

2011

Sustainability Report



Sustainability Team
City of Des Moines
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2011 City of Des Moines Sustainability Report

TABLE OF CONTENTS

INTRODUCTION 3

THE BUILT ENVIRONMENT 5

Transportation 6

Parks 8

Public Works & Wastewater Reclamation Authority 9

Community Development..... 6

Housing Services 7

THE NATURAL ENVIRONMENT 12

Land Management: Habitats, Tree Canopy, Prairies 14

Rivers, Lakes, and Streams..... 15

Trails 16

PROPERTY MANAGEMENT, ACQUISITION AND DISPOSAL 18

Completed Projects..... 19

Airport 19

Fire 19

Parks Facilities and Municipal Buildings 20

CONCLUSION AND NEXT STEPS 22

2011 City of Des Moines Sustainability Report

INTRODUCTION

The purpose of this sustainability report is to provide an update to the Des Moines City Council and residents of the City of Des Moines regarding where the City stands in respect to the goals that were set forth in the 2007 Energy Conservation and Environmental Enhancement Policy. This report also provides information regarding the numerous efforts that have been accomplished since its establishment.

In 2006, the City Council adopted twelve goal statements, one of which was for Des Moines to become a Sustainable Green Community. In 2007, City Council adopted the Energy Conservation and Environmental Enhancement Policy which provided goals and a number of principles based on the built environment, the natural environment, and property management, acquisition, and disposal. The goals that were outlined in the policy were to be completed through June 30, 2008. This sustainability report outlines the projects that have been completed according to those goals, as well as additional projects that have been completed that follow the principles outlined in the policy. The result of these accomplishments has helped the City of Des Moines reduce its CO₂ emissions by 9% (2008-2010) and plans to reduce an additional 15% by 2015.

Each project that is completed by the City of Des Moines is evaluated on the following principles regarding all city-managed properties:

1. The health and well-being of people and their cultures; of other species; and of natural ecosystems are interconnected, vulnerable and dependent on each other.
2. Future generations have a right to an environment with at least the same qualities and quantities of environmental assets as present generations.
3. Long-term economic progress and the need for environmental protection must be seen as mutually interdependent.
4. Development must maintain environmental and cultural integrity.
5. Our community shall minimize its contribution to fossil fuel dependence and global warming by promoting energy efficiency programs, reducing energy use and using renewable energy resources.
6. Sustainable design and management practices shall be fully considered and implemented on all facilities, grounds and lands.
7. It is vital to enhance Des Moines' watershed by managing all natural areas in a way that preserves the highest natural ecological value both upstream and downstream from the City. The City will work to integrate its watershed protection efforts into efforts throughout central Iowa.
8. A cost/benefit analysis shall accompany all implementation actions. A good cost/benefit

2011 City of Des Moines Sustainability Report

analysis should include not only the financial estimates, but also the reduction in greenhouse gases, reduction in consumption of fuel, energy, and other natural resources, among other possible factors to consider. For example, unlike replacing a standard light bulb with a compact fluorescent bulb there may not be a financial return on green fleet initiatives, but rather a reduction in greenhouse gases and fossil fuel consumption. That is, the investment in a green fleet may not return a dollar savings, but will lead to an improved environment. This will be analyzed in a measurable way before decisions are made to implement any specific idea.

Another measure of cost/benefit has been described as the —triple bottom line|. The fundamental idea of the triple bottom line is that when making decisions, the social, environmental and economic impacts are measured. If any of these three areas is compromised beyond an acceptable level in an attempt to benefit another, the idea is rejected or modified. Thus, an idea that would improve the environment but harm the economy would be rejected. Likewise an idea that improved the economy of Des Moines but harmed the environment would be rejected.

9. Low-cost strategies will be implemented first. These may have varying impacts, but they also have the advantage that, given the structural deficit of local governments in Iowa, may be able to be implemented where higher cost ideas would not.

10. Results must be measured and reported. Only by proving the impacts of these decisions will we learn what works, what doesn't, and how best to proceed in the best interest of everyone in the community.

2011 City of Des Moines Sustainability Report

THE BUILT ENVIRONMENT

It shall be the policy of the City of Des Moines to finance, plan, design, construct, manage, renovate, maintain, and decommission its facilities and buildings to be sustainable. This sustainability will address but not be limited to the following objectives:

1. New or remodeled buildings must be designed and constructed to be energy-efficient using recognized rating systems as guidelines.
2. Utilize existing buildings and infrastructure instead of developing open space.
3. Design communities to reduce dependence on the automobile and to foster a sense of community.
4. Optimize design to make use of smaller spaces and utilize materials efficiently.
5. Protect and enhance development sites by preserving or restoring local ecosystems and biodiversity.
6. Purchase low-environmental impact and resource-efficient materials.
7. Maximize longevity by designing for durability and adaptability.
8. Design buildings and landscapes that are water-efficient.
9. Build healthy buildings that provide a safe and comfortable indoor environment
10. Minimize construction and demolition waste by reducing, returning, reusing and recycling job-site waste.
11. Reduce heat island effects.

2011 City of Des Moines Sustainability Report

Completed Projects

Since 2007, we have seen significant improvements in the way the City of Des Moines has addressed the built environment. Below is a comprehensive list of the various projects that have been addressed over the last five years.

Community Development

- Neighborhood Planning and Neighborhood Conservation Services actively promote infill development, land recycling and housing rehabilitation. These result in preservation of the built environment and full utilization of the built infrastructure.
- All Neighborhood plans result in a neighborhood review of land use and zoning. In limited cases, Community Development purchases land, pays for environmental clean-up and provides funding for new commercial development. Each of the activities performed promotes density and walkable communities.
- Community Development provides rehabilitation assistance for families below 50% of median income making homes more energy efficient, protecting our environment, and revitalizing the neighborhood. The neighborhood planning process involves a demographic analysis to understand how to involve neighborhood residents and evaluate special needs or desires for which a neighborhood may strive. The neighborhood residents are actively involved in the entire planning process.
- We are in the process of adopting the latest editions of nationally recognized construction codes. Enforcing the latest cycle of construction codes ensures buildings will meet the most current set of construction standards, resulting in more energy efficient and higher quality structures.
- The 2009 International Energy Conservation Code is being adopted. According to the US Department of Energy, the 2009 IECC results in building designs that are 15% more efficient than the previous code cycle.
- Projects with Leadership in Energy and Environmental Design (LEED) Certification are given high priority during the development and review process. LEED certified projects are verified by independent third-parties to be environmentally responsible and healthy places to live or work.
- We are working on a program that will use the International Green Construction Code (IGCC) to evaluate projects intended to be highly sustainable. The IGCC provides a set of requirements intended to reduce the negative impact buildings have on the natural environment.
- In October 2007 we started requiring developments of one acre or larger in size to provide a storm water runoff control plan, per Code section 106-136, so that the runoff from virtually every rain event will be stored on site in some manner for at least 24 hours, resulting in cleaner water with reduced amounts of sediment and chemicals.
- The latest published edition of construction codes have been adopted, and the City has updated codes as new editions are published.
- The 2009 International Energy Conservation Code has been adopted.
- The city has identified and aggressively pursued buyouts of repetitive damage, flood prone properties in the city, principally in the Four Mile Creek area, but also in Walnut Creek areas. This effort has recently caused the removal of two mobile home parks and we are pursuing an additional 61 properties following the 2010 floods. This will reduce hazards to

2011 City of Des Moines Sustainability Report

the public, reduce risk for employees, and return flood prone property to the flood plain as green space.

Economic Development

- Development of land in Guthrie Avenue Business Park, Central Place Business Park, and the SE Agrimergent Business Park has provided for business development within the city, and provided local employment opportunities that can be accessed by public transportation and shorter commutes. The location of these business parks in various parts of the city provides value to existing neighborhoods and utilizes existing infrastructure.
- Significant successful Brownfield reclamations are in process in the city, most notably in the Riverpoint West Development Area and the SE Agrimergent Business Park. Successful partnerships with the US EPA, HUD, Iowa DNR and others have allowed these reclamations projects to bring new life to neglected and underutilized areas while contributing to cleaner land and water resources.
- The Wellmark Corporate Campus and the Green & Main project are examples of successful partnerships between the City and the business/development community where sustainability has been at the forefront of both the physical project and the use of City financial assistance. Both projects serve as successful demonstrations of environmental awareness, best practices and use of public resources to facilitate green development.
- The City's Urban Design Review Board emphasizes the incorporation of sustainable elements for building and site design for public projects as well as private development projects. Their advisement occurs at a stage in the design process where meaningful input can be contributed. Low impact stormwater management and site design are encouraged, as well as energy efficient building design and lighting.
- The City has reached out to the business community through two programs conducted in 2011, *Natural Capitalism Sustainability Circles* and the *Eco Core Downtown Building Energy Audit*. Both programs were designed with the intent to provide useful information to the business community on sustainable practices. The areas of focus included water, energy use, building performance, waste reduction, lighting and transportation, resulting in more efficient buildings overall as well as direct cost savings to businesses. By utilizing state and federal energy grant funds, these programs were provided at reduced or no cost to the businesses and building owners.

Housing Services

The Des Moines Municipal Housing Agency (DMMHA) strives to implement energy efficient upgrades to the infrastructure of their buildings through the Capital Fund Program (CFP) when major systems are replaced.

- 2006- Replacement of all toilets at East View with 1.6 GPF toilets.
- 2006- Replacement of all kitchen and bathroom lavatory faucets at East View with low flow faucets.
- 2007- Replacement of original inefficient fire tube boiler systems in three (3) buildings with new 90%+ condensing boiler systems.
- 2007- Replace of older standing pilot light water heaters at Royal View Manor with new 90%+ high efficiency water heaters.
- 2009- Replacement of 92 (1985 vintage) refrigerators with new Energy Star Compliant refrigerators at Oak Park and Highland Park apartments.

2011 City of Des Moines Sustainability Report

- 2009-Replacement of common space T-12 lighting with T-8 lighting, and replacement of all conventional incandescent apartment lighting with compact florescent lighting at South View Manor.
- 2009-Replacement of all toilets at South View with 1.6 GPF toilets.
- 2009- Replacement of all kitchen, bathroom lavatory faucets, and shower faucets at South View with low flow faucets.
- 2009-Replacement of 50 older refrigerators with new Energy Star Compliant refrigerators at South View.
- Replacement of (1995 vintage) 60-ton chiller with new high efficiency 60-ton chiller at South View.

Additionally, as the Housing Services Department moves forward with the development of scattered site single family homes, these housing shall be designed to meet the Energy Star rating.

Transportation

The City of Des Moines recently initiated the Complete Streets Program to enhance and encourage non-vehicular transportation and ensure the City's streets accommodate all forms of transportation. Examples of this policy now in effect include the new Ingersoll reconfiguration, Urbandale Avenue bike lanes, and the rebuild of Indianola Avenue, SE 6th Street and the SE Connector. Additionally, the City has also recently finished the Bicycle and Trail Master Plan. This is a comprehensive bicycle and trail master plan for the city that will build upon the City's extensive trail system and to allow residents to use bicycling as a safe and effective form of transportation, as well as fitness and recreation throughout Des Moines.

The Police Department's use of hybrid and the testing of 6 vs. 8 cylinder vehicles have improved the department's fuel usage. The department's current fleet of 15 hybrid vehicles will be supplemented by an additional 10 vehicles by the end of this year. This combined with take-home vehicle policy change resulted in a 15% fuel use reduction since 2009.

Parks

The Fort Des Moines National Historic Landmark Historic Preservation Plan is the first step in moving forward the SuperBlock Master Plan. This plan helps to assess the rehabilitation needs and opportunities in the Fort area and recommends various historic preservation and reuse strategies for the area.

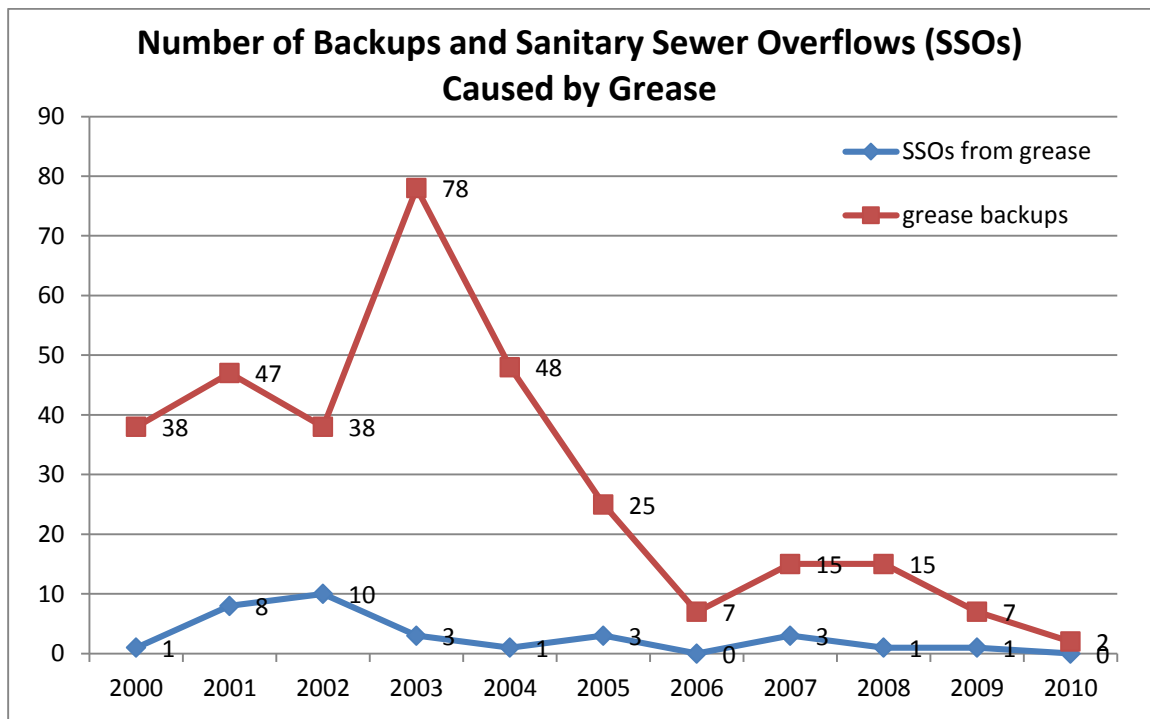
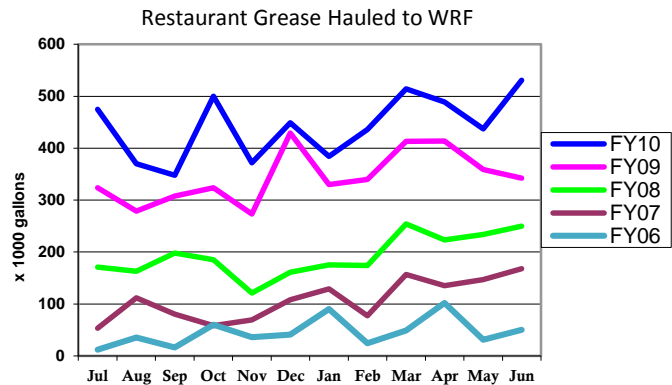
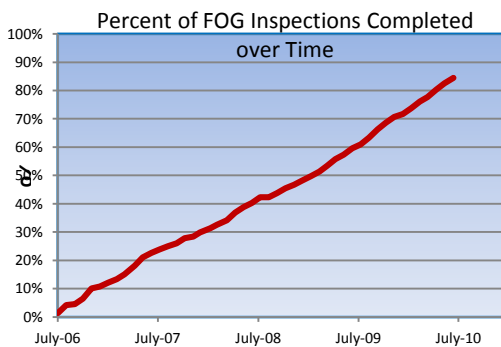
- World War I significance included the first black officer training school; World War II significance included the first and largest training center for women—the Women's Auxiliary Army Corps (WAAC), later renamed the Women's Army Corps (WACs)
- Only 43 of the nearly 350 original buildings remain; the Historic Preservation Plan addresses 35 of those remaining buildings.
- Planning committee included: property owners, neighborhood representatives, and city staff from Parks and Recreation, Community Development, Economic Development, and Engineering.

2011 City of Des Moines Sustainability Report

The Parks Dept. Facility Report on Wading Pools has been recently completed. The report recommends future CIP projects, including analysis of water usage, attendance, proximity to other water play facilities, costs, and condition. Jordan Park, Grandview, Drake Park, and Bates Park wading pools have been resurfaced and painted. Improvements are measurable by attendance at pools, number of pools resurfaced, removed, or replaced.

Public Works & Wastewater Reclamation Authority

The Wastewater Reclamation Facility administers the Fat, Oils, & Grease (FOG) Program to protect human health and the environment from sewer back-ups. The FOG Program is implemented metro-wide and includes 2000 food service establishments. We have currently inspected 83% of these establishments. Our goal is to inspect all establishments at least once by January 2011. Another goal is to increase over the previous year the amount of grease saved from the sewer and brought to the WRF for disposal. Currently about a half million gallons of grease a month is saved from going down the sewer.



2011 City of Des Moines Sustainability Report

Infrastructure improvements to the existing digester complex to enhance digestion and the production of biogas

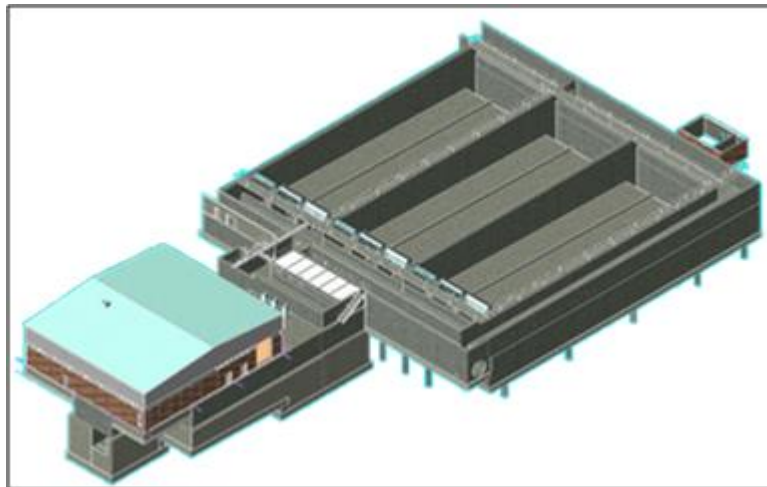
- To replace digester covers
- To replace gas mixing system with draft tube mixing
- To switch from single stage to two stage digestion
- To provide additional biogas storage
- To construct a rock box for the hauled waste

Replacement of the Main Outfall from downtown Des Moines

- To eliminate combined sewer overflows in the downtown area
- To transport the flows to the existing wastewater facility and to the Combined Sewer Solids Separation Facility

Construction of a Combined Sanitary Sewer Solid Facility

- To provide enhanced primary treatment and disinfection for 80 MGD of combined sewer flow during wet weather period
- To provide floatables controls on any combined sewer flows in excess of the 80 MGD



Sewer Enterprise

The Wastewater Systems Division of the Public Works Department provides planning for the sanitary sewer collection system and assist in identifying capacity and integrity issues that need to be addressed to safeguard the system from illicit discharges and basement backups.

The Storm Water Utility Division of the Public Works Department is also responsible for administering the City of Des Moines National Pollutant Discharge Elimination System (NPDES) permit for Municipal Separate Storm Sewer System (MS4). The requirements of this permit include inspection and enforcement of illicit discharges and construction site runoff, stream bank assessment, post-construction runoff requirements, storm water pollution public education, and pollution prevention and good housekeeping for municipal operations.

2011 City of Des Moines Sustainability Report

Sanitation

The Single Stream Recycling program offered by the Solid Waste Division allows residents to easily toss all their recyclables, unsorted, into a single cart and roll them to the curb for collection. Since the program's inception, recycling quantities have increased 30%.

Street Maintenance

Maintaining the streets in sound, serviceable condition in all seasons helps to ensure the safety of the traveling public.

2011 City of Des Moines Sustainability Report

THE NATURAL ENVIRONMENT

It shall be the policy of the City of Des Moines to identify, plan and manage the natural environment to be sustainable. This shall include, but not be limited to:

1. Recommending low impact sustainable methods of natural areas restoration, habitat management, facility development and resource recovery as a means of conserving financial resources in the development and management of municipal property.
2. Minimize high maintenance vegetation and invasive species while maximizing biodiversity.
3. Respecting the natural topography, hydrology and biodiversity of proposed development sites to indicate where, and to what level, facility development may take place.
4. Protecting the region's water resources by establishing buffer zones and runoff management strategies for agricultural areas, developed sites, rivers, streams and other bodies of water within and outside municipal properties.
5. Manage natural ecosystems using best management practices for the system diversity.
5. Removing, correcting or containing hazardous waste and controlling dumping according to Federal and State laws.

A number of different committees, subcommittees and initiatives have been launched by the Park and Recreation Department to assist in the preservation, restoration, and sensitive development of our natural landscapes. These groups include the Park and Recreation Oversight Urban Conservation Committee (UCC), the Central Iowa Greenways Initiative, and the Urban Forestry Sub-committee of the UCC.

The Park and Recreation Board Oversight Urban Conservation Committee (UCC) was established in 2004 with mission to advise the board in designing ecologically-based policies and management practices that will promote healthy, functional ecosystems and provide a legacy of stewardship for the City of Des Moines.

The Central Iowa Greenways Initiative has been developed by staff for the board and has become a 60-member task force representing 32 public and private organizations including 8 cities, 2 counties, 3 state departments, the Army Corps of Engineers, Des Moines Water Works, environmental and recreational non-profits and the general public. The group's vision is a sustainable greenways system of the Des Moines and Raccoon Rivers that preserves, protects, and enhances the environment, improves water quality, enables alternative transportation options, promotes fun, healthy lifestyles, and fosters community and economic vitality through regional cooperation.

2011 City of Des Moines Sustainability Report

Urban Forestry Sub-committee of UCC developing urban forestry report with goal to expand upon the Park and Recreation Department's existing reforestation plan and develop an urban reforestation master plan to reinforce the City's principals and goals relating to sustaining the urban tree canopy and healthy urban forest; work is in progress with the following goals having been established:

- To understand the characteristics and complexity of a diverse urban forest by inventory and analysis; currently the Park and Recreation Department has budgeted funds to hire a graduate student and undergrads to complete a comprehensive inventory of the park system's forest
- To maximize the ecological and cultural benefits of the urban forest (providing green infrastructure) including improving water quality and air quality, cooling the urban heat island, providing wildlife habitat, improving beautification and increasing property values; upon completion of the above mentioned inventory, the graduate student will be responsible for using existing formulas to calculate the impacts listed in this bullet point
- To facilitate interdepartmental communication and communication with other governmental bodies to provide decision-makers the information they need to support the urban forest plan once completed
- To develop and implement resource management tools including an ability to integrate changing technology, the ability to continually update the forestry plan and the development and implementation of best management practices
- To educate and provide greater engagement of the public

2011 City of Des Moines Sustainability Report

Completed Projects

Since 2007, we have seen significant improvements in our land management practices, minimizing runoff issues with our streams, rivers and lakes, and improvements to our trail system.

Land Management: Habitats, Tree Canopy, Prairies

Increasing native vegetation acreage to provide both improved habitat development and storm water quality; restoring natural landscapes through prairie and savanna development in 6 parks.

Approximately 100 acres of parkland that were formerly mown on routine frequency timeframe now being transitioned to “minimal” mow cycle.

Burning woodlands and open prairies in 11 parkland areas in spring and fall, which aids in reducing invasive species and encourages native grasses, wildflowers, sedges; Since 2006 we have burned over 75 acres of land.

Invasive Species efforts – in the fall of 2007 and spring of 2008 an effort to control the spread of the woodland invasive species Garlic Mustard at Ashworth and Greenwood Parks was launched by the parks department, covering an area over 5 acres.

Reforestation in city parks since 2006 has included planting of 3,061 trees while 2,852 have been removed.

A specification to implement tree protection during construction was developed to help protect the city’s tree canopy. The City also maintains the City-owned urban forest. Trees within the urban area help to reduce the cooling needs in the summer which reduces energy consumption.

Butterfly and moth survey done in 2008 at Gray’s Lake Park.

Bluebird restoration projects including population monitoring in 5 park locations, building and maintaining bluebird houses.

Bird Inventories of key bird areas by Audubon Society: Des Moines River corridor between Prospect Park and Birdland Marina, Glendale Cemetery, Greenwood and Ashworth Parks, Ewing Park, Gray’s Lake Park, Grandview Park and Golf Course.

Ecological Consulting Contract – Parks maintains a contract with an ecological consulting company, Prairie Landscapes of Iowa, to meet the following goals:

- review and preparation of seeding specifications for parks
- assist with native seeding in parks
- staff education on land management techniques and practices
- maintenance of natural areas
- development and maintenance of rain gardens
- identification and removal of invasive species
- public outreach towards native land management and programs
- monitoring projects to ensure that they are successful

2011 City of Des Moines Sustainability Report

Rivers, Lakes, and Streams

The Airport's glycol containment system ensures safe handling and disposal of de-icing fluids. These chemicals are collected and contained in large tanks and then sent to the Waste Water Treatment Plant at a metered rate. This keeps chemicals from seeping into ground water, rivers, streams, and soil.

Infiltration-based practices being utilized including installation of 8 rain gardens in park and facility locations.

Gray's Lake Shoreline Restoration Project

Approximately 2,000 feet of Gray's Lake shoreline will be restored in 2011, funded by a State of Iowa REAP grant, this project will stabilize shoreline, help remediate effects of flooding, and enhance wildlife habitat.

Four-Mile Creek Buffer Restoration Project

This project restored the woodland buffer area and converted various turf areas into native plantings along a section of the creek; the project will improve storm water runoff quality and reduce its volume.

Yeader Creek Watershed Assessment

Parks and Recreation and Department of Public Works are currently working with the Iowa Department of Natural Resources and other agencies to review an assessment of the Yeader Creek Watershed in a larger effort to improve water quality along Yeader Creek and in Easter Lake. Ewing Park will be an integral piece to helping to improve water quality in Yeader Creek and in Easter Lake.

Fisheries Watershed Management Initiative

This project is a partnership with Iowa State University that will pursue improved pond water quality in parks and increased fishing opportunities. The project also involves a partnership with IDNR; the program will include such conservation efforts as:

- analyze fisheries and water quality data in City water bodies that have potential to serve as public fisheries and provide recommendations to staff for resource management efforts
- develop a management plan for the City of Des Moines' park ponds and detention basins improving water quality to support diverse habitat and fisheries
- provide capital improvement fund recommendations and identify/apply for grant opportunities to improve water quality and fishing opportunities specifically addressing flora, fauna basin morphometry and water quality
- prepare a City of Des Moines Fisheries Status and Recommendations Report with development for targeted water bodies that have potential to serve as public fisheries (PARKS)

2011 City of Des Moines Sustainability Report

Trails

There are 40 total miles of trails citywide.

The City of Des Moines has also enhanced the trail signage within the community. Central Iowa Trail Signage is a collaboration of 15 cities and 4 counties that have adopted a uniform “Central Iowa Trails” logo and signage system; two trailhead kiosks are under construction: one at the southeast corner of Gray’s Lake and the other at the Bill Riley Trailhead south of Ashworth Pool; additional signs will be constructed by fall, giving trail users directional and informational signage all along Des Moines’ trail system; the city will be the first community to implement this signage system

Emergency 911 Trail Signage – consists of a green post every ¼ mile with a 6-digit number that corresponds to that specific location; 911 operators can locate that point on a map when a citizen calls and can give emergency vehicles directions to on how to access that point; signs have been installed on the John Pat Dorrian and Neal Smith trails and will be installed on the remainder of Des Moines’ trail system by this fall, utilizing the help of volunteers.

Des Moines River Water Trail is National Recreation Trail and was dedicated as a Water Trail in June 2009 at Prospect Park. It was designated as National Recreation Trail through the U.S. Department of the Interior in May 2010 and only applies to the portion of the trail that lies within Polk County (the portion of the River between the Center Street and Scott Street dams is not navigable and not included in the designation). Des Moines River Trail, Phase 1 – 2.5 mile trail running from downtown at the Meredith Trail, along the Des Moines River, to the Cownie Baseball and Soccer Complexes; awarded Iowa Clean Air Attainment Program funds for use as an alternative, non-vehicular commuter route to downtown; this trail is the first step in connecting downtown, through Easter Lake, to the City of Carlisle and will be a major regional trail for the south side of Des Moines, connecting it into the Central Iowa Trail System of 550 miles

Raccoon River Water Trail project will be implemented in 2011 and will result in the Des Moines River Water Trail and the Raccoon Rivers (there are two river branches of the Raccoon) Water Trails being tied together, creating a combined water trail over 200 miles in length. The project includes: expansion of parking at Commerce Ledges, development of new access at the campgrounds in Walnut Woods, safe portage around the Water Works and Scott Street Dams, and safety signage and kiosk development.

Nature Trails – there is ongoing work with the Central Iowa Trail Association including dirt trail maintenance and sustainable trail design improvements in Ashworth Park. Success is measurable by mileage of dirt trails.

The Bill Riley Trail has been renovated and widened (first reconstruction since trail built in 1973)

Walnut Creek Trail is a 2.4 mile trail from Center Street to North Valley Drive and connects the Des Moines trail system to Windsor Heights and Clive trails

2011 City of Des Moines Sustainability Report

Trestle to Trestle Trail is a 3½ mile trail in north Des Moines along the Des Moines River. This is a joint project between Parks Department, Polk County and the City of Johnston.

Waveland Trail is a two phased trail project. Phase 1 is a 0.8 mile segment that connects the Walnut Creek Trail to 56th Street near I-235, Waveland Trail from 40th Street to 42nd Street is a 0.25 mile segment that runs along the north side of I-235, connecting the pedestrian bridge over I-235 at 39th Street to Hubbell Elementary School at 42nd Street. Phase 2 is a 0.9 mile segment along the west edge of Glendale Cemetery from University Avenue to Franklin Avenue, ending at the Northwest Community Center; construction started in the fall 2010.

Three Lakes Estates Trail Connection is a 700-foot section of trail that provides bicycle pedestrian access across the dam and connecting Three Lakes Parkway.

Southwestern Hills Neighborhood (SW 30th Street) is an 1100-foot sidewalk connecting neighborhood to Central Iowa Trail system.

2011 City of Des Moines Sustainability Report

PROPERTY MANAGEMENT, ACQUISITION AND DISPOSAL

In the interest of managing all its property in a manner consistent with this policy, the following strategies will be used for managing, disposing of and acquiring property. Such actions will be considered on a case-by-case basis with full attention to present and planned future uses established in accordance with the subsections of this policy.

1. Managing Municipal Properties

- A. Consolidating parcels where contiguous municipal properties are an amalgamation of multiple parcels, Des Moines will seek to consolidate these parcels onto new parcels that more correctly define the land management needs of the city.
- B. Promoting restricting deeds in perpetuity on lands of high natural resource value (endangered plants and animals, watershed protection, flood control, historic sites, irreplaceable recreation amenities, etc.) through the use of conservation easements, nature preserve designations and other appropriate instruments.
- C. Splitting out lots where unwanted property can be disposed of at maximized return.
- D. Describing multiple use parcels where city departments have either expressed present need or can demonstrate planned future needs that do not negatively impact Des Moines natural resources.
- E. Granting easements to other organizations, other city departments, private citizens and corporations on a case-by-case basis and keeping the interests of Des Moines in mind at all times.
- F. Remediating and redeveloping environmentally contaminated sites.

2. Disposal of Property

- A. Negotiating exchange or joint management of lands with other city/county departments.
- B. Sale or trade of lands by Des Moines to other public agencies that can demonstrate a need for the property in providing improved services to the public.

3. Acquisition of Property

- A. Fee simple acquisition of open space is a last resort when condemnation is the only other recourse to acquire lands essential to Des Moines.
- B. Acquisition through grants and sponsorships by foundations, federal agencies and corporations will be pursued.
- C. Donations by landowners and developers wishing to take advantage of tax incentives under Federal Conservation Purposes tax law will be encouraged.
- D. Condemnation of property essential to Des Moines will be used when no other recourse exists and community need for the property is clearly demonstrated through the public input process.

2011 City of Des Moines Sustainability Report

Completed Projects

Since 2007, the City of Des Moines has made an overwhelming number of improvements to our existing facilities, as well as construction and planning of new facilities. Below is a comprehensive list of projects that have been completed since 2007.

Airport

- Consolidated Rental Car Quick Turn Around Facility is a LEED project incorporating various sustainable systems.
- Converted all lighting fixtures to Fluorescent T-8 lamp fixtures resulting in a 50% reduction in energy cost. Converted close to 100 Emergency Exit signs to LED fixtures to extend the life of the sign as well as reduce energy cost by 50%.
- Recycling program has diverted 55% or 291.7 tons per year of the airports waste stream from the landfill.

Fire

In 2009, Fire began design of two new facilities, the Central Fire Station and the Training and Logistics Facility. Both of these facilities will be achieve LEED certification.

Library

The Library has completed the following sustainability initiatives.

- Replaced all T-12 lighting with T-8 or T-5 in all six buildings
- Installed a high-efficiency condensing boiler at the North Side Library
- Installed high-efficiency condensing units at the South Side and North Side Libraries
- Removed old furnaces and installed a high-efficiency condensing/gas heating unit at the Forest Avenue Library
- Maintained a green roof to reduce the heat island effect and storm water runoff at the Central Library
- Installed control software for heating and cooling in all buildings and lighting at Central and Franklin to schedule lights and temperature control

The newly-renovated Franklin Avenue Library is a green building on target for LEED platinum status. It's environmentally friendly features include:

- Roof-based photo-voltaic system capable of producing nearly 50 KW on an average day bringing the grid power usage down to a minimum
- Solar thermal collector and thermal storage with the ability to supply 85% of the heating load so the boilers operate very sparingly
- Low density lighting
- Double paned windows
- Green interface computer to provide visual feedback on energy and sustainable methods in use on site
- Native landscaping
- Use of green building methods and materials to minimize waste, maintain air quality and maximize use of renewable and recycled resources

2011 City of Des Moines Sustainability Report

- Recycling plan for staff and public to dispose of paper and plastic
- Use of green cleaning methods and supplies
- Staff shower to encourage walking and biking to work
- Plug-ins for electric cars

Parks Facilities and Municipal Buildings

Lighting

In 2004, the City of Des Moines began a series lighting retrofits that originally included City Hall, the Argonne Armory, and Police Station. Since then, a second phase of the project has addressed similar needs at 10 fire stations, police site offices and the 5 community center buildings.

Buildings have been de-lamped and re-lamped, with high-energy efficiency lamps and T-8 magnetic ballasts replacing less efficient T-10 ballasts, resulting in more light for less energy, and cost; changes have also resulted in thousands of additional dollars in cash to the city in the form of energy-saving incentive rebates.

More than 150 motion-sensor light switches have been installed, with more to be changed over by the end of 2011.

Equipment

A bio-based polyurethane coating, or white roof, has been installed over a fully-adhered polyurethane foam system that has an 81.5% solar reflectance and a 35% bio-based content on roof of the Armory; this same product, minus the polyurethane foam, was installed on Four Mile Community Center in the fall of 2009

HVAC systems are also being updated, including boilers at City Hall and the main Police Station and variable frequency drives on blower motors

Temperatures in municipal buildings have been lowered in winter, raised in summer; new policies have been put in place regarding employees' use of appliances such as refrigerators, microwaves, etc.

Buildings

Glendale West Zone Maintenance Facility, opened in 2008, was the first Leadership in Energy and Environmental Design (LEED)-certified building to be built in the City of Des Moines and the first municipal building to be built under LEED standards in the state

ML King Park year-round shelter built in collaboration with Polk County opened and began operation in 2009 as a congregate meal site and was the second LEED certified building to be built by the city

Franklin Field Shelter was built with reverse slope roof that captures rain water which is fed to a retention area for absorption into surrounding soil, Grasscrete lessens the amount of concrete in the park, allows infiltration of ground water, and reduces compaction around the shelter

2011 City of Des Moines Sustainability Report

Other

Access Advisory Board – The Parks and Recreation Department takes all construction projects to the City’s Access Advisory Board that reviews projects based on compliance with the Americans with Disabilities Act

Green Burials – green, or natural burial, is a service the city’s municipal cemeteries are considering offering in the near future; the concept ensures that the burial site remains as natural as possible by eliminating the embalming fluid and concrete vaults, instead the bodies are interred in bio-degradable caskets or burial shrouds; results include water not being wasted and pesticides and herbicides not being used in attempts to control nature; instead, a green section allows nature to take its course; planting native trees, shrubs and flowers in loved ones’ honor promotes habitat restoration; each burial site would have a conservation reuse clause of around 50 years

Upright Columbarium Niches – upright columbarium conserves space thereby increasing overall cemetery land conservation; columbaria consist of many smaller boxes, or niches, for the storage of cremation remains; this upright stacking allows loved ones the same experience of a standard grave monument while using only a fraction of the ground space of a standard plot; structures are built of decorative stone and other masonry products adding to the aesthetics of the cemetery grounds while reducing the time it takes to mow a similar number of standard burial plots and monuments.

2011 City of Des Moines Sustainability Report

CONCLUSION AND NEXT STEPS

The City of Des Moines has accomplished a number of projects and initiatives that have positively influenced the way our community looks at sustainability. This can be seen in the number of energy efficiency improvements that have been included in our building renovations, the types of environmental stabilization projects that have been undertaken to improve habitats and protect our watersheds. Many additional projects are underway and will be completed in the next year.

Current and Future Projects

Building Improvements

Municipal buildings will see improvements in the near future as outlined in the budget.

At the police station, for example, window air-conditioners and steam heat is being replaced with energy efficient HVAC systems. This not only provides energy efficiency but also provides a more controllable temperature setting for the occupants.

Also scheduled for replacement are the steam heat radiators on the 1st and 2nd floor restroom areas.

Energy efficient light fixtures and motion sensors have replaced several of the outdated lighting. The recent remodeling of the Homeland Security building replaced several high intensity light fixtures with new low energy use florescent lights activated with motion sensors. The cost of the replacement was covered by an Energy Conservation Grant provided by Mid American Energy.

The current property room remodeling will also replace outdated light fixtures with new motion sensitive lighting also paid by the Energy Conservation Grant.

A much needed window replacement will remove the single pane, aluminum frame windows rated with a R-1 value. The approximately 200 windows will be replaced by double pane, double insulated energy efficient widows rated R-2.7. The new windows also allow more natural light for a brighter working area. The bulk of the cost, \$586,322, is paid by the Department of Energy leaving \$176,878 to be paid by G. O. Bonds. It is estimated that the window replacement alone will require 50% less heating from the boiler.

The current boiler is 60 years old and being considered for replacement. Any new energy efficient system combined with the window replacement will also result in an energy savings.

Renovation of the parking lot at the South Side Library, converting approximately 1/3 from asphalt to vegetation.

2011 City of Des Moines Sustainability Report

ICLEI STAR Beta Communities (current)

The City of Des Moines is one of 10 beta communities engaged in the ICLEI STAR Communities project. The STAR Communities project takes an innovative and comprehensive look at sustainability using 81 different measures. The beta project is scheduled to be completed in 2012.

Greenhouse Gas Evaluation –Des Moines Corporate Boundaries (current)

The City of Des Moines is in the process of collecting data from MidAmerican Energy to create a corporate boundary greenhouse gas baseline. This project is expected to take six months and will evaluate gas and electricity consumption within the city limits. Once data is collected and a baseline is set, a reduction strategy will be created to meet international goals.

Sustainable Action Plan (current)

In 2010, the City of Des Moines received a grant from the Iowa Office of Energy Independence to provide a sustainability training program for local area businesses, non-profits, and local governments. The result of this six-month course was a sustainable action plan. Staff has established timelines to complete these action items and expects all items to be completed within the next three years.

Municipal Service Center (current)

The Municipal Services Center (MSC) project is a master planning effort that looks at the consolidation of municipal operations located at several outdated and remote sites into a modern, integrated, sustainable facility. By consolidating these services into a single site, services will be delivered more efficiently, using state of the art best practices and features that contribute to long term economic efficiencies, while limiting initial capital costs. The plan examines the impact that this project can have on this area through the redevelopment of under-utilized existing sites, and provides for the growth and expansion as needs change.

Regional Plan (current)

The Tomorrow Plan is an initiative formed to engage the greater Des Moines metropolitan community in envisioning how the future of the Des Moines region might play out sustainably over the next forty years. When complete, The Tomorrow Plan will provide an action plan that forms a comprehensive framework for future development, allowing the Metropolitan Planning Organization (MPO), the City of Des Moines, suburban and exurban communities, and other entities to work collaboratively to coordinate and align the multiple planning efforts.

DART 2035 (current)

The DART Forward 2035 Recommendations crafts a vision for creating a regional transit system in Greater Des Moines. The ultimate goal of this planning effort is to develop a regional transit services plan, which will guide the growth of and investment in public transit throughout Greater Des Moines over the next quarter century. The DART Forward 2035 Recommendations takes into account four guiding principles adopted by the DART Commission. The Commission directed staff and the consulting team to develop a plan that meets the following criteria: build a market-based network; refocus the service network; enhance customer service; and build

2011 City of Des Moines Sustainability Report

financial sustainability. The recommendations call for streamlining and improving frequency on many of the bus routes already in place, to add new routes. In other areas, existing routes have been identified for partial or total discontinuation due to several factors, including below-average ridership, other nearby services, and to allow for reinvestment in other routes.

Community Challenge Grant – Zoning/Land use and Green Building Code (future)

The City has dated development regulations in need of a comprehensive amendment. The City needs to update its Comprehensive Plan, Zoning Ordinance, and Subdivision Ordinance to meet current and future development challenges, and to implement strategies to develop a model to guide future development in a sustainable manner. The City hopes to utilize a Community Challenge Grant in order to develop and implement a community definition of sustainability and to codify sustainable policies in an updated and expanded Comprehensive Plan, and implement sustainable practices through a Unified Development Code (Zoning and Subdivision Ordinances) and Green Building Code. This includes incorporating recommendations and conclusions derived through the Tomorrow Plan and the Dart Forward 2035 Plan, plus other efforts such as the City's Neighborhood Planning process, and the Downtown Community Alliance Capital Core effort.

Sustainability as part of neighborhood plans (future)

One of the primary objectives of the Neighborhood Rehabilitation Program (NRP) is to actively promote infill development, housing rehabilitation, and efficient reuse of underutilized land. These activities result in the preservation of the built environment and optimal utilization of the City's existing infrastructure. The NRP is also continually reaching out to new partners by leveraging limited public resources with private funds. By leveraging public funds, Community Development has been able to require energy efficient building practices from our for-profit and non-profit development partners, such as Habitat for Humanity and Hubbell. Strong partnerships and leveraging resources allow the NRP to have a greater sustainable impact upon Des Moines Neighborhoods.

Next Steps

We have made great strides over the last five years towards becoming a Sustainable Green Community. However, there is still much that needs to be accomplished. In order for Des Moines to continue its success, a new set of goals needs to be created. With the increased interest in sustainability within the community, now is the time to reach out to interested leaders within the community about what their vision is for a sustainable Des Moines and what goals they would like to accomplish over the next ten years.