



BACKGROUND

Sustainability is an approach to decision-making that integrates environmental and social concerns into business and economic decisions; considering more than cost, performance and aesthetics. The core issues are long-term durability, energy efficiency, air quality, water conservation and waste reduction. Each member of our regional community, from private citizen to corporate organization to public entity, plays a vital role in protecting and preserving our environment.

The Sustainability Department was created 3½ years ago and has been tasked with educating the Plano community regarding sustainability and incorporating sustainable best practices into city government, local businesses, and the daily lives of its residents.

In order to advance the work of sustainability throughout the City, the Sustainability Director works with four sustainability committees representing city departments critical to the success of this program. In addition, several departments have embraced the city's vision of a more sustainable organization and taken opportunity to adopt new environmental policies, programs and practices important to their operation.

This report outlines the programs and activities implemented in the 2008-09 fiscal year as a result of the committee work and departmental leadership.

Resource Conservation

Goal: Reduce energy consumption in buildings

- Adopted City's first Energy Policy
 - Requires all employees to practice conservation
 - Establishes goal of 5% per year energy reduction
 - Establishes standard ambient temperatures for city facilities
 - Bans personal electric heaters
 - Bans personal desktop printers
 - Clarifies responsibilities of Facilities Maintenance, Technology Services, and Sustainability & Environmental Services
- Completed SB12 activities

Standardizing temperatures expected to save 369,931 kWh annually. Removing personal heaters should save more than 100,000 kWh.

Facilities Services continues to systematically upgrade equipment and operating systems designed to reduce energy consumption and make our buildings more sustainable. Key replacement projects completed:

1. Installed CO2 sensors in three libraries and two recreation centers. Estimated electrical savings: 152,000 kWh
2. Replaced roof section of Police Building, changing insulation from R=9 value to R=19 value. Estimated electrical savings: 18,000 kWh; Estimated gas savings: 220 million BTU
3. Replaced A/C units at Warehouse, Harrington Library, Parkway Service Center, and Print Shop; replaced VAV boxes at Municipal Center; replaced cooling tower at Municipal Center, adding variable frequency drives; and replaced chiller at Justice Center. Estimated electrical savings: 1,043,000 kWh
4. Replaced 32 W T-8 lamps in Animal Shelter with 25W T-8 lamps. Estimated electrical savings: 11,300 kWh
5. Replaced two A/C units at Municipal Annex Building from SEER-9 rating to SEER 13 rating. Estimated electrical savings: 25,842 kWh
6. Replaced 23,577 32-watt T-8 lamps with 25 watt T-8 lamps. Estimated electrical savings: 629,138 kWh
7. Replaced six roof top A/C units totaling 56.5 tons of air-conditioning at Fire Administration Building from units with SEER-9 rating to units with SEER 13.2 rating. Estimated electrical savings: 143,005 kWh
8. Replaced two split system A/C units totaling 10 tons of air-conditioning at Fire Station #4 from units with SEER-9 rating to units with SEER-16 rating. Estimated electrical savings: 26,820 kWh

In addition, **Facilities Services** developed monthly energy report card for distribution to department directors and managers to provide a continued focus on energy efficiency.

- Other Energy Saving Initiatives:

Technology Services is replacing stand alone rack server with energy-saving blade server technology on new installs and replacements and is using virtualization technology to reduce the number of servers needed.

Parks continues to require more league and tournament game units be played during daylight hours.

Public Works conversion to LED lighting on all traffic signals has resulted in a 148% decrease in energy consumption since 2004.

Public Safety Communications utilizes solar power for over half the city's outdoor warning sirens.



*Annual energy savings of \$212,000;
9.8% reduction in energy consumption; eliminated all
but 19 desktop printers; \$13,603 savings in printer disposables.*

Goal: Reduce fuel consumption and harmful air emissions

- Developed Clean Fleet Strategic Plan: Public Solutions Group conducted fleet assessment and emissions baseline. A task force of representatives from Police, Fire, Public Works, Parks and Environmental Services worked with consultant to develop Plan. Major requirements include:
 - Conversion of refuse fleet from diesel to compressed natural gas
 - Installation of a skid mounted ethanol fueling station for 98 flex fuel vehicles
 - Revision of Use of City Vehicle Policy to establish criteria and accountability for take-home vehicles
 - Right-size equipment as replaced
 - Develop training and education for city employees
- Conducted Greenhouse Gas Emissions Inventory, the first milestone in the ICLEI Cities for Climate Protection Campaign. Emissions were calculated for the base year 2007. Emissions from City of Plano public facilities and operations totaled 53,168 metric tons. Energy consumption from the category "buildings" was the largest source of emissions, accounting for 44%. The next largest source of GHG emissions was from the City's water pumping facilities, accounting for 23%. The category "streetlight" consists of street lighting, traffic lights and parking lights at city facilities and accounts for 17%. Gas and diesel used in the City's fleet accounts for 16%. When analyzed by energy type, 80% of the City's emissions are associated with electricity.
- Other Fuel and Air Emission Reduction Initiatives:

Fleet Services was a major contributor in the development of the city's Mobile Source Pollution Reduction Policy that establishes a uniform idle-reduction policy of no more than 3 minutes and establishes policy for ozone days. Fleet Services identified under-utilized vehicles which resulted in reduction of 16 under-utilized vehicles from departmental fleets. They expanded the Fleet Share Program to include three vehicles at Municipal Center for use by all departments. Fleet Services has begun

providing departmental statistics to encourage continued emphasis on reducing fuel consumption. In addition, they eliminated one take-home vehicle, saving approximately \$4,000 annually.

Public Works reduced daily take-home vehicles from 22 to 7, saving approximately \$45,000 annually.

Police implemented three initiatives to improve air quality and reduce fuel consumption.

1. Replaced three unmarked Chevrolet Impala with Toyota Corolla resulting in better gas mileage and lower purchase price. The increased fuel economy (Chevrolet Impala @ 19.9 mpg vs. Toyota Corolla & 26.8 mpg) results in savings of approximately \$600 each in fuel savings and \$2,500 in purchase price.
2. Initiated staff awareness and educational campaign aimed at reducing fuel consumption. Tire pressure gauges were placed in all vehicles and operators were encouraged to check tire pressure on a regular basis. Educational posters were used to make staff aware of fuel wasted by unnecessary idling and encouraged them to avoid unnecessary idling.
3. Reduced number of daily take-home vehicles from 49 to 12,



*2.36% reduction
in fuel consumption,
saving approximately
\$110,000.*

*Fleet fuel economy
increased from 8.1
mpg to 8.4 mpg. At
today's price this
equates to fuel
savings of
approximately
\$68,000 annually.*

*16 vehicles removed
from fleet.*

resulting in 500 less miles driven daily saving \$40,000 annually.

Homeland Security installed four Tandberg Video Conferencing sites in Municipal Annex to allow video conferencing with people in other locations.

Property Standards replaced 2-stroke power equipment utilized during monthly community service clean-up projects with quieter, fuel-efficient 4-stroke equipment, which will result in reduced operating and repair costs.

Environmental Waste Services implemented new landscape collection routing procedures which resulted in reducing an average of 3.6 miles/per day/per vehicle, saving \$101,000 in fuel costs.

Fire Department reduced fleet by one vehicle.

Customer & Utility Services completed remote automated meter reading (AMR) implementation which reduced fuel consumption by 553 miles for an annual savings of \$200.

Risk Management eliminated one take home vehicle, saving approximately \$500 annually.

177,000 less miles driven equates to emission average of 15 miles\gallon. 2,669,741 less kWh equates to reduction of 1,917 metric tons of CO₂e.

Transportation Engineering staff reviews the traffic flow patterns at intersections and optimizes the signal timing to reduce stopped vehicle delay, air pollutants, and excess fuel used. Mid-day peak hours (11:45 AM to 1:15 PM) signal retiming was completed in the area bounded by State Highway 190, Legacy Drive, Preston Road and US 75. The project produced significant reduction of travel time on streets in this area as shown below:

| | Northbound/ <u>Before</u> | Northbound/ <u>After</u> | Southbound/ <u>Before</u> | Southbound/ <u>After</u> |
|--------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| Independence | 10:36 | 9:14 | 11:23 | 9:09 |
| Custer | 10:25 | 9:28 | 9:25 | 8:33 |
| Alma | 10:29 | 9:34 | 10:44 | 7:28 |
| Coit | 10:09 | 8:02 | 9:51 | 7:42 |
| Preston | 10:11 | 7:10 | 8:47 | 8:19 |
| | Eastbound/ <u>Before</u> | Eastbound/ <u>After</u> | Westbound/ <u>Before</u> | Westbound/ <u>After</u> |
| Spring Creek | 11:14 | 11:33 | 11:29 | 9:31 |
| Legacy | 11:36 | 9:26 | 10:54 | 11:07 |
| Park | 9:49 | 8:42 | 8:39 | 7:28 |
| Parker | 8:08 | 7:31 | 9:19 | 8:06 |

The afternoon peak hour signal retiming program resulted in reducing traffic delay by 119,000 hours and reducing carbon monoxide by 10.75 tons.

Green Team Program: *The City implemented this program to educate and involve employees in achieving higher waste diversion and reducing energy, fuel and water consumption. The program includes an employee pledge, incentives, standardized recycling containers, and education. Plano's employee team has embraced the internal Green Team program with 923 employees signing the pledge. The Low Carbon Diet Workshop was given to 30 Green Team Leaders.*

Goal: Reduce Waste

- Completed standardization of trash and recycling containers throughout city
- Conducted two random audits of custodial contractor to ensure compliance with recycling component of contract
- Provided training of custodial contractor employees
- Increased recycling in parks – recycling programs were implemented at Archgate Park (7 fields) and Enfield Park (8 fields). These sites were selected due to heavy use for tournament activity in addition to local league play. Recycling is also being promoted and collected at the Amphitheatre for special events.
- Conducted sustainability orientation for approximately 150 new employees
- Increased recycling at four facilities (Courtyard Theatre, Fire Station 1, Tri-City, Warehouse)
- Other Waste Reduction Initiatives:

Human Resources expanded its electronic processes by producing the Summary Plan documents in an electronic format. As a result of its conversion to a paperless system and with the elimination of desktop printers, the department realized a **23% reduction** in associated costs from last year.

Internal recycling diversion rate went from 23% to 35% last year, saving the city \$28,848 in waste collection and disposal cost.

Animal Services continued participation in the city's organic recycling program to divert animal waste to the composting facility. They are **diverting 50%** of their waste stream.

Building Inspections requires electronic plan review for permitting that reduces thousands of 36" x 48" blueprint pages per project submitted for code review. They continue to utilize electronic document control system to scan documents for sharing plans and documents with other departments, eliminating paper and print costs

City Secretary's Office recycles all binders and tabs provided to City Council and places information on CDs for the board/commission appointment process. Council Agenda books have been reduced from 15 to 11. Applications for boards/commissions were removed from Utility Bills and submittals were accepted online. Of the more than 150 individuals applying, 90% were received electronically.

City Manager's Office distributes information on CDs (instead of the 3" notebooks of information usually compiled) for the annual Council Candidate Briefing. They have also gone "gray" - printing color documents only when necessary.

Library worked with Sustainability to add used book collection to the *Expo* collection event (collected 587 books and 370 magazines). The Library continues to encourage patrons to bring plastic bags to the libraries which are reused to protect borrowed books from inclement weather and to aid in bundling. The libraries serve as drop-off point for cell phone and inkjet cartridge recycling.

Radio Shop instituted a battery-recycling program whereby radio system users can dispose of old ni-cad batteries in an environmentally safe method.

Records Management recycles storage boxes after expired retention documents have been shredded. The shredding service provider shreds and recycles documents.

Property Standards implemented electronic distribution of court dockets.

Legal implemented a document management system which will reduce personnel time, supplies, and storage needs for maintaining files for legal services.

Print Shop utilized only recycled paper for municipal letterhead and business cards and on departmental jobs when cost effective. Outdated letterhead and other usable papers were made into scratch pads for City use. All other unusable paper is recycled.

Goal: Conserve Water and Improve Storm Water Quality

- With input from Public Works, Customer & Utility Services, Building Inspections, Planning, Parks, and Sustainability & Environmental Services, the drought contingency ordinance was revised and is scheduled for Council approval in October.
- Other Water Conserving Initiatives:

Facilities Services replaced 14 urinals in the men's restroom at Plano Center with Zurn pint flush urinals. Expected savings is 195,800 gallons annually. They also replaced 41 existing three-gallon per flush toilets in the restrooms at the Plano Centre with 1.60 gallon per flush toilets. Expected savings is 825,920 gallons annually.

Parks redesigned and improved Russell Creek Park and Cheyenne Park irrigation systems. The updates are designed to conserve water and electricity by using the latest "on demand" pump systems while still providing quality turf. Native plant materials, drought-tolerate plants, and decorative grasses were included in new or renovated landscape areas such as Tom Muehlenbeck Center, major entry points, and areas along U.S. 75 in efforts to reduce future water demands. Conservation Buffer Zones (CBZ) were implemented in areas of parks and along creek corridors to improve storm water runoff quality, lower emissions by reduced maintenance, and as an outreach effort to demonstrate sustainability efforts on public land. Parks planted additional trees at Caddo, Arrowhead, Hackberry, and Westwood Parks to provide a greener "footprint" within the city.

Environmental Education & Community Outreach

- **RecycleBank Awards & Recognition Program** was implemented as a pilot program of 10,000 homes, designed to reward participants with points redeemable at participating retailers.

- **Energy Efficiency Education Program** was developed and implemented with EPA grant funds. Rebate checks totaling \$140,089 were sent to 291 residents.
- **Web Site Redesigned** (www.livegreeninplano.com) to be available November 15. The new look was adopted as the format for all City web pages.
- **Live Green Expo** was held in April with over 15,000 participants in attendance from around the region. Lawnmower Exchange, Ed Begley, Jr., Green Bag Ladies, Green Building Panel, Eco-Fashion Event, Food Alley and Food Demonstrations, Recycling Truck Display, Children's Activities, Compost Fair, Educational presentations and exhibits all received very favorable reviews. Over 600 volunteers helped execute the event, with exemplary volunteer coordination. Regional partners included Allen, Richardson and Irving.
- **Live Green in Plano Volunteer Program:** Trained 67 new LGIP volunteers. Over 4,296 volunteers donated 15,724 hours to Sustainability & Environmental Services programming through citywide cleanups, Adopt-a-Highway, maintenance of Environmental Discovery Center, Plano Community gardens, Live Green Expo, 1st Grade Field Trip, and facilitation of a broad range of environmental education programming.
- **Live Green in Plano News:** The newsletter, which previously highlighted programs and information from the Environmental Waste Services Division, received a facelift and was expanded to incorporate a broader range of environmental issues.
- **Plano Community Garden** exceeded 2,000 lbs. of produce harvested for the Plano food pantries.
- **Water Conservation Programs:** Held Yardwise Classes, Rain Barrel Making Workshop, and Texas SmartScape Workshop and implemented Yardwise Rebate Program
- **New Programs:** Held Energy Efficiency Toolkit Workshops; "Learn Green Live Green" Library Series; and Ten Steps to Living Green Series (for apartment dwellers)
- **Media exposure and partnerships were expanded to include 44 television spots, 60 radio spots, and 47 print articles.**



40 training workshops;
 876 presentations;
 26,662 people reached;
 15,000+ attendees at Live Green Expo;
 70% increase in electronic recycling program,
 1,520 compact fluorescent lamps recycled;
 City-wide recycling diversion rate increased from 24.7% to 28.1%

- Other Environmental Education & Community Outreach Initiatives:

Library partnered with Sustainability & Environmental Services Department for the "Learn Green to Live Green" series and the *Live Green Expo*. They continue to promote reuse of books through Friends of the Library book sale that brings in 50-100,000 books and magazines annually. Items not purchased are recycled.

Public Information created several hours of *Live Green in Plano* marketing videos for the city's Sustainability Department, including a half hour special that aired the entire month of August. PTN's Storm Water Management PSA series was distributed to 12 cities for air on their municipal access stations. PTN promoted a multitude of *Living Green* events while providing valuable *How To* videos on a variety of environmental topics.

Parks & Recreation select staff members completed “Leave No Trace” training to promote proper outdoor ethics and sustainability concepts. A Bicycle Friendly Community workshop by League of American Bicyclists was conducted to promote alternate transportation.

Health developed public service announcements to heighten awareness of Storm Water regulations and pollution prevention practices.

Finance & Capital Appropriations

Purchasing Department became one of the earliest members of the Responsible Purchasing Network (RPN), a national network of procurement-related professionals dedicated to socially responsible and environmentally sustainable purchasing. Membership allows networking with other government agencies to share environmentally sustainable purchasing information. RPN has many resources and guides to help research services and products.

The department also developed and implemented the Environmental Purchasing Policy (EPP), designed to promote the purchase and use of materials, products, and services that are economically responsible and reduce resource consumption and waste. The City of Plano Purchasing Division will, among other things, research and evaluate information on environmentally preferable products and services, provide technical assistance in policy implementation, create a reference guide for EPP’s services, and monitor and revise contracting procedures to include these products and services where practicable. The Purchasing Division will also help promote the involvement of other North Texas purchasing agencies in the use of EPPs.

Funding: The Sustainability & Environmental Services (SES) Department received and finalized grants totaling **\$297,401** for sustainability initiatives (does not include SES departmental grants). In addition, City of Plano signed MOU with CitySmart Program (sponsored by Oncor Electric) which will result in monetary incentives for energy efficiency programs. The City is also registered with TCEQ for Supplemental Environmental Project (SEP) funding for the Lawn Mower Exchange Program, which means Plano could receive future funding for this project as voluntary SEP contributions are made through the TCEQ enforcement process.

Sustainable Revenues: Recycling revenues were decreased from 1.3 million in 07-08 to \$103,066 this year. The SES Department made budget cuts in re-estimate to offset the recycling revenue shortfall. On a positive note, the compost revenue was \$1,807,419, which is \$100,419 more than projected when the regional program was implemented.

Green Building

Engineering Department is undergoing the city’s first LEED Existing Building Certification for the Animal Shelter.

Green Cement Resolution was approved by city council that gives preferential bid evaluation to bidders that have cement as a component of the bid and the cement supplied is produced by cement manufacturing facilities that meet or are below the source cap limits for emissions established by TCEQ if the total cost of the goods or services would not



exceed 105% of the cost of goods or services provided by a vendor who does not meet or are below the TCEQ standards.

Sustainability & Environmental Services developed and implemented Construction & Demolition (C&D) Recycling Incentive Program which requires deposit that is 100% refundable by recycling 60% of construction waste. We also broke ground on the Environmental Education Center, which is designed to be LEED Certified Platinum.

Public Works and Sustainability & Environmental Services: During construction of the LEED-certified International Business Park Building in Plano, SES department staff discovered a new outlet for construction debris. Using this information, SES staff asked Public Works to re-bid the city's road debris removal contract. The new contract saves Plano \$70,000 per year.

Building Inspections, as a result of the Green Building Committee recommendation, developed and implemented a new Green Building Standard for new homes, which was adopted by Council. New homes in Plano will now be required to meet a 15% above code requirement.

Fire Department is in the final stages of constructing Plano Fire Station No. 12/EOC Complex as a LEED Silver Certification project. Features include light-colored, reflective roofs and parking paving, dark-sky lighting, gray water system for showers and sinks, daylight-harvesting solar tube skylights, and roof overhangs and screens on southern and western building facades. More than 40% of all construction materials are locally manufactured and building materials contain more than 20% recycled content.

Planning Department's Community Services Division accomplished four full rehabilitations, one complete reconstruction, and seven emergency repairs on affordable single family homes. Highlighting a few critical improvements to the properties, the following sustainable improvements were made:

1. Doors replaced with new insulated, metal skin product and windows upgraded to utilize a solar coefficient of less than 0.3 on 4 homes.
2. Installed radiant barrier on 2 homes.
3. Provided attic insulation increasing the R value to a minimum of R-30 in ceiling of 4 homes.
4. HVAC upgraded to SEER 13 minimum in 7 homes.
5. Replaced original fixtures with water saving fixtures (showers/sinks/toilets) in 8 homes.

The Community Services Division also provided funding to Habitat for Humanity of South Collin County to build 2 Energy Star compliant homes.



3 LEED Certified Buildings in Plano (2 Gold, 1 Silver);
24 LEED Certification Projects Registered in Plano;
3 presentations given

RECOGNITION & AWARDS

Parks and Recreation Department undertook a major sustainability initiative last year with the enrollment of the Pecan Hollow Golf Course in the Audubon Cooperative Sanctuary Program for Golf Courses. Pecan Hollow achieved designation as a “Certified Audubon Cooperative Sanctuary” by completing six phases of environmental standards, including environmental planning, wildlife and habitat management, chemical use reduction and safety, water quality and testing, water conservation, and outreach and education.

Health Department received the 2008 Regional Mobility Coalition Air Quality award for promoting Clean Air initiatives.

Health Department and ***Sustainability & Environmental Services Department*** received the National Environmental Sustainability Excellence Award from the National Environmental Health Association.

Sustainability & Environmental Services Department won the STAR (State of Texas Alliance for Recycling) 2009 Leadership Award for Outstanding Environmental Youth Education and Outreach Program. Also, the department won the 3rd Place KAB (Keep America Beautiful) National Affiliate Award in the over 200,000 population category.