

2011 Year in Review



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Get Green Columbus: 2011 Year in Review
Expanded Version
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I. Awards

Get Green Columbus and its many initiatives have been recognized both locally and nationally. This attention is encouraging and serves as an indicator of progress being made towards building an increasingly sustainable community. In 2011, the City of Columbus received the following distinctions:

The City of Columbus was named as the No. 1 Government Green Fleet in North America

In June 2011, the City of Columbus broke ground on what will be the largest publicly accessible compressed natural gas (CNG) station in the Midwest, with two more stations projected, allowing the City to keep CNG prices low and creating a market for CNG vehicles. The City's 24 heavy-duty dedicated CNG vehicles will displace 55,000 gallons of diesel fuel and reduce carbon dioxide by 490 metric tons. In addition, GPS tracking units on 3,035 on-road vehicles will provide improved routing information, decreasing fuel and maintenance expenses.

Mayor Coleman received the 2011 Green Energy Ohio Public Official of the Year Award

Green Energy Ohio recognized Mayor Michael B. Coleman for launching the Get Green Columbus initiative allowing the City of Columbus to lead by example and reduce the city's impact on the environment. A major goal of the mayor's is to reduce greenhouse gas emissions from city operations 10% by 2015. This is being achieved through building energy efficiency projects, retrofitting pedestrian and traffic signals with LED technology, generating renewable energy such as hydropower, biogas and solar power and using alternative fueled vehicles in its fleet. Mayor Coleman has also developed incentive programs to help businesses reduce their energy use such as the E3 program for manufacturers and the Green Columbus Fund program to incentivize the development of LEED certified buildings and redevelop brownfields.

Clean Fuels Ohio Green Fleet Certification and Clean Fuel Champion Award

City of Columbus Divisions of Refuse, Sewer and Drains and Transportation were certified as *Clean Fuels Ohio Green Fleets* due to installation of emissions control devices, CNG engine repowers, idle reduction devices, and use of biodiesel. In addition, Clean Fuels Ohio recognized the City of Columbus as the *2011 Clean Fuel Champion Award* honoring the City as an organization that is taking a leadership role by reducing harmful environmental pollution and petroleum use from transportation.

Keep America Beautiful Distinguished Service Award

Keep Columbus Beautiful received the Keep America Beautiful Distinguished Service Award for an educational video produced by Department of Public Service's Communications Section and CTV which airs on television and online. The award was given in the Awareness category for initiatives to educate the public about litter prevention and encourage grassroots volunteer efforts to clean and beautify communities, thereby improving the quality of life. The production was an overview of Keep Columbus Beautiful projects, goals and success stories told through testimonials from Mayor Coleman, community leaders and KCB staff.

The City of Columbus was named as one of nine finalists for the US Chamber of Commerce and the Siemens Corporation Sustainable Community Award. The finalists represent outstanding local level efforts to achieve complementary economic, environmental and quality of life goals. There were nearly 100 applicants.

II. Community Education and Engagement

GreenSpot

Mayor Coleman's successful public education tool, [GreenSpot](#), continued to grow in 2011. The GreenSpot program encourages residents, businesses and community organizations to make an online pledge, committing to a series of behavior changes to benefit the environment. GreenSpot grew from 2,010 members to 3,579. Most of the program's growth was in the household category, which added 1,466, but new business members (81) and community group members (22) were also added.

In addition, three companies were recognized for going above and beyond GreenSpot commitments at the annual *GreenSpotLight Party and Awards Ceremony* at the Franklin Park Conservatory. The 2011 Awardees were: [ms consultants](#), [The Nature Conservancy](#), [First English Lutheran Church](#).

GreenSpot for Kids

An Ohio Environmental Education Fund grant allowed the GreenSpot program to expand in 2011 to a younger audience. Materials including a website, teacher resources and a children's book titled *GreenSpot and the Dots* were developed for first grade Columbus City School students. Visit www.GreenKids.Columbus.gov to access these resources.

Central Ohio Children's Water Festival

In recognition of National Drinking Water Week, the City hosted 640 fifth-grade students and teachers for the fourth annual Central Ohio Children's Water Festival where the students learned about the importance of clean water through interactive displays and hands-on activities.

Litter Cleanups & Beautification

Keep Columbus Beautiful (KCB) engages volunteer groups, churches, schools, businesses and residents in ongoing litter abatement through the *Adopt an Area* program and in organizing neighborhood cleanups, beautification efforts and graffiti paintovers. KCB conducted 387 cleanup events, using 8,971 volunteers who collected 338,709 pounds of litter. Fifty-nine beautification projects were executed using 1,411 volunteers, with labor valued at \$102,539. Nine paintovers were conducted by 69 volunteers who painted 6,512 square yards, with labor valued at \$3,970. *Adopt an Area* currently has 109 groups engaged citywide. KCB staff also gave 89 educational presentations that reached 4,775 people.

Through the Franklin County Environmental Court, 98 individuals were assigned to fulfill community service hours and collected over 14 tons of litter.

Through the City Crews' Litter Abatement program, there were 8,123 bags of right-of-way litter collected citywide, including 3,668 during the annual spring cleanup between March 28 and April 8, 2011.

Mayor Michael B. Coleman's *KickButt, Columbus!* events provided education and awareness through media and abatement for cigarette litter, the most littered item worldwide. Mayor Coleman also led his annual spring cleanup in March manned by city employees, community groups, professional organizations and area residents. Other cleanup and beautification events include: Earth Day, Plant Pride on Parsons, OSU Rock the Block, OSU Community Commitment, United Way Community Care Day, America Recycles Day, three Sullivant Avenue Litter Busts and four Neighborhood Pride events.

The annual Hoover Reservoir Fall Litter Cleanup promotes community involvement, instilling a sense of environmental responsibility while maintaining higher water quality and enhancing beauty of the park area around the reservoir. About 240 volunteers attended fall clean-ups at Hoover Reservoir where volunteers collected anywhere from 6 to 16 cubic yards of litter. This event educates residents and provides opportunities for engagement in practices that promote improved water quality.

Columbus Ecological Restoration Program – Honeysuckle Removal

New in 2011, was the establishment of a program to rid parks of invasive species that threaten habitat, diversity of species, and the health and continuation of our wooded areas in Columbus parks. The program is the Columbus Ecological Restoration Program (CERP), which efficiently uses a special unit of the Forestry staff to work with volunteers in the parks and along city waterways. The staff chip the honeysuckle to become mulch that is used in park playground areas throughout the city. The CERP honeysuckle removal totals to date include:

- o 11.15 parkland acres;
- o 1,265 yards along waterway shorelines;
- o 854 yards next to the multi-purpose trails; and
- o materials removed were chipped into 170 cubic yards of mulch.

Combined with the spring clean-ups, there was a total of 15.8 acres of honeysuckle removed from park areas. These will now be tracked now through GIS to ensure continued treatment toward eradication.

Earth Day 2011 Lighten Up

The City of Columbus is a proud sponsor of the annual Earth Day events organized by [Green Columbus](#). Last year's event, titled 'Lighten Up', brought out over 3,000 volunteers to 137 worksites around the city, where they put in more than 8,000 hours of work planting trees cleaning up neighborhoods, establishing community gardens and much more. A list of all worksites from last year's event can be found here: <http://www.lightenup2011.org/worksites/>.

Utility Bill Inserts

Environmental messages in bill Inserts were mailed with each quarterly water and sewer bill and up to three times per year to Columbus Power customers, reaching over 300,000 households per quarter. Educational messages included information on Com-Til, Central Ohio River Pride, the Storm Drain Marking Program, water conservation and reuse, GreenSpot and energy conservation tips.

Neighborhood Pride

Neighborhood Pride is a team effort by city departments, neighborhood groups and individual citizens, businesses and other partners to make our neighborhoods safer and cleaner, which are keys to a more vibrant and exciting future for Columbus. For one week, an intense delivery of city services including the cleaning of alleys, mowing high grass in the public right of way and neighborhood recreational areas, replacing burned out street light bulbs, block watch and fire prevention outreach and evaluating exterior housing for code compliance. In 2011, four neighborhoods were selected for the service: South Ogden Avenue / Avenues of Vida Place Block Watch, Woodland / Holt Civic Association, Kingston Crossing / Walnut Bluff Block Watch, Marion Franklin Civic Association / Southfield Block Watch. Environmental resources were distributed at the four Neighborhood Pride events. Residents received educational messages on environmental stewardship and water saving kits to conserve water at home.

Mayor Michael B. Coleman's Green Team

The 35 member Green Team, chaired by Aparna Dial, advises the Mayor and Office of Environmental Stewardship on sustainability efforts for the Get Green Columbus initiative and educates the public about green efforts taken or that are underway. The Team formulates actions, make recommendations for such actions and support programs as it deems necessary to support the [City's Green Principles and Values](#). In 2011, the Green Team set goals for the year, including a) Increased cross-pollination & collaboration between working groups and b) Improving Green Team organization & communication. The Team was introduced to the Green Business Working Group's Green Asset Inventory project and dedicated the August meeting to gathering some initial asset information. The Green Team also learned about the Weinland Park Collaborative- [Neighborhood Revitalization project](#) which is a holistic approach to neighborhood revitalization, with many community partners engaged. Includes an Urban Agrarian emphasis to provide more access to healthy food; Housing revitalization (rehab and new build) efforts; Employment and training; Health and more. The Collaborative is looking for funding assistance to enhance the landscaping of the housing to include rain gardens, edible gardens, native plants. The Collaborative has trained 24 residents to construct and build homes and the bid requires contractors to hire from this pool of trained residents. Also in 2011, the Green Team held a work session to develop targets and strategies for the upcoming GreenSpot Neighborhood category and learned about the 4th International [EcoSummit](#) coming to Columbus September 30-October 5 2012 and how to get involved.

There are six working groups that involve members of the Green Team as well as over 100 city staff, experts and community leaders. The following summarizes accomplishments of the working groups.

2011 was a very busy year for the [Education and Engagement Working Group](#). Members include Krist Higginbotham (Chair), Anita Musser, Brandi Whetstone, Catherine Eichel, Christie Vargo, Danielle Maignan, Elizabeth Mallett, Erin Neeb, Gretchen Farnung, John Lengel, Leslie Strader, Paul Carlson, Sheryl Owens, and Tracy Lamar-Nikoli. A mini strategic plan was developed in order to organize and accomplish the many tasks that the group established. Three main objectives with strategies and milestones were implemented: expand the GreenSpot Community; create a GreenSpot toolkit for businesses; and revise the Get Green Columbus Communications and Outreach Plan. A task force was assigned to each objective in order to complete each initiative by years end.

- 1. Expand the GreenSpot Community.** The group developed an interactive pocket map for the Whetstone Park. Copies will be available at the park and at the Whetstone library, a registered GreenSpot. As part of the GreenSpot for Kids effort, a walking map was created to be utilized by any school that may not necessarily be able to go to the Park of Roses to participate. The group continued to build a more interactive GreenSpot community. This included but is not limited to the following: hosting the annual GreenSpot Light awards, participating in Earth Day events; conducting contests, continued use of Facebook and the MORPC green calendar; supporting Neighborhood Pride events, collaborating with Central Ohio partners like the Columbus Zoo and Aquarium and COSI, and providing support to the advisory council for the expansion of GreenSpot for Kids.
- 2. Create a Toolkit for Businesses.** Documents have been finalized to be included in the tool kit. These documents include but are not limited to: a template for press releases; outreach/education fact cards to be posted throughout a business to engage and inform employees about the businesses efforts but also to encourage them to register their households; and a waste audit walk through document that could be used to further reduce consumption and waste within a business. A revised welcome letter will alert new GreenSpots of these available resources. Existing GreenSpots will also receive a letter informing them of

these available resources. Eventually, these tools could be made available online but will be mailed electronically, upon request in the short term.

- 3. Revise the Get Green Columbus Communications and Outreach Plan.** The Communications and Action Plans have been revised to meet the current needs of the Education and Engagement Working Group as well as the other working groups. These documents will serve as a reference and guidance tools for the Mayors Green Team. Work will continue in 2012 to finalize the recommended revisions/updates to the plan.

The Green Building Working Group members include: Dan Jones (Chair), Erin Miller, Amanda King, Aparna Dial, David Brehm, David Hull, Jason Woehrle, Jeremy Cohen, Jo Anne St. Clair, Josh Cherubini, Kim Stands, Laura Fay, Lisa Russell, Meera Parthasarathy, Michael Dinneen, Paul Freedman, Phillip Bouton. In 2011, the group worked on the following objectives:

- Promote the Green Columbus Fund.
- Proved comments on code modifications for buffering, screening, and shading.
- Researched community rain gardens and their ability to control storm water.
- [City of Columbus Storm Water Drainage Manual](#) – The Manual is being updated and the group is looking at recommendations for how to create opportunities to have rain gardens and similar strategies included for use by developers and communities.

The Transportation Working Group members include: Nate Vogt (Chair), Leslie Strader, Amy Krohn, Belinda Taylor, Bill Burns, Catherine Girves, David Celebrezze, Dean Ringle, Eric Davies, Jamie Tickle, Jeff Stephens, Joe Huston, Kelly Reagan, Mike Hupp, Paul Kennedy, Randy Bowman, Richard Grant, Richard Smith, Rory McGuinness, Sam Spofforth, Andrew Conley, Bryan Saums, Mike Brown, Scott Perry, Ben Wickizer. In 2011, they worked on the following:

- Brainstormed and reviewed options for a green driver training program for city employees.
- Reviewed and commented on the Rickenbacker Green Logistics and Energy Collaborative Proposal
- Reviewed and commented on the 2010 progress report for the Green Fleet Action Plan.
- Reviewed and commented on the Green Fleet Action Plan for 2011-14.
- Fostered communication between the Columbus Region Logistics Council and the Limited to encourage participation in the USEPA's SmartWay Transportation Partnership.
- Shared information about funding opportunities for fleets and infrastructure that reduce emissions and fuel consumption.

The Green Business Working Group members include: Chaz Freutel (Chair), Erin Miller, Albert Iosue, Mike Brown, David Hull, Elizabeth Mallett, Gloria Zebbs Anderson, Greg Cunningham, Jim Schimmer, Joe Bailey, Mike Long, Neil Drobny, Shannon Tolliver, Gene Freeman, Shawn Feils, Linda Paul, Steve Grossman, Tad Dritz, Tyler Steele. In 2011, the group developed:

- GreenSpot Corporate Sustainability Initiative training series - , begin training June 2012.
- Green Assets Inventory Project- gather, summarize, market and support the green industry in the Columbus Region. One of the primary goals of this effort will be to maintain and update these assets on an annual basis and make sure we disseminate this information to Columbus 2020 and others for business attraction purposes to help promote Columbus from a green perspective.

The Growth & Development Working Group members include: Elan Daniel (Chair), Amanda King, Leslie Strader Angel Rodriguez, David Hull, Lisa Russell, Mark Bonifas, Rick Hicks, Ryan Pilewski, Megan Moses, David Brehm. Accomplishments include:

- Researched information that helped shape the GreenSpot Backyard Conservation Program.
- Developed criteria for a GreenSpot Neighborhood category

The Energy Working Group members include: Scott Potter (Chair), Erin Miller, David Brehm, Don Hall, Eric Zimmer, Greg Lestini, Charles Lucius, Ken Stammen, Marty Lanning, Sean Fouts, Sherry Hubbard, Steve Giles, Tom Andrews, Sarah Straley. The group worked on:

- Researched Energy Management Policies and Strategies of other cities.

Environmental Management System & Employee Training

The Department of Public Utilities continued to inventory city facilities for environmental compliance and identified measures to reduce the city's environmental footprint. In addition, a number of workshops and training seminars were held for staff. Properly training employees minimizes the risk of spills and the improper disposal of waste and sustains compliance with environmental regulations. Led by the Fleet Management Division, all applicable agencies within the city were engaged in a fuel site assessment to review all compliance processes at each of the 52 city owned fueling locations. Site improvements as well as employee training will continue in 2012.

Additionally, the Department of Public Health provides advance notice to all City employees when air quality alerts for ozone / particulate pollution are forecast for Central Ohio. This notification is attempted during weekday operations so that department directors can implement procedures in the [city's Air Alert Action Day Plan](#) that will protect employee health and help reduce ozone and particulates that may be created through City operations. In 2011, there were twelve air quality alert days issued by the [Mid-Ohio Regional Planning Commission](#).

All new employees receive training about Mayor Coleman's Get Green Columbus initiative including review of items such as Executive Orders, office recycling program, energy conservation, bike share program, and practicing environmental responsibility in the workplace.

Pedal Instead

Pedal Instead, a project of the University Area Enrichment Association, takes pride in its beginnings as an initiative of Mayor Coleman's Green Team and the Department of Recreation and Parks. The project provides free, secure valet bicycle parking at public events. It serves the dual purpose of encouraging healthy behaviors and reducing greenhouse gas emissions. In 2011 alone, Pedal Instead parked 5,488 bicycles over 22 days, saving 2,687 gallons of fuel, 54,891 pounds of greenhouse gases (52,149 pounds of CO₂). Cyclists rode 4,749 hours, burning 2,583,373 calories.

Water Conservation Education

The Department of Public Utilities assists and educates customers about reducing the amount of water loss within their home through:

1. Water Saving Kits and a copy of the Leak Detection brochure are mailed to customers with higher than normal water usage
2. Perform high leak inspections for Senior Citizens

Also, the city is in the process of determining which conservation program recommendations under the Water Master Plan are the most cost effective. Various conservation programs are being reviewed by a consultant who is in the early stages of evaluating the cost benefit analysis for each recommendation. Any additional recommendations are expected in the coming year in order to reduce water use thus conserving a precious natural resource.

Walking and Biking

Columbus Public Health's Healthy Places program works with the built environment to provide opportunity for increased physical activity as a part of everyday life. One program focus area is improving health by promoting walking as an alternative means of transportation. The program does this through review of re-zoning requests for possible inclusion of active living features that make it easier and safer for pedestrians to be physically active. The program also works with interested residents to complete walk audits to assess conditions of neighborhood walk routes. Finally, the program produces walking maps, which identify safe and enjoyable walking routes of various distances in selected neighborhoods. This idea has been expanded to include Columbus Art Walks, an initiative that combines a defined walking route with a self-guided audio tour (accessible via cell phone or podcast) on various artistic, architectural, and historical points of interest. In 2011, there were six Art Walk maps created, 16 neighborhood walking maps created, 4 walk audits completed and 38% of re-zoning requests submitted with Healthy Places recommendation(s) implemented.

The Institute for Active Living develops partnerships with Columbus Public Health programs and other community organizations to prevent and reduce chronic diseases such as obesity by increasing access to physical activity and nutritious foods. Institute focus areas include raising awareness of bicycling as a fun, physical activity and promoting bicycle safety. This includes helping to organize the Bike Columbus Festival, which raised \$22,000 in community funds for furthering active-living related issues such as bicycling, and coordinating the Mayor's Neighborhood Pride Community Rides that occurring annually in each Pride neighborhood (30 riders per event). In 2011, there were 1,100 riders in the Bike Columbus Festival.

III. Key Initiatives

2011 Residential Recycling & Yard Waste Results

Through subscription service with Rumpke and utilization of SWACO's drop box program, Columbus residents recycled 19,064.73 tons. Through the city's curbside collection of yard waste, residents recycled 26953.53 tons. This equates to a combined 17.8% diversion rate of waste from single family residents that would otherwise have gone to the landfill. Columbus' goal is to reach a 35% diversion rate by 2015. The 2012 goal is to reach 20-23% rate through addition of the phased in comprehensive recycling program, [RecyColumbus](#), visit website and/or see program described below.

2011 Total Recycling Results (Residential and City Operations)

Recycling	Tons
Curbside (Rumpke Subscription)	4,303.64
Drop-off (SWACO)	14,761.09
Total Single Family Residential Recycling	19,064.73
City Facility Office Recycling	598.29
White Goods (1)	20.21
White Goods (SWACO, Fleet & Trans.)	90.30
Tire Disposal (1)	84.13
Tire Disposal (SWACO & Fleet Mgt.)	311.67
Containers (Refuse Collection)	<u>5.85</u>
Subtotal (2)	20,175.18
% of Total	5.50%
Composting:	
City Composting Activity	5,644.92
Yard Waste (1)	23.18
Single Family Curbside Yard Waste Program	<u>26,953.53</u>
Subtotal (2)	32,621.63
% of Total	8.89%
Household Hazardous Waste:	
Hazardous Waste (SWACO & Fleet) (2)	136.76
% of Total	0.04%
Total Tonnage	367,043.69
Refuse Collection Totals	314,237.64
Waste Stream Diversion Totals (2)	52,933.57

2012 Comprehensive Residential Recycling Program

The Administration worked with the public, recycling experts and City Council for the past two years studying best practices and designing a comprehensive and cost effective program that would be customized for the City. In December 2011, Columbus City Council approved legislation to allow implementation of the program.

In 2010, The Mayor formed an advisory group to help guide development of the program. It included internal stakeholders from City Council, representatives from the Mayor's office, Public Service and Finance & Management as well as externally, members of SWACO, Ohio State University, Ohio EPA, recycling businesses and community representatives.

The program was designed based on best practices from throughout the country and from what Columbus residents wanted.

Rumpke will collect recyclables from over 220,000 single family homes, alternating every other week collection of recycling and yard waste. Recycling will be picked up wherever residents trash is collected (curb or alley), yard waste will continue to be collected at the curb.

There is no direct fee to residents for this service.

By combining these services it increases the efficiency of the program. It limits truck trips through the neighborhood to one per week instead of two, saving on fuel and reducing emissions.

Blue, 64 gallon, carts will be provided to our residents. The carts have wheels so they are easy to maneuver and a lid to prevent litter. There is no charge for the cart, unless a resident would like an additional cart or a replacement.

Yard waste will continue to be collected in biodegradable bags or their own clearly marked container. Accepted materials that can all go into the blue cart are: paper (any), plastic bottles, glass containers, aluminum and steel cans including aerosol cans, cartons and juice boxes.

For multi-family complexes (5 units or more attached), the 200 plus drop boxes will remain and the City will work with SWACO to relocate them for increased convenience.

The program is slated to begin in the spring of 2012 and will be implemented in five phases, so that by February 2013, all 220,000+ households will have the program. The carts will be delivered 4-6 weeks prior to service beginning. The first phase will be those with yard waste collection on Monday in June 2012 and the last phase will be those with yard waste collection on Friday in February 2013. Yard waste and subscription recycling will continue to be collected weekly, until the recycling program is added.

Currently, City of Columbus single family households only divert 8% of recyclables from the landfill – 6% from the drop boxes and 2% from the subscription program.

Columbus has set a goal to reach between a 22-25% single family residential recycling diversion rate by 2015. This means the diversion rate will increase from 8% to 22-25%, which is equal to 55,000-62,000 tons of materials diverted from the landfill, saving over \$3million / year in tipping fees and averaging 485-546 lbs/home/year in recyclable material. This estimate is consistent with other cities that use carts and with Rumpke's estimates.

In order to reach this diversion goal, residents will need to participate and that it will take an extensive public education program to be successful. Columbus issued an RFP for a marketing education firm, Murphy Epsilon was selected and the City was selected by the national organization, Curbside Value Partnership, to help us craft our education program. We will leverage \$125,000 in pro bono work. The

City is looking for additional opportunities to leverage funds, for example, Columbus received a grant from ODNR for \$100,000 towards the program.

Recycling has many benefits. The strongest benefit to us all is to preserve the environment. It takes an enormous amount of energy and natural resources to make products from raw materials. Metal is mined from ore in rocks, plastic comes from oil, paper comes from trees, glass comes from sand. Diversion is important; recycling one aluminum can saves enough energy to power a TV for three hours. Discarded materials take up valuable space in the landfill – for example, an aluminum can takes 500 years to decompose, a plastic bottle never degrades.

Second to the environmental benefit is that the majority of Columbus residents want a convenient way to recycle and consider household collection a basic city service that has been inadequate for too long.

Thirdly, recycling creates and retains jobs and saves money in tipping fees. Using USEPA estimates, we anticipate the creation and retention of 200 jobs as a direct result of our program. Tipping fee savings over the course of the 5 years are estimated to be between \$13 to 15million dollars.

And lastly, Columbus' recycling program will position our region towards a more efficient and effective way to recycle.

Columbus' program was designed based on what Columbus residents wanted. In partnership with Ohio State University, the City surveyed the community to get their input. A random mailed survey was sent to 1,000 residents with a 50% response rate and an online survey was open to anyone in the City which yielded 4,250 responses. Residents were asked what their preference was for frequency of recycling collection. 37% said every week, 63% said every two weeks or once a month is adequate. They were asked what their preference was for frequency of yard waste collection. 20% of our residents prefer weekly, while 53% said every two weeks or once a month is adequate. And finally, they were asked what container they preferred to hold their recyclables in- 73% prefer a cart. The size of the cart was based on one large enough to contain two weeks' worth of recyclables, which is why a 64 gallon cart size was chosen.

City Employees Reduce, Reuse and Recycle

Paper Saving Measures- Many of the departments utilized online operations to reduce paper use. In the Civil Service Commission alone, they saved 763,500 sheets of paper by providing electronic communications and online access to materials. This equates to saving approximately 91 trees.

Employee Recycling Program- Throughout the City, employees participated in the office recycling program. Over 598.29 tons were recycled; this is a 25% increase over 2010 tonnage.

Battery Recycling Program- Multiple city departments began a program for employees' discarded batteries from the office and at home. For example, 128 batteries were recycled from the Division of Power and the Department of Public Service and Civil Service Commission recycled 256 lbs. of batteries in 2011 that otherwise would have ended up in the landfill.

Asphalt Recycling- used 43.4 tons of recycled asphalt from resurfacing projects to repair potholes, berms and shoulders.

Scrap Metal- scrapped 210,730 lbs of steel, aluminum and copper.

Lamps- recycled over 11,461 lamps.

Beneficial Reuse of Biosolids-

- Comtil- continued to compost biosolids, yard waste, incinerator ash and wood chips to produce mulch and soil amendment products that are sold to the public via private vendors.

- Land Application- continued to inject treated liquid biosolids 6-10 inches below the surface of farm fields to provide fertilizer and organic matter to farms.
- Quasar Solids to Energy Project- Jackson Pike WWTP diverted 2,700 dry tons of biosolids to the project which in turn generated renewable power.

Innovative Ways to Increase Recycling- recycling stations were established throughout City Hall and the underground parking garage with noticeably positive results through the cooperation of the building tenants. All individual trash cans were removed from the Finance and Management offices on the 4th Floor on an experimental basis which has led to an increase in the collection of reclaimable materials. Based on the success of this pilot, we intend to remove more individual trash cans and establish community receptacles throughout City Hall.

Green Columbus Fund

Green Columbus Fund is a reimbursement grant program that uses financial incentives to encourage sustainable development and redevelopment. Businesses and non-profits can apply for grants to either redevelop Brownfield sites or to build green in Columbus. The first year the program was funded by \$1,000,000 appropriated from the 2010 Bond Sale.

The first four grants were awarded in February 2011. By the end of the year seventeen (17) grant applications for a total expenditure authorization of \$999,797 had received Development Department approval. This included ten (10) for LEED certification fee reimbursement and incentives to encourage green buildings, using three different LEED rating systems. Seven (7) Brownfield assessment reimbursement grants were approved, which are expected to contribute to sustainable and viable economic development.

The synergy between the Green Columbus Fund and the Clean Ohio grant program was demonstrated by a Green Columbus Fund grant to Wagenbrenner Development that allowed them to complete a timely Phase Two Environmental Site Assessment on the former Timken property on Cleveland Avenue. This in turn facilitated a successful Columbus grant application to the state's Clean Ohio program.

Clean Ohio Revitalization Fund

Obtained a \$3 million Clean Ohio Revitalization Fund (CORF) grant for the former Timken site in the Milo-Grogan neighborhood of Columbus. The project will stimulate a \$12 million investment and the construction of 150,000 square feet of mixed-use retail, office and warehouse expected to generate approximately 150 new jobs.

Applied for a \$750,000 Clean Ohio Assistance Fund grant to redevelop the historic Atlas Building in Downtown Columbus into 102 residential units with ground floor retail space. Total private project investment will be \$12 million.

Continued administration of CORF grants, including a \$3 million grant for the former Kimball-Midwest site near Downtown Columbus to stimulate a \$26 million investment and the construction of 180 residential units, and two grants for the former 3M site in Weinland Park that will stimulate an investment of \$24 million to construct 110 residential units, commercial office space and a public park.

Completed implementation of the Columbus Coated Fabrics \$3 million Clean Ohio Revitalization Fund grant and obtained Ohio EPA certification. When complete, the project will result in 500 new homes with an estimated investment of \$45 million.

Obtained Ohio EPA certification for the Jeffrey Place site in Italian Village under a Clean Ohio Revitalization Fund grant of \$3 million. The 43 acre site can accommodate over 1,200 homes with over 300,000 square feet of commercial space when construction is complete.

Continued administration of a \$5 million Job Ready Sites grant for TechSouth in tandem with a \$3 million CORF grant obtained in 2008. Both grants leverage over \$20 million in private investment with the potential of accommodating up to 1,500 new jobs at the 1 million square foot industrial site. Also continued administration of a \$750,000 Clean Ohio Assistance Fund grant for the former B&T Metals site in Franklinton, in association with a \$175,000 Clean Ohio Assistance Fund grant obtained in 2008, to develop 134 condo units with commercial office space and an art theatre. Private investment will be \$20 million.

Green Housing

The Housing Division has continued to encourage building of green homes by leveraging several of its programs. It has accomplished the following green initiatives in 2011:

- **80** homes completed in accordance with AWARE Green Building Standards; HERS ratings ranging from **51 to 83; average is 65**
- over **360** homes are under construction that will meet the AWARE Green Building Standards; There is one 100 unit project that will be LEED certified. Six of the green homes under construction are in the American Addition neighborhood, which was featured on the Extreme HomeMakeover TV program that aired in December.

Healthy Homes Program- Columbus Public Health, IMPACT, MORPC, NCH, Breathing Association, The Ohio State University College of Nursing and Columbus Department of Development partner on the Healthy Homes Program. The program works to reduce disease and injury by helping families to make their homes healthier and safer environments. Areas of focus include lead poisoning prevention, asthma and allergy control, and household hazards. Asthma triggers include pests and pesticides, indoor/outdoor air quality, allergens such as mold and dust mites, tobacco smoke, and chemicals. Program services include consultation and assessment, grant funded asthma control services in homes, lead inspections for homes with lead poisoned children, free HEPA vacuum loans for homes for lead hazard clean-up, and information on household hazards. The program is also working with partners to improve outreach to homes with asthma sufferers and to improve air quality response in schools for asthmatic children. In 2011, 96 families received 'green' cleaning supplies; 83% of asthmatic children served through program demonstrated improved health conditions after 6 months; 80 % increase in ability of program's primary caregivers to I.D. asthma hazards in the home, identify asthma control methods and prevent home hazards threatening asthmatic children; 85% increase in frequency and application of home hazard control and prevention practices by primary caregivers of asthmatic children; 83% decrease in frequency of program children's asthmatic symptoms and unintentional injuries; 76% decrease in program children's hospitalizations and emergency room visits; 94% of children with Elevated Blood Lead (EBL) levels who show decreases in those levels after one and two-month case management follow-up.

Columbus Municipal Power Energy Efficiency Services

Through the U.S. Department of Energy’s Energy Efficiency Conservation Block Grants, the city and partner Mid-Ohio Regional Planning Commission (MORPC) have performed energy efficiency measures on 52 households and have projected savings for these households at 45,876.77 kWh.

Number of households receiving service	52 households
Projected Energy Savings	45,876.77 kWh
Total Square Footage of audited spaces	64,106 square feet
Number of refrigeration appliances installed	8 appliances
Number of incandescent lightbulbs changed out	567 bulbs

Through the AMP-Ohio Efficiency \$mart program, the city has helped municipal electric customers reduce energy usage by 1,374,000 kWh through this rebate program.

Installed Efficiency Measures

Measure Category	Measure Description	Quantity	MWh Savings	Financial Incentives from Efficiency Smart
Lighting Efficiency/Controls	Occupancy sensors	15	2	\$376
Lighting Hardwired Fixture	Exit signs, LED	7	1	\$123
	Linear fluorescent T8	2,422	1,315	\$77,477
	Metal halide track lighting	84	9	\$3,023
	New Super T8 Indirect	39	19	\$501
Office Equipment	Custom Office Equipment Efficiency	1	27	\$800
Total		2,568	1,374	\$82,300

Companies with Installed Efficiency Measures

Company Name	MWh Savings	Annual Customer Savings	Financial Incentives from Efficiency Smart
Capital Resin Corporation	22.16	\$1,457	\$1,000
Capital South Urban Redevelopment Corporation	1,324.46	\$138,495	\$80,500
Ohio State University - Ohio State University Schoenbaum Family Center	27.13	\$2,268	\$800
Total	1,373.74	\$142,220	\$82,300

City Facility Projects

1. **LEED Certified Buildings-** Currently the following city buildings have achieved LEED certification under the US Green Building Council: Fire Station 10 (Gold), Moody/Hall Neighborhood Policing Center (Silver), West Side Family Health & Wellness Center (Silver), Columbus Impound Facility (Gold). Projects under construction that are expected to be LEED certified are: the former Central Police Headquarters at 120 W. Gay Street (Silver), the Morse Road Eco Center (Silver), City Hall (Certified).

- a. **120 West Gay Street Renovation** – Six city entities will be relocated to the renovated 120 W. Gay Building. The design is “green” and incorporates a unique blend of old architecture with modern technology. The building is designed at the LEED (Leadership in Energy and Environmental Design) Silver Level as determined by the nationally recognized standard established by the USGBC. LEED features include: a glass curtain wall (allowing natural lighting), skylights, energy efficient lighting, reduced flow water components, high efficiency heating and air conditioning equipment (geothermal technology where ground water is used for the cooling system) with heat recovery, recycled asphalt products, reflective coating on the roof, and low VOC (Volatile Organic Compound) paints and sealants.

b. City Hall Renovation (90 W Broad Street)-

- i. The design process for the complete replacement of the HVAC system throughout City Hall is underway. The design for the new system will incorporate high efficiency components and will be LEED at a certified level. As part of this process, the geothermal system for the 120 West Gay renovations will be combined with City Hall in order to provide a renewable comfort air system for both buildings.
- ii. The exterior lighting of City Hall was totally replaced. The old lighting system was more than twenty-five years old, had surpassed its useful life, was in disrepair, was costly to maintain, and did not provide adequate illumination for security purposes. The new programmable LED (light emitting diode) lighting system will reduce electricity consumption by ninety percent (90%), provide better lighting, and improve security by providing even lighting throughout the entire perimeter of the building. Compared to the system it replaced, the new LED luminaries have a much longer life expectancy - 70,000 hours or 16 years based on a 12 hour per night operating schedule. In addition, the system provides the ability to change lighting color changing on the upper band and column lighting for special events, thus eliminating the need for changing of gel caps.
- iii. The garage entry area at City Hall was renovated this past year. Under this project, the old ramp was removed, and pavers that are consistent with the improvements to be made around the 120 West Gay Street were installed and drainage was improved. Bollards were installed, as well as energy efficient lighting, to provide for easier and safer pedestrian access to City Hall.
- iv. A contract was initiated to assess and design a prototype window for use as a replacement to the current windows in City Hall. The current windows are not energy efficient and are rusting badly. The goal of the pilot window replacement program, to be initiated in the northwest area of the building is to ensure the preservation of the historic character of City Hall and to reduce energy costs.

- c. **Morse Road Eco Center** – In partnership with SWACO, the Morse Road Transfer Facility will be demolished and rebuilt as the Morse Road Eco Center. The current facility, due to its age, is in deteriorating condition and requires renovations which SWACO and the City have agreed to jointly undertake since both entities conduct operations at the facility. Infrastructure improvements include, but are not limited to, a solid waste transfer station to be operated by SWACO, a Division of Refuse Collection station, a Division of Fleet Management vehicle repair facility, a truck washing facility and a diesel/unleaded gasoline fueling station. The Fleet building has been sized to properly garage all vehicles instead of outside storage which leads to garbage and vehicular fluids creating stormwater runoff contamination. This facility will also be equipped with safety features to accommodate CNG-powered vehicles. The current design is intended to achieve a LEED Certified Level, but may attain LEED Silver.

2. U.S. DOE Energy Efficiency Conservation Block Grant funded projects -

- Fire Stations- A project was established to retrofit 25 fire stations with T-8 fluorescent lighting, LED exit lighting, occupancy sensors, lighting control systems, and code compliant wiring, conduits and panels to increase efficiency, lower energy costs, and meet current code requirements. The retrofitted locations meet all current electrical codes and lighting standards and the operational needs of the firefighters. Power consumption at all the stations was reduced by 210,000W while annual electric utility usage will be reduced by 919,800 kWh. This is the equivalent of reducing 644 metric tons of CO₂ emissions, or 71,092 gallons of gasoline consumption and equals approximately \$93,408 in annual energy cost savings.
- Central Safety Building- energy efficient upgrades are under construction, which includes the removal of two existing boilers and chillers which were then replaced by three high efficiency boilers and two chillers. The existing cooling tower was also removed and a new energy efficient cooling tower was installed.
- Under a pass through grant to the Center of Science & Industry (COSI), a retrofit to support energy savings in its 300,000+ square foot facility is well underway. COSI has completed the commissioning of the Air Handler Conversion Project and is nearly finished with the final phase of the project which includes the installation of a variable frequency drive on the building's compressed air system and with a stand-alone air conditioning system that serves the WOSU studio technical equipment. Installing the variable frequency drive will allow the reduction of energy consumption by running the air compressor "on demand" instead of allowing it to constantly operate. Utilizing the stand alone air conditioning system will allow the buildings main air conditioning chillers and air handlers to be turned off after normal business hours to gain further energy savings. Because of these retrofits and upgrades COSI will be able to turn off a 400 ton chiller outside of COSI's operating hours and allow a much smaller independent unit to maintain environmental parameters within this space.

So far this year, COSI has saved approximately 1,164,400 kWh from January 2011 through November 2011 compared to the same time period in 2010. This equates to a savings of \$110,618 (assuming an average cost of .095 cents per kWh). If this trend continues, this is enough savings to power COSI under normal operating conditions for nearly two full months.

- i. Cultural Arts Center- Efficiency upgrades have been completed on lighting systems at the Cultural Arts Center located at 139 West Main Street. The project is expected to conserve over 140,000 kWh of electricity annually, which is enough electricity to power 11 homes for year. The city expects to see \$14,305 in energy savings from the improvements made to the Cultural Arts Center each year.
- ii. Energy Efficient Traffic and Pedestrian Signals- It is the City of Columbus' policy to continually replace incandescent bulbs in intersection signals with light-emitting diode bulbs (LED), with 216 pedestrian and traffic-signal heads done in 2011, resulting in an electricity savings of \$16,377 and 218,000 kilowatt hours. In addition, by using funds from the Energy Efficiency Conservation Block Grant program, the City replaced 997 inefficient pedestrian signals with LED bulbs, including the countdown features at 137 intersections, expected to save the City approximately \$50,000 and 489,000 kilowatt hours annually.

3. **Roofing** - New roofing systems have been installed that have a white reflective roof coating. This coating reduces the roof surface temperatures by 50° to 80° F, reduces air conditioning loads, and reflects approximately 70% of the solar radiation. The preventive maintenance program will aid in extending the life of the roof past the 30-year warranty. Materials used on the projects, like the membrane roofing, are made from recycled material. Police Substation 5 was completed this year and the Central Safety Building started in December.
4. **Carolyn Avenue Facility Upgrades**—The Carolyn Avenue old cooling tower was replaced due to leaks of both water and chemicals high maintenance costs and energy inefficiency. The new cooling tower is significantly more energy efficient due to its use of high efficiency low-horsepower axial fans, variable frequency drives, and high efficiency BACross fill to provide maximum air and water contact at low air pressure drops.
5. **Computer Facility Upgrades** – The City replaced the fire protection and completed a HVAC systems upgrade at a Department of Technology Facility at 1601 Arlingate Lane. The current fire protection and HVAC systems were past their useful life, did not meet current building codes, and are potentially unsafe. Under the project, the existing Halon chemical agent fire suppression system was replaced with a new Clean Agent Chemical fire suppression system per the National Fire Protection Association's (NFPA) 2001 Standard on Clean Agent Fire Extinguishing Systems. The new fire suppressant (FM200) is an alternate to Halon and is not an ozone depleting agent. The existing Halon was recovered and was properly disposed of in accordance with regulatory and industry standards.
6. **Georgesville Road Transfer Station**- issued an RFP for energy efficient replacement doors, installation is planned for 2012. Also, truck traffic flow was altered and the truck clean out area was changed to prevent leachate from flowing into the stormwater system.
7. **Alum Creek Transfer Station**- worked on stormwater pollution prevention measures and mitigated fuel spilled into Alum Creek, the yearlong monitoring stage is anticipated to start mid-2012.
8. **North Market Ventilation System** - The North Market ventilation system is being redesigned to achieve a more energy efficient and effective system which will result in improved interior air quality.
9. **Wastewater Treatment Plants**- both Jackson Pike and Southerly Wastewater Treatment Plants are upgrading lighting to more energy efficient technologies. At Southerly, 6 high pressure sodium area lights were replaced with 6 LED lights, saving 1,960 kWh annually. In addition, the Plant has optimized the aeration process to reduce electricity energy demand and converted the incinerator scrubber system to use the Plant water instead of pressurized air, a more energy efficient option.
10. **Fire Stations** – In addition to the lighting retrofits discussed above, window replacements are currently being designed for seven fire stations. The new aluminum and vinyl windows will include insulated glass. The nominal 1/2" interspace of the space between the glass panels will be filled with dehydrated air or a specified gas for increased insulating performance.
11. **Energy Services Company (ESCO)** - In order to reduce energy usage, save operating expense, and increase occupant comfort, the City is evaluating energy efficient improvements to various City of Columbus, Division of Police Precincts, and possibly a Fire facility. In the first phase of a two phased project, a technical energy audit of each of the selected facilities is being conducted to identify and evaluate possible energy saving opportunities. Based on the results of the audits, the contractor will then propose various upgrades to the facilities. During the second phase of the project, the contractor will

develop engineering designs and specifications, manage the project from the bidding phase, oversee construction, the building commissioning, and training of city staff in the use and maintenance of the energy conservation measures. The contractor will also determine the energy savings using industry standard verification protocols and will be contractually bound to guarantee these savings to the City.

12. **Building Decommissioning** - Design services were initiated for the decommissioning and demolition of various city buildings and associated infrastructure located at the Greenlawn Avenue Complex, Parkwood Complex and the Southside Settlement House. At one time functions of the Department of Public Safety, Public Service, and Finance and Management, and Recreation and Parks were located in buildings within these complexes. The Southside Settlement House will be rebuilt as development plans for this neighborhood are determined. All of these buildings have outlived their useful lives and are in poor condition and are located on lands for which future development or construction is contemplated. The structures have environmental issues such as asbestos and lead paint that will require abatement, and some sites possibly have underground storage tanks and contaminated soils that must be remediated. Decommissioned buildings are assessed to salvage mechanical parts and redeploy them for repair or replacement in active facilities.
13. **Turning Off the Lights** - Facilities Management continues to monitor the interior lighting in its downtown buildings to reduce unnecessary electrical consumption. Staff response to reminders to turn off lights in interior office areas at the end of the business day has netted good results. However, common area lighting remains a challenge. Consequently the Division continues to pursue the installation of automatic sensors and/or additional switches to control lighting wherever possible in common areas to achieve additional savings and energy reduction. Facilities Management efforts to educate building tenants continue through email reminder notifications and individual follow up with offices. Where possible, security staff controls the lighting levels as buildings are vacated, with the last tenant usually leaving around 8:00 p.m.
14. **Energy Star Portfolio Manager** - The City is participating in the Energy Star Portfolio Manager, an interactive management tool created by the U.S. Department of Energy and U.S. Environmental Protection Agency. The city uses the Manager to generate a Statement of Energy Performance (SEP) for each building, summarizing important energy information and building characteristics such as site and source energy intensity and Co2 emissions.
15. **Demand Response Program (DRP)** - As participants in this voluntary program, customers agree to reduce electricity use during times of high demand in order to help the power company maintain electric grid reliability by reducing the stress on the electrical grid system. In the event of record-high electrical demand, mechanical failures at power plants, or failures in the transmission grid in our region. The City participated in the DRP as a test and committed to reduce its demand for electricity if conditions required. Due to favorable weather conditions and lack of any mechanical failures of power plants or the transmission grid the City was not asked to reduce its electric use except during a single test on August 24th. Because the City successfully passed the "test" it received a check for \$3,750 and will receive three more checks for this same amount in 2012. The DRP helps the environment and keeps utility rates down. By recruiting customers to voluntarily reduce power consumption electric utilities avoid purchasing more expensive power from other regions of the country and can possibly delay or eliminate the need to construct new power plants. Last summer, more than 11,000 customers participated in the DRP. The DRP operates in a

13 state territory, including 51 million people and 20 percent of the U.S. economy. Collectively, the peak electricity usage can be reduced by more than 8,500 MW- the equivalent of 10 large power plants. In a separate agreement, the Department of Public Utilities enrolled for a DRP for the water and waste water treatment plants.

16. **Chemical Disposal Effort** – Facilities Management disposed of over 140 gallons of Latex paint, cleaning solutions and carpet cleaner, used oil, oil-based paint, and corrosion inhibitor which were all properly recycled or disposed in accordance with regulatory requirements.
17. **Procuring Energy** - The city is closely reviewing electric and natural gas procurement for approximately 150 city-owned facilities. Accounts, particularly large ones, are being closely analyzed to identify sub-optimal service arrangements and/or errors. We are also closely reviewing competitive utility sourcing, including recommendations for new contracts with existing electric and natural gas suppliers.
18. **Jerry Hammond Center (1111 East Broad Street)** – windows were re-caulked to lower energy costs by reducing the loss of heat and air-conditioning through leaks.
19. **Division of Power & Water Warehouse**- changed 33 HID light fixtures to T8 lamps.
20. **Dublin Road Water Plant** - Improve plant efficiency through continued look at energy efficient products as we specify new or replacement equipment. Replacing 1969 350 HP raw water pumps with new, higher efficiency pumps.
21. **910 Dublin Road** - Replaced T- 12 lights with more efficient T-5 lights. Installed auto flushers on toilets, more education on recycling and conservation of paper, change out of bleach towels.
22. **3568 Indianola** - elevated tanks and Booster Stations to reduce energy.
23. **Energy Efficient Computers**- replaced desktop computers and monitors using power management technology and best practices, reduced 3,035 tons of CO2 emissions; replaced data center servers with use of virtualization technology decreased 6,000 monthly average kWh power consumption to below 2006 levels \$4,200 savings.

Green City Procurement

1. **Technology Disposal UTC** – Previously, the city used the State Term Contract Schedule. The new city contract addresses the safe and secure disposal of information containing electronics no longer needed by the City. The contract includes the secure pick-up of the items, the certified removal of sensitive information and the complete recycling of the unit with zero waste going to landfills.
2. **64-Gallon Recycling Containers** - In partnership with the Public Service Department and the Mayor’s Environmental Steward the Purchasing Office established a contract for the containers necessary to implement the neighborhood recycling program. The containers include provisions that establish a percentage of re-used plastic as well as environmentally friendly materials to be used in the design and manufacture of the containers.
3. **Calibration and EPA Protocol Gases UTC** - Although it may appear incidental, many of these calibration gases are used to maintain the EPA compliance of test instruments.
4. **Bicycles for Police** - Purchasing helped the Police Division purchase 55 police bicycles, thereby reducing the carbon footprint of the Police Division.
5. **Industrial Sweeper/Scrubber** – Purchasing procured a hybrid propane powered combination rider sweeper/scrubber. The sweeper offers reduced fuel consumption, doubled runtime efficiency from previous units, indoor emission-free battery, and the

EcoFlex system which allows for effective cleaning while reducing the impact on the environment.

6. **Vehicle Purchases** - Purchasing teamed with the Fleet Management Division to purchase various energy-efficient vehicles, including Compressed Natural Gas trucks.
7. **Print Services** - was 100% compliant in its use of 30% post-consumer-waste (PCW) recycled content paper usage; continued its use non-petroleum based inks; a chemistry free pre-press work flow; and recycled 100% of all eligible toner containers.
8. **Beet Juice** - In conjunction with Public Service, the Purchasing Office created a universal term contract (UTC) for an organic based performance enhancer (beet juice) that will be used in the winter to help melt snow and ice on the roadways.

Renewable Energy

1. **Solar**
 - i. Solar panels were installed on the rooftop of the restaurant and restroom buildings at the new Bicentennial Park on the Scioto Mile (opened July 2011).
 - ii. Parking Meters: Continuing to replace coin-operated meters with solar-powered units that accept credit cards, debit cards or coins, upgrading 2001 meters to date. The technology features lower installation and maintenance costs than existing meters, less fuel and driving time by maintenance personnel, vandal-resistant domes, remote monitoring via e-mail and text messages, electronic alerts when meters are full or malfunctioning, and fewer discarded batteries.
 - iii. City of Columbus plans to install its largest solar array through a power purchase agreement with Tipping Point Renewable Energy. A power purchase and license agreement was signed for the design and construction of a photovoltaic panel system on the roof of 4211 Groves Road. The project will be funded through a solar power purchase agreement. Approximately 2,782 solar panels covering much of the roof space will be installed. The project is intended to produce approximately half of the electricity used by the building by generating approximately 812,862 kilowatts per year. Tipping Point will install, own, and maintain the solar array. The City will not contribute to the purchase price, the installation price, or the maintenance price. The City's obligation is to purchase the power and to provide the space for the solar array. This will be the largest government roof solar project in Ohio and perhaps the Midwest.
2. **Hydro**- The O'Shaunessy Dam generated 7,400 MWH of electricity.
3. **Biomethane**-
 - i. Columbus Division of Power and Water purchased 4,981 MWH of electricity generated at the Jackson Pike Landfill (Phoenix Golf Links), the green power was then sold to Columbus Power customers.
 - ii. Quasar Waste to Energy Project – green power generated and sold to Columbus Power customers.
4. **Motion Power technology**- The city and ODOT piloted to test New Energy Technologies device that captures energy from tire load on pavement and produces electricity. If successful it could produce electricity without producing additional pollutants.

Green Transportation

A. City Fleet Vehicles

- i. **Anti-Idling-** Continue enforcement of the Mayor’s Executive Order on anti-idling and installed anti-idling devices that automatically shut-off engines when vehicles idle for more than five minutes as well as engine and hydraulic heaters.
- i. **Green Fleet Action Plan** – Original plan was issued January 1, 2008. The action plan sets goals with targets, reviews current initiatives, outlines strategies and recommends actions. An updated version of the action plan was issued for 2011 since the majority of initiatives and targets contained in the original plan were implemented and achieved by the end of 2010. The 2011 action plan outlines initiatives and targets through 2014. A status report on the plan is provided mid-year and at year end.
- ii. **Awards** – Columbus was named the #1 Greenest Fleet in North America by the 100 Best Green Fleets program for 2011, up from the 7th spot in 2010. The ranking was based on eighteen criteria used to measure the performance of a public fleet for their green efforts. Columbus Fleet Management was also awarded the 2011 “Clean Fuels Champion” statewide award by Clean Fuels Ohio. Three Columbus divisions (Transportation, Refuse and Sewers and Drains) were certified as Ohio Green Fleets in 2011.
- iii. **“Green” Grants** –
 - i. CMAQ grant - Fleet has completed 2 projects and continues to implement the final project in a “Congestion, Mitigation and Air Quality” (CMAQ) grant award for \$1.3 million. Fleet completed 2010 projects which included the installation of emission reduction retrofits (DOCs and DPFs) on 108 heavy duty vehicles, and the installation of 27 anti-idling devices (hydraulic heaters and engine heaters). The third CMAQ project funds the purchase of 20 new heavy duty CNG trucks. The majority of vehicles were delivered in 2011, with two vehicles expected in 2nd quarter 2012.
 - ii. Clean Cities grant – Fleet Management, in partnership with Clean Fuels Ohio, was awarded funding for \$1.27 million through the Federal Department of Energy (DOE) Clean Cities program. The grant partially funds the purchase of five hybrid heavy duty vehicles and two CNG heavy duty vehicles as well as the construction of a public access CNG fueling station and required building modifications. It will also fund CNG training for mechanics and station maintenance workers. The station and necessary building modifications are under construction and nearing completion. The station is expected to be in operation by 1st quarter 2012. Five of the vehicles have been delivered and put in service. The remaining vehicles will be in service by the end of first quarter 2012. The commitment of City funds to alternative fuels under the current administration totals over \$8.1 million, not including grant funding.
- iv. **Bio-diesel** – In 2011, 72% of our bulk diesel purchases were bio-diesel. Currently, twelve City fueling sites are dispensing bio-diesel. All Refuse, Transportation, and Fleet Management division fuel sites are now 100% bio-diesel. In tanks that use bio-diesel, the City used B5 in January, February and December, and B20 in the warmer months. Additional fuel tanks will continue to be converted to bio-diesel throughout 2012.
- v. **Flex Fuel Vehicles** – Flex fuel vehicles were listed as a “preferred option”, along with hybrids and CNG, on the 2011 City UTC for light vehicles. If a flex fuel option is available and viable, the City will give preference to the flex fuel vehicle in all purchase decisions. The City currently owns approximately 520 flex fuel vehicles. The fuel sites at Fairwood Avenue and 910 Dublin Road were recently updated to include the first City-owned E85 fuel dispensers. These sites are expected to have E85 available in 2012.

- vi. **“Green” Purchasing language** - Green language that gives preference to hybrids, flex fuel vehicles and CNG vehicles was included as part of the 2011 light duty vehicle UTC specifications. This “environmentally preferable purchasing” language gives preference to environmentally preferable bidders. This language was successful in getting vendors to bid flex fuel engines, CNG vehicles and hybrids in 2011.
- vii. **Hybrids** – The City currently owns a total of eight hybrid light duty vehicles and four hybrid heavy duty vehicles. Three of the light duty vehicles are Ford hybrid Escapes, one located in the Water Division and the other two in Sewers and Drains. The Water Division also owns four Fusion hybrids which are used for meter readers. Fleet Management owns the fifth Fusion as a pool vehicle for the division. Through the DOE Clean Cities grant, the City was awarded funding for four Hydraulic Launch Assist (HLA) refuse trucks and one hybrid bucket truck. The HLA system has been shown to increase fuel economy by up to 25% during refuse collection as well as reduce harmful emissions of Nitrogen Oxide (NOx), particulates and carbon dioxide (CO2), all of which contribute to air pollution, ozone formation and respiratory diseases such as asthma and emphysema. The four HLAs are currently in service and the hybrid bucket truck is expected to be put into service in early 2012.
- viii. **Use of bicycles** for parking enforcement officers. Two bicycles were added to the meter enforcement fleet in 2011. Use of bikes allows for more frequent meter enforcement as well as providing fitness benefits. A bike parking area within the City parking garage at 100 N. Front Street was provided in 2011.

B. Public Multi-Modal Transportation Infrastructure

1. **Scooter Parking Program**- Increased capacity to 34 areas for two-wheeled, motorized vehicles, yielding an estimated 338 parking spaces and encouraging fewer four-wheeled vehicles which are more abusive to asphalt pavement and air quality. Parking areas are created from unused right-of-way, and annual permits sell for \$50 per vehicle.
2. **On-Street Bikeways**- Columbus’ goal is to construct 58 miles of on-street bikeway improvements by 2015. In 2010, 23 miles were constructed. In 2011, 10 miles of on street bikeways were installed and 22 additional miles are planned in 2012.
3. **Trails (aka off-road bikepaths)**: Columbus added 3.6 miles of dedicated trails as part of the greenways program. Additionally, easements were acquired to continue significant strides to completion of the [Alum Creek Trail](#) and the [Scioto Trail](#).
4. **Bike racks and Shelters**- The city’s goal is to install 50 bike racks / year. In 2011, 52 bike racks were installed. To date, 415 racks have been installed since 2008. In addition, eight bike parking shelters were installed this year and another 10 are planned for installation in 2012. Utilizing the input from a Bike Infrastructure Advisory Committee (bike organizations and major employers) design and engineering has been completed for bike infrastructure that meets the needs of the local commuting bike population of downtown. Through the input from the Advisory Committee the highest demand locations for facilities have been plotted and are now being precisely positioned with representatives of adjacent building owners. All facilities will be uniquely branded so they will be identified as being part of the same family of bike improvements. Fabrication and installation will be completed by mid-2012 for bike shelters, bike lockers, bike racks, and bike rooms. Bike Shelters and lockers will keep bikes dry and secure. Bike rooms will be accessible utilizing employee ID key cards. Bikes can be secured in shelters and lockers utilizing the standard bike U-locks.
5. **Sidewalks**- The city’s goal is to construct 47 miles of sidewalks along arterial and collector streets by 2015. Columbus installed 9.65 miles of sidewalks in 2011. 1.83 miles are planned for installation in 2012.

6. **Charging Forward- Electric Vehicle Readiness Project Underway:** The City of Columbus is a partner in a statewide effort to get ready for the new generation of automobiles, plug-in electric vehicles. In September of 2011, Clean Fuels Ohio was awarded a grant for \$500,000 from the US Department of Energy to support community planning for plug-in electric vehicles and charging infrastructure. The project, Charging Forward, will seamlessly integrate all of Ohio's current PEV readiness activities and stakeholders; provide funding for crucial studies and planning elements; and produce a replicable, ready-to-implement deployment plan for plug-in electric vehicles, charging infrastructure, safety trainings, consumer education, marketing, and associated policy solutions including zoning, code, permitting, inspection, and other incentives.

In addition to the planning effort, the City of Columbus and AEP-Ohio became members of the Rocky Mountain Institute's Project Get Ready which is a nonprofit assisting communities to become electric vehicle ready. In late 2010, Columbus was designated as the Ohio Energy Manufacturing Solutions Hub whose objective is to focus on energy manufacturing solutions and technologies related to energy storage. Columbus is also home to the award winning Ohio State University's Center for Automotive Research, whose focus is on advanced automotive research and development.

Columbus has also made progress on the permitting and zoning process as it relates to the installation of Level II chargers on houses and in residential garages. A fact sheet was developed to highlight both the electrically permitting and zoning considerations associated with the installation of Level II charges on houses and in residential garages. Another improvement made was the creation of a tracking and reporting structure to better coordinate where Level II chargers are being installed with the local utility company.

In 2011, there were 15 public charging stations installed in the city and there are 9 more underway that will be operational in 2012.

Electric Vehicle Charging Stations installed in 2011:

- Ohio Statehouse - 6 electric charging stations
- Morse Road Walmart - 2 Level 2 charging stations
- Easton - 2 level 2 charging stations
- AEP (numerous charger installations) - Level 2 charging stations installed at various workplace locations throughout central Ohio.
- Byers Automotive Group - Columbus - 2 DC fast charging stations
- The Ohio State University - 5 dual Level 2 charging stations

Electric Vehicle Charging Stations to be installed in 2012:

- City of Columbus - 2 Level 2 charging stations in Downtown Columbus: one near the corner of Gay and Front streets and the other near the corner of Goodale Ave and Park Street.
 - Columbus Downtown Red Roof Inn - dual Level 2 charging stations
 - The Mall at Tuttle Crossing in Dublin Simon Property Group - 2 Level 2 charging stations
7. **Streetlights** - Columbus switched to non-cycling streetlight lamps, which have increased life. This results in reduced waste generated and fuel used through reduced maintenance.

Resource Protection and Conservation

1. Local Food

Approximately \$60,000 in community garden grants were awarded from the city and Franklin County along with \$30,000 in kind product donations from The Scotts Miracle-Gro Company. Additionally grant recipients received free access to educational programming at the Franklin Park Conservatory. City agencies created and posted to its website a fact sheet with steps for obtaining water service at community gardens as well as detailing applicable regulations (building and zoning code) that need to be met when establishing and operating a community garden.

Columbus Public Health hosts a Farmers Market each year to improve community nutrition by increasing access to fresh fruits and vegetables. Improved nutrition reduces the risk for significant community health problems like diabetes and overweight and obesity. In addition, the 3-day event helps participating local growers economically by providing an additional sales outlet for their produce. In 2011, there were 7,664 participants, 4,501 WIC produce coupons issued, 236 food stamp customers served with 17 farmers participating.

The Columbus Area Food Access Committee is a collaboration of community partners brought together by Columbus Public Health to create a local food access plan. The plan would outline strategies to increase access to healthy and nutritious foods in areas of the community that may lack these types of food sources. Committee members are considering food access strategies for various settings, including retail outlets; public and private worksites; community locations; and federal, state and local government nutrition assistance programs. Work on the plan will continue to mid- 2012.

Food Mapping- this Columbus Public Health project maps areas of the city where it may be more difficult for residents to access fresh fruits and vegetables. Access to healthy foods is important, because poor nutrition is related to poor health, and some communities (often low-income) face barriers in obtaining healthy food. People in these communities may have limited transportation to grocery stores or depend on small corner stores which can have limited food choices, poor quality and higher prices. Knowing these locations can help in developing more effective, coordinated interventions. These maps can be a tool for strengthening our local food systems, and for developing new initiatives where they are needed most.

2. Water Conservation & Water Quality

Columbus GreenSpot Backyard Conservation Program: Rain Barrels- On June 29, 2011 the Columbus GreenSpot Backyard Conservation Program was launched by Mayor Michael B. Coleman, Councilmember Eileen Paley, representatives from Franklin Soil and Water and from Greif, Inc (EarthMinded) and watershed groups at the Marion Franklin Community Recreation Center.

An offer exclusively available to Columbus residents and GreenSpot members allowed for the purchase of one 60 gallon rain barrel per household at the discounted rate of \$45 (valued at \$139). In order to obtain the barrel, residents had to attend one of fourteen in person workshops or participate in an online workshop.

The primary benefit of this effort was that residents were actively engaged in storm water education. By making a conscious decision to purchase and install a rain barrel, they were more likely to be open and receptive to learning more about other actions they can take to protect water quality and conserve

potable water. Columbus residents also benefited through savings with the purchase of the discounted barrel and savings in their water bill.

A diverse audience was reached by distributing materials and hosting workshops at city libraries evenly distributed throughout the city, and at-leisure workshops on the internet, ensuring easy access to the program for all its residents.

Workshops were led by local non-profit watershed groups which enabled them to reach potential members and provided the groups revenue to help carry out their mission. In addition, by Columbus taking the lead to launch such as program, Franklin Soil and Water is able to develop a framework that will produce efficient use of time and resources to further expand the program in future years.

There were 800 rain barrels distributed (translates to number of households) through the combination of 14 in-person and online at-leisure workshops.

Watershed Planning and Assessments– The city participated in MORPC’s Balanced Growth Plans for the Olentangy, Big Walnut, and Scioto watersheds. In addition, the city is assessing the Big Walnut watershed through Fish IBI stream surveys. 34 sites within the Big Walnut watershed were studied to determine water and surrounding land use quality to:

- 1) Obtain baseline data on raw drinking water source
- 2) Established positive relationships with landowners
- 3) Determine areas that need to be protected to improve water quality

Big Darby Town Center Master Plan - A key recommendation of the Big Darby Accord is the development of a detailed master plan for the Town Center, a mixed-use development that includes a full range of residential, retail, office and public uses including parks and open space. In 2011, the Town Center Master Plan was completed and adopted by all participating jurisdictions. The plan provides detailed recommendations for future development and the protection of water quality and other natural resources within the Town Center Area.

Drinking Water Supplies- Private on-site drinking water systems (wells) are permitted and inspected annually by Columbus Public Health’s Environmental Health Division. In addition, the division takes water samples upon request to evaluate for bacteria and nitrate only. In 2011, 3 new private drinking water well permits issued, 17 private drinking water well inspections, and 17 drinking water samples taken for bacteria / nitrates.

Septic System Licensing- Columbus Public Health permits and inspects household sewage treatment systems through its Environmental Health division. Aeration sewage treatment systems are inspected annually to insure they are working correctly. Traditional on-site sewage disposal systems are also inspected if they fail or if a complaint is received concerning their operation. The division also inspects household sewage treatment systems upon for real estate transactions. In 2011, 6 new septic system permits issued, 395 on-site sewage disposal systems were permitted and inspected.

Stream Restoration- 2011 saw the second mile of the Clover-Groff Stream Restoration Project in the Darby Watershed completed. The third mile near the confluence of the Clover-Groff and Hellbranch Creeks was awarded funding in 2011 as a grant project through the Ohio EPA. When completed, three miles of the Clover-Groff will be restored. These three miles run through 400 acres of park property

acquired by our department beginning in 1997, and represents approximately 10 percent of the city's area in this watershed.

In addition, we are participating with Columbus and Franklin County MetroParks in the 319 Grant Program with the Ohio EPA for the Blacklick Creek Stream Restoration project near Winchester Pike.

Planning continued towards the removal of the 5th Ave Dam and Olentangy Greenway Restoration. The engineering design was completed and funds secured. The goal is begin construction in August 2012.

A feasibility study was underway for evaluating the removal of the Main Street Dam and restoring the Scioto River aka The Scioto Greenways Plan. The feasibility study will be completed in early 2012 and funds will be sought to implement the plan.

Wet Weather Management Plan-

Structural improvements and modifications were made at the Whittier Street Storm Tanks and facility. These improvements will significantly reduce the frequency, duration and volume of sanitary sewer overflows into the Scioto River from the designed relief structure.

Green Infrastructure-

The Columbus Reservoir Pollution Reduction Project uses Green Infrastructure to remove pollutants from storm water before the storm water can enter our drinking water supply reservoirs. The city received an education grant from the Ohio EPA in the amount of \$5,000.00 which is being used to educate the public about the Reservoir Pollution Reduction Project. Ten educational signs have been created. The Franklin County Soil and Water Conservation District (FCSWCD) consulted, providing input on messaging and art (depictions). FCSWCD also contributed \$1,000.00 to construction of the signs. Five of the signs will be installed along the bike path at Hoover and five signs will be installed in a similar location at Griggs. Three similar signs were installed at O'Shaughnessy Reservoir as a part of the pollution reduction project.

In addition, other city development projects included the use of Green Infrastructure such as RiverSouth Phase 2, Second Street portion of the Rich St Bridge project, Parsons/Livingston Roadway Improvement Project and American Addition neighborhood revitalization project. In the RiverSouth Phase 2 project, 44 Bio Cells were constructed. In the Second Street portion of the Rich Street Bridge Project, 8 Bio Cells were constructed. The Parsons/Livingston Roadway Improvement Project constructed 43 Bio-retention cells. Phase 1 of American Addition will have 6 rain gardens, each of which is approximately 200 sq. ft. It will also include approximately 575 linear ft. of pervious curb and gutter.

Street Sweeping-

The city swept 17,168 curb miles to keep debris and foliage from washing down stormwater drains and ultimately flowing into rivers, lakes and streams.

3. Trees

One of the most significant impacts the Columbus Recreation and Parks has on the quality of life in this city is trees. The department maintains approximately 120,000 street trees and countless numbers in our parks as well. With the efforts of volunteers from our watershed groups such as FLOW and FACT, several noteworthy reforestation projects are underway in floodplains.

Overall efforts included **planting 4,626 trees** as follows:

- 2,196 trees were planted under contract in the city's right-of-ways;
- 1,240 trees that were grown at the department's tree nursery were planted by Forestry staff along city streets;
- 115 trees that were grown at the department's tree nursery were planted by Forestry Staff in our parks; and
- 1,075 trees were planted in our parks as part of capital improvement projects (this includes trees planted as part of the Clover-Groff Stream restoration project, but does not include seedlings/trees already mentioned in previous sections of this report planted by volunteers).

Another number we are beginning to track are trees removed due to the infestation of the Emerald Ash Borer (EAB). To date, 1,800 Ash trees have been taken out, and \$177,000 in contracts has been awarded to assist the department in eradicating the infected Ash trees.

The department's Forestry Section also continues to work with volunteers such as assisting the United Crestview Area Neighbors and FLOW in developing an urban arboretum in parts of Clintonville. The project is funded through the Columbus Foundation to create a more continuous canopy of re-introduced *native* trees indigenous to the area. OSU researchers are on board to record any noted changes to bird species as a result of this project.

4. Parkland

The Recreation and Parks Department acquired 71.5 acres of parkland in 2011.