATOR: Percentage of biogas used for energy production.
BASELINE: 5%



Performance

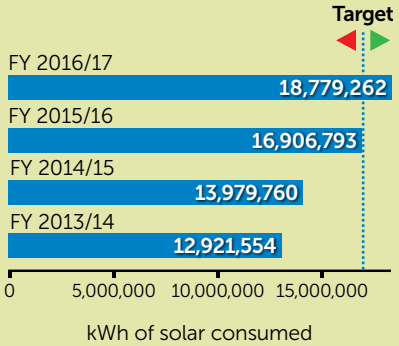
16.6% was beneficially used.

Improved: relative to the baseline.

SUB-TARGET 2

Solar : Increase the use of solar energy by 4 million kWh by June 30, FY 2018/2019.

INDICATOR: kWh of solar consumed.
BASELINE: 12,921,554 kWh



Performance

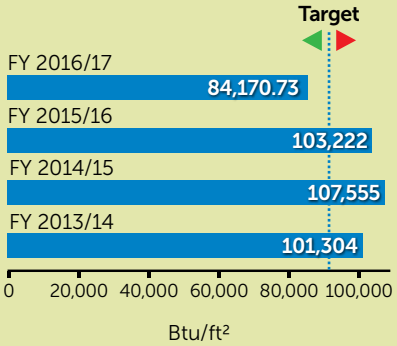
18,779,262 kWh of solar consumed.

Improved: 45% relative to the baseline, surpassing the FY 2018/2019 target

TARGET 2

Energy Efficiency: Increase the overall energy efficiency of County facilities 10% by June 30, FY 2018/2019.

INDICATOR: Energy use intensity of County facilities [Combined total Btu (electricity + natural gas) consumed by all County facilities]/Combined square footage of all County facilities.
BASELINE: 101,304 Btu/ft2



Performance

84,170.73 Btu of energy/ft^2

Improved: 17% relative to the baseline.

CHAPTER 3

Green Building

The construction, operation and maintenance of buildings are significant sources of resource and energy consumption and thus constitute the largest source of County energy consumption. Green buildings and infrastructure are more energy efficient, consume fewer natural resources and are generally less expensive to operate and maintain than non-green buildings. Additionally, green buildings improve occupant health, reduce absenteeism and increase productivity (Singh et al., 2010).

While the percentage of ongoing and completed projects that implemented LEED elements remained at 50%, projects like the Pima County Historic Courthouse renovation have made great strides in recycling and reusing building materials as well as installing upgraded and energy efficient fixtures. The percentage of County facilities that have achieved Energy Star certification has remained at 0% due to unavailable data. Progress toward meeting the County's green building targets is detailed below:

Completed in 2015, the new Pima County Public Service Center includes a number of sustainable building features that helped it achieve LEED Silver Certification.

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Replaced existing light fixtures with energy efficient LED fixtures at 97 E. Congress
- Currently renovating the Pima County Historic Courthouse to include updated and energy efficient water and light fixtures

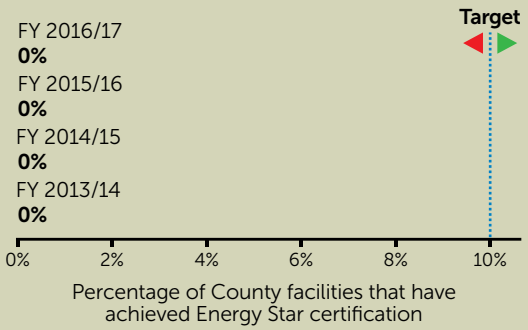
Green works

An initial investment of 2% in green building design, on average, results in life cycle savings of 20% of the total construction costs – more than ten times the initial investment (Kats, 2003).

TARGET 1

Energy Efficiency of Facilities: By June 30, FY 2018/2019, at least 10% of County facilities will achieve Energy Star certification.

INDICATOR: Percentage of County facilities that have achieved Energy Star certification.
BASELINE: 0% of County facilities.



Performance

0%* of County facilities achieved Energy Star certification.

No change relative to the baseline.

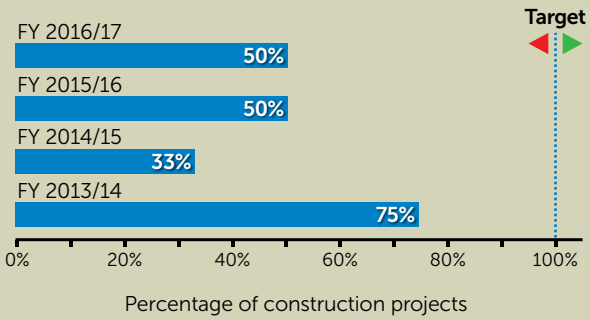
* The percentage of County facilities that have achieved Energy Star certification has remained at 0% due to unavailable data

TARGET 2

Facility Construction: 100% of all new County-funded buildings designed after June 30, 2008, and 100% of all building additions greater than 5,000 square feet to implement LEED elements sufficient to obtain 50 or more LEED points.

INDICATOR: Percentage of ongoing and completed construction projects since July 1, 2014, that implement LEED elements sufficient to obtain 50 or more points
BASELINE: Total number of projects: 4
Projects that meet the target: 3

75% implement LEED elements sufficient to obtain 50 or more points.



Performance

50% implement LEED elements sufficient to obtain 50 or more points.

Declined: 33% relative to the baseline.

The Public Service Center at 240 N. Stone Avenue in downtown Tucson.

CHAPTER 4

Alternative-Fuel Vehicles

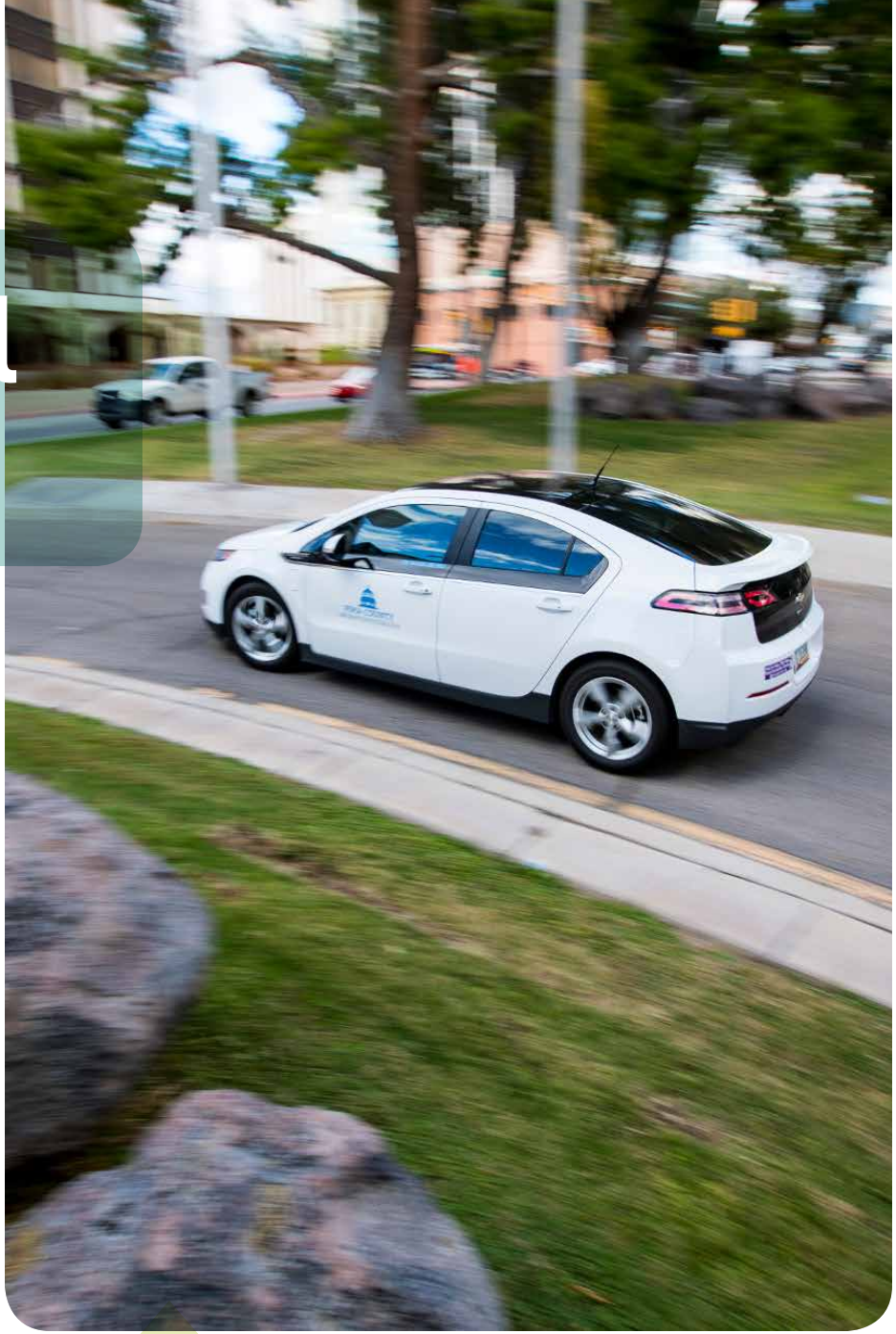
Motor vehicle emissions are the largest source of air pollution in Pima County. County government owns and operates a large fleet of vehicles and heavy equipment that performs a range of vital services. The County has implemented a number of strategies to minimize the impact of its fleet activities.

While Pima County's fleet usually sees notable improvements in fuel efficiency, its performance during FY 2016/17 declined by 14% relative to the baseline. This decline is a result of increased use of trucks, SUVs, and/or large construction equipment. The County continues to make strides in improving the fuel efficiency of its passenger cars, primarily through the integration of fully electric cars. Progress toward meeting the County's alternative-fuel vehicle target is detailed below:

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Released a memorandum in June that instructed the County to purchase 20 additional electric vehicles to integrate into the County's fleet. This effort marks the first major step toward conversion of County fleet to electric vehicles
- Developed a new Facebook group "Commute Trips and Tips" to share information and resources relevant to the Trip Reduction Program



The Chevy Volt is an extended-range plug-in hybrid, convenient for both city and long-distance driving. Pima County currently owns two Chevy Volts.

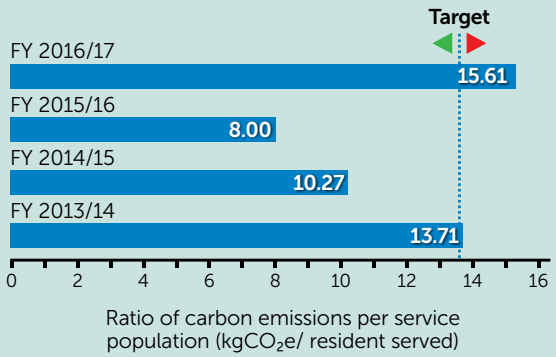
Green works

A 2017 Chevy Bolt charged in Downtown Tucson emits 126 grams of CO_2e per mile, equivalent to the emissions rate of a gasoline-powered vehicle that gets 86 miles per gallon.

TARGET 1

Greenhouse Gas Emissions: Reduce the ratio of carbon emissions produced by County transportation activities per service population (CO_2e/ Service Population) by June 30, FY 2018/2019, excluding Sheriff's vehicles, off-road vehicles, and heavy equipment (water trucks, dump trucks, etc.).

INDICATOR: Ratio of carbon emissions produced by County operations annually per service population (Quotient of a/b)
a. Annual quantity and carbon intensity of fuel consumed
b. Number of residents served by County operations
BASELINE: 13.71 $kgCO_2e$/resident served

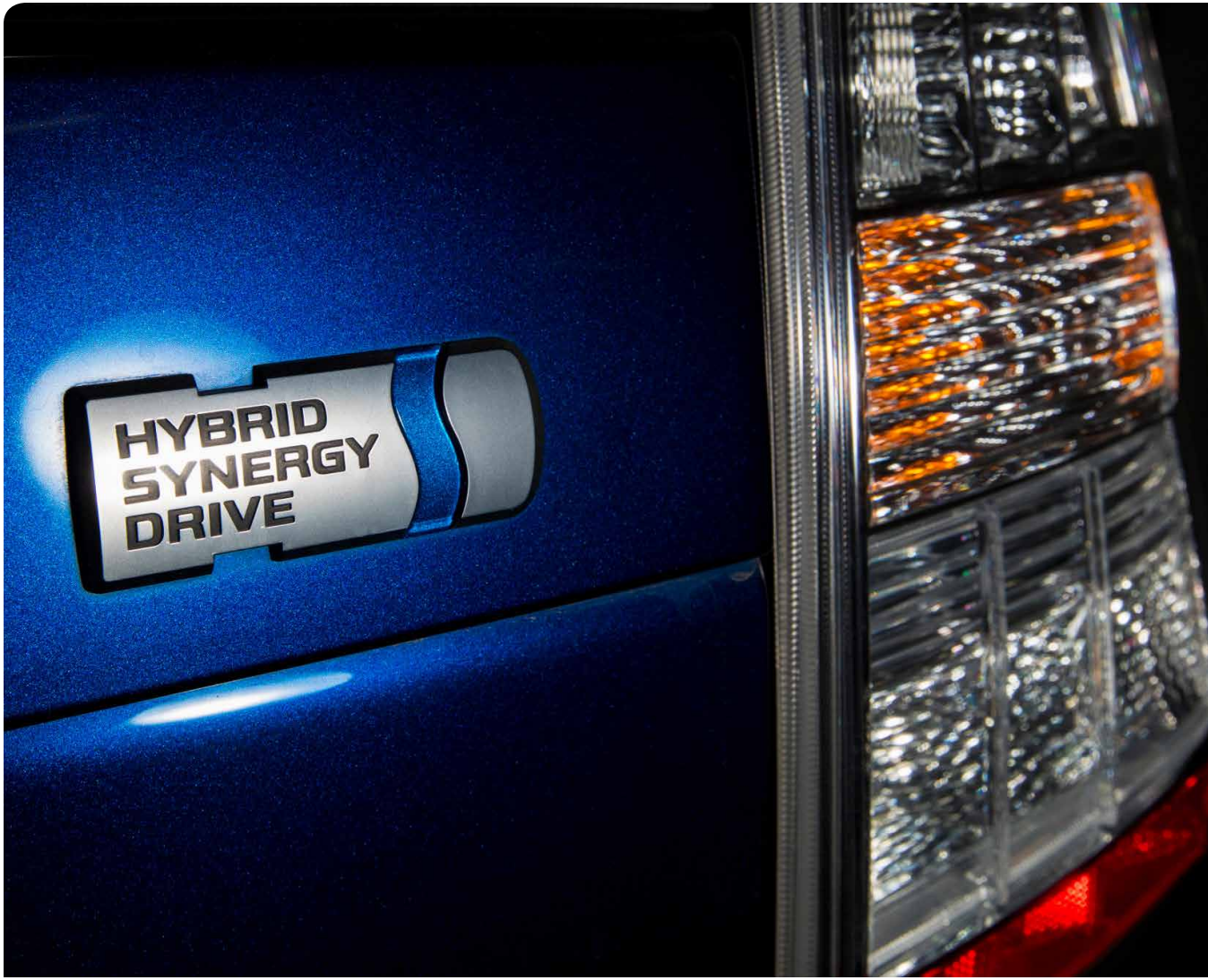


Performance

15.61 $kgCO_2e$/resident served by County operations*

Declined: 14% relative to the baseline.

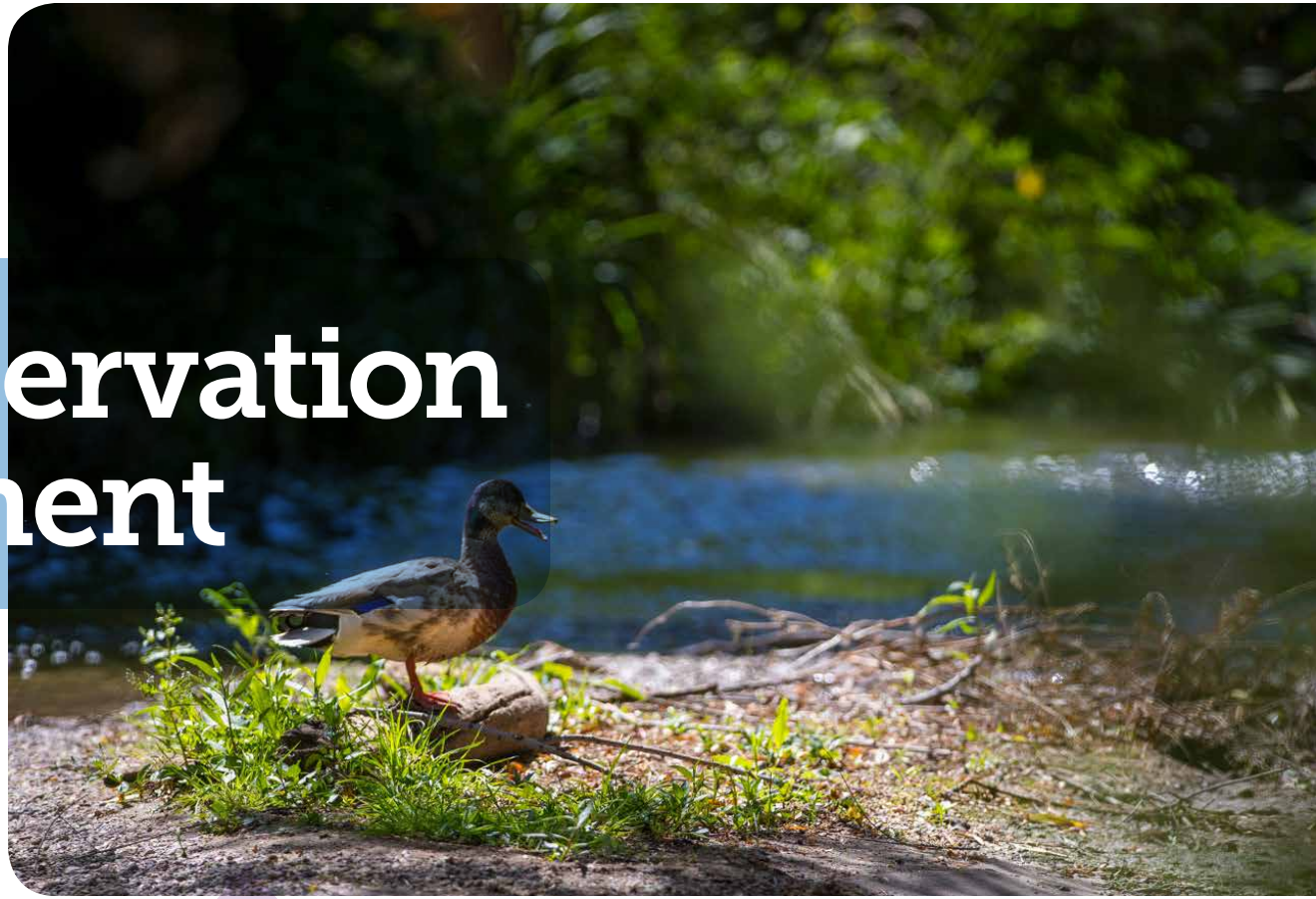
*Based on July 1, 2015 Arizona Department of Administration Population Estimate for Unincorporated Pima County.



As of FY 16/17, Pima County owns 111 Toyota Prius hybrid vehicles as part of its fleet.

CHAPTER 5

Water Conservation & Management



The Sweetwater Wetlands harbor a water-rich streamside riparian zone that supports a huge variety of wildlife, including hawks, bobcats and dozens of other species that make the wetlands their full- or part-time home.

Water is one of our most vital resources. It is essential to nearly every facet of life, from food cultivation to the generation of electricity; water is critical to our very survival. Yet in the Sonoran Desert, water is one of our most limited resources. Ensuring an adequate, safe water supply for ecosystems and for current and future generations is essential to ensuring the sustainability of Pima County.

Pima County's water conservation and management initiatives continued to prosper during FY 2016/17, surpassing three of the four FY 2018/2019 target areas. These three areas all pertained to the utilization of reclaimed or renewable water sources – a vital practice in our drought-stricken environment. The number of acres of natural habitat established or maintained by County renewable water increased by 69% over the course of only three years. Moreover, the quantity of water consumed by County buildings dropped to 121 gallons/ft^2, a 7.6% improvement from the baseline. Progress toward meeting the County's water conservation and management targets is detailed below:

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Improved river water clarity and quality of effluent discharged to the Santa Cruz River; increased recharge levels to about 36,600 acre-feet per year, nearly double the pre-upgrade rate; and reduced odors leaving wastewater treatment facilities to little to none in the effluent-dependent Santa Cruz River. This has been tracked and reported by *The Living River Project*.
- Provided training and materials for project maintenance staff and construction contractors on projects involving the Regional Flood Control District

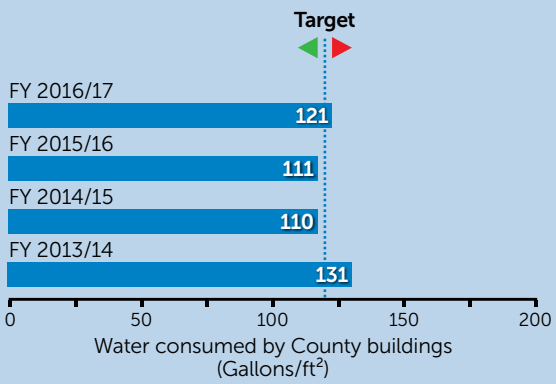
Green works

Reclaimed water is excellent for the irrigation of turf, ornamental landscaping, food crops, orchards and vineyards. The nitrogen and phosphorus in the water provide fertilizer for plants and grass (City of Tucson, 2017).

TARGET 1

Water Consumption in Facilities: Reduce building water consumption intensity (gallons/ ft^2) by at least 10% by June 30, FY 2018/2019.

INDICATOR: Quantity of water consumed by County buildings per square-foot.
BASELINE: 131 gallons/ft^2



Performance

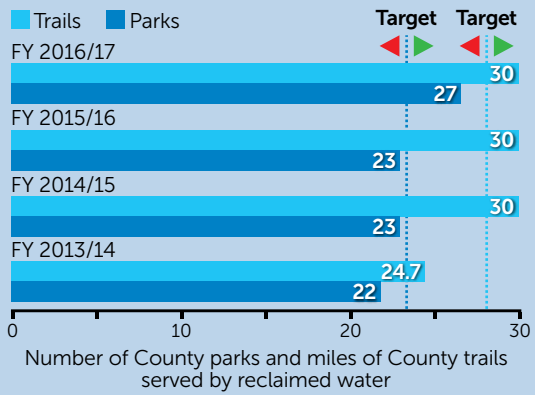
121 gallons/ft^2 consumed by County buildings.

Improved: 7.6% relative to the baseline.

TARGET 2

Reclaimed Water at County Parks: Increase the number of County parks and miles of trail served by reclaimed water by 10% by June 30, FY 2018/2019.

INDICATOR: Number of County parks and number of miles of County trails served by reclaimed water.
BASELINE:
- 22 parks served by reclaimed water.
- 24.7 miles of trail served by reclaimed water.



Performance

27 parks served by reclaimed water.

Improved: 23% relative to the baseline surpassing the FY 2018/2019 target.

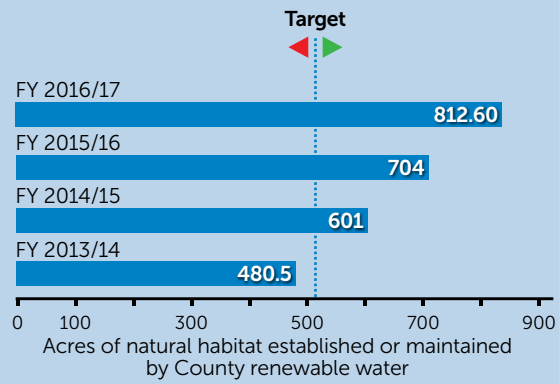
30 miles of trail served by reclaimed water.

Improved: 21.5% relative to the baseline, surpassing the FY 2018/2019 target.

TARGET 3

Establishing and Maintaining Natural Habitat: Expand the number of acres of natural habitat established or maintained by County renewable water sources by 5% by June 30, FY 2018/2019.

INDICATOR: Acres of natural habitat established or maintained by County renewable water as of June 30, FY 2013/2014.
BASELINE: 480.5 acres



Performance

812.6 acres of natural habitat established or maintained by County renewable water.

Improved: 69% relative to the baseline, surpassing the FY 2018/2019 target.

CHAPTER 6

Land Conservation & Management

The Sweetwater Preserve is comprised of 880 acres of land that was acquired during the 2004 Open Space Bond measure. It now serves as a popular attraction for cyclists, hikers, and ecotourists.

The protection of natural and cultural resources is essential to ensuring long-term economic and ecological sustainability. Natural ecosystems play a crucial role in maintaining water quality and reducing greenhouse gas emissions and are a significant economic driver within the region. These areas attract residents and visitors seeking a quality natural environment experience, the latter thereby enhancing the local economy through increased tourism.

Pima County continued to conserve its cultural, ecological, and biological resources in FY 2016/17. Some of its many efforts include the conservation of 27 Sonoran Desert Conservation Plan (SDCP) Priority Cultural Resources and 446 known and recorded archeological sites. Moreover, the County owned and maintained over 97,000 acres of open space in the Conservation Land System (CLS) for conservation purposes and over 33,000 acres of designated riparian habitat have been conserved. Progress toward meeting the County's land conservation and management targets is detailed below:

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Documented the substantial improvement in wetland health of the effluent-dependent Santa Cruz River via the *Living River* series. This included an increase in biodiversity with 221 different bird species sightings
- Established a Land Management Section to monitor and manage riparian habitat on Regional Flood Control District property

Green works

Open space habitat restoration within the CLS benefits the local economy and has helped increase property values within Pima County by more than $125 million, generating an estimated $1.23 to $2.46 million dollars per year in incremental property tax revenues (Bark-Hodgins, 2006).

TARGET 1

Cultural Resources: Conserve cultural resources and historic properties.

INDICATOR 1: Number and types of sites conserved.
BASELINE: Annual summary.

INDICATOR 2: Information yielded from sites.
BASELINE: Annual summary.

Performance

1. Cultural Resources Conserved (cumulative)
- **27** SDCP Priority Cultural Resources conserved.
- **11,786** acres of County-owned conservation land with archaeological survey coverage.
- **446** known and recorded archeological sites conserved.
- **15** NRHP* properties conserved.
- **28** significant sites conserved via cultural resources compliance actions:
  - » **18** significant prehistoric archaeological sites conserved.
  - » **6** significant historic archaeological sites conserved.
  - » **3** significant multicomponent archaeological sites conserved.

2. Information Yielded From Sites
- **24** sites yielded information.
- **32** documented historic buildings.

* The National Register of Historic Places (NRHP) is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

TARGET 2

Ecological and Biological Resources: Conserve ecological and biological resources.

INDICATOR 1: Number of acres conserved.
- **a.** Number of acres within the Conservation Lands System (CLS) acquired under fee title.
- **b.** Number of acres within the CLS placed under perpetual conservation easement.
- **c.** Number of conservation easement acres within the CLS acquired.
- **d.** Number of acres of private deed restrictions within the CLS.
- **e.** Number of acres of designated riparian habitat conserved.

BASELINE: Annual summary.

INDICATOR 2: Mitigation actions taken to reduce the impacts of County operations on ecological and biological resources.
BASELINE: Annual summary.

Performance

1. Number of acres conserved (cumulative)
- **a. 97,374** acres within the CLS acquired (held) under fee title.
- **b. 4479** acres within the CLS placed under perpetual conservation easement.
- **c. 517** acres conservation easement acres within the CLS acquired.
- **d. 0** acres of private deed restrictions within the CLS.
- **e. 33,246** acres of designated (regulated) riparian habitat conserved.

2. Mitigation actions taken to reduce the impacts of County operations on ecological and biological resources (annual)
- **0** mitigation actions completed for County Capital Improvement projects (CIP) that required Section-10 mitigation.
- **0** mitigation actions completed for County CIP projects that require In-Lieu Fee (ILF) mitigation.

TARGET 3

Enhancement Projects: Complete enhancement projects on County properties.

INDICATOR: Number of properties enhanced.
BASELINE: Annual summary.

Performance

Open Space Enhancements (annual)
Number of properties enhanced:
- Infrastructure Improvements: **20**
- Invasive Species Control: **10**
- Trash Removal: **5**
- Ecosystem or Species Restoration: **8**

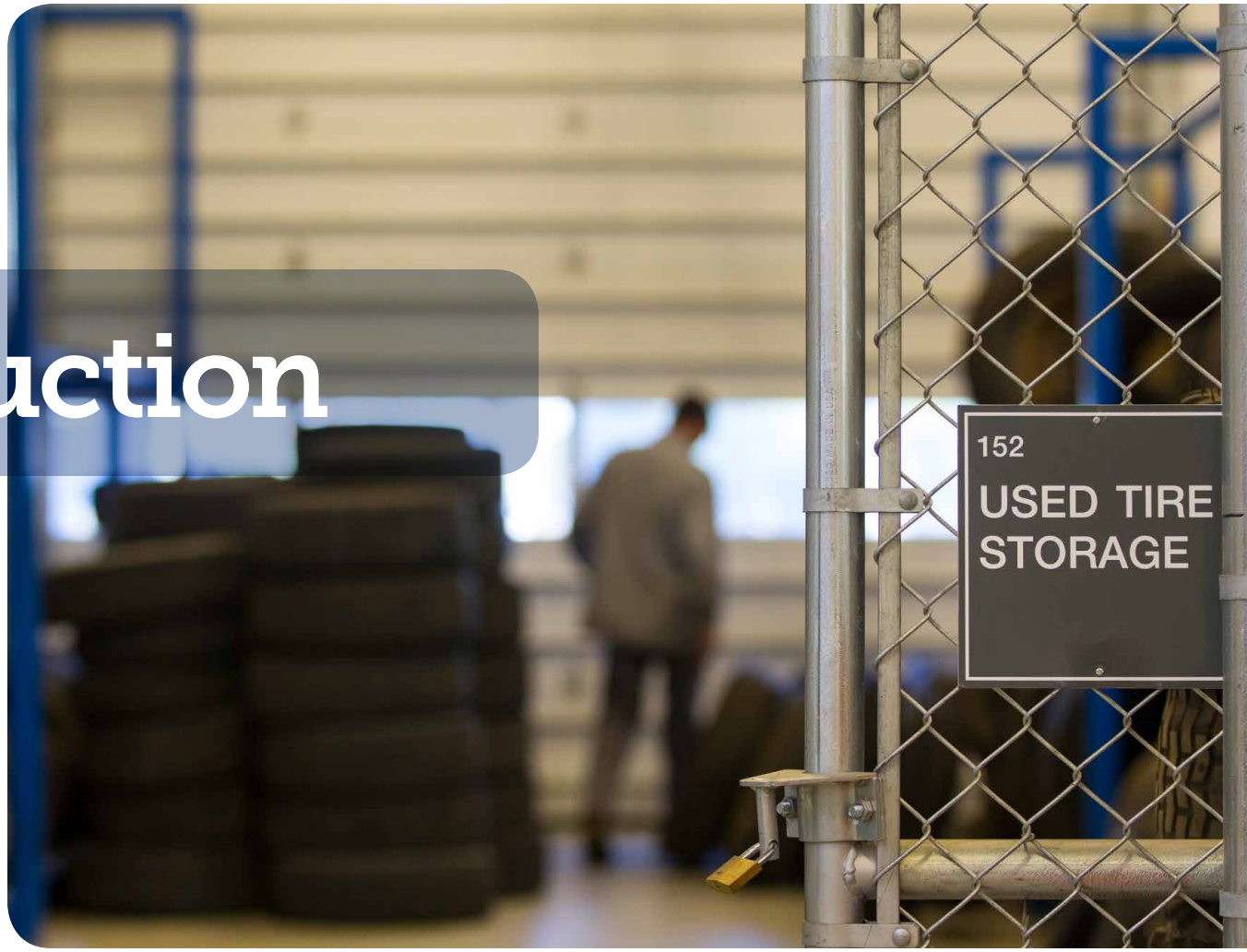
Cultural Resource Enhancements
202 person-day visits by the site stewards. (annual)
160 sites visited by the site stewards. (annual)
31 buildings or structures rehabilitated. (cumulative)

CHAPTER 7

Waste Reduction

Reducing waste and overall consumption is an important, yet often overlooked, component of sustainability. Reducing consumption and landfill waste generated by County operations help to minimize the County's ecological footprint while conserving resources and reducing operating costs.

Performance related to the County's waste diversion target improved slightly from FY 2015/16 but still declined 4.7% relative to the baseline. Progress toward meeting the County's waste reduction targets is detailed below:



Though old tires are not considered hazardous waste, they do pose environmental threats due to their non-biodegradability, their flammability, and their potential to leach toxins into their surrounding environment. Pima County acknowledges these risks and strives to keep old tires out of the landfill. In FY 2016/17, the County recycled 765,855 tires.

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Expanded County recycling services to include a recycle pickup location in Ajo

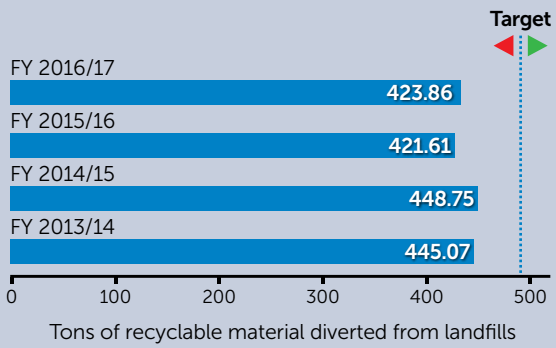
Green works

Each ton of office paper recycled conserves 9 barrels of oil, 4,100 kWh of electricity, 7,000 gallons of water, 3.3 cubic yards of landfill space, and avoids creating 60 pounds of air pollution (Stanford, 2016).

TARGET 1

Solid Waste Diversion: Increase the quantity of recyclable materials diverted from landfills by 10% to 489.58 tons by June 30, FY 2018/2019.

INDICATOR: Quantity of recyclable material diverted from landfills.
BASELINE: 445.07 tons diverted.



Performance

423.86 tons diverted from landfills.

Declined: 5% relative to the baseline.

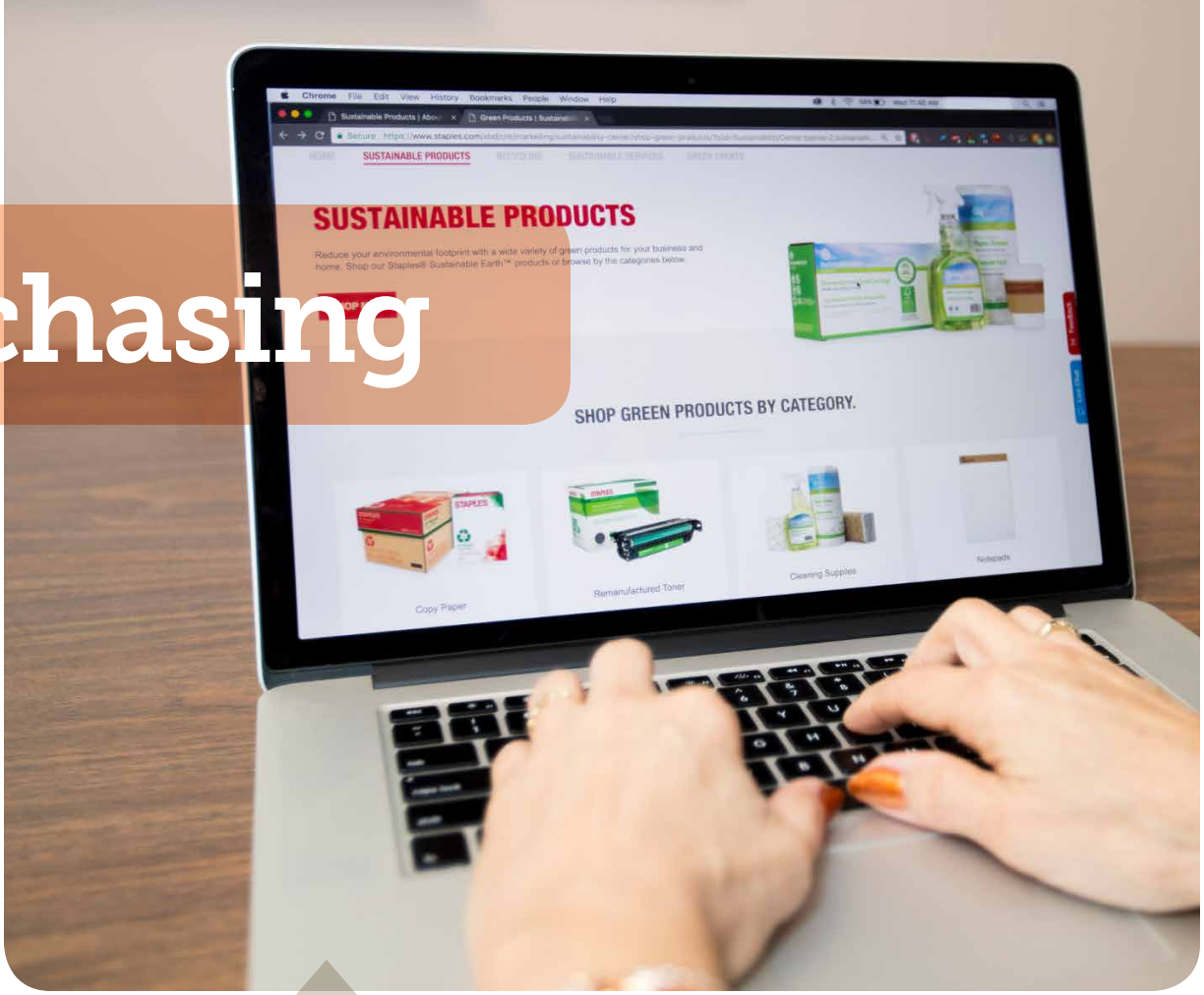
Though the initial cost of rechargeable batteries are more per unit than that of disposable batteries, rechargeable ones can be used more than 500 times and are made of comparatively more eco-friendly materials (NiMH or NiCd).

CHAPTER 8

Green Purchasing

The manufacturing, use and disposal of consumer goods have a significant impact on the environment and our natural resources. Purchasing decisions have a direct impact on the world around us and the world we leave for future generations. Like other local governments, Pima County purchases a large number of goods and services needed to conduct its daily operations. Choosing environmentally-friendly products and services can significantly reduce the impact of these purchases, while reducing operating costs and preserving resources for future generations.

In FY 2016/17, Pima County's Green Purchasing Chapter saw improvements in three portions of the five target areas, when compared to both the baseline and last fiscal year. The percentage of Energy Star qualified appliances and equipment purchased increased to 20% and the percentage of 30% recycled-content printer, copier, and multi-purpose paper purchased rose to 90%, meeting Indicator 2 of Target 5. The percentage of printer, copier, and multi-purpose paper purchased with recycled content below 30% fell to 10%, which was a 16% improvement from the baseline. Performance in 100% recycled content paper purchases unfortunately declined 31% from the baseline. Progress toward meeting the County's green purchasing targets is detailed below:



The County worked with Staples this year to create multiple pre-made lists of green products, making eco-friendly office items easier to locate.

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Improved the County's office supply vendor website by highlighting eco-friendly products in a way that will make finding and purchasing these products more effective and efficient
- Initiated an overhaul to the green purchasing program to address declining performance

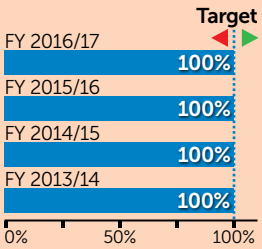
Green works

Using paper made from 100% recycled content saved approximately 270 trees, 110,600 gallons of water, 65,000 kWh of energy, 950 pounds of air pollution, and 40 cubic yards of landfill space. (RecycleWorks for San Mateo County, 2016).

TARGET 1

Product Contracts: 100% of new contracts to include green specifications whenever applicable by June 30, 2019.

INDICATOR: Percentage of new contracts that include green specifications.
BASELINE: 100%



New contracts that include green specifications.

Performance

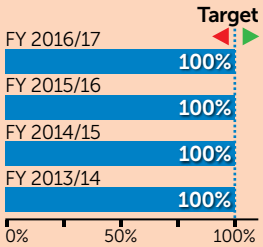
100% of new contracts that include green specifications.

No change in performance relative to the baseline.

TARGET 2

Janitorial Contracts: 100% of janitorial service contracts to be updated with nontoxic and eco-friendly product specifications by June 30, FY 2018/2019.

INDICATOR: Percentage of janitorial service contracts with nontoxic and eco-friendly product specifications.
BASELINE: 100%



Janitorial service contracts with nontoxic and eco-friendly product specifications.

Performance

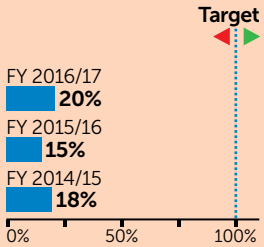
100% of janitorial service contracts include nontoxic and eco-friendly product specifications

No change in performance relative to the baseline.

TARGET 3

Equipment Purchased: 100% of appliances and equipment purchased to be Energy Star qualified by June 30, FY 2018/2019.

INDICATOR: Percentage of appliances and equipment purchased that are Energy Star qualified.
BASELINE: 18%



Appliances and equipment purchased that are Energy Star qualified

Performance

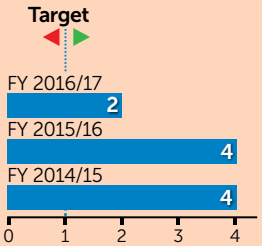
20% of appliances and equipment purchased are Energy Star qualified.

Improved: 11% relative to the baseline.

TARGET 4

Employee Training: Provide at least one training session per year for employees with purchasing responsibilities.

INDICATOR: Availability of green purchasing training opportunities for employees.
BASELINE: 4



Green purchasing training sessions

Performance

2 training sessions.

Declined: 50% relative to the baseline.

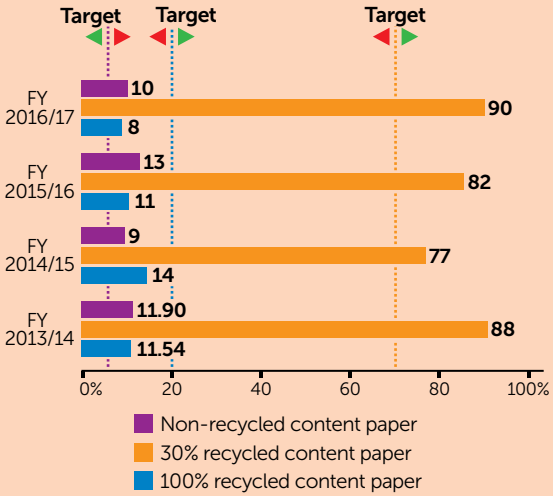
TARGET 5

Printer Paper: By June 30, FY 2018/2019, at least 20% of printer, copier, and multi-purpose paper purchases will be 100% recycled content paper and 90% of all other printer, copier, and multi-purpose paper purchases will be 30% recycled content paper.

INDICATOR 1: Percentage of printer, copier, and multi-purpose paper purchased that is 100% recycled content paper.
BASELINE: 11.54%

INDICATOR 2: Percentage of printer, copier, and multi-purpose paper purchased that is 30% recycled content paper.
BASELINE: 88%

INDICATOR 3: Percentage of printer, copier, and multi-purpose paper purchased that is neither 30% nor 100% recycled content paper.
BASELINE: 11.9%



Performance

1. **8%** of printer, copier, and multi-purpose paper purchased was 100% recycled content paper.

Declined: 31% relative to the baseline.

2. **90%** of all other printer, copier, and multi-purpose paper purchased was 30% recycled content paper.

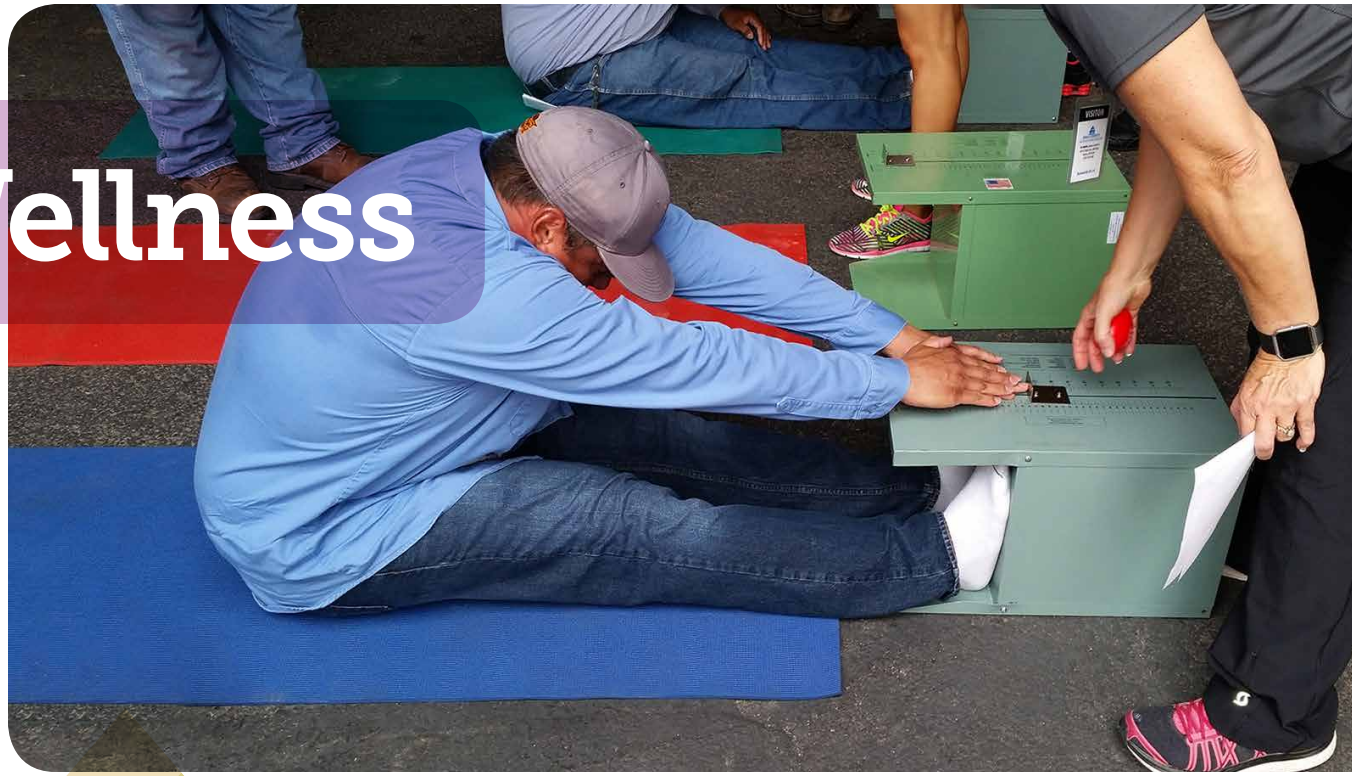
Improved: 2.3% relative to the baseline.

3. **10%** of printer, copier, and multi-purpose paper purchased was neither 30% nor 100% recycled content paper.

Improved: 16% relative to the baseline.

CHAPTER 9

Health & Wellness



Many County employees take advantage of the wide array of fitness classes offered through our Employee Wellness Program.

Employee health and wellness is an important component of the long-term sustainability of County operations. Promoting a culture of health and wellness improves the overall health and productivity of employees, reducing absenteeism and promoting employee retention. The result is long-term cost savings for Pima County. The County has taken on a wide range of programs and activities aimed at strengthening existing programs and developing new opportunities to encourage employees to adopt healthy behaviors. Progress toward meeting the County's health and wellness targets is detailed below.

In FY 2016/2017, Pima County significantly improved performance for two out of the three health and wellness targets, relative to the baseline. The percentage of eligible employees who participate in the Healthy Lifestyle Medical Premium Discount program was 88% — a 23% improvement from the baseline. Moreover, the percentage of employees who are self-reported tobacco users fell to 19%. This was a 19% decline from FY 2015/16 but still a 41% progression from the baseline. No additional Administrative Procedures and Policies relating to Wellness initiatives were added during the past year. Progress toward meeting the County's health and wellness targets is detailed below:

Noteworthy accomplishments

During FY 2016/2017, Pima County:

- Implemented Self-Care Essentials in September 2016 with 605 participants. A second series was launched in January 2017 with 258 participants. Between both series, there was an increase in Personal Health Record completion, Primary Care Provider utilization and appropriate care facility usage.
- Carried out "The Stretch Before Strain Program" pilot 90-day series at four locations. At one location, the comparison between initial and final results showed a 38% improvement in shoulder flexibility and a 29% improvement in low back flexibility. This same location continues to stretch as group of 60+ employees on a daily basis. At another location, there was a 54% improvement in shoulder flexibility and a 45% improvement in low back flexibility. At a third location there was a 20% improvement in shoulder flexibility and a 19% improvement in low back flexibility.

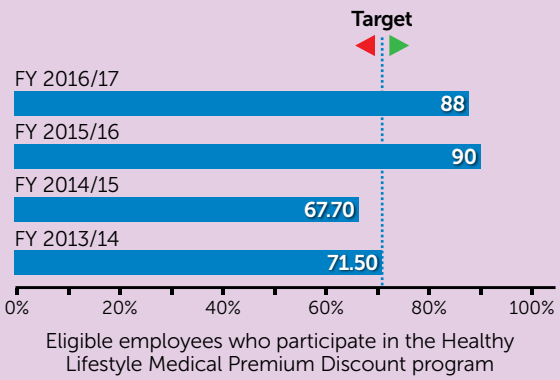
Green works

For each employee who successfully quits tobacco, Pima County saves an estimated $5,800 annually (Singh et al., 2010).

TARGET 1

Healthy Lifestyle Premium Discounts: By June 30, FY 2018/2019, increase the percentage of Pima County employees who are in eligibility compliance with the Healthy Lifestyle Premium Discounts.

INDICATOR: Percentage of eligible employees who participate in the Healthy Lifestyle Medical Premium Discount program.
BASELINE: 71.5%



Performance

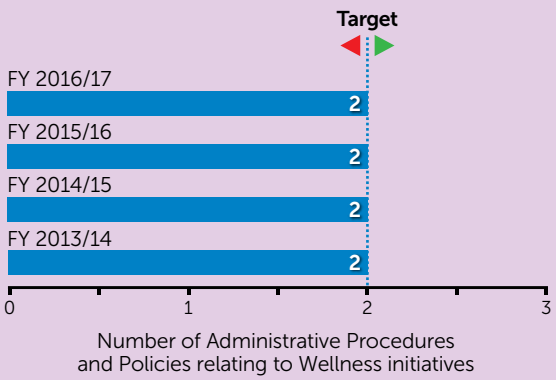
88% of eligible employees participate in the Healthy Lifestyle Medical Premium Discount program.

Improved: 23% relative to the baseline.

TARGET 2

Policies and Procedures: By June 30, FY 2016-17, Administrative Procedures and Policies will be established or revised to support Wellness initiatives within the County.

INDICATOR: Number of Administrative Procedures and Policies relating to Wellness initiatives.
BASELINE: 2



Performance

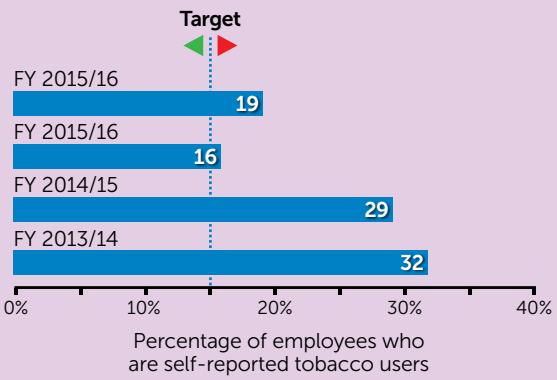
2 procedures relate to Wellness initiatives.

No change in performance relative to the baseline.

TARGET 3

Tobacco-free workforce: By January 2019, Pima County will decrease the number of self-reported tobacco users from 33% to less than 15%.

INDICATOR: The percentage of employees who are self-reported tobacco users.
BASELINE: 32%



Performance

19% of employees are self-reported tobacco users.

Improved: 41% relative to the baseline.

Glossary

Alternative Modes of Transportation: Refers to transportation modes other than driving a single-occupant vehicle, such as carpooling, mass transit, biking and walking. Choosing alternative modes of transportation provides many benefits such as cost and time saving, improved air quality, reduced traffic congestion and less dependency on fossil fuels.

Alternative Fuel Vehicles: Vehicles that operate on fuels other than gasoline or diesel. Alternative fuel vehicles include those that operate using compressed natural gas (CNG), liquid natural gas (LNG), propane, electricity, hybrid of gasoline and electricity, and hydrogen.

Biogas: A mixture of methane and carbon dioxide produced by the bacterial decomposition of organic wastes and used as a fuel.

Beneficial Use of Biogas: Methane recovery and purification for use as a fuel source in power production or in vehicles as an alternative to natural gas.

British Thermal Unit (Btu): The amount of heat required to raise the temperature of one pound of water 1oF at sea level.

Carbon Dioxide Equivalent (CO_2e): A metric used to compare the emissions from various greenhouse gases based upon their global warming potential. Carbon dioxide equivalents are commonly expressed as "metric tons of carbon dioxide equivalents" (MT CO_2e).

Carbon Footprint: The amount of carbon dioxide and other carbon compounds emitted due to the consumption of fossil fuels by a particular person, group, etc.

Carbon Intensity: The quantity of greenhouse gas emitted per square foot (CO_2e/sq ft).

Conservation Easement: A conservation easement is a voluntary, legally binding agreement that limits certain types of uses or prevents development from taking place on a piece of property, while protecting the property's ecological or open-space values.

Conservation Lands System (CLS): The Conservation Lands Systems Regional Plan Policy was adopted as part of the Environmental Element of the Pima County Comprehensive Plan Update in December 2001 and was updated June 21, 2005. The CLS categorizes and identifies locations of priority biological resources within Pima County and provides policy guidelines for the conservation of these resources. These guidelines are applied to certain types of land use changes requested of the Board of Supervisors.

Designated Riparian Habitat: A regulated riparian habitat is defined by the riparian classification maps adopted by the Board of Supervisors. These habitats are generally characterized by vegetation that is different in plant species composition or an increase in the size and/or density of vegetation as compared to upland areas and occur in association with regulatory floodplains through which waters flow at least periodically, as well as any spring, cienega, lake, watercourse, river, stream, creek, wash, arroyo, or other body of water. These ecological communities represent a continuum of plant species' response to available moisture, and can be subdivided into hydroriparian, mesoriparian, and xeroriparian classifications as well as identification as important riparian areas providing ecological connectivity and biological corridors.

Energy Efficiency: Using less energy while doing to same amount of work.

Environmentally-Friendly Products: Products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal of the product or service.

Energy Star Certified: An energy performance rating system for buildings administered by the U.S. government. The rating system provides buildings a score, on a scale of 1-100, relative to similar buildings throughout the nation. Buildings with a rating of 75 or higher may qualify for the Energy Star label.

Energy Star Qualified: An energy performance rating system administered by the U.S. government for consumer products. Devices carrying the Energy Star service mark generally use 20-30% less energy than required by federal standards.

Enhancement: The modification or manipulation of a site of ecological, historical or cultural significance to improve, sustain or restore its integrity and desired conditions.

Greenhouse Gas (GHG): Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.

In-Lieu-Fee (ILF): A fee collected as compensation for the disturbance of habitat requiring mitigation. Funds collected through ILF payments are used to implement off-site restoration or conservation projects that offset the disturbance.

Kilowatt-hour (kWh): A unit of measure for energy typically applied to electricity usage and equal to the amount of energy used at a rate of 1,000 watts over the course of one hour. One kWh is equivalent to 3,412 Btu or 3,600 kJ.

Leadership in Energy & Environmental Design (LEED): A third-party certification program developed by the U.S. Green Building Council. It is the nationally accepted benchmark for the design, construction and operation of high performance green buildings. Certification provides independent, third-party verification that a building, home or community was designed and built using strategies aimed at achieving high performance in key areas of human and environmental health.

MtCO2e: See "Carbon Dioxide Equivalent."

Private Deed Restriction: A clause written into the deed of a property which places restrictions on how the property can be used by the owner.

Reclaimed Water: Water that has been treated or processed by a wastewater treatment plant or an on-site wastewater treatment facility.

Renewable Energy: Any energy source that is replenished at least as fast as it is used.

Renewable Water: Renewable water sources are defined as effluent, reclaimed water, non-potable groundwater, storm water or harvested rainwater. Pumped groundwater or potable water are not considered renewable water sources.

Riparian Habitat: The community of plant and wildlife found along the banks of a river, stream, lake or other body of water. Riparian habitats are ecologically diverse and may be home to a wide range of plants and animals.

Section 10 Mitigation: Conservation measures implemented to avoid, minimize, and compensate (mitigate) for the incidental take of species protected under the Endangered Species Act.

Sonoran Desert Conservation Plan (SDCP): Pima County's plan for balancing the conservation and protection of our cultural and natural resource heritage with our efforts to maintain an economically vigorous and fiscally responsible community. Broadly defined, the SDCP considers the following elements: critical habitats and biological corridors, riparian areas, mountain parks, historical and cultural preservation, and ranch conservation. All five elements, along with fiscal analysis, were critical in forming a viable land management plan for Pima County.

Vehicle Miles Traveled (VMT): One vehicle traveling one mile constitutes a vehicle mile traveled. VMT is primarily an indicator of automobile use. Increasing VMT typically corresponds with increases in traffic and vehicle-related pollution.

References

Bark-Hodgins, R., & Colby, B. G. (2006). *Economic assessment of the Sonoran Desert Conservation Plan, an.* Nat.Resources J., 46, 709.

Berman, M., Crane, R., Seiber, E., & Munur, M. (2014). *Estimating the cost of a smoking employee.* Tobacco Control, 23(5), 428-433. doi:10.1136/tobaccocontrol-2012-050888 [doi]

City of Tucson. (2014). *About Tucson Water.* Retrieved from https://www.tucsonaz.gov/water/about-us

Environmental Protection Agency. (2016). *Greenhouse gas equivalencies calculator.* Retrieved from http://www2.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Kats, G., & Alevantis, L. (2003). *The costs and financial benefits of green buildings: a report to California's sustainable building task force.* Sustainable Building Task Force.

Pima County. (2015). *2015 Effluent generation and utilization report.*

Singh, A., Syal, M., Grady, S. C., & Korkmaz, S. (2010). *Effects of Green Buildings on Employee Health and Productivity.* American Journal of Public Health, 100(9), 1665–1668. http://doi.org/10.2105/AJPH.2009.180687

Stanford University (2016). *Recycling Benefits.* Retrieved September 14, 2016, from http://bgm.stanford.edu/pssi_faq_benefits

Westmoreland Associates. (2011). *City of Tucson ARRA climate change planning consultant services: Measure G6b – residential smart meter; residential direct load control program.* Tucson, Arizona: City of Tucson.

Sustainability topic by chapter and the Sustainability (S) team leads

Chapter	S-Team Lead	Department
Minimizing the Carbon Footprint of County Government	Alex Oden	Office of Sustainability, Conservation & Historic Preservation
Renewable Energy and Energy Efficiency	Betty Stamper	Development Services
Green Building	Sheila Cook	Facilities Management
Alternative Fuel Vehicles	Frank Samaniego	Fleet Services
Water Conservation and Management	Kathy Chavez	Office of Sustainability, Conservation & Historic Preservation
Land Conservation and Management	Greg Saxe	Regional Flood Control District
Waste Reduction	Catherine Strickland	Economic Development & Tourism
Green Purchasing	Mandy Armenta	Finance
Health and Wellness	Jennifer Billa	Human Resources

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Betty Stamper
Catherine Strickland

We want to hear from you

Do you have any thoughts or questions about this report? Please let us know by contacting the Pima County Office of Sustainability and Conservation at SustainabilityPrograms@pima.gov

PIMA COUNTY
SUSTAINABILITY & CONSERVATION

This beautiful domed building in downtown Tucson once served as the Pima County Court House. It is listed on the National Register of Historic Places.

PCSP
PIMA COUNTY SUSTAINABILITY PROGRAM

For more information about what Pima County is doing to make its operations more sustainable and what you can do to reduce the impact of your actions, please visit the Pima County Sustainability Programs Division webpage www.pima.gov

Sustainability Success Story:

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