

Environmental Management System and Green Solutions

Annual Report

Fiscal Year 2010

May 1, 2009 to April 30, 2010



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City of Kansas City, Missouri

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I. Introduction

The City of Kansas City, Mo.'s Administrative Regulation 1-19, Environmental Stewardship, establishes a process for setting annual environmental improvement goals for each department of the City and the annual evaluation of each department's progress in meeting those goals. This report is the annual survey and evaluation for Fiscal Year 2010 (FY10), May 1, 2009 to April 30, 2010.

The City of Kansas City, Mo.'s Administrative Regulation 5-5, Green Team Solutions, assigns responsibility and sets standards to integrate green solutions in City operations and in the City's planning and development processes. This report provides documentation of the City's efforts to incorporate green solutions into its programs, projects and policies.

II. Executive Summary

Environmental Compliance Status – City facilities received 27 onsite inspections from environmental regulators in FY10 (compared to 13 in FY09). These site inspections resulted in five Notices of Violation (NOV) and five Letters of Warning issued to the City. The City continued its negotiations with the EPA regarding the Overflow Control Program and a Consent Decree.

Environmental Inspections and Facility Self-Inspections – In FY10, the Office of Environmental Quality (OEQ) conducted 306 environmental inspections of City facilities for compliance with the standards detailed in the City's Environmental Management System. OEQ identified 406 "opportunities for improvement," which include regulatory compliance issues and "beyond compliance" issues identified to address the City's goal of achieving and maintaining environmental excellence that goes well beyond compliance with applicable regulatory requirements. Of these "opportunities for improvement," 95.3 percent were implemented and completed by the year's end. Departments performed facility self-inspections at 189 facilities during the fiscal year on a weekly, monthly or "other" frequency. The high implementation rate for OEQ inspection recommendations and the frequent and periodic facility self-inspections performed by facility staff provide a reasonable level of assurance that City facilities are being operated in a manner that conforms to the standards in the City's Environmental Management System (EMS).

Environmental and Safety Training – City departments have identified the environmental and safety training needs of 96.5 percent of full-time City employees. The Environmental Training Plans (ETPs) developed by supervisors are based upon each employee's specific duties and responsibilities. The City delivered 6,161 hours of environmental and safety training to its employees (not including training provided to Police and Fire employees through their respective

training academies and additional specialized training provided by individual departments, such as continuing education required for certification of water and wastewater treatment plant operators).

Environmental Improvement Goals – The City adopted six environmental improvement goals for FY10. These goals include:

Goal 1 – Improve energy management by increasing energy efficiency in production processes, incorporating energy conservation into facility operations and designs, and using more renewable or sustainable energy resources.

Goal 2 – Demonstrate improvements in preservation and restoration of natural resources and habitats such as wetlands, forests, water bodies and prairies, as well as manage facility properties and buildings to reduce environmental impacts.

Goal 3 – Reduce air emissions from facilities through pollution prevention initiatives and emission control strategies. Reduce air emissions from mobile sources by reducing environmental impacts of shipping and receiving, fleet operations and employee commuting.

Goal 4 – Incorporate green solutions, whenever possible and appropriate, during the planning process into City policies, projects and programs.

Goal 5 – Protect employee health and the environment by ensuring that training requirements for individuals are identified; that training opportunities are made available and are carried out; that training is recorded and tracked; and that training requirements are monitored, revised, and refresher training provided, as appropriate, to maintain competence.

Goal 6 – Create a cleaner City by implementing actions that reduce illegal dumping and improve the City's response to illegal dumping.

Goal Attainment and Green Solutions - Overall, the City implemented and completed many projects geared toward attaining the FY10 environmental improvement goals and incorporating Green Solutions into City policies and operations. A few of the highlights for FY10 include:

- City Council adopted a number of ordinances and resolutions implementing green solutions, including:
 1. Adopted an ordinance authorizing the City to enter into a grant agreement with the U.S. Department of Energy for energy efficiency improvements for various City facilities and policies, including:
 - construction of the Blue River Athletic Field Trail connecting two major bike/pedestrian trail segments;
 - modification of the Development Code and Area Plans for transportation efficiency;

- upgrade of the adopted energy efficiency code for construction or renovation of buildings;
 - energy efficiency upgrades and renewable energy applications to the City Hall complex of buildings and to the Health Department, which encompassed upgrading Wolf Garage lighting to LED; upgrading all equipment motor drives; adding solar water heating to City Hall and the Health Department; and adding solar panels and wind turbines on the top floor of Wolf Garage;
 - implementation of the Sustainable Energy Education and Communications (SEEC) campaign to educate City employees about sustainability using an online training package over a 10-month period;
 - purchase and installation of personal computer power management software that will shut down computer equipment in typical non-business hours;
 - conversion of the remaining traffic and pedestrian signals from incandescent to LED lighting;
 - creation of a traffic signal synchronization center; and
 - creation of a process to address energy codes and related policies in the metropolitan region.
2. Adopted legislation supporting, and providing operating funds for, the Green Impact Zone;
 3. Approved staff submission of a grant proposal to the U.S. Department of Energy for a \$50 million program to improve the energy efficiency of buildings community-wide and to transform the energy efficiency market in this region;
 4. Supported the MARC 2040 Adaptive Scenario which, for the first time, links transportation, economic development and sustainability;
 5. Adopted a resolution to inform citizens of the benefits of eliminating vehicle engine idling as a pocketbook issue in reducing wasted gasoline, as an environmental issue in reducing greenhouse gas emissions, and as a public health issue in, for example, reducing harmful fumes breathed by children at schools;
 6. Supported legislation by the State of Missouri to adopt the Property Assessed Clean Energy (PACE) legislation to provide capital resources for energy efficiency improvements for residential and commercial buildings; and
 7. Adopted legislation to promote and regulate urban agriculture as a part of the City's Development Code.
- Implementing Ozone Action Plans during ozone alert days in multiple City departments that resulted in avoiding or postponing 718 vehicle trips during ozone alert days. In addition, cars reduced running/idling time by 1,326 hours; avoided or postponed 1,070 refueling events; avoided or postponed 80 hours of small engine use; and traveled more than 19,325 miles using alternatively fueled vehicles.
 - Continued implementation of an internal recycling program (paper, aluminum cans, plastic bottles, cardboard) for City facilities that resulted in collection and recycling of 310,522 pounds of materials.

Conclusions and Recommendations – Concluding the 10th year following the adoption of the City’s Administrative Regulation 1-19 on Environmental Stewardship, the City continued to meet its commitment toward incorporating environmental stewardship and sustainability into all of its organizational activities.

Overall, the City continued to meet its environmental regulatory obligations through implementation of a City-wide Environmental Management System, a proactive facility inspection program, a task specific employee environmental and safety training program and through the dedication of City employees to incorporate environmental stewardship and sustainability into their job tasks. While working toward maintaining regulatory compliance, City departments and staff have implemented a variety of “beyond compliance” projects and improvements in the pursuit of attaining the FY10 environmental improvement goals and the incorporation of Green Solutions into City business.

Although the City continues to make progress in assuring compliance and attaining its FY10 goals/Green Solutions, the City should continue to make improvements in the following areas:

- Maintaining a state of preparedness for unannounced regulatory inspections, particularly at construction projects;
- Motivate and encourage employees to complete required environmental and safety training;
- Expand the identification and use of alternative fuels;
- Continue implementation of the City’s Climate Protection Plan;
- Achieve the LEED Silver Standard in City renovation and new construction projects; and
- Integrate Green Solutions and the concepts of sustainability into all City government operations.

III. Compliance Assurance

FY10 Compliance Status

The City received 27 inspections by regulators, including the U.S. Environmental Protection Agency (EPA), Missouri Department of Natural Resources (MDNR) and the Kansas City District Army Corps of Engineers (reference Table 1). This is more than a 100 percent increase in the number of inspections received in FY09. As a result of this year’s inspections, the City received five “Notices of Violation (NOV)” and five “Letters of Warning.”

As a result of self-reported discharge monitoring reports submitted routinely to the regulators, there were four “Letters of Warning” issued to the Aviation Department for exceeding effluent limitations in the Missouri State Operating Permit for KCI. In addition, three “Letters of Warning” and one “Notice of Violation” were received by the Water Services Department for exceedances reported on their discharge monitoring reports. The Water Services Department also had more than 60 sanitary sewer overflows that resulted in 20 NOVs being issued to the City.

The dramatic increase in the number of inspections conducted by regulators can be attributed to the Environmental Protection Agency (EPA) and Missouri Department of Natural Resources’ renewed commitment to improve air quality, protect water resources, prevent pollution and ensure the safety of chemicals. To attain these goals, the regulators are investigating citizen complaints, conducting more routine regulatory inspections and stepping up enforcement efforts.

Regarding the City’s Overflow Control Program, the City continued to negotiate with the EPA and U.S. Justice Department on a Consent Decree. Both the City and the EPA worked toward a plan to incorporate green solutions as a viable solution to improving the infrastructure of Kansas City’s sewer system.

Table 1. FY10 Regulatory Inspections

Regulatory Agency	Number of Inspections
EPA – Storm Water Inspection	2
EPA – Air Compliance Inspection	1
EPA – Pretreatment Program Inspection	1
MDNR – Air Compliance Inspection	7
MDNR - UST Inspection	6
MDNR - Hazardous Waste Program	1
MDNR - Water Pollution Control	6
Kansas City District Army Corps of Engineers	1
Kansas City Health Department – Air Quality	2

Compliance Assurance Activities – Opportunities for Improvement

In FY10, the Office of Environmental Quality (OEQ) conducted 306 environmental inspections of City facilities for compliance with standards included in the City’s Environmental Management System. As a result of these inspections, OEQ identified 406 “opportunities for improvement,” of which 387 (95.3 percent) were implemented and completed by year’s end. The City implemented 296 opportunities for improvement (72.9 percent) by their scheduled completion date.

A departmental breakout of “Opportunities for Improvement” appears in Table 2:

Table 2. FY10 Opportunities for Improvement, By Department

Department	Total	Timely	Late	Not Complete	Complete	% Timely	% Complete
Aviation	65	65	0	0	65	100	100
CIMO	0	NA	NA	NA	NA	NA	NA
City Auditor	0	NA	NA	NA	NA	NA	NA
City Clerk	0	NA	NA	NA	NA	NA	NA
City Manager	0	NA	NA	NA	NA	NA	NA

Department	Total	Timely	Late	Not Complete	Complete	% Timely	% Complete
City Planning and Development	3	3	0	0	3	100	100
Convention and Entertainment Facilities	18	18	0	0	18	100	100
Finance	0	NA	NA	NA	NA	NA	NA
Fire	37	29	8	0	37	78.4	100
General Services	125	63	62	11	114	50.4	91.2
Health	0	NA	NA	NA	NA	NA	NA
Housing and Community Development	0	NA	NA	NA	NA	NA	NA
Human Resources	0	NA	NA	NA	NA	NA	NA
Information Technology	0	NA	NA	NA	NA	NA	NA
Law	0	NA	NA	NA	NA	NA	NA
Mayor's Office	0	NA	NA	NA	NA	NA	NA
Municipal Court	0	NA	NA	NA	NA	NA	NA
Neighborhood and Community Services	11	11	0	0	11	100	100
Parks and Recreation	83	60	23	0	83	72.3	100
Police	26	13	13	4	22	50.0	84.6
Public Works	10	6	4	4	6	60.0	60.0
Water Services	28	28	0	0	28	100	100
TOTAL	406	296	110	19	387	72.9	95.3

Considering the high number of inspections performed by OEQ in FY10, it should be noted that **the total number of “opportunities for improvement” identified by OEQ environmental inspections decreased by 9.1 percent compared to FY09. In addition, the overall completion rate of these obligations was 95.3% and the percentage of items completed by the scheduled completion date increased from 69% to 72.9%.** The City Manager has emphasized the importance of timelier implementation of environmental obligations to the department directors and OEQ is working with the departmental Environmental Coordinating Managers to substantially improve the timeliness of departmental responses.

This multi-year data is displayed in Table 3 on the next page:

Table 3. Opportunity for Improvements - Completion Rates, By Year

Year	Total	Timely	Late	Not Complete	% Timely	% Complete
FY04	455	204	160	94	45	80
FY05	498	379	78	41	76	92
FY06	385	291	94	44	76	89
FY07	496	147	349	90	30	82
FY08	466	250	216	28	54	94
FY09	445	309	136	40	69	91
FY10	406	296	110	19	73	95

Compliance Assurance Activities – Self-Inspections

Self-inspections are conducted by facility personnel on a more frequent basis and are designed to quickly identify and correct environmental or safety issues in a timely manner. City departments perform self-inspections during the fiscal year on a weekly, monthly or “other” specified frequency, as determined for the facility. This year, 189 facilities participated in the self-inspection program, as recommended in the City’s EMS. The number of facilities self-inspected by each department, and the frequency of those inspections is shown in Table 4:

Table 4. Number of Facilities Performing Self-Inspections, By Department

Department	Self-Inspections			
		Weekly	Monthly	Other
Aviation	3	1	2	
Convention and Entertainment Facilities	6			6
Finance	1			1
Fire	36		36	
General Services	4	4		
Health	1	1		
Human Resources	2			2
Neighborhood and Community Services	1		1	
Parks and Recreation	50		29	21
Water Services	85	2	28	55
Total	189	8	96	85

Compliance Assurance Activities – Asbestos Inspections

The Missouri Department of Natural Resources (MDNR) regulates demolition and renovation projects involving institutional, commercial, public, industrial and residential structures through the National Emissions Standard for Hazardous Air Pollutants (the asbestos NESHAP). This regulation contains requirements for asbestos inspection, project notification, emission control procedures for asbestos removal and asbestos disposal.

To assist the Neighborhood and Community Services Department's Dangerous Buildings and Vacant Properties Division to comply with the asbestos NESHAP regulation and reduce program costs, OEQ performed asbestos inspections of buildings prior to their demolition. Reports from these inspections were used by the demolition and abatement contractors to identify asbestos-containing building materials for removal prior to demolition. In addition, the reports include a list of other hazardous materials that must be removed from the property prior to demolition. Other hazardous materials may include household hazardous waste from residential structures or hazardous waste from commercial structures. In some cases, abandoned petroleum storage tanks are identified and removed as part of the demolition project.

In FY10, OEQ performed 132 asbestos inspections of dangerous buildings and submitted reports to NCS for the proper abatement and disposal of asbestos containing building materials. This is an increase of 180 percent compared to the number of inspections conducted in FY09.

Compliance Assurance Activities – Hazardous Materials Disposal Program

Many City-owned and operated facilities generate small quantities of hazardous materials, including hazardous wastes. The accumulation and storage of these wastes may subject the City to increased regulation and administrative costs. To assist City facilities in maintaining a minimal level of regulatory risk, OEQ, in cooperation with the Water Services Department's Household Hazardous Waste Center, offers a low-cost disposal program. This program allows waste materials to be transported from City facilities to the Household Hazardous Waste Center for recycling or disposal.

In FY10, the program removed 14,040 pounds of hazardous materials from City facilities. These materials were either recycled or properly disposed.

This program was expanded in FY08 to include household hazardous waste found in those dangerous buildings (residential properties) assigned to OEQ for asbestos inspection. The purpose of this program was to address those chemicals that, although non-regulated, pose a significant threat to human health and the environment if not properly managed. Through this program, extremely hazardous or toxic household hazardous waste is collected by OEQ (during the asbestos inspection) and delivered to the City's Household Hazardous Waste Center for recycling or disposal. In FY10, OEQ removed 88 pounds of household hazardous waste from residential structures prior to their demolition.

Environmental Training

The City's environmental training efforts consist of three major components:

- Identifying training needs – Preparation of Environmental Training Plans (ETPs) for City staff
- Training delivery
- Records management

ETPs are used by supervisors to plan and determine which courses are either required (by federal, state, or local laws) or recommended (good management practices) for employees to perform their jobs. City supervisors have completed 4,110 (96.5 percent) ETPs for their full-time permanent employees.

In FY10, 6,161 hours of training were completed by City employees. Training provided to Fire Department and Police Department employees through their respective training academies is not included in this report, nor is additional specialized training provided by individual departments, such as continuing education required for certification of water and wastewater treatment plant operators. Table 5 summarizes training information for the City departments:

Table 5. FY10 Environmental and Safety Training, By Department

Department	# Employees	# ETPs	% ETPs	Hours Completed
Aviation	455	455	100	1,870
CIMO	48	48	100	326
City Auditor	11	11	100	0
City Clerk	5	5	100	0
City Manager's Office	109	109	100	72
City Planning and Development	153	153	100	42
Convention and Entertainment Facilities	59	59	100	172
Finance	114	114	100	8
Fire	980	980	100	28
General Services	191	191	100	896
Health	169	169	100	527
Housing	27	27	100	128
Human Resources	43	43	100	0
Information Technology	107	107	100	4
Law	57	57	100	10
Municipal Court	66	66	100	0
Neighborhood and Community Services	174	174	100	100
Parks and Recreation	272	256	94.1	266
Public Works	398	264	66.3	262
Water Services	822	822	100	1,450
Total	4,260	4,110	96.5	6,161

IV. Environmental Improvement Goals/Green Solutions

Each fiscal year, the City adopts Annual Environmental Improvement Goals to focus its environmental improvement efforts. In addition, based upon the Green Solutions Policy adopted by the Mayor and City Council, departments are incorporating Green Solutions into their policies, projects and programs. Following is a compilation of the City's efforts toward accomplishing these goals:

Goal 1 – Improve energy management by increasing energy efficiency in production processes, incorporating energy conservation into facility operations and designs, and using more renewable or sustainable energy resources.

Aviation Department - Charles B. Wheeler Downtown Airport (MKC) is currently responsible for managing one building facility. In FY10, this facility completed a multi-million dollar project to renovate the HVAC system. This project not only improved the energy management of the HVAC system, but also included installation of a web-based Building Management System that controls and optimizes performance of the chillers, boilers and air handlers. Additionally, the new HVAC system incorporated variable frequency drives (VFDs) on all air handler fan drives, which reduces operational utility cost compared to the old system which ran at 100 percent at all times. Finally, new green fluorescent lighting fixtures and occupancy sensors were installed.

Consistent with Department policy and in accordance with Federal Aviation Administration standards, environmentally sensitive products are selected for use on the airfield. This includes the use of water-based airfield paint and runway de-icing chemicals made with potassium acetate.

At KCI, Planning and Engineering (P and E) is building the General Aviation Facility at 925 N. Lou Holland Drive. It will be eligible for the LEED-Silver rating. P and E will also be designing the Field Maintenance Facility remodel at 154 Tokyo St. to be eligible for the LEED Silver rating. The plan is to upgrade this building in 2011.

The **Capital Improvements Management Office (CIMO)** took several actions to achieve this goal:

- Reduced footprint of workspace by consolidating staff from field office to City Hall;
- Further reduced footprint of workspace by consolidating staff from two full floors to one and one-third floors of City Hall;
- Eliminated production of multiple paper copies of monthly Project Status Report (PSR) for project review meetings by projecting data on a monitor from a laptop computer at each meeting;
- Provide Weekly Council Committee Agenda by scanning and sending electronically instead of copying;
- Duplicating and using black and white copies whenever possible;
- Purchased 30 percent recycled copy paper;
- Used back of old letterhead instead of clean paper when possible for draft or non-public documents;
- Attached a filter on water faucet in staff kitchen to reduce purchase of bottled water;
- Purchased insulated 2 gallon water jugs for field staff to eliminate purchase of bottled water;
- Implemented “lights out unless necessary” procedure on Summer ozone alert days;
- Turned computers off overnight;
- Removed phones and personal computers from vacant work stations; and

- Implemented staff's use of washable drinkware and utensils to reduce consumption of paper and plasticware.

The **City Auditor's Office** practices energy conservation by turning off overhead lights in unused areas, by using the energy saver feature on the office copier, and by following ITD guidance on shutting down office computers at night.

The **City Manager's Office**, Human Relations Division, had motion detectors for lighting installed in each manager's office. The office also uses an Energy Star efficient copier and personnel turn off the lights when not in use.

City Planning and Development took several actions to achieve this goal:

- The department regularly turns off lights to conserve energy;
- The department utilizes a CNG vehicle for staff use;
- Currently performing an Energy Efficiency Community Block Grant (EECBG) project titled "Study and Adoption of 2009 Energy Code." Under this project, the department will purchase copies of the 2006 International Energy Conservation Code (IECC) and train City staff on implementing the code in its review and issuance of building permits. To date, the department has obtained resources and training for the current code. With regard to the adoption of the 2009 IECC, the department has decided that the incremental benefit in energy conservation of the 2012 IECC will be greater than that of the 2009 IECC. The department, therefore, intends to evaluate the 2012 IECC when it becomes available in 2011, for adoption by the City; and
- The department is currently performing a second EECBG project titled "Enhancements to Zoning and Development Code to Promote Energy Efficiency and Sustainability." City staff and consultants have had preliminary meetings with focus group members. A first meeting of the work group is scheduled for September 2010. An audit of the City's current Development Code and research on relevant best practices in other cities are currently underway. An Energy Efficiency Development Code Audit will be conducted to review the City's Development Code for unintended barriers to energy efficiency, including consultation with other inside/outside experts and stakeholders. The Audit will then propose/prioritize code amendments and enhancements. Best Practices Research will identify leading edge practices from other jurisdictions related to energy efficiency, energy conservation and reductions in greenhouse gas (GHG) emissions. Development Code amendments, based upon the Energy Efficiency Development Code Audit and Best Practices Research, will be proposed. The City will assist with the public review and Code adoption process. Possible focus areas (preliminary) include: multi-modal transportation options; transportation demand management (TDM); transit-oriented development (TOD); upgraded energy efficiency standards for Planned Unit Development (PUDs); zoning regulations affecting sustainable energy features (e.g. district energy systems, photovoltaic panels, wind energy conversion systems and light shelves); solar access; mixed-use; and parking maximums.

Convention and Entertainment Facilities reviewed RFP EV00000592 to implement a performance contract for energy savings at the Conventions Center.

The **General Services** Department took several actions to achieve this goal:

- General Services chose several projects to do at City Hall, the Wolf Parking Garage and the Health facility. The projects include replacing the metal halide lighting with LED lighting; installing a 5 kW photovoltaic electricity generation system, and 6 kW wind generation system at Wolf Parking Garage; retro commissioning of air handlers and installing solar heating for domestic water in City Hall; replacing light fixtures, incandescent lamps with compact florescent lamps, toggle switches with motion sensors, installing solar heating for domestic water, converting the constant volume air handling systems with variable air volume systems, and upgrading the building automation system in the Health facility.
- The General Services Department contracted with Johnson Controls to implement numerous energy conservation measures at the Municipal Campus and the Health department building. Conservation measures include installing variable frequency drives on motors, installing a building automation system and installing LED lighting fixtures for Wolf Garage.
- The General Services Facility Services Division is installing an Energy Star-rated roofing system at the Paccar building. This roof system has improved insulation, which will save utilities and is highly reflective to reduce the urban heat island effect.
- The General Services Facility Services Division has enrolled City Hall in KCP&L's M-Power program. This year the City participated in eight energy curtailment events that reduced 1000 KWH of electrical consumption for a total of eight million watts.
- The General Services Department has a total of six waste oil-powered heaters in use in the Fleet Division's vehicle maintenance areas. This allows for the safe disposal of a hazardous material while replacing the need for using traditional heating methods during the winter months. 1,060 gallons of waste oil were burned in place of heating oil in FY10.

The **Housing and Community Development** Department initiated a regular (nightly) shutdown of the 11th floor by checking that all lights have been turned off.

Human Resources Department turns off lights and copiers to conserve energy, and recycles paper from their printers, copiers and fax machines.

The **Information Technology** Department worked toward this goal by:

- Consolidating their 24/7/365 datacenter function with the Police Department, resulting in the City's datacenter being dark 60 percent of the time;
- Eliminating the need for 15 servers by consolidating where possible;
- Implementing a program called Nightwatchman to turn personal computers (PCs) on and off during non-working hours for saving on electricity; and
- Replacing 300 PCs with new products having better Energy Star ratings.

The **Law** Department encouraged employees to conserve energy by turning lights, fans and office equipment off when not in use. Many employees use available natural light when possible, in lieu of artificial light.

Neighborhood and Community Services began construction of a new parking lot at 2534 Prospect Ave. that is being constructed to LEED Silver standard.

Parks and Recreation implemented several new projects that address this goal:

- Several energy-conserving measures were incorporated into the renovations of the Black Archives Building, including new windows, roof and a ground-source heat pump. This building has completed the requirements for achieving LEED Silver certification.
- High-speed roll-up garage doors were installed at the PACAAR Maintenance Building, which will save considerable energy during the winter. Also at this building, windows were replaced and energy-efficient lighting was installed.
- A new boiler was installed at Parks Administration building and new HVAC systems were installed at Swope Interpretive Center and Heart of America Golf Course Clubhouse. A new condenser was installed at Swope Memorial Golf Course Clubhouse.
- Three new park shelters were constructed with solar-powered lighting, which is also being used to power two fountains.

Water Services found that significant money and energy is saved by modifying the biosolids handling process in the Wastewater Treatment Division. Incineration consumes a large amount of electricity, water, gas, chemicals and labor in comparison to digestion followed by land application. Feed to the digesters is maximized leaving a smaller amount of biosolids for incineration. This alteration allows for incinerator operation of six months a year, as opposed to a full 12 months, a significant savings to the Division.

Goal 2 – Demonstrate improvements in preservation and restoration of natural resources and habitats such as wetlands, forests, water bodies, and prairies, as well as manage facility properties and buildings to reduce environmental impacts.

Internal Recycling Program – City departments continued their participation in the internal recycling program. In general, the facilities that participate in the program have their recyclables (paper, aluminum cans, plastic, and cardboard) collected by Batliner. Batliner pays the City for the materials, which allows the City to purchase additional bins and containers. This has allowed the City to gradually increase the capacity of the program and, in the process, identify additional opportunities for the City to focus its future recycling efforts.

Notable additions to the internal recycling program this fiscal year include additional community centers, a police station, and the Swope Office Building. Future plans for the program include adding Police Department facilities as appropriate. Work still continues on delivering containers to public areas of City facilities, purchasing and distributing larger collection containers to office areas, and the presentation of the City’s recycling program to new employees during their orientation training.

City facilities recycled a total of 310,522 lbs in FY10.

Additional activities completed in the pursuit of goal 2 include:

Aviation completed an Environmental Impact Study and Environmental Assessment for the Runway 1/19 Runway Safety Area construction project in FY10. These studies required approximately 10 years to conduct.

Recycling activities in the Aviation department included:

- newspaper - 9.01 tons
- plastic - 21.26 tons
- paper - 6.58 tons
- in-flight magazines - 5.7 tons
- cardboard - 83.79 tons
- scrap metal - 12.07 tons

Newspapers, magazines and paper collected by five airlines included 56.98 tons. In this case, the airlines see the monetary rebate, but Aviation benefited from the items removed from the waste stream, which would otherwise be placed in the Aviation Department trash compactors.

The total amount collected jointly is 195.39 tons.

The Kansas City Aviation Department's Recycling Committee worked in conjunction with MKC Airport Management and the Executive Leadership of the Kansas City Air Show to increase recycling efforts during the 2009 Air Show. Recycling of plastic and cardboard was required, per contract, of all vendors. Additionally, a recycling option was offered to the general public in attendance at the air show.

Accounts Payable encouraged vendors to submit invoices via e-mail. At present, 75 percent of the vendors are participating, and the turnaround time for payment has improved dramatically. This results in less labor, less ink, less paper and better customer service.

The **Capital Improvements Management Office (CIMO)** took several actions to achieve this goal:

- Increased use of personal drink and dinnerware and provided facilities to wash and reuse it;
- Reduced desktop pc inventory by 51 units returned to Information Technology Department (ITD) for redeployment to other users; and
- Replaced nine desktop and laptop computers assigned to staff with nine laptop computers with docking stations in a two-for-one exchange program with ITD.

The **City Auditor's Office** reduced environmental impacts by minimizing the use of copy and printing paper. Filtered water was provided rather than bottled water. The City Auditor's Office also participated in the City's internal recycling program, recycling newspapers, magazines, copy paper, aluminum cans, coffee cans and phone books. Toner cartridges were also returned for reuse.

The **City Manager's Office** took several actions to achieve this goal:

- The Office of Emergency Management actively sought to keep the quantity and types of chemicals stored to a minimum. Material Safety Data Sheets (MSDSs) were maintained onsite for those chemicals that cannot be avoided.
- The Human Relations Division participated in the City-wide recycling program and bought recycled paper, posted notes, and ink cartridges.

City Planning and Development submitted a Brownfields area-wide planning project proposal to EPA to develop a "Sustainable Re-Use Master Plan" for the Municipal Farm properties in the vicinity of the Eastwood Hills Neighborhood and Leeds industrial area. If the project is selected to receive federal funding, the project will develop a plan for greenspace re-use of the Municipal Farm properties for the benefit of community residents. Reuse options may include: community gardens, trails, native plant nurseries, leaf and brush recycling, and green solutions for management of storm water runoff.

Convention and Entertainment Facilities continued its recycling program and used only "green" chemicals in all of its building cleaning processes.

The **Fire** Department incorporated proper storm water management practices when considering the design of a new fire station. Natural resources and habitats are incorporated into the design process with minimum impact on the environment and community.

The **General Services** Department took several actions to achieve this goal:

- The Facility Services Division participated in the Missouri Department of Natural Resources' Building Operators Certification (BOC) course. This certification is designed to educate building operators in methods to efficiently and effectively operate facilities. To date, 12 employees have completed this certification and currently three are enrolled in the newly created BOC Level II course.
- The Real Estate Division worked closely with the Office of Environmental Quality and appropriate state Agencies to ensure that all required environmental testing was completed at properties the City was in the process of buying or selling.
- The Central Fleet Division recapped 128 old tires, gaining additional life from the materials.

Parks and Recreation - Phase I of the City's Climate Protection Plan contained two strategies, which fell directly under the jurisdiction of Parks and Recreation. The plan recommended expanding the Nature First program, which converts areas of turf grass to native plantings by adding 300 acres over a three year period and restoring the urban forest canopy in Kansas City through the planting of 120,000 new trees over the next 10 years. Additionally, the plan called for planting another 2,500 trees per year to replace those lost along the City's streets and in parks.

Implementing these initiatives was contingent upon receiving the necessary funding on an annual basis. No funding was appropriated in FY10 for tree planting, however, through leveraging of

grant funds and donations, Parks was able to plant 661 trees in parks and on boulevards and other City streets as part of the of the urban forest canopy restoration project.

No additional funding was budgeted for the Nature First program during this fiscal year. However, with the newly-established 'Conservation Corps' maintenance crew, the Parks and Recreation Department continued to expand, maintain and protect natural areas, including remnant and restored prairies, glades and rain gardens totaling more than 236 acres. The Department maintains more than 83 acres of prairie habitat in eight parks, and is responsible for burning the sites in the spring or fall. There are now 15 rain gardens in 13 park properties. Wetlands are protected near the Lake of the Woods, and approximately 6,500 acres are protected as woodland throughout the park system.

The Department's partners in restoration and management of remnant areas include Bridging the Gap affiliate KC Wildlands, Missouri Department of Conservation, GreenWorks, Blue River Watershed Association, Missouri Department of Natural Resources, as well as numerous neighborhood associations and private corporations. In addition to maintaining Parks and City natural resources, the Conservation Corps helped organize and lead workdays using volunteers and staff three or four times annually at each location to remove invasive species and plant native trees and other vegetation. These efforts also provide an educational forum for participants to learn of the benefit of restoring these areas to their original state. Volunteers from SkillsUSA again helped hand-build low-impact trails, in Hidden Valley Park and Swope Park.

The **Water Services** Department took several actions to achieve this goal:

1. Blue River

- a. The Water Services Department, in conjunction with the Corps of Engineers, successfully awarded a more environmentally-friendly project alternative on the Blue River Channel. The original authorized design included a concrete Grade Control Structure (GCS) estimated at \$36 million dollars, whereas the environmentally-friendly redesign was awarded at \$5.5 million dollars. The project benefits include an uninterrupted riparian corridor and the preservation of the channel's natural conditions. The channel has a series of weirs and natural bank stabilization consisting of trees and shrubs that also serves as habitat enhancements. The work is scheduled to commence by July 2010.
- b. The Blue River Channel Modification from Brush Creek to 53rd Street was completed in December 2009; the project incorporated green solutions. Environmental work performed as a part of this project included the removal of 9,696 buried waste tires, 2,600 surface tires, and the removal of 353 abandoned barrels (of which 200 were hazardous waste). Constructed habitat features consisted of lunker logs, root wads and newbury structures in the channel, which serve as feeding and hatchery grounds as well as bank stabilization. A series of hydrophytic and wetland plantings protect the water quality.
- c. The Blue River Channel Modification project is consistent with the City's commitment to "green solutions," resulting in several modifications to address environmental needs. These modifications include environmental cleanups, buy-

outs of salvage yards, and rerouting of the planned channel alignment to avoid various contaminated sites. The department is proactively partnering with the Corps of Engineers and with stakeholders within the watershed to promote environmental stewardship. Through this effort, the department demolished several abandoned structures that attract illegal dumping, removed tons of flood debris from underneath existing bridges and along the channel banks, as well as unwanted trees from within the floodway of the Blue River. By being proactive with our maintenance of the finished portions of the project, this has enabled us to control and eliminate erosion to the river banks.

2. Turkey Creek

- a. The Turkey Creek Flood Damage Reduction project is comprised of tunnel rehabilitation, channel modification, a levee and hillside interceptors to capture the runoff and convey to the improved channel. The completed channel improvements incorporate bio-engineered habitat for ducks and other forms of wildlife. The levee construction, including the environmental enhancements, was awarded in November of 2009. Construction began in June 2010. The enhancements include natural plantings and a walking trail along the creek on water side of the levee. Additionally, a value engineering study conducted for the hillside interceptors revealed options to complete that work in a manner that is more respectful of the environment.

3. Brush Creek

- a. The Brush Creek Feasibility Study, in cooperation with the Corps of Engineers, Johnson County, Kan., and Kansas City, Mo., will produce a watershed management plan for the bi-state basin. The plan will use a multipurpose approach to address the following:
 - i. manage flood risk
 - ii. improve water quality
 - iii. protect, enhance and restore riparian and aquatic ecosystems
 - iv. increase and enhance recreational opportunities
 - v. establish organizational framework for continued watershed management
 - vi. increase public education, understanding and participation in watershed stewardship
- b. The Brush Creek watershed management plan is coordinated through the long standing Brush Creek Coordinating Committee, which has coordinated other improvements along Brush Creek since the 1980's. The Committee has a strong interest in "green solutions" and created the expectation for remaining work along Brush Creek to be accomplished in an environmentally respectful manner. Additionally, the watershed management plan will benefit from stakeholder involvement through the services of Brush Creek Community Partners.
- c. An Environmental Team (E-Team), created to develop a habitat model, will allow the Corps of Engineers to pursue ecosystem restoration as part of the multi-purpose authorization from Congress in performing the Brush Creek Feasibility

Study. The model will satisfy certification requirements, while assisting with the decision making process, including cost effectiveness analysis.

- d. The Troost at Brush Creek Project includes green filters and partial separation of combined sewers, providing more environmentally-friendly infrastructure.

In addition to the above, the Water Services Department made environmentally preferred purchases and recycled materials as follows:

<u>Purchased Products made of Recycled Materials</u>	<u>Weight (lbs)</u>
Ductile Pipe	46,628
Hydrants	75,000
Manhole Rings and Covers	28,160
Copper	8,617
 <u>Purchased Chemical By-products</u>	 <u>Weight (lbs)</u>
Carbon Dioxide	66,077,100
Fluoride (HFS)	773,200
 <u>Recycled Waste Product through HHW</u>	 <u>Weight (lbs)</u>
Used Motor Oil (burned on site)	65,368
Batteries	51,449
Antifreeze	30,228
Fluorescent Bulbs	7,916
Scrap Metal	32,797
 <u>Waste Recovered Through HHW Swap Shop</u>	 <u>Weight (lbs)</u>
Paint	165,746
Automotive Oils	220
Bulk Fuel Oil	274

Goal 3 – Reduce air emissions from facilities through pollution prevention initiatives and emission control strategies. Reduce air emissions from mobile sources by reducing environmental impacts of shipping and receiving, fleet operations, and employee commuting.

The **Ozone Action Policy** - On April 21, 2004, former City Manager Wayne Cauthen issued an Ozone Action Policy (OAP), which required each City department to develop and implement an Ozone Action Plan to reduce ozone generating activities on ozone alert days. The Office of Environmental Quality (OEQ) is charged with coordinating the City’s ozone reduction efforts annually and with compiling and reporting citywide achievements. The Ozone Action Policy requires each department to appoint an Ozone Alert Coordinator (OAC) who was responsible for implementing the OAP, including reporting plans and achievements.

Ozone alert days are typically forecasted the day before an ozone alert occurs. On ozone alert days, City departments are encouraged to follow the City of Kansas City Ozone Reduction Measures (Ozone Action Plan) and Suggested Clean Air Actions for Business and Governments outline by the Mid America Regional Council (MARC). Those measures include, but are not limited to: notifying employees of ozone alert days, use of flextime by employees to reduce

traffic congestion, postponement of operations and maintenance activities, preventing cooking fires, carpooling and using alternatively-fueled vehicles.

During the FY10 Ozone season (April 1, 2009 to Oct. 31, 2009), the City avoided or postponed 718 vehicle trips during four ozone alert days. In addition, cars reduced running/idling time by 1,326 hours; avoided or postponed 1,070 refueling events; avoided or postponed 80 hours of small engine use, and traveled more than 19,325 miles using alternatively fueled vehicles. In facilities, building thermostats were set to warmer temperatures in 92 buildings during ozone alert days.

Other activities undertaken by City departments during the Ozone season or fiscal year include:

- 35 lane closures were postponed;
- 168 employees carpoled or used the bus during ozone alert days; and
- Several employees participated in the “Green Commute Challenge” program sponsored by the Mid-America Regional Council (MARC). Kansas City employees who participated in the program were responsible for reducing miles driven during ozone season by over 13,957 miles. This is a reduction of over 1,125 driving trips reduced, 655 gallons of fuel saved, and 12,909 lbs. of ozone forming and greenhouse gas emissions prevented.

Kansas City’s Climate Protection Planning process began in 2005 when former Mayor Kay Barnes signed the U.S. Conference of Mayor’s Climate Protection Agreement. In August 2006, the City Council passed Resolution 060777 directing the City Manager to undertake a Climate Protection Planning process. The purpose of the process was to develop a baseline inventory of greenhouse gas emissions, establish a greenhouse gas (GHG) emissions reduction goal and prepare an action plan to achieve the goal.

At that time, the City joined ICLEI – Local Governments for Sustainability. This provided the City with access to 1) computer software to develop a baseline inventory of local GHG emissions, 2) a network of other cities doing climate protection planning, and 3) other local government climate protection plans and planning processes.

In September 2006, Mayor Barnes appointed 11 community leaders to the City’s Climate Protection Plan Steering Committee. The Steering Committee was charged with overseeing the planning process, establishing a GHG reduction goal, and making recommendations for actions to be included in the City’s plan.

Phase 1 of the climate protection planning process began in December 2006 with the establishment of four large work groups comprised of more than 80 community volunteers. The four work groups were created to develop suggested action plans and make recommendations to the Steering Committee in specific areas: Energy, Transportation, Carbon Offsets and Waste Management, and Policy and Outreach. The work groups were comprised of a broad cross-section of the community, including government, business, non-profits, neighborhoods,

environmental groups, planning organizations, and the City's Environmental Management Commission.

The 32 Phase 1 GHG reduction measures developed by the work groups addressed energy efficiency, renewable energy, alternative fuels, mass transit (including light rail), alternative transportation programs, bike/pedestrian infrastructure, solid waste recycling (including construction and demolition waste), urban forestry, native plant landscaping, green infrastructure (including rain gardens and green roofs), producing and buying locally-grown food, climate-friendly revision of the City's development code, and public education and outreach.

Phase 2 of the climate protection planning process, focused on addressing community-wide GHG emissions reductions, began in September 2007 with the establishment of two large work groups comprised of more than 60 community volunteers. In a process analogous to that completed for Phase 1, in Phase 2 a set of 23 additional consensus GHG reduction measures were developed by the work groups for presentation to the Steering Committee.

In concert with City staff and facilitators, the work groups used year 2000 baseline inventory of GHG emissions and the update for year 2005, in addition to information regarding existing city activities and regional initiatives that had already achieved GHG reductions. The inventory revealed that, from 2000 to 2005, City government had reduced GHG emissions from its operations by 6.8 percent while community-wide emissions had increased by 3.8 percent.

A set of 55 consensus GHG reduction measures were developed by the work groups, in Phase 1 and Phase 2 of the planning process, and presented to the Steering Committee. The Steering Committee unanimously adopted all of the recommendations and forwarded the Climate Protection Plan to the Mayor and City Council. On July 24, 2008, the City Council unanimously approved Resolution 080754, accepting six policy recommendations of the Climate Protection Plan Steering Committee:

1. Make climate protection/GHG reduction a key factor in all decisions and actions by the City;
2. Adopt the 55 greenhouse gas emission reduction measures in the Climate Protection Plan as a statement of intent and strategy, while providing the City administration with flexibility to implement them in a timely and workable manner;
3. Reduce GHG emissions from City government operations by 30% below 2000 levels by 2020;
4. Reduce community-wide greenhouse gas emissions in Kansas City, Missouri by 30% below 2000 levels by 2020;
5. Reduce community-wide greenhouse gas emissions by 80% below year 2000 levels by 2050 and focus our long-term outlook on being a climate-neutral Kansas City; and

6. Continue the Climate Protection Steering Committee as an ongoing oversight entity for implementation of Kansas City's Climate Protection Plan.

City staff implemented a wide range of programs to put into practice the policies adopted in the Climate Protection Plan, including:

1. Entered into a grant agreement with the US Department of Energy for energy efficiency improvements for various City facilities and policies, including:
 - o construction of the Blue River Athletic Field Trail connecting two major bike/ped trail segments;
 - o modification the Development Code and Area Plans for transportation efficiency;
 - o upgrade of the adopted energy efficiency code for construction or renovation of buildings ;
 - o energy efficiency upgrades and renewable energy applications to the City Hall complex of buildings and to the Health Department encompassing upgrading Wolf Garage lighting to LED, upgrading all equipment motor drives, adding solar water heating to City Hall and the Health Department, and solar panels and wind turbines on the top floor of Wolf Garage;
 - o implantation of the Sustainable Energy Education and Communications (SEEC) campaign to educate City employees about sustainability using an online training package over a 10-month period;
 - o purchase and installation of personal computer power management software that will shut down computer equipment in typical non-business hours;
 - o conversion of the remaining traffic and pedestrian signals from incandescent to LED lighting;
 - o creation of a traffic signal synchronization center; and
 - o creation of a process to address energy codes and related policies in the metropolitan region.
2. submitted a grant proposal to the US Department of Energy for a \$50 million program to improve the energy efficiency of buildings community-wide and to transform the energy efficiency market in this region;
3. Began a partnership with Mid-America Regional Council to inform citizens of the benefits of eliminating vehicle engine idling as a pocketbook issue in reducing wasted gasoline, as an environmental issue in reducing greenhouse gas emissions, and as a public health issue in, for example, reducing harmful fumes breathed by children at schools.
4. Continued work with the Missouri University of Science and Technology and Smith Electric Vehicles to introduce 100% plug-in electric vehicles to the City's fleet of alternative fuel vehicles; and
5. Joined the region-wide Plug-In Readiness Task Force to identify and eliminate barriers to plug-in electric, to identify policies needed to support electric vehicles in this market, and to make electric vehicles a viable alternative choice.

Additional activities completed in the pursuit of goal 3 include:

Aviation - KCI added a Hybrid SUV to its fleet. The Charles B. Wheeler Downtown Airport Staff complied with City-sanctioned vehicle use restrictions during cautionary ozone alerts.

The **Capital Improvements Management Office (CIMO)** took several actions to achieve this goal:

- Continued to enforce Vehicle Idling Policy; and
- Reduced department fleet of gasoline powered vehicles from 29 in March 2009 to 11 in June 2010.

The **City Auditor's Office** turned in its only office car during FY10. Now, staff use personal vehicles or rely on pool cars provided by General Services. The City Auditor's Office operates in accordance with its Ozone policy which encourages participation in ozone reduction activities and discourages non-essential driving to complete audit assignments. During the ozone season, staff was able to structure their work hours to avoid rush hour commuting. Staff received e-mail notices of ozone alert days and when they occurred, were encouraged to use alternative transportation.

The **City Manager's Office**, Human Relations Division, had 13 staff members who either rode the bus and/or carpooled to work. In addition, staff ordered office supplies in bulk to reduce delivery vehicle trips.

The **Finance** Department had 25 employees (23% of its staff) use public transportation. In addition, two employees occasionally biked to work when weather conditions were favorable.

The **Fire** Department had a detailed Ozone Action plan that was revised, reviewed, and implemented to coincide with the Ozone season. The plan directs a number of specific actions to reduce emissions and is announced to all personnel at shift change on any alert days. Progress is systematically reported as required by City directives.

The **General Services** Department took several actions to achieve this goal:

- The General Services Department actively participated in the City's Ozone Alert Planning process. Tips on reducing ozone producing emissions, at work and at home, were distributed to all divisions by the Department's Ozone Alert coordinator monthly during the Ozone Alert Season. Efforts to reduce these emissions were tracked and reported to the Office of Environmental Quality on a regular basis. Also during ozone alert days, the M-Power energy curtailment procedures are put into effect which reduces the amount of energy needed and in-turn reduces the amount of electricity that needs to be generated.
- Products such as paint, carpet, wall-coverings, and adhesives used in buildings were required to be low volatile organic compounds (VOCs).
- The Central Fleet Division oversaw a fleet that included 1,300 10 percent Ethanol vehicles, 225 Compressed Natural Gas (CNG) vehicles, 31 pure electric vehicles, five propane powered and seven Hybrid vehicles. All 1,568 of these vehicles helped to reduce the amount of environmentally harmful air emissions produced in the performance of the City's daily tasks.

- An additional 90 alternative fuel vehicles, including heavy duty trucks and vans will be purchased under a federal stimulus fund.
- In FY10 the Central Fleet Division used 37 gallons of low VOC level paint in its operations. The levels of VOC's in the paints used were well below industry standards.
- Central Fleet division recycled used anti-freeze, batteries, scrap metal, catalytic converters, excess used oil and tires that cannot be recapped.

The **Health** Department explored adding a catalytic converter to its diesel generator exhaust, but discovered the engine was not designed to operate with a converter. Professional stationary generator service providers were employed to tune and maintain the system and ensure it operates to design standards.

The Department also renewed its efforts in monitoring and alerting staff to Ozone Alert days and the implementation of a revised Ozone Action Plan. A designated parking area has been reserved for carpooling staff and anti-idling efforts have been incorporated into the training of staff in the use of City vehicles.

The **Housing and Community Development** Department purchased two Ford Escape hybrid vehicles.

The **Information Technology** Department provided flexible schedules for bus riders and car poolers.

Law Department employees chose to teleconference instead of conduct in-person meetings. This saved vehicle trips and fuel consumption and was particularly important when the ozone level was elevated. In addition, many employees utilized mass/public transit or participated in carpool groups. The Department ordered supplies in bulk to minimize delivery vehicle trips and emissions.

Neighborhood and Community Services' employees were encouraged to car pool, have "e-meetings," and to not travel during Ozone Alert Days. During the Ozone Alert Days, when possible, vehicles were not fueled or fueling was done in the late afternoon.

In addition, the Neighborhood Preservation, Animal Control, and Tow Lot divisions had their vehicle gas caps tested (over 100 vehicles). All vehicle caps passed the test which ensures that no ozone creating vapors were released to the environment through the fuel tank.

The **Parks and Recreation** Department continued and expanded its reduced mowing program. In 2009, in response to both budget constraints and the increased environmental concerns of the City, Parks and Recreation began setting aside strategic expanses of open land that were formerly mowed. This program originally resulted in 351.62 fewer acres being mowed, consuming less gasoline and reducing emissions throughout the mowing season. In 2010, Parks and Recreation expanded this program to include 397 acres.

The Department maintained two alternative fuel vehicles.

Water Services Department implemented its Ozone Reduction Measures plan on Ozone Alert Days. Additionally, many ozone reduction practices were implemented throughout the ozone season, such as bus riding, shift changes, and use of alternative fuels. On average 6,150 miles per day were driven in CNG vehicles. During FY10, Water Services conducted the following activities on Ozone Alert Days:

715	vehicle trips avoided or postponed
665	fueling activities avoided or postponed
1,368	hours of engine idling avoided
2,831	miles alternative fuel vehicles traveled
35	lane closures postponed (to prevent traffic backups)
49	building thermostats set warmer
78	gallons of solvent use avoided
61	mowing and small engine use avoided or postponed
13	other activities (mostly car pooling and riding the bus)

Goal 4 – Incorporate green solutions, whenever possible and appropriate, during the planning process into City policies, projects, and programs.

Green Solutions – On Aug. 9, 2007, the City Council adopted Resolution No. 070830. The resolution established the policy of the City to integrate green solutions protective of water in our City planning process and into City policies, projects, and programs. Green solutions are strategies that result in on-the-ground projects which are specifically designed to reduce storm water runoff, reduce water pollution, create recreational amenities, and protect our natural resources through the use of “green infrastructure” such as rain gardens, bio-retention facilities, stream restoration, stream buffers and other scientifically proven methods. Green solutions also include measures such as energy efficiency, renewable energy, solid waste recycling, mass transit, bike/pedestrian infrastructure, stream buffers, and other measures that reduce greenhouse gas emissions and improve environmental quality.

Because of the City Council’s adoption of the Green Solutions Policy in 2007, the City Manager adopted AR 5-5, which formed the interdepartmental Green Solutions Steering Committee (GSSC). The GSSC consists of the Directors of several City departments and the City’s Chief Environmental Officer. The GSSC is working to integrate the variety of “green” and sustainability initiatives in the City into a cohesive plan of operations and to identify and prioritize the primary areas needing policy or regulatory adjustment to support a greener approach.

In addition to the GSSC, four staff level Green Teams were created to address the various issues surrounding green solutions. The four teams include: Green Infrastructure; Resource

Management; Regulation and Policy; and Education and Outreach. These four teams work to develop strategies to incorporate green solutions into City policies and procedures and makes recommendations to the GSSC for their approval or recommendation to the City Manager for adoption or consideration.

In FY10, the Green Regulation and Policy Team recommended improvements to the threshold provisions of the BMP (Best Management Practices) Manual used for maintaining storm water quality at projects. These recommendations were approved by the GSSC.

In addition, the Education and Outreach Team submitted a “KC Green” logo for endorsement by the GSSC and approval by the City Manager. The logo will be used to highlight green solutions and projects that the City undertakes, thereby making them more visible to the public.

Additional activities completed in the pursuit of goal 4 include:

Aviation - In FY10, there were two new fueling agents (City of Kansas City, Missouri and Hangar 10) at the Wheeler Downtown Airport. In accordance with environmental best practices and Federal Aviation Administration Regulation, both entities were required to consider fuel spill cleanup during the design phase. Both fueling agents installed fuel tanks with secondary containment, which remain locked and closed to prevent fuel from inadvertently entering the water drains.

Additionally, the Kansas City Aviation Department contracted the design of a new General Aviation Terminal to meet silver LEED standards. This facility is scheduled to be open in September 2010 and will include connectivity to the 250/300 Richards Road Building Management System to maximize HVAC efficiencies and control.

City Planning and Development Department – The City published formal interpretations regarding pervious paving and “ribbon strip” driveways to clarify their allowable use.

The **Finance** Department used the duplex feature on its copiers whenever possible. Staff in two divisions also used the other side of the paper for other purposes.

The **Fire** Department tasked design personnel to identify opportunities in which green solutions can be incorporated into the design of new construction.

The **General Services** Department took the following actions to achieve this goal:

- The Central Fleet Division has a program to use a number of remanufactured parts which requires less energy than the manufacture of new parts. Using remanufactured parts extends the life of existing equipment and keeps old parts from piling up in landfills. Remanufactured parts used include: alternators, starters, water pumps, wiper motors, window lift motors, brake shoes, steering pumps and radiators.
- The General Services Department staff is informed of the proper disposal of waste materials. Recycling programs are promoted within the Department and appropriate waste containers are provided.

The **Housing and Community Development** Department provides regular energy conservation programs to the public. This includes client (public) education on energy conservation.

The **Law** Department, while not an organization directly named in AR 5-5, endeavors to implement green solutions and best management practices. To this end, the department issues emails concerning elevated ozone levels. These notices include ways to avoid contributing to the ozone problem, such as car pooling, fueling in the morning or after the sun sets, and rescheduling meetings when possible. The department continues to interpret the LEED ordinance and give legal advice to City staff. The department participates in the City Hall recycling program, with every desk having a blue recycling bin. Department copiers are default set to print and copy double-sided in an effort to conserve resources.

The **Parks and Recreation** - Green solutions are regularly incorporated into park planning and design projects and maintenance procedures.

To reduce storm water runoff and reduce water pollution, rain gardens were installed in 15 Park locations: Tony Aguirre Community Center, Barry Road Park, Chouteau Greenway, Darter Park, Gregg-Klice Community Center, Indian Creek Greenway, Loose Park, The Paseo and 18th, Penn Valley Park Off Leash Area, Platte Purchase Park, Swope Park (3: at the Bandstand, SE Community Center and Lakeside Nature Center), Theis Park and Tower Park. In addition, the Parks and Recreation's Conservation Corps assisted other departments in installing and maintaining rain gardens on their properties.

Permeable pavement was used for trails in Westwood and Highland View Parks. The reduced mowing program has been increased to 397 acres, and not only results in budget savings, but the taller grasses in these areas, along with the deep-rooted native plants in rain gardens, act to slow water runoff, filter more pollutants from the water and increase infiltration into the soils.

To improve recreational amenities and bike/pedestrian infrastructure, two miles of multipurpose bike/pedestrian trails were added to the trail system (along Line Creek and Indian Creek). The natural surface trail in Hidden Valley Park was expanded again this year using partly volunteer labor.

The department continued its efforts to reduce the amount of waste taken to landfills and the attendant disposal costs through expanding its participation in the enhanced recycling program which recycles office paper, aluminum cans and plastic bottles. Approximately 36 cubic yards of recyclables were collected from Parks buildings. Other recyclable materials are collected at buildings and at events, but an accurate count is not available at this time. The department also purchased 208 picnic tables made from recycled plastic.

Goal 5 – Protect employee health and the environment by ensuring that training requirements for individuals are identified; that training opportunities are made available and are carried out; that training is recorded and tracked; and that training requirements are monitored, revised, and refresher training provided, as appropriate, to maintain competence.

Aviation department employees that work on the airfield participate in annual hearing testing and training that is provided by the Safety Division. Additionally, in January 2010, MKC employees participated in fire/fuel safety training and received information on responding to a fuel spill at the City's self-service Aviation Gas fuel pump. MKC Management hosts an annual Airport Emergency Table Top Exercise with local emergency responders to train on operational and safety procedures for response to an emergency at Charles B. Wheeler Downtown Airport. KCI conducts an annual Airport Emergency Table Top Exercise and FAA Part 139 airport operations training.

The **Capital Improvements Management Office (CIMO)** took several actions to achieve this goal:

- 22 employees completed the 10-hour OSHA training;
- 17 employees completed Certified Compliance Inspector for Storm Water (CCIS) on-line training.
- 2 employees completed Green Solutions – Trenchless Technologies

The **City Manager's Office**, Office of Emergency Management coordinates the Community Emergency Response Team training program. The training includes personal preparedness and how to do a household hazardous waste hunt. We include information about the City's Household Hazardous Waste facility.

The **Fire** Department incorporated new technology and concepts into their departmental training program. Personnel receive extensive specialized hands on training at the Fire Academy, remote transmissions at their station, and specialized training (water rescues, high rise tactics, incident command, etc.) on a monthly basis. Included in this training is the proper use of personal protective equipment, defensive driving, and firefighting techniques.

Health Department employees were required to take blood borne pathogens prevention training. The training records are maintained at the supervisory level to retain training history.

The **Housing and Community Development** Department tracked all training through the PeopleSoft system inside (City) and outside training as applicable to City, HUD, and DOE regulations.

Human Resources Department coordinated the Wellness program for City employees. Employees were encouraged to attend and participate in Wellness classes, annual Health Risk Appraisal (HRA), and join the Fitness Center.

The **Information Technology** Department offers training opportunities to employees and makes required classes a part of an employee's performance measures.

The **Law** Department's attorneys completed over twenty five hours of continuing legal education credit and additional outside study specific to environmental law and regulation, as well as sustainability issues during the fiscal year.

Neighborhood and Community Services employees all have training plans and many are required to complete several safety/education types of classes as necessary to complete their core function.

Parks and Recreation - Four employees from the Nature Center and Conservation Corps attended training on water quality sampling. At least 9 Park Planning and Design employees completed CCIS (Certified Compliance Inspector of Stormwater) training.

Water Services Department Safety Division tracked and provided safety training to Water Services' employees. For the most part, the Office of Environmental Quality handled the environmental training for the Department. However, some coordination occurred between the Office of Environmental Quality and the Environmental Compliance Coordinator for Water Services.

Goal 6 – Create a cleaner City by implementing actions that reduce illegal dumping and improve the City's response to illegal dumping.

Aviation Department - MKC Management collaborates with Airport users and tenants to watch for and report any illegal dumping. There were no significant reports of illegal dumping in FY10.

The **Capital Improvements Management Office (CIMO)** incorporated contract specifications, where appropriate, into contract to hold contractors accountable for proper disposal of building materials and to discourage illegal dumping.

The **City Auditor's Office** released a report on City Cleanliness in March 2007 which found that illegal dumping affected citizen satisfaction with the cleanliness of streets and public places, along with maintenance and upkeep of housing, commercial property, and vacant lots, overgrown vegetation, trash and litter, and water runoff. About a third of citizens said they were either satisfied or very satisfied with street cleanliness in our 2010 quarterly surveys. The City Auditor's Office believes that there is room for improvement and that Kansas City can do better. Setting specific goals and monitoring performance would help the City improve key cleanliness conditions and improve satisfaction.

The **Fire** Department's station personnel continually monitored the discarded materials placed within onsite dumpsters to assure the surrounding neighborhoods are maintained.

The **Health** Department inspectors were trained to identify and report evidence of illegal dumping. The Department continued its twice yearly Highway Cleanup along Highway 71 near

the Department. Each cleanup event incorporates seven to ten staff who volunteers their efforts to assist. This year represents the fifth year the department has engaged in this effort.

The **Law** Department continued to investigate claims of illegal dumping when referred and prosecuted those responsible.

Neighborhood and Community Services pursued many illegal dumping cases in Municipal Housing court, with over 10 convictions and an average fine to offenders found guilty averaging \$750.

Parks and Recreation - In the ongoing battle to combat illegal dumping within parks and along boulevards and parkways, Parks and Recreation continued working with law enforcement personnel, neighborhood and community groups, other City departments, the City's Illegal Dumping Task Force and other stakeholders in the multi-faceted effort to address the dumping problem. Department crews assisted citizens, provided support for and participated in neighborhood cleanup days throughout the city. Park crews collected 1,785.76 tons of trash dumped in parks, (including large appliances, household trash, unusable paint and household chemicals, and trash which is properly disposed of in receptacles); and collected and recycled several tons of discarded tires. Cameras were installed or maintained in 27 locations often used for dumping.

Parks and Recreation also continued to use the internal self-inspection program SHAPE (Safe, Healthy and Attractive Public Environments) to quickly identify and address park maintenance issues, including illegal dumping. This award winning program was designed to make visits to parks a more pleasant experience, while also discouraging illegal dumping and other acts of vandalism in the parks.

The department continued working with the Missouri Stream Team in the annual Blue River Cleanup. This event attracted upward of 400 volunteers who work along nine miles of the river from Brush Creek south removing trash of all types and sizes, including cars, appliances and hundreds of tires.

Neighborhood, homeowner and community groups continued assisting the department through the adoption of parks and in patrolling areas where illegal dumping occurs with regularity.

The department continued partnering with the Public Works Department, Solid Waste Division to piggyback on its contract with Missouri Organics as an option to taking organic waste to landfills. Over 85% of organic waste generated by department and contract crews was either recycled into pressed wood pallets or used for trails. Recycling efforts resulted in over 6 tons of waste being diverted from landfills.

The **Water Services** Waterways Division completed many projects toward this goal:

1. Waterways Division assisted with reducing the effects of illegal dumping along and upon City property by implementing a multi-departmental plan to deter and respond to the dumping in the Blue River area. Deterrent measures employed include the following:

- a. Dispatching field personnel and requesting increased Police presence to inspect vulnerable areas such as dead-end streets, vacant lots, abandoned buildings and parking lots, along with placing barriers at frequent dump sites;
 - b. Talking to neighbors and sharing information about how to report illegal dumping (i.e., complete description of the person, vehicle, items dumped, etc.);
 - c. Creating block watches through the Neighborhood Services Division, (816) 513-3200; and
 - d. Installing and frequently rotating surveillance cameras, a useful but limited resource.
2. Waterways partnered with Corps of Engineers and the USGS to monitor the rivers and creeks to reduce loss of life and property during flood events. Both the Blue River and Brush Creek projects included studies and tools to serve this purpose.
 3. Annually, Waterways partnered with the Blue River Rescue Program to remove trash and debris along the Blue River corridor and raise awareness to illegal dumping in the area. The Blue River Rescue program starts at the mouth of the Missouri River and continues upstream into the Swope Industrial Park, covering over 18 river miles. This year's event was held on April 3, 2010, with numerous volunteers from the area. This program resulted in a tremendous cost savings to the City.

In addition, the Household Hazardous Waste Division conducted several mobile drop-off events throughout the area as well as receiving drop-offs at the facility. Materials received include: automotive fluids, mercury, household cleaners, poisons (aerosols and non-aerosols), latex paint (re-usable and spoiled), pesticides, batteries (all types), fluorescent lighting wastes, soaps and waxes, flammables (e.g. fuels, solvents), caustics (including acids, bases, liquids, and solids), paint related materials (oil based paints, PRM, etc.), fertilizers, and unknowns.

In 2009, HHW collected 1,091,716 pounds of materials reflected in the chart below, which is a three percent increase over last year. By offering residents an environmentally safe alternative for disposing of household hazardous materials, less of these materials are subject to illegal dumping, leaking or other release to the environment.

Delivering Program	Facility	Mobile	Total Weight	%	Average Per Client
Kansas City	411,047	129,560	540,607	49.52%	124.4
Independence	51,319	86,618	137,937	12.63%	147.4
Lee's Summit	14,225	1,754	15,979	1.46%	163.1
MARC	136,228	257,180	393,408	36.04%	138.4
Other Regional	3,035	749	3,784	0.35%	151.3
Non-Regional	0	0	0	0.00%	0.0
	615,854	475,862	1,091,716	100.00%	132.4

V. Other Significant Accomplishments

In addition to achieving its annual environmental goals, the following were significant City accomplishments during FY10:

City Planning and Development Department, through the Brownfields program, successfully completed the abatement of asbestos and the removal of two underground storage tanks from the former Greyhound Bus Terminal Brownfield site at 600 E. 12th Street, using American Recovery and Revitalization Act (ARRA) funding from EPA, the cleanup of this property helped reduced environmental impacts and will facilitate reuse of a downtown site, thereby preserving “greenfield” land and minimizing impacts on natural resources. Concrete from this building removal project was also successfully recycled onsite, reducing the volume of material sent to an area landfill and reducing emissions related to transporting this material.

Underground storage tanks were also successfully removed from the site of the Aldi grocery store development at 2500 E. 39th Street resulting in similar environmental and sustainable benefits.

Convention and Entertainment Facilities polished 388,000 square feet of concrete, eliminating the need to strip and wax with harsh floor cleaning chemicals.

The **Fire** Department awarded a contract to build a Fire Station 39 replacement, currently located at 10003 E. 47th St. The building is to be built to LEED Silver certification standards. A conscientious effort will be made to explore green solutions for conditioning the station’s interior/exterior environment with minimum impact on the atmosphere and land.

The **Parks and Recreation** Department continued to participate in the work of the Wet Weather Community Panel and the Climate Protection Plan, as well as the Green Solutions Committee. As noted above, the department planted 661 new trees. The department’s Forestry Operations continued work on a number of initiatives which will carry over into FY11 and beyond. Many of these came from recommendations from the Climate Protection Plan and include: development of a city tree ordinance and urban forestry management plan; the possibility of planting trees on City owned/managed vacant lots in the urban core; a partnership with the Heartland Tree Alliance to train volunteer “tree keepers”; and working with Water Services and Forest ReLeaf of Missouri to plant and grow trees at the Birmingham Bio-Solid Treatment Facility.

Parks and Recreation Director Mark McHenry was co-chair of the Green Solutions Committee, and several Parks staff members served on staff-level Green Teams. The Parks Department continued to prioritize sustainability efforts into its ongoing operations and in all new construction.

Water Services Department - In the fall of 2009, the Water Services Department installed a 1,457 square foot rain garden at the Laboratory. The site was chosen because the Laboratory surface parking lot drains to this area, leaving a marshy area. Properly designed “rain gardens” can effectively trap and retain up to 99 percent of common pollutants in urban storm runoff,

potentially improving water quality and promoting the conversion of some pollutants into less harmful compounds, and can absorb up to 30 percent more water than the same size area of lawn.

Staff from the Missouri Department of Conservation designed the rain garden. The Parks and Recreation Department provided equipment and labor for tilling in the compost, assistance with planting the garden, and finish grading. Members of the Environmental Excellence Business Network helped with planting the garden during a meeting at the Water Plant.

The native plants were donated by the Missouri Department of Conservation and include the following: Tussock Sedge, Soft Rush, Slender Mountain Mint, Joe Pye Weed, Blue Lobelia, Cardinal Flower, Orange Cone Flower, Southern Blue Flag, Foxglove Beardtongue and Prairie Blazing Star.

The Stormwater Maintenance Division cleaned 13,859 curb inlets in FY10, reducing obstructions in the storm sewer system in both the combined sewer and Municipal Separate Storm Sewer System.

To reduce storm water runoff pollution, encourage best management practices, and to stay in compliance with the State's NPDES requirement, the Stormwater Utility completed 61 municipal storm water inspections for industrial facilities.

To ensure control of sedimentation and erosion from land disturbance activities and to stay in compliance with the State's NPDES requirement, the Stormwater Utility Division and the Office of Environmental Quality do a monthly joint inspection of the active construction project sites that belong to various City departments.

Two in-house workshops were conducted on the self-assessment program for industrial and commercial facilities. Seventeen City employees and their contractors were trained.

The Wastewater Treatment Division received several awards from the National Association of Clean Water Agencies (NACWA), which gives Peak Performance Awards for treatment facilities remaining in compliance with NPDES Permits. Gold Awards are given for zero permit violations in a calendar year and Silver Awards for 5 or fewer permit violations in a calendar year.

For calendar year 2009, the Wastewater Treatment Division received the following NACWA Peak Performance Awards:

- Birmingham WWTP – Gold Award
- Northland MHP WWTP - Platinum 6 Award (6 years of 100% compliance)
- Rocky Branch WWTP - Gold Award
- Todd Creek WWTP - Gold Award

VI. Conclusions and Recommendations

Concluding the tenth year following adoption of the City's Administrative Regulation 1-19 on Environmental Stewardship, the City continued to make progress in incorporating good environmental stewardship and sustainability into all of its organizational activities.

The City continued to meet its environmental regulatory obligations through implementation of a City-wide Environmental Management System, a proactive facility inspection program, a task specific employee environmental and safety training program and through the dedication of the employees to incorporate environmental stewardship and sustainability into their job tasks. Specific policies and programs implemented this year that emphasize the City's commitment toward being a "green" City include the Green Solutions Policy and Administrative Regulation and implementation of the City's Climate Protection Plan.

Specific recommendations for improvements in compliance assurance and environmental and safety training includes:

- Focus on the completion of the City's environmental compliance obligations in a timely manner. Environmental Coordinating Managers should take a proactive look (on a monthly basis) at their department's outstanding compliance obligations and work with staff to complete them and remove them from the system.
- Maintain a state of preparedness for unannounced regulatory inspections, particularly at construction projects. This should include notification of relevant departmental staff and representatives of the Office of Environmental Quality whenever regulatory agencies visit a City facility.
- Continue to implement a facility specific self-inspection program and assure that employees performing those inspections are properly trained to identify and respond to potential issues.
- Update Administrative Regulation 1-19 Environmental Stewardship to include current standards and City priorities.
- Update Administrative Regulation 1-12 City Standard Erosion and Sediment Control Specification. This administrative regulation should include requirements for staff responsible for construction projects to ensure that training has been completed, that project sites are in compliance with the City's MS4 permit and land disturbance permit, and that all required Storm Water Pollution Prevention Plans are in place before work begins onsite.
- Employee training needs, identified by employee's ETPs, should be fulfilled through increased enrollments and completed classes. This may be accomplished through improving awareness of the training program offered by the Office of Environmental Quality and creating training liaisons in the City's departments.

Cooperation of the employees' supervisors will be integral in ensuring employees have access to the training classes.

While ensuring regulatory compliance is maintained, City departments and staff have implemented a variety of "beyond compliance" projects and improvements in energy conservation, xeriscaping, alternative fuel use, tree plantings, native landscaping, sustainable architecture, waste minimization, green purchasing, and other climate protection measures.

The following recommendations are suggested for improving the City's environmental performance "beyond compliance" during the coming year:

- Continue aggressive implementation of the 55 greenhouse gas emission reduction measures of the Climate Protection Plan – Implementation should be accelerated in addressing a wide range of program elements, including, but not limited to:
 - Reducing overall municipal energy use;
 - Expanding municipal and community-wide recycling while training the public to reduce the use of commodities and to reuse them before recycling;
 - Pursuing onsite generation of renewable energy;
 - Widening the group of partners engaged in a broad-based, aggressive education program supporting and promoting green choices;
 - Exploring improvement of energy efficiency ordinances, codes and regulations; require targeting the achievement of Energy Star rating for commercial and residential development;
 - Implementing the City Solid Waste Management Plan;
 - Implementing the citywide bike/pedestrian trails plans;
 - Expanding native landscaping on City property;
 - Expanding the synchronization of traffic signals;
 - Developing a plan to implement light rail and/or other public transit systems;
 - Implementing the new stream buffer ordinance;
 - Beginning management and reduction of construction and demolition waste;
 - Promoting local, state and federal policies that encourage energy efficiency and renewable energy;
 - Promoting and looking for funding opportunities for pedestrian and bicycle infrastructure;
 - Utilizing federal stimulus and other available funding to implement GHG reduction measures in the City's Climate Protection Plan;
 - Partnering with Mid-America Regional Council (MARC), neighborhood associations, and other public/private stakeholders to implement a revitalization of the Green Impact Zone; and
 - Partnering with public and private sector organizations to implement citywide GHG reduction measures.

- Continue acquisition of alternative fuel vehicles and examine the feasibility of using electric vehicles in the City fleet. Other strategies to be considered include

increasing the fleet's fuel efficiency, decreasing vehicle miles traveled, and eliminating unnecessary vehicle engine idling.

- Continue implementation of the LEED ordinance by application of policies and procedures to implement the ordinance and continue training of City staff in doing LEED related construction projects. Modify City contracts to include language implementing LEED standards and requirements.
- Implement recommendations embodied in the Green Solutions Policy adopted by City Council. These recommendations include: educating and engaging the public to create community and regional partnerships; enact regulations and create enforcement programs that protect natural resources; create incentives to integrate green solutions into the community; and invest public dollars in green, multi-benefit solutions.

VII. FY11 Annual Environmental Improvement Goals

The following goals have been approved and adopted by the City for FY11, May 1, 2010 to April 30, 2011

Goal 1 – Improve energy management by increasing energy efficiency in production processes, incorporating energy conservation into facility operations and designs, and using more renewable or sustainable energy resources.

Goal 2 – Demonstrate improvements in preservation and restoration of natural resources and habitats such as wetlands, forests, water bodies, and prairies, as well as manage facility properties and buildings to reduce environmental impacts.

Goal 3 – Reduce air emissions from facilities through pollution prevention initiatives and emission control strategies. Reduce air emissions from mobile sources by reducing environmental impacts of shipping and receiving, fleet operations, and employee commuting.

Goal 4 – Incorporate green solutions, whenever possible and appropriate, during the planning process into City policies, projects, and programs.

Goal 5 – Protect employee health and the environment by ensuring that training requirements for individuals are identified; that training opportunities are made available and are carried out; that training is recorded and tracked; and that training requirements are monitored, revised, and refresher training provided, as appropriate, to maintain competence.

Goal 6 – Create a cleaner City by implementing actions that reduce illegal dumping and improve the City's response to illegal dumping.