



## 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 six 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.

This report is designed to demonstrate the City's on-going efforts to ensure we are being environmentally responsible and to document savings resulting from these efforts. The following information reflects the new or expanded programs and activities implemented in the 2010-11.

## Resource Conservation



### Goal: Reduce Energy Consumption

**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 is estimated to save **616,857 kWh** annually.

- Replaced two 20 year old electric chillers totaling 120 tons of air conditioning with new energy efficient chillers at Haggard Library for an estimated electrical energy savings is 154,654 kWh annually.
- Replaced one 16 year old electric chiller providing 90 tons of air conditioning with a new energy efficient chiller at the Senior Center for an estimated electrical energy savings is 115,990 kWh annually.
- Replaced 10 rooftop a/c units and 2 split systems that total 130.5 tons of air conditioning at Davis Library. The existing units were a 8.5 EER rating and the new units are a 12.2 EER rating. The estimated electrical energy savings is 121,425 kWh annually.
- Replaced 7 rooftop a/c units that total 49 tons of air conditioning at the Robinson Justice Center. The existing units were a 8.5 EER rating and the new units are a 12.2 EER rating. The estimated electrical energy savings is 45,593 kWh annually.
- Replaced 5 split system air conditioning units that total 45 tons of air conditioning at the Police building. The existing units were a 8.5 EER rating and the new units are a 12.2 EER rating. The estimated electrical energy savings is 41,871 kWh annually.
- Replaced 35 (400 watt) HID parking lot light fixtures with energy saving 162 watt LED light fixtures at Davis Library and Joint Use Facilities parking lots. The estimated electrical savings is 18,850 kWh annually.
- Replaced 40 (400 watt) HID parking lot light fixtures and 72 (100 watt) HID exterior wall mount light fixtures with energy savings LED light fixtures at Parkway Operations and Fleet Facility parking lots. The estimated electrical savings is 71,732 kWh annually.
- Replaced 9 (400 watt) HID parking lot light fixtures and 6 (250 watt) HID parking lot light fixtures with energy savings LED light fixtures at Municipal Warehouse parking lot. The estimated electrical savings is 15,371 kWh annually.
- Replaced 43 (400 watt) HID parking lot light fixtures with energy saving LED light fixtures at the Municipal Center and Police Facilities parking lots. The estimated electrical savings is 31,371 kWh annually.



616,857 kWh  
annually



City saved \$31,125

**Technology Services** installed power management software on all computers. The average PC draws 70 watts when on, 5 watts when in standby and 1 watt when off. The average monitor power draw is 50 watts when on, 2 watts when in sleep mode and 1 watt when off. Even with adding 105 more computers, the City saved **\$31,125** in electricity costs and reduced greenhouse gas emissions by 385,260 pounds.

The city decided to adopt the Microsoft Business Productivity Online Standard Suite, a set of hosted communication and collaboration solutions that includes Microsoft Exchange Online, Microsoft SharePoint Online, Microsoft Office Live Meeting, and Microsoft Office Communications Online. Moving data off of our servers reduces the need to heat and cool as many hardware components in the data center, saving on electricity costs.

**Parks and Recreation** converted the lighting at High Point Tennis Center to a modern and efficient lighting. Over the next 25 years, this change is projected to result in savings of **\$147,005** in energy costs and 1,055 metric tons of CO<sub>2</sub>. In addition, no use of City forces for maintenance will be required for 25 years. Test installations of induction lighting were initiated at several locations and in park restroom buildings to replace older, less efficient lighting. Updating continues on Variable Frequency Drives (VFD's) on irrigation booster pumps to allow pumps to operate more efficiently. The conversion of security lighting at several park shelters/pavilions to LED light fixtures continues, significantly reducing power consumption. Conversion of additional facilities and other area lighting systems are in-progress. Mechanical light timers are being replaced with digital timers that will allow better management of lighting systems.

Two old pool pump motors were replaced with higher efficiency units and solar powered public address speakers were installed at the Pecan Hollow golf course.

**Sustainability & Environmental Services (SES)** provided 290 residents with rebates through the Energy Efficiency and Weatherization Grant Program. These residents completed energy efficiency improvements resulting from energy audit results and recommendations.

**Property Standards** installed motion detector in supply/break room.

**Police Department** plans to use the Office Live Meeting web conferencing solution to conduct briefings and trainings that officers can access from field-based locations. This will enable officers to spend less time commuting to meetings and more time interacting with members of the community. Based on this pilot project, other city departments are evaluating the use of web conferencing.



### **Goal: Reduce Fuel Consumption and Harmful Air Emissions**

**Fleet Services** reports a slight increase in fuel consumption of .0124. The majority of this increase is a result of a .0885 increase in fuel consumption in the Police Department. Departments reducing their consumption include Public Works (.0536), Parks & Recreation (.0425) and Fire (.0425).

**City Manager's Office** is currently testing the viability of handling bi-monthly agenda review meetings via conference call, saving time and gasoline of department heads traveling from offsite City buildings. Thus far, the conference call process has been a success and will likely be instituted.

**Fire Department** reduced its fleet by two additional vehicles and centralized training from Administration to Station 12 to save fuel consumption and wear and tear on City vehicles.

**Customer & Utility Services (CUS)** expanded the remote automated meter reading (AMR) project by approximately 17,600 commercial and residential meters bringing our total to approximately 50,000 meters changed which represents 60% of our total system. Fuel consumption was reduced in FY 10-11 by 4,284 miles, for a cumulative total of 15,816 miles since implementation of our fixed network meter reading system.

**Parks and Recreation** recently completed the Hike and bike Trail connection on Preston Ridge Trail across Legacy Drive. New trail connections provide increased opportunities for bicycle commuting and purposeful trips that help reduce traffic congestion and emissions, and promote walkable communities. Parks also took another step in the implementation of its On-Street Bicycle Route Plan by completing fabrication of the signage portion of the plan that will incorporate 168 miles of the City's 1060 miles of total roadway. On-street bicycle routes are lower volume traffic roads identified for their strategic connections to multi-use recreational trails, schools, libraries, recreation centers, DART bus or rail transit stops, shopping or places of employment. A combination of on-street routes and multi-use recreational trails can help complete a bicycle trip to work, to transit, for errands, or for recreation helping to reduce traffic congestion and emissions, and promote walkable communities.



**Public Safety EOC** uses hybrid Prius for travel to meetings and carpools to meetings. In addition, conference calls/webinars are utilized as much as possible to reduce travel in vehicles.

**Police Department** pursued a grant with TCEQ for the purpose of acquiring idle reduction devices for patrol vehicles and are waiting on approval of the grant.



## **Goal: Reduce Waste**

**Fire Department** instituted a policy to put Standard Operating Procedures (SOPs) and other reports needing review by several personnel on SharePoint in order to reduce multiple hard copy printing and reduce the risk for errors.

**Library** partners with Friends of Plano Library year-round to repurpose many items, selling used books, magazines, CDs and DVDs in the lobbies of all libraries. In addition, more than 75,000 books were repurposed or recycled during the annual book sale.

**Property Standards** made additional enhancements to the Laserfiche Document Management system such as direct scan into Laserfiche to further promote reductions in paper retention, storage, etc. They also modified notice mailings by incorporating template enhancements which significantly reduced printed pages

**Parks and Recreation** made two beautiful main control desks from wood reclaimed from the old racquetball courts during the renovation of Carpenter Recreation Center.

**City Manager's Office** began providing City Council candidates their briefing materials via CD versus 3-inch binders. City Council Neighborhood Roundtable meetings are now advertised via the City's email updates versus postcard mail-outs. The overview after each Roundtable is posted and made accessible online to all citizens. SharePoint and Dropbox (file sharing networks) have become more widely used as forms of communication between employees and Executive staff and Executive staff and City Council. These versatile file sharing networks allow the City to insert documents, spreadsheets, etc. and reach multiple users simultaneously on a variety of systems and devices (PC, laptop, and tablet). The programs are easily accessible and store files for a period of time, thus eliminating the need for distribution or duplication of printed material most of the time.

**SES** developed Zero Waste Management Guidelines and signage to help integrate the zero waste philosophy. The guidelines were marketed for public event venues including the International Festival, Live Green Expo, Partnership Walk and other privately sponsored community events.



**Environmental Health** reduced paper generated by including QR codes on food service permits, which links people to the inspection score website. This innovative use of technology garnered the department national recognition as a "Promising Practice" from the National Association of City and County Health Officials (NACCHO). This utilizes technology to reduce the amount of paperwork generated for open records requests.

**Emergency Operations Center (EOC)** personnel focused on improving their environmental footprint with their move to their new LEED Silver certified building. Some of their efforts include:

- Use scrap paper to make memo/scratch pads;
- Uses scanner on networked copier, enabling employees to scan documents and email copies instead of distributing hard copies. Scanning documents to electronic files is also a cost saver regarding physical file space;
- Use of CDs for distribution of information and all instruction/training materials;
- Distribute reusable totes for the Prepared in Plano Emergency Preparedness Campaign;
- Reuse and recycle training materials for Community Emergency Resource Team;
- As allowable – sends documents to outside agencies and organizations in electronic form; and
- Posts documents on the S: Drive File Transfer Folder and SharePoint to reduce printing multiple copies and provide access of information to other departments for use.

**Public Safety** Quality Assurance Coordinators successfully tested and implemented a more efficient and eco-friendly way of distributing and managing Incident Reviews using SharePoint; Evaluations are no longer printed and paper copies of signed forms are no longer warehoused in a file cabinet. Since going paperless, the turnaround time has significantly

Quality Assurance

Reduced its own paper consumption by 75%

decreased from taking up to a week to one day. The only sheet that is printed is the one requiring the EMD's signature and that document is eventually scanned and stored digitally. Quality Assurance reduced its own paper consumption by about 75%.



## COURTS

- The warrant confirmation process is 95% paperless.

Also using SharePoint, the PSC Training Coordinators document daily observations are typed in, reviewed and emailed daily leaving only one print out weekly for the trainee signature. The warrant confirmation process through the courts is 95% paperless with only two pieces of paper generated. The Public Education process has changed from making copies of pre/post-tests to asking children questions and faxing responses to state depository, eliminating the need for all excessive copying. This has also saved a fair amount of time for the educator who no longer has to grade pre/post-tests.



### Goal: Conserve Water and Improve Storm Water Quality

**Parks and Recreation** included a new water fountain with a bottle filler feature in its renovation of Carpenter Park Recreation Center. This feature encourages patrons and staff to utilize reusable containers. This water fountain displays a running total of how many bottles we have saved since the installation of the new fountain. Parks continues to replace outdated median irrigation equipment with newer, more efficient products.

Native plant materials, drought-tolerant plants, decorative grasses, and/or the use of decomposed granite (instead of ground covers) were included in new or renovated landscape areas such as Carpenter Recreation Center, Fire Station 13, and K Ave. In addition, expanded shale has been added to planting soils for new and renovated sites which will improve soil quality, reduce water use and improve the health and longevity of the trees, shrubs and perennials we plant.

Buckhorn Park was added to the Conservation Buffer Zone (CBZ) program which protects the vegetation along creek corridors to improve storm water runoff quality, lower emissions by reduced maintenance, provide wildlife habitat, and demonstrate sustainability efforts on public land. CBZ's have been widely accepted by the public.



Outdated, inefficient irrigation systems were replaced with higher efficiency, water saving systems at Bob Woodruff Park and Windhaven Park.

**CUS and SES** provided 530 rebates for high efficiency Toilets, 71 for rain barrels and 63 for rain/freeze sensors. Also, 7800 free water conservation items were distributed.

**SES** offered Rain Barrel Making Workshops to 77 participants and added an additional Texas SmartScape Workshop.

**EOC** Encourages citizens to use rain barrels as part of their individual emergency preparedness preparations via the Prepared in Plano Emergency Preparedness Campaign.

## Environmental Education & Community Outreach

SES implemented the following new and enhanced programs:

- Online learning module for Let's Take Care of the Trash was developed and posted to our livegreeninplano.com website. The learning program addresses common questions residents have related to City's waste, recycling and yard trimmings collection services. Self-education through participation in this module should help correct collection problems and boost recycling participation as people learn to identify the proper materials for recycling.
- Online registration system for all education and outreach programs was launched in 2011, creating an efficient process for class and program pre-registration.
- Live Green Expo was held in April with over 16,000 participants in attendance from around the region. New features included Keynote Speaker Joel Salatin, Fair Trade Market, Conversation Café, Green Biz Quiz, and Rain-barrel making workshops. Over 675 volunteers helped execute the event. Richardson was our regional partner.
- Live Green in Plano Volunteer Program: Trained 33 new LGIP volunteers. Over 4,110 volunteers donated 12,650 hours to Sustainability & Environmental Services programming.
- Plano Community Garden: Added more fencing for individual plots to keep rabbits out and additional harvesting table. Fruit tree orchard was planted. Classes were developed and held for the public and volunteers.
- Eco Teens volunteer training corps program, funded through a grant from the North Central Texas Council of Governments, continued in second year. Twenty high school students were involved in a nine month training and service oriented program focused on sustainability and environmental concepts. Students carried out individual environmental projects benefitting the Plano community.
- Developed and implemented a third "Live Green to Learn Green" series and partnered with Libraries to host and promote.
- Coordinated 209 community cleanup events
- Supported Love Where You Live efforts by offering Children's Activities and EWS informational booth at street fair, as well as coordinating neighborhood cleanup and storm drain marking.
- Media exposure and partnerships were expanded to include 19 television spots, 27 radio spots, and 30 print articles. Melinda did not keep up her reporting records, so this is probably not completely accurate. She would need to give info to correct.
- Green Team program was redesigned for City employees with new Green Team leaders identified and new goals and objectives set in place.
- City-wide recycling diversion rate increased from 28.1% to 42%.



26 volunteer training workshops

400 presentations

39,106 people reached

16,000+ attendees at Live Green Expo

Other Environmental Education & Community Outreach Initiatives:

**Library** partnered with SES on “Learn to Live Green” series of five adult workshops and in offering family programs on topics including Composting and Children’s gardening.

**Planning:** Love Where You Live (LWYL) is a partnership between Plano neighborhoods, volunteer partners, and the City with the goal of transforming communities through social and physical revitalization. LWYL focuses efforts on a limited area to clean-up, repair and reinvigorate the neighborhood. This program has had a significant impact in making physical improvements and nurturing community involvement to help sustain Plano neighborhoods.

Fall 2010 Community Service Results

Home Repair Projects	Total Volunteers	Total Hours Worked	Value of Hrs Worked	Landscape Debris Collected	Trash Collected	Bags of Litter Collected	Alleys Cleared
67	629	2,400	\$43,200	7 tons	3.6 tons	-	

Spring 2011 Community Service Results

Home Repair Projects	Total Volunteers	Total Hours Worked	Value of Hrs Worked	Landscape Debris Collected	Trash Collected	Bags of Litter Collected	Alleys Cleared
22	366	1,637	\$30,284.50	6.2 tons	3.6 tons	102; weighing 1 ton	1.57 mi; 6300 lbs.

Fall 2011 Community Service Results

Home Repair Projects	Total Volunteers	Total Hours Worked	Value of Hrs Worked	Landscape Debris Collected	Trash Collected	Bags of Litter Collected	Alleys Cleared
13	510	2,536	\$47,550	3.2 tons	2.66 tons	50; ½ ton	

## Green Building

**Planning Department** Community Services Division completed 21 housing rehabilitations, 22 emergencies and 1 reconstruct of affordable single family homes through the Housing Rehabilitation Program. In 2010, this program incorporated pre and post rehabilitation Texas HERO Standardized Whole House audits which resulted in 33% average energy savings for households receiving sustainability improvements. Significant improvements to the properties contributing to the City's green building efforts include:

- Doors replaced with new insulated, metal skin product and windows upgraded to utilize a solar coefficient of less than 0.3 on 21 homes (47% of total projects).
- Attic insulation increasing the R value to a minimum of R-30 in 17 homes and radiant barriers in 4 homes (50% of total projects).
- HVAC upgrades to 13 SEER in 12 homes and 15 SEER in 10 homes (50% of total projects).
- Original fixtures replaced with water saving fixtures (showers/sinks/toilets) in 17 homes (38% of total projects).

In addition, 2 energy star homes were constructed by developers with the assistance of grant funds in the effort to create affordable homeownership opportunities.

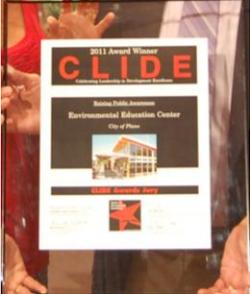
**SES:** The Environmental Education Center (EEC) was completed and open for use with public programs. LEED Platinum Certification is being pursued. Landscape design and irrigation plan for the EEC was completed.

**Building Inspections** has completed a technical review of the GREEN HOME REMODELING GUIDE and submitted it for formatting and publishing on the city website for information concerning sustainable construction practices.

**Fire Department** put Fire Station 13 into service on August 1, 2011, at the corner of Corporate Drive and Tennyson Parkway 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.



## Recognition & Awards



**SES** received the CLIDE award from the North Central Texas Council of Governments for Raising Public Awareness for the Environmental Education Center.

Environmental Community Awards Celebration was held at Collin College honoring members of the community for outstanding environmental leadership and achievement in different categories including Business, School, Non-profits, Individual and Community Partners.

### 2011 Winners included:

- Community Involvement School Awards
  - Outstanding Elementary Environmental Awareness Group - Shepard Elementary
  - Outstanding Campus Beautification Award – Wilson Middle School
- Environmental Star of Excellence
  - Environmental Community Partnership – Plano International Festival
  - Individual – Karen Mitchell
  - Neighborhood Group/HOA – Parkway Estates Homeowner’s Association
  - Non-Profit: Faith-Based Organization – Community Harvest Garden, Community Unitarian Universalist Church
  - Educational Institution – Saint Timothy School
  - Multi-Family Community – Villas at Chase Oaks
  - Green Building – CIGNA
  - Organic Recycling – Plano Walmarts and Sam’s Club
  - Single-Stream – UnitedHealthcare - StudentResources
  - Small Business – Hirsch’s Meats
  - Outstanding Environmental Commitment – Frito Lay/Pepsico

