

# COMMUNITY SUSTAINABILITY



CITY OF FLAGSTAFF ANNUAL REPORT ON SUSTAINABILITY: 2010



This year's Annual Report on Sustainability celebrates the City of Flagstaff's efforts toward sustainability made within the municipal organization and throughout the community. Sustainability requires an integrated commitment from every part of the organization from Public Works to Community Enrichment to Information Technology. I am proud to present the 2010 Annual Report of Sustainability as an illustration of how every City Division contributes to improving municipal efficiencies (and effectiveness) and community well being.

In an effort to lead by example, the Municipal Sustainability Plan was developed this year as a commitment to be more efficient and effective with limited fiscal and natural resources. The plan establishes clear goals, objectives, and strategies that will guide the organization on a sustainable path, contributing to a healthy and productive work environment.

In 2010, the City completed the revitalization of Beaver and San Francisco Streets, providing urban landscaping, furniture, and public art to support a pedestrian, bicycle, and transit friendly

neighborhood. We reached an important milestone in creating a healthy, walkable community with the construction of over 50 miles of Flagstaff Urban Trail System (FUTS) trails.

When the climate changes, local governments are the first responders. Developing an action plan to prepare and respond to changes in climate will build local resilience in the Flagstaff community. This year, the City received grant assistance from ICLEI – Local Governments for Sustainability, and was selected to be one of eight national “Inaugural Adaptation Communities.” As a result of this, we are working to develop a plan that serves as an insurance policy for our community to better prepare for changes in the weather and climate.

The City expanded the Community Agriculture Project to include a second community garden located on Izabel Street in the Sunnyside neighborhood, increasing community access to healthy, affordable food. I am proud that throughout the 2010 growing season, gardeners grew approximately 2,700 pounds of produce, reducing their grocery bills and their carbon footprint.

We view sustainability as simply living within our means while planning for the future. Keeping the City's doors open requires that we utilize public resources efficiently to promote a healthy, livable Flagstaff. The 2010 Annual Report on Sustainability provides the opportunity to reflect on our successes and ensure that we keep raising the bar for Flagstaff as a vibrant, prosperous community.

Sincerely,

Kevin Burke



**QUALITY OF LIFE**

COMMUNITY ENHANCEMENT.....2  
 COMMUNITY ENRICHMENT.....4  
 COMMUNITY DESIGN.....6  
**CLIMATE ADAPTATION AND MANAGEMENT**  
 CLIMATE ADAPTATION AND PREPAREDNESS.....8  
 RENEWABLE ENERGY.....9  
 SUSTAINABLE BUILDING.....10  
 SUSTAINABLE TRANSPORTATION.....12

**RESOURCE CONSERVATION**

WATER CONSERVATION.....14  
 ENERGY EFFICIENCY.....16  
 RECLAIMED WATER.....18  
**WASTE PREVENTION**  
 WASTE DIVERSION.....19  
 HAZARDOUS WASTE MANAGEMENT.....20  
 RECYCLING.....21

## COMMUNITY ENHANCEMENT

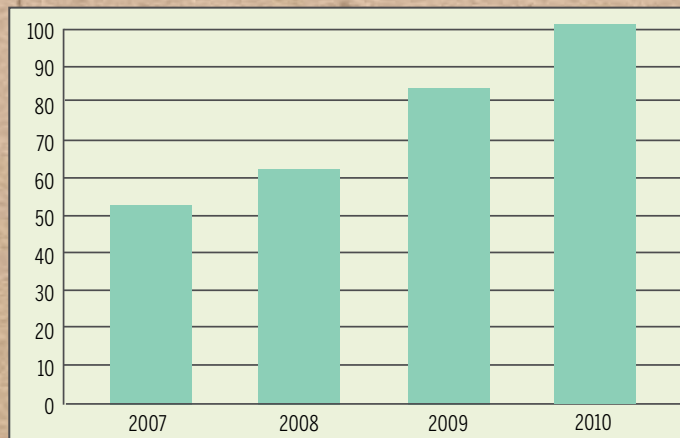
### WHAT IS IT?

Community enhancement involves maintaining a safe and healthy environment for the Flagstaff community, as well as improving the environment through the clean up and reuse of contaminated properties and waterways.

### WHY IS IT IMPORTANT?

Accumulated litter is not only a health and safety issue but also poorly impacts the appearance of our community. Keeping sidewalks clear allows community members to safely travel on foot year round. Brownfield land recycling reduces potential human health risks while revitalizing neighborhoods. Healthy streams, floodplains and wetlands are necessary and beneficial to our community for floodwater retention, pollutant removal, groundwater recharge, wildlife corridors, and recreation.

NUMBER OF ADOPT-AN-AVENUE PARTNERS



### HOW DO WE MEASURE OUR PROGRESS?

- Progress is measured in a number of ways including tracking litter collected, abandoned vehicles, shopping carts, sidewalk related complaints, and participation in the Adopt-an-Avenue Program. Land recycling progress is measured by the number of properties assessed or cleaned up.
- The Flagstaff Area Stream Team (F.A.S.T.) identifies opportunities for restoration, maintenance, and preservation of streams, wash corridors, and open channels within the city limits. The Stream Team's efforts are measured by the progress of current projects, as well as educational outreach to increase community involvement and support.



Brownfield land recycling reduces potential human health risks while revitalizing neighborhoods.

## COMMUNITY ENHANCEMENT

### CITY'S BEST PRACTICES

- The City supports the efforts of individuals and groups by providing litter bags, disposable gloves, and litter grabbers. Community members can select a park, trail, or street for adoption and register online.
- The Brownfield Land Recycling Program provides funding for environmental site assessments, remediation, and redevelopment planning through grant projects, education for Brownfield property owners, and information to assist residents and businesses to make decisions about Brownfields resale, purchase or redevelopment opportunities.

### CITY'S RECENT ACHIEVEMENTS

- 2010 was a record year with a total of 194 litter cleanups and 1,557 bags of litter collected throughout the community. We had 617 shopping carts removed from neighborhoods and returned to retail stores in 2010.
- To date, the Brownfield Land Recycling Program has brought \$428,000 in grant funding to the Flagstaff community, saving tax payers \$227,900 in assessment and cleanup costs for parcels of publicly owned property. Over \$75,000 has been used to directly assist private property owners with environmental assessment.

- The Stream Team made significant progress on the Cheshire Wetlands Restoration Project. Completion of the current phase will allow the project to progress and move forward with the next part that includes a "watchable wildlife" viewing platform and education interpretive signage.
- Utilizing Open Space bond money, the City acquired a twenty acre parcel of land for open space near Thorpe Park.

### HOW CAN YOU MAKE A DIFFERENCE?

- If you don't understand the history of property, have a Phase 1 Environmental Site Assessment completed to assist in property exchange or redevelopment. Visit [www.flagstaff.az.gov/brownfields](http://www.flagstaff.az.gov/brownfields).
- Let your elected officials know that you agree with the benefits of restoring the valuable areas within our watersheds.
- Get involved with existing stream restoration projects or volunteer to take the lead on a project.

### NEXT STEPS ➡

Coordinate the 100+ sections of FUTS trail and dozens of parks and open spaces with local volunteer stewards. Develop the restoration plan and funding source to pursue the Rio de Flag Wildcat Reach restoration project. Focus on offering environmental site assessment assistance outside of grant opportunities and assist private property owners with cleanup.

## COMMUNITY ENRICHMENT

### WHAT IS IT?

Community Enrichment Services provides education, leisure, health, and recreation opportunities to the Flagstaff community. The creation and maintenance of comprehensive programs, facilities and special events are designed to meet the physical, mental, cultural and social needs of residents and visitors alike.

### WHY IS IT IMPORTANT?

Community enrichment is an investment in the health and well-being of our community members. Community agriculture promotes sustainable communities by providing locally grown food, reducing greenhouse gas emissions associated with food transportation, and building a sense of community.

### HOW DO WE MEASURE OUR PROGRESS?

Progress is measured through enrollment and attendance statistics, participant surveys and direct feedback.

### CITY'S BEST PRACTICES:

- The Library offered seven new programs in 2010 including Friday Flicks, Crafty Youth, Flagstaff Reads, Family Game Day, Saturday Story Stop, Promoting Quality Electronic Databases @ Your Library, and J. A. Jance and other author presentations. 335 community members participated in 12 new Library workshops including Car Repair, Health & Wellness, Hobbies & Crafts, and more.
- Recreation Services offered 93 programs including eight new programs: Fun & Food, Mountain Bike Clinic, Photo Workshop, Square Foot Gardening, Top Chef, Yoga for Kids, Easter Eggstravaganza, and Recreation Monthly Movie.

- At the community gardens, educational workshops such as composting, water harvesting and seed saving were held to further serve and enrich the gardeners' experience.

### CITY'S RECENT ACHIEVEMENTS:

- In 2010, over one million library materials were circulated and patrons and visitors used approximately 268,901 computer and wireless sessions at the Flagstaff Public Library. The Library offered seven new programs and 12 new workshops for people of all ages. The Library's workforce development efforts increased to offer weekly one-on-one computer tutoring sessions for the public and provided assistance with resumes and job applications. The Library offers three two-hour computer sessions per week, with approximately 624 individuals signing up for individual 30-minute sessions.



Throughout the 2010 growing season, 53 gardeners participated in the Bonito and Izabel gardens, producing approximately 2,700 pounds of produce.

## COMMUNITY ENRICHMENT

- City Recreation programs and events drew 193,948 participants in 2010.
- The City partnered with Flagstaff Foodlink to assist in the care and expansion of the Bonito Street Community Garden as well as the creation of a second community garden located on Izabel Street in the Sunnyside neighborhood. With the help of many volunteers, Foodlink made substantial progress at the Izabel site, amending the soil, planting edible and native trees and shrubs, planting annuals, creating a garden sign, gathering materials and supplies, and building a "living fence." Throughout the 2010 growing season, 53 gardeners participated in the Bonito and Izabel gardens, producing approximately 2,700 pounds of produce.



City Recreation programs and events drew 193,948 participants in 2010.

### HOW CAN YOU MAKE A DIFFERENCE?

- Be active and healthy.
- Take advantage of City special events, recreation facilities, and enrichment programs.
- Participate in the community gardens. To learn more, visit [www.flagstaff.az.gov/gardens](http://www.flagstaff.az.gov/gardens).

### NEXT STEPS ⇨

- Further develop community agriculture efforts, with additional gardens and educational workshops expected.
- Continue to expand Library and Recreation Services programming to reach a wider community audience.

**WHAT IS IT?**

Community design encompasses regional and land development planning, as well as the generation of projects that enhance the livability of Flagstaff, improve aesthetics, deliver quality infrastructure, and contribute to the art and cultural opportunities of the community.

**WHY IS IT IMPORTANT?**

Intelligent planning and design of a community can improve the quality of life for citizens and visitors. The preservation and enhancement of our built environment contributes to the quality of life, good neighborhoods, and economic vitality and helps make Flagstaff a desirable place to live, work, and play. The Flagstaff Regional Plan and the Zoning Code establish a framework and policy that encourages sustainable growth. The Regional Plan links transportation issues, water resource planning, development and economic growth, preservation, and conservation with land-use decisions.



New bicycle racks on San Francisco and Beaver Streets.

**HOW DO WE MEASURE OUR PROGRESS?**

Progress is measured primarily through participation, citizen surveys and direct feedback.

**CITY'S BEST PRACTICES**

The Flagstaff Regional Plan is a policy document meant to guide growth and preservation in the region for the next 20 years. The City of Flagstaff, Coconino County and the Flagstaff Metropolitan Planning Organization (FMPO) have been working together for two years with a Council and Board of Supervisors appointed Citizen Advisory Committee (CAC) to develop policies and recommend actions. The Regional Plan must be adopted by City Council and Coconino County Board of Supervisors in the spring of 2012, and then ratified by voters in November 2012.

**CITY'S RECENT ACHIEVEMENTS**

- The Flagstaff Metropolitan Planning Organization (FMPO) received a Planning Assistance for Rural Arizona (PARA) Grant through Arizona Department of Transportation in the amount of \$250,000 to assist the Regional Plan to create development scenarios for the community, City Council, Board of Supervisors and CAC to consider. All three scenarios will look at potential development outcomes, such as water usage, greenhouse gas emissions, job creation and assist the decision makers to understand hard choices that lay ahead for our community.
- In 2010, the City completed the revitalization of Beaver and San Francisco Streets between Route 66 and Butler Avenue. This project involved entirely new street infrastructure that incorporates urban landscaping, furniture, and public art. The built environment was remodeled into a pedestrian, bicycle, and transit friendly, aesthetic neighborhood.



Centennial Walk Mural at the Flagstaff Visitor Center

**HOW CAN YOU MAKE A DIFFERENCE?**

Get involved with on-going Regional Plan discussions. Visit [www.flagstaff.az.gov/regionalplan](http://www.flagstaff.az.gov/regionalplan) for upcoming discussions and share your thoughts with the Citizen Advisory Committee (CAC). The CAC meets the first Thursday of every month.

**NEXT STEPS** ➡

- Finalize all elements of the Regional Plan, take draft plan to City Council and Board of Supervisors, and eventually to the voters.
- Compile a Public Art Map to help locals and tourists locate the diverse artistic opportunities within the City.

## CLIMATE ADAPTATION AND PREPAREDNESS

### WHAT IS IT?

Monitor, prepare, and plan for the impacts of the changing climate on Flagstaff's local economy, natural resources and the community's well-being.

### WHY IS IT IMPORTANT?

Ensuring health and safety for the Flagstaff community today and in the future requires that the City be a leader and take action to prepare for the changing climate. A proactive approach can reduce severity of risks and is less costly than responding to these impacts as they happen.

### HOW DO WE MEASURE OUR PROGRESS?

Greenhouse gas (GHG) emissions from City operations are measured and reported annually. Community GHG emissions are measured and reported on a biennial basis. Equivalent carbon dioxide (or CO<sub>2</sub>e) is a measure for describing how much global warming a given type and amount of greenhouse gas may cause. Measuring our community's resiliency to changes in weather and climate allows for a greater understanding of our community's critical social, economic and environmental resources.

### CITY'S BEST PRACTICES

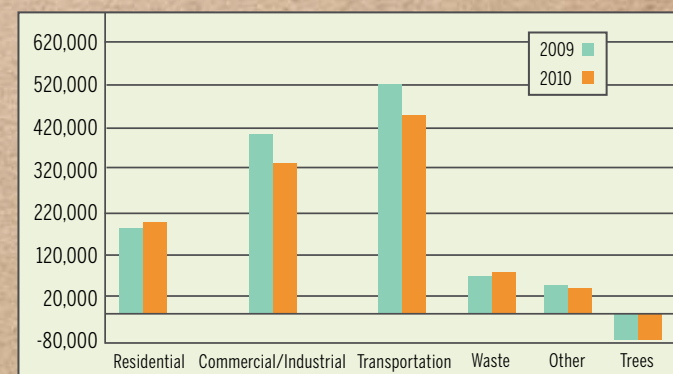
The City's best practices include monitoring, evaluating and reporting GHG emissions for community and municipal organization. The City utilized an approach to measure the City's vulnerabilities to climate change, how much adaptation policies and measures will cost, where we lack sufficient

capacity to adapt, and what the risks are if we do not plan. The City received \$45,685.46 in incentives from APS for the Wildcat Waste Water Treatment Facility cogeneration unit.

### CITY'S RECENT ACHIEVEMENTS

In 2010, Flagstaff was selected by ICLEI – Local Governments for Sustainability, to be one of eight “Inaugural Adaptation Communities” to participate in the first comprehensive climate adaptation program for local governments. Using cutting edge technical assistance and resources, the City will accelerate its efforts to prepare for climate change impacts.

FLAGSTAFF COMMUNITY GHG EMISSIONS (METRIC TONS CO<sub>2</sub>e)



### NEXT STEPS ➡

The City will conduct a resiliency study, allowing Flagstaff to assess vulnerability to changes in the local climate. Following this study, the City, in partnership with ICLEI – Local Environments for Sustainability, will set climate resiliency goals, and develop a climate adaptation and management plan.

## RENEWABLE ENERGY

### WHAT IS IT?

Renewable energy is energy generated by sources that are constantly renewed or restored and include wind (wind power), sunlight (solar), vegetation (biomass), and internal heat of the earth (geothermal).

### WHY IS IT IMPORTANT?

Renewable energy reduces the use of energy produced by natural resources that cannot be replenished (i.e. fossil fuels such as oil, gas, and coal). Since 2005, the City has spent an average of \$3,000,000 annually on electricity. Although consumption has dropped since 2007, the City is spending roughly the same amount due to rising energy costs. Increasing energy efficiency and renewable energy production promotes the City's energy independence and long-term economic security.

### HOW DO WE MEASURE OUR PROGRESS?

The City monitors energy consumption to ensure effectiveness of efficiency measures. Progress is measured by the sum of the City's renewable energy projects and purchasing.

### CITY'S BEST PRACTICES

The City of Flagstaff is recognized as one of Arizona Public Service's (APS) top three Green Choice participants. Green Choice is an APS program that provides customers with the opportunity to purchase a percentage of renewable energy. In 2010, the City purchased 4,500 blocks of renewable energy from the electric service provider. The City is also a main supporter of the Northern Arizona Solar and Wind Energy Tour.

### NEXT STEPS ➡

Implement the Municipal Sustainability Plan. Implement a Solar Power Purchase Agreement.

### CITY'S RECENT ACHIEVEMENTS

The City of Flagstaff City Council formally adopted Resolution 2010-16, which mandates that:

- All energy efficiency improvements in City buildings adhere to ENERGY STAR guidelines.
- The City commits to generate safe, reliable, and affordable power.
- Renewable energy projects and renewable energy purchasing combined will meet, at a minimum, 15% of the City's energy consumption by 2012, 20% by 2015, 35% by 2020, and 50% by 2050.

### HOW CAN YOU MAKE A DIFFERENCE?

- Consider using renewable energy to offset your energy needs. Visit [www.dsireusa.org](http://www.dsireusa.org) to learn about federal, state, and utility tax credits and rebates.
- Sign up for a renewable energy choice program with your energy provider.
- Contact Arizona Smart Power, a non-profit organization dedicated to helping Arizonans make smarter energy choices, at [www.azsmartpower.org](http://www.azsmartpower.org).

## WHAT IS IT?

Sustainable building practices increase building efficiency and reduce consumption of energy and natural resources, while reducing carbon emissions. The City works through a number of methods to support development of affordable owner occupied housing for low and moderate income members of the community. Heritage preservation is recognizing, preserving, enhancing, and perpetuating the use of those objects, structures, sites, and landscape features that represent distinctive elements of the City's cultural, political, architectural, and archaeological history.

## WHY IS IT IMPORTANT?

Sustainable building design uses key resources like energy, water, and materials more efficiently than buildings that are built to standard building codes. Sustainable building reduces the ecological impact of the built environment and promotes a sense of place. Heritage preservation is a successful strategy for smart growth, redevelopment, affordable housing, sustainable building, and economic development. Not only does the adaptive re-use of historic structures preserve the character of the community, but it recycles embodied energy, workmanship, and first growth materials.

## HOW DO WE MEASURE OUR PROGRESS?

The City monitors permits that are issued for renewable energy systems and other sustainable building elements. In addition to regularly conducting surveys and tracking the number of historic preservation reviews, we measure resources protected and endangered. Progress is measured by units developed, Home Energy Rating (HERS) scores and Energy Star certification, and Coconino County Sustainable Building Program review.

## CITY'S BEST PRACTICES

- The Housing Section provides rehabilitation and repair assistance to low income homeowners. While the primary focus of the program relates to health and safety issues in the home, energy efficiency and water conservation are also objectives that are addressed. Projects routinely include the installation of energy star appliances, energy efficient windows, insulation, low flow toilets and other conservation improvements.
- The City continues to formally recognize historic properties through the creation of National Register and local historic districts. The Historic Preservation Officer is available to provide technical and design assistance combining both architectural and preservation expertise. The City has a preservation grant program to assist with community efforts.

## CITY'S RECENT ACHIEVEMENTS

- Fire Station #2 will feature many sustainable design elements including a photovoltaic solar generation unit, low flow plumbing, high efficiency mechanical units, and the implementation of Low Impact Development principals to manage stormwater run off. By building to these standards the City expects annual utility savings of \$2,000 and 95% of the construction waste will be recycled.
- The City completed 31 rehabilitations in 2009 and 2010 and has numerous projects in design or environmental review stages and continues to process applications.
- The Isabel Homes are an example of the City using a number of methods to support development of affordable owner occupied housing for low and moderate income members of the community. To conserve energy and water

and ensure long term affordability through reduced utility costs, the homes were built to achieve Home Energy Rating System (HERS) scores of 69 or greater.

- The City recently created a Landmarks designation process to streamline and simplify local recognition of historic properties. The Southside Historic District was recently placed on the National Register of Historic Places, recognizing 450 properties, making them eligible for tax advantages and grants, and relieving them of some modern development requirements.

## HOW CAN YOU MAKE A DIFFERENCE?

- See if you qualify for Owner Occupied Housing Rehabilitation and Repair and use the program to assist in your efficiency improvements or refer a friend.
- Recognize the value of embodied energy and the re-use of that energy.
- Understand preservation as a modern tool and not as an impediment. Designate your house or building as a historic structure.

## NEXT STEPS ⇌

- Provide new affordable and sustainable homes for Flagstaff homebuyers.
- Understand and map local ranching and archeological resources without endangering those resources.



The City completed 31 rehabilitations in 2009 and 2010

## SUSTAINABLE TRANSPORTATION

### WHAT IS IT?

Sustainable transportation is providing for mobility in the most fuel efficient, low emission, and space efficient way possible. For the City Fleet, it meets various needs while minimizing fuel consumption.

### WHY IS IT IMPORTANT?

Sustainable transportation enables social and economic interactions to happen with a low environmental impact and through the responsible use of resources.

### HOW DO WE MEASURE OUR PROGRESS?

Citizen surveys provide feedback on the City's community transportation programs. Progress is also measured by the fuel efficiency, annual fuel consumption, and the number of high efficiency and alternative fuel vehicles in the City's fleet.

### CITY'S BEST PRACTICES

- In 2010, the City offered Mountain Line ecoPASS, an annual transit bus pass for all permanent employees.
- Flagstaff has 117 miles of dedicated bike lanes covering 58% of all major streets. About 9% of all trips in Flagstaff are made by bicycle and 13% are made on foot, which is much higher than the national average. The City offers the Flagstaff Urban Trails System (FUTS), a city-wide network of non-motorized, shared-use pathways used for both transportation and recreation.
- The City co-sponsors Flagstaff Bike to Work Week, Flagstaff Walks!, and World Carfree Day. All are a series of annual events that encourage and celebrate bicycling, walking, and other alternate modes of transportation. Flagstaff is also one of only a few communities in the

country with a formal Pedestrian Advisory Committee. The City also has a formal Bicycle Advisory Committee.

### CITY'S RECENT ACHIEVEMENTS

- Flagstaff was designated a Bicycle Friendly Community by the League of American Bicyclists in 2006 and was promoted from Bronze to Silver level in 2010.
- The City celebrated surpassing 50 miles of FUTS trails with a variety of trail-related events during the summer of 2010. Several new FUTS segments were completed in 2010, including a new bridge to complete the Rio North FUTS Trail. The City received almost \$1.5 million in grant funding in 2010 to help complete missing segments of the FUTS system. The overall FUTS master plan includes 130 miles of trails.

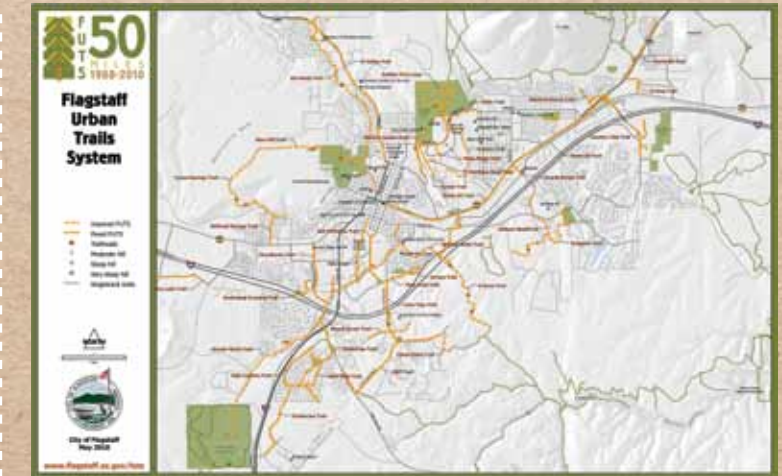


The City received almost \$1.5 million in grant funding in 2010 to help complete missing segments of the FUTS system.

## SUSTAINABLE TRANSPORTATION

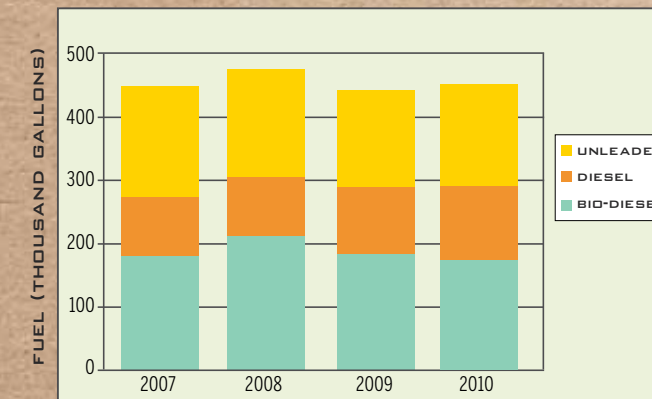
### HOW CAN YOU MAKE A DIFFERENCE?

- Keep your vehicle well-tuned, including regular preventative maintenance, oil changes, and tire pressure checks.
- Use alternative modes of transportation when possible. Almost half of all trips made in Flagstaff are less than two-and-a-half miles in length.
- Avoid aggressive driving (speeding, rapid acceleration and braking) because it wastes fuel and is not safe.
- Attend the City's Pedestrian and/or Bicycle Advisory Committee meetings. To learn more visit [www.flagstaff.az.gov/bicycle](http://www.flagstaff.az.gov/bicycle) or [www.flagstaff.az.gov/pedestrian](http://www.flagstaff.az.gov/pedestrian).



Flagstaff Urban Trails System Map

CITY FLEET FUEL CONSUMPTION



### NEXT STEPS

- Install a comprehensive system of regulatory, directional, informational, and trailhead signs for the FUTS.
- Continue new trail design and construction.
- Take advantage of opportunities, for example when streets are resurfaced, to add bike lanes, sidewalks, and other facilities for bicyclists and pedestrians.



## WHAT IS IT?

Water conservation is the efficient use of water resources.

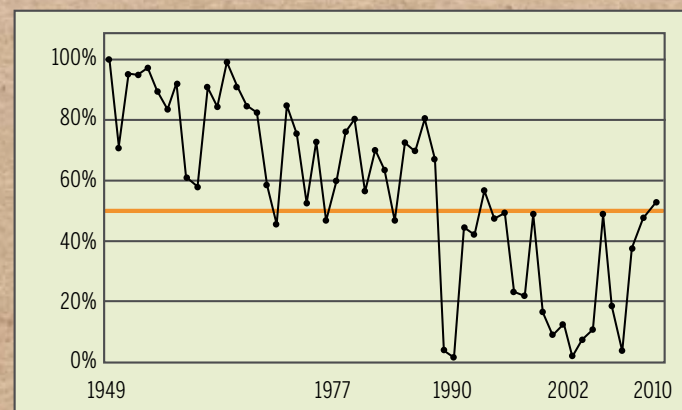
## WHY IS IT IMPORTANT?

Flagstaff's water supply is limited and water demands continue to grow. Conservation efforts help ensure that Flagstaff has enough water for current and future generations. Impacts from drought over the past two decades have dramatically altered the amount of surface water available. In 2010, 51% of all water produced was from surface water. The chart below illustrates how important groundwater has become due to the region's prolonged drought conditions.

## HOW DO WE MEASURE OUR PROGRESS?

The City measures water consumption by tracking annual use. The City also monitors water consumption per person per day. On average, a Flagstaff resident uses 114 gallons of water per day, which is the second lowest rate in the state and below the national average of 150 gallons per person per day.

PERCENT OF CITY WATER FROM SURFACE SOURCES



## CITY'S BEST PRACTICES

- An ordinance was passed in 2009 requiring the use of Low Impact Development (LID) practices, an ecologically friendly approach to site development and stormwater management. LID practices recharge groundwater, provide for irrigation using stormwater runoff, and minimize flooding.
- The City's Water Conservation Program manages Flagstaff watering regulations through the enforcement of the Drought Preparedness Plan. A year round watering schedule restricts landscape watering to certain times on select days based on addresses.
- The City utilizes the Rain Bird computerized irrigation system for City parks, rights of way, and streetscapes. The system cuts watering time in half, saving water and reducing staff time dedicated to watering.
- Efforts to conserve potable water by using reclaimed water have been in effect for several years.

## CITY'S RECENT ACHIEVEMENTS:

In 2010, the City's Stormwater Management Section in partnership with the Streets Section installed two raingarden traffic islands and one bio-swale traffic island to utilize the stormwater runoff from the street for all irrigation needs.



Stormwater irrigates the plants in this traffic calming device.

## HOW CAN YOU MAKE A DIFFERENCE?

- Replace thirsty lawns and landscape with drought-resistant and native plants.
- Direct your roof downspout to a landscaped area by creating earth berms and contouring slopes.
- Repair leaks immediately.
- Install a low flow showerhead and faucet aerators.
- Follow the required Flagstaff Watering Schedule (visit [www.flagstaff.az.gov/waterconservation](http://www.flagstaff.az.gov/waterconservation)).
- Install raingardens on your own property to decrease stormwater run-off and increase the quality of your property.
- Visit the Stormwater Management Section website at [www.flagstaffstormwater.com](http://www.flagstaffstormwater.com) for information on Low Impact Development techniques.

## NEXT STEPS →

Reactivate the Water Conservation rebate program. Continue promotion of Low Impact Development strategies and provide increased community outreach to support goals.

**WHAT IS IT?**

Energy conservation is the practice of reducing energy consumption by using energy wisely and improving energy efficiency.

**WHY IS IT IMPORTANT?**

Energy conservation increases economic stability, promotes energy independence, and reduces the impact of climate change.

**HOW DO WE MEASURE OUR PROGRESS?**

The City measures monthly consumption of natural gas and electricity at all City facilities. The Flagstaff community's energy consumption is measured every other year.

**MUNICIPAL****CITY'S BEST PRACTICES:**

The City is committed to creating a "Green Datacenter." In addition to small steps to reduce consumption such as installing motion sensors and light timers, the City has also committed to buying new servers that only support "Energy Smart" configurations that allow the equipment to adjust how much electricity it uses based on its current work load. In 2010, the City began virtualizing all possible servers onto a trio of physical host servers.

**CITY'S RECENT ACHIEVEMENTS**

- In 2010, the City retrofitted the holiday lighting for the following City facilities: City Hall, Flagstaff Public Library – Main, Flagstaff Visitor's Center and Milligan House – CVB. Energy demand, consumption and costs for operating LED holiday lights at the four retrofitted facilities for six hours per day for one month (186

hours) is 150 percent less than operating incandescent holiday lights. The return on investment for the retrofit project is approximately 5 months. After the investment reaches full maturity, LED holiday lights at the four facilities will have a net savings of \$876.77 per month.

- The City is heading into the final stages of its virtualization project and when complete will have virtualized twenty physical servers onto three host servers while still leaving room for future growth. This change alone will result in approximately 35,000 kWh per year of electricity savings and a reduction in cooling costs in the data center.
- Utilizing a rebate from UniSource for \$2,137.50, the City purchased a system of three 95%+ efficient boilers at 0.285 MMBTU for the Rio de Flag water reclamation facility. As a result, the City has seen a significant reduction in natural gas consumption. The total cost of the project was \$29,365 and the annual savings in natural gas are estimated to be \$5,000 or more.



In 2010, the City completed 123 residential energy retrofits and served over 300 residents.

**COMMUNITY****CITY'S BEST PRACTICES:**

- The City's Residential Energy Retrofit Program helps Flagstaff residents save money and save energy. Almost \$185,000 was distributed to the local economy through contracts in 2010.
- In an effort to help reduce energy consumption during the holiday season in the Flagstaff community, the City provided energy efficient holiday lights to residents at a discounted price. This past year, a total of 1,188 boxes were distributed into the Flagstaff community. The total estimated energy savings for the Flagstaff Annual LED Holiday Light Swap is 9,138 total kilowatt hours or \$1,168 when used 5 hours per day for 30 days.
- The City is a founding and active member of the Regional Network for Energy and Water Sustainability (ReNEWS). The City works with local groups such as the Weatherization and Community Building Action Team to build support and awareness for residential energy efficiency behaviors and initiatives. The City's programming is supported by apprenticeship-style workforce training opportunities.

**CITY'S RECENT ACHIEVEMENTS**

- In 2010, the City completed 123 residential energy retrofits and served over 300 residents. Estimated annual savings as a result of the home upgrades are 444,295 kWh and 684,215 lbs CO<sub>2</sub>e. In 2010, the Sustainability Program received \$170,000 in additional funding from Living Cities

**NEXT STEPS** ⇨

The Streets Section plans to install LED luminaires in an effort to increase efficiency in street lighting. Sustainability Program staff will partner with local food banks to distribute 4,800 additional CFLs from APS to families and individuals.

Foundation to support existing residential energy retrofit programming, including workforce development training opportunities.

- Both branches of the libraries have portable energy meters available to residents to check out for two weeks at a time. Energy meters are designed to easily measure how much electricity is used by plug-in appliances at home or at work.
- In 2010, the Sustainability Program received 2,000 Compact Fluorescent Light bulbs (CFLs) from APS. The Program partnered with the Flagstaff Housing Authority (FHA) to retrofit the lighting in Brannen and Siler Homes communities. Both Brannen and Siler Homes are public housing developments managed by the FHA and are home to 927 Flagstaff residents. Estimated savings are \$25,540 in annual utility costs, 241,000 kWh and 371,140 lbs of CO<sub>2</sub>e annually.

**HOW CAN YOU MAKE A DIFFERENCE?**

- Check out an Energy Meter from the Public Library.
- Apply for a residential energy retrofit today.
- Install a programmable thermostat.
- Seal small leaks in walls and windows.
- Turn off computers when not in use and make sure to set power down options for monitors to reduce energy usage and cut down on electricity costs.
- Visit [www.flagstaff.az.gov/homes](http://www.flagstaff.az.gov/homes).

## RECLAIMED WATER

### WHAT IS IT?

Reclaimed water is highly treated wastewater used for irrigating landscapes and golf courses, flushing toilets, and dust abatement where potable water is not necessary.

### WHY IS IT IMPORTANT?

Reclaimed water is an important component of the City's water conservation efforts. Reclaimed water not only reduces the use of potable water, but its use delays the need to construct new drinking water production infrastructure.

### HOW DO WE MEASURE OUR PROGRESS?

Reclaimed water is measured through production at the Wildcat Hill Wastewater Treatment Plant and the Rio de Flag Water Reclamation Plant. In 2010, over 614.8 million gallons (over 1,887 acre-feet) of reclaimed water was used by 97 customers, including industry, residential, municipality, golf courses and standpipe connections. This represents approximately 18% of the total annual Flagstaff community water consumption.

### CITY'S BEST PRACTICES

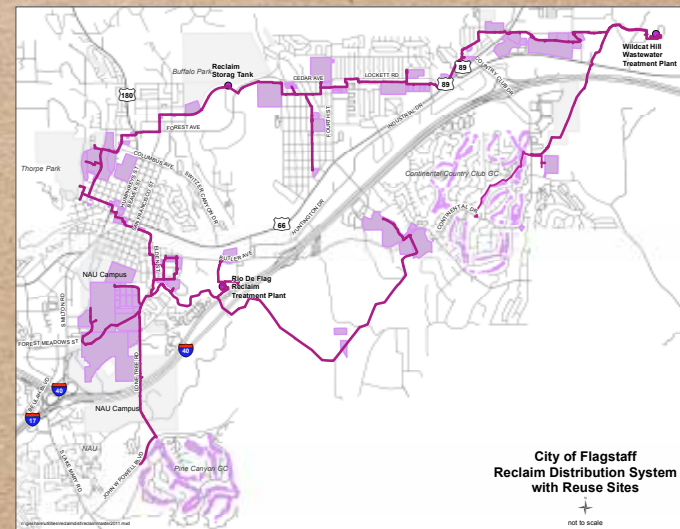
Both the Wildcat Hill and Rio de Flag Plants use a Class A+ treatment process. This process is capable of producing the highest quality of reclaimed water. The reclaimed water from these facilities is made available for residential, commercial and industrial uses via an extensive distribution system and four hauling locations.

### CITY'S RECENT ACHIEVEMENTS

The current reclaimed water distribution system is shown on the map below. The City regularly discharges reclaimed water into the Rio de Flag to help recharge the groundwater aquifer and for other environmental purposes. About 4,425 acre-feet (or 1.44 billion gallons) of reclaimed water was used to recharge the Rio de Flag in 2010.

### HOW CAN YOU MAKE A DIFFERENCE?

Contact the Utilities Department at 928-779-7646 for information on access to reclaimed water at your residence or business.



### NEXT STEPS →

Increase reclaimed water processing and availability to the Flagstaff community.

## WASTE DIVERSION

### WHAT IS IT?

Waste diversion promotes reducing the amount of new materials used and encourages reusing, recycling and composting materials before disposal.

### WHY IS IT IMPORTANT?

Using fewer new materials reduces pollution, conserves natural resources, and saves money.

### HOW DO WE MEASURE OUR PROGRESS?

The City uses three measures to track its waste diversion. The average recycling rate was 15% in 2010. The City also tracks materials that are diverted from the Cinder Lake Landfill for recycling, reuse, or other purposes. In 2010, the diversion rate was 44%.

### CITY'S BEST PRACTICES:

The City offers paperless utility billing and payment services to customers. The City provides drop off bins for battery, cell phone and toner cartridge recycling in City Hall for staff and community members. City operations continue to transition to email correspondence and electronic recordkeeping, billing and community documents.

### CITY'S RECENT ACHIEVEMENTS:

- A total of 995 tires were collected through the annual Waste Tire Roundup. Recycling and reusing tires helps to beautify our neighborhoods and city. Tires can be reused and recycled into asphalt mix and playground material.
- As part of on-going forest thinning projects to reduce wildfire hazard and improve forest health, the landfill utilizes a mix of wood chips from the forest thinning as a component in the Alternative Daily Cover at the Landfill. The use of biomass postpones the need to import soil from outside of the region.

### HOW CAN YOU MAKE A DIFFERENCE?

- Choose products with minimal packaging.
- Bring reusable bags with you to the grocery or retail store.
- Bring a reusable mug and bottle with you to work and on trips.
- Sell or donate goods instead of throwing them away.
- Reuse and recycle packaging materials.
- Consider buying gently used items.

### NEXT STEPS →

Use products that have the least damaging and most beneficial environmental impact. Use a national network of procurement best practices as an effective resource for identifying and incorporating life cycle cost assessment tools and methods. Provide curbside glass collection.

## HAZARDOUS WASTE MANAGEMENT

### WHAT IS IT?

Hazardous waste is waste that is dangerous or potentially harmful to human health or the environment. Hazardous waste comes in many forms and may be toxic, ignitable, corrosive, or reactive. It includes discarded residential and commercial products like batteries, pesticides, cleaning fluids, automotive items, and electronics such as computers, cell phones and televisions.

### WHY IS IT IMPORTANT?

Proper and safe recycling of hazardous waste protects human health and the environment, reduces waste and keeps Flagstaff cleaner and safer.

### HOW DO WE MEASURE OUR PROGRESS?

The Hazardous Products Center (HPC) provides City and Coconino County residents access to proper recycling and disposal of household hazardous waste, in addition to assisting qualifying businesses. Disposal rates are tracked monthly at the HPC.

### CITY'S BEST PRACTICES:

- The HPC has a Drop & Swap area containing free reusable household products and over 30 tons of reusable products were distributed in 2010.
- Additionally, five gallon buckets of re-blended earth tone paints for exterior use are available free to the community.
- The HPC also offers the Small Business Waste Program (SBWP) which offsets transportation costs, combines wastes from multiple businesses, and provides an

economical solution to small business hazardous wastes disposal needs.

### CITY'S RECENT ACHIEVEMENTS:

The HPC managed nearly 173 tons of household hazardous waste, including electronics and paint. Nearly 90% of the hazardous waste received at the HPC is recycled or reused. More than 200 local businesses have participated and 127 tons of hazardous and electronic waste from businesses have been recycled or properly disposed of.



In 2010, the HPC managed nearly 173 tons of household hazardous waste.

### HOW CAN YOU MAKE A DIFFERENCE?

- Bring spent, used/unused hazardous wastes, paints and electronics to the HPC for proper disposal.
- Encourage family, friends, neighbors, and businesses to utilize the HPC.
- To learn more, visit [www.flagstaff.az.gov/hpc](http://www.flagstaff.az.gov/hpc).

### NEXT STEPS ➡

Expand opportunities for increased hazardous waste education and awareness and recycling, reuse, and disposal.

## RECYCLING

### WHAT IS IT?

Recycling is the collection and reprocessing of waste materials into new products. The City's recycling program processes paper products, cardboard, rigid plastics #1 through #7, steel, tin, aluminum and glass.

### WHY IS IT IMPORTANT?

Recycling diverts useful resources from the landfill and reduces the consumption of energy-intensive raw materials. Recyclable materials are processed into new products. In addition, recycling helps extend the life of the Cinder Lake Landfill by conserving space.

### HOW DO WE MEASURE OUR PROGRESS?

Recycling is measured at the Material Recovery Facility and the Cinder Lake Landfill based on the recyclable materials collected from residential, commercial, and community drop-off locations. The City provides residential curbside and commercial collection services that have diverted more than 88,800 tons from the landfill since 1998. In 2010, nearly 9,375 tons of recyclables were collected.

### CITY'S BEST PRACTICES:

- All City facilities provide for the recycling of paper, cardboard, plastic, and metal containers.
- City residents may schedule an appliance collection for discarded appliances to be picked up and recycled.
- Compost bins and indoor recycling bins are made available to residents for purchase.

### NEXT STEPS ➡

Reduce recycling contamination rates through increased education and outreach efforts. Continue to expand recycling programming.

- City staff hosts free composting workshops each year.
- Through a partnership with Willow Bend Environmental Education Center, tours of the Materials Recovery Facility are offered on the first Friday of every month at 3 pm.

### CITY'S RECENT ACHIEVEMENTS:

In 2010, the City piloted recycling at public events at the Thorpe Softball Complex redirecting a total of approximately 2,800 lbs of recyclable material from the landfill.

### HOW CAN YOU MAKE A DIFFERENCE?

- Learn about items that can be recycled at [www.flagstaff.az.gov/recycle](http://www.flagstaff.az.gov/recycle).
- Take a tour of the Materials Recovery Facility.
- Purchase products made from recycled content and that can be recycled or composted.
- Set up a home composting system for food scraps and yard trimmings.
- Consider using the City's recycling collection service at your business. Call 928-779-7664 to learn more.



[FLAGSTAFF.AZ.GOV/SUSTAINABLE](http://FLAGSTAFF.AZ.GOV/SUSTAINABLE)



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