

Greening Hartford and Sustainable Development



KEY TOPICS

- Clean & Renewable Energy Management
- Waste Reduction
- Urban Design & Green Building
- Natural Environment
- Transportation
- Environmental Health
- Water Resources
- Sustainability in Institutional Facilities
- Goals & Objectives



DRAFT 11/5/09

FOR DISCUSSION ONLY

SUBJECT TO PUBLIC PARTICIPATION PROCESS

Introduction

Sustainability has become a wide-ranging term that can be applied to almost every facet of life. Sustainable development can generally be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This concept can be applied to the environment, the economy and society as a whole. In the worlds of conservation and development, the term “green” is often used to indicate actions meant to achieve sustainability— for example, green buildings, “going green,” the green economy, etc.

Hartford has undertaken a number of green, or sustainable, initiatives. The City has already taken measures to improve the quality of the environment and to promote sustainable development. It has also begun to identify future strategies for accelerating the “greening” of Hartford. Hartford recently added a green section to the City’s website: www.hartford.gov/greent.htm where a growing list of energy saving efforts, links and photos are posted.

These existing efforts and future strategies are divided into the following seven categories:

- Clean and Renewable Energy Management
- Waste Reduction
- Urban Design
- Natural Environment

- Transportation
- Environmental Health
- Water Resources

In 2006, the City of Hartford demonstrated its commitment to green energy strategies and has already reached its goal by purchasing 20% of its energy in renewable sources.

Clean and Renewable Energy Management

Status and Current Initiatives

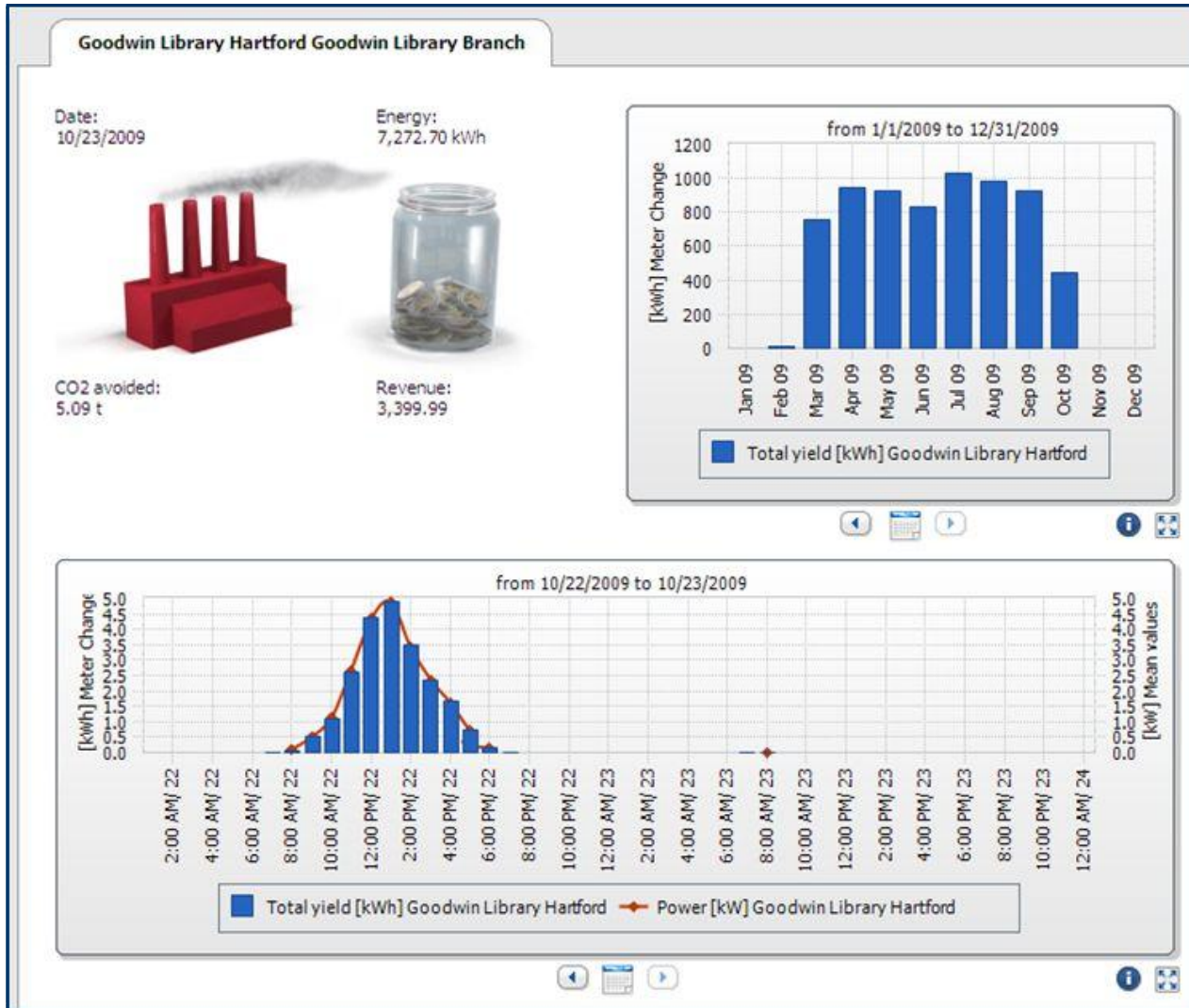
The most prominent of these initiatives is the City’s participation in the Connecticut Clean Energy Communities Program. This program, run through the Connecticut Clean Energy Fund (CCEF), enables cities and towns to both purchase renewable energy and earn credits convertible for new clean energy system infrastructure. Credits may be earned by getting local households and businesses to enroll in the CT Clean Energy Options program, having households or businesses install their own clean energy systems, and through the purchase of certified Renewable Energy Certificates (RECs). Once a municipality has earned a certain number of credits, the CCEF will provide the community with a free clean energy system (solar photovoltaic, solar thermal or wind). CCEF covers all costs associated with purchasing and installing the new energy system, and assists the municipality in choosing a suitable location for the energy system.

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Goodwin Memorial Library has installed a solar photovoltaic system through the CT Clean Energy Options program.

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Goodwin Memorial Library Branch's online solar energy data

Hartford has already benefitted from being an active participant in this program. Hartford joined the Connecticut Clean Energy Communities Program in 2006, and by 2009 had accrued enough credits to earn its first free clean energy system. The 8kW solar photovoltaic system

awarded to the City was installed at the Goodwin Memorial Library branch in April of 2009, with an estimated installation value of roughly \$80,000. The City has an additional 2kW of solar photovoltaic credits that it has earned but has not yet converted into a new energy system.

Upon enlisting in the Connecticut Clean Energy Communities Program in 2006, the City of Hartford committed to purchase at least 20% of its energy from renewable power sources by the year 2010. To date, the City has already achieved this goal. Hartford is number four out of the forty-one participating communities in terms of sign-ups for the CT Clean Energy Options program.

The City of Hartford Advisory Commission on the Environment (ACOTE), working in conjunction with the Connecticut Clean Energy Fund, has also solicited proposals for projects that promote renewable energy use in the City. ACOTE will fund micro-grants of between \$250 and \$2,000 for community-based projects that raise public awareness of renewable energy usage. The type of projects envisioned for funding would focus on promotion of renewable energy rather than physical construction or acquisition of clean energy systems.

As part of the renovated Mary M. Hooker Magnet School for Environmental Studies, solar panels and wind turbines will be installed to allow students to observe and study clean and

renewable energy technologies. The City has also worked with NetApp, an electronic storage and data management firm, to implement data solutions to save on data storage requirements and power consumption. Using an application called NetApp FlexVol, the City has achieved significant cuts in energy costs and energy consumption. In addition, as part of the 2009/2010 Capital Improvement Plan, the City of Hartford is planning to improve temperature controls in municipal buildings as a means of conserving energy. Additional municipal building renovations, including the installation of new windows and the replacement of old and inefficient heating systems, will also likely generate energy savings for the City.

Goals and Strategies

Procurement

The State of Connecticut has a stated goal of obtaining 100% of the energy used by state agencies from clean, renewable energy sources by the year 2050. Since the City of Hartford is ahead of schedule in transitioning to clean and renewable energy sources for its energy needs, a more aggressive timeframe could be in order. The City should strive to increase annually the percentage of its energy needs supplied by clean and renewable energy sources, with an ultimate target of achieving 100% attainment from clean energy sources by the year 2030.

In addition to the macro-level benefits realized

by this approach, the City itself would stand to gain substantially from such a strategy through its participation in the Connecticut Clean Energy Communities Program. By procuring more of its energy from clean and renewable sources, the City would earn kilowatt credits that could be converted into free clean energy system installations like the new solar photovoltaic system at Goodwin Library.

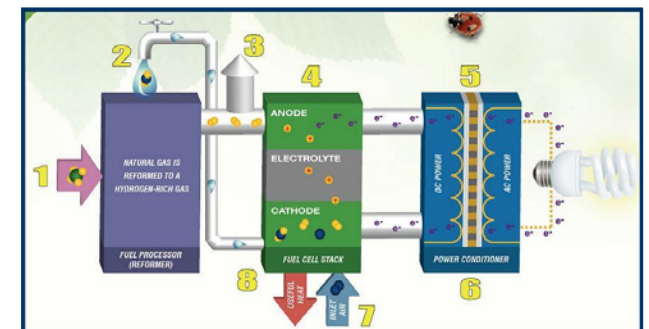
Production

As a medium-size city without its own municipally-owned power plant, the City of Hartford is quite limited in its ability to produce its own clean and renewable energy. However, the City can pursue a number of policies that promote “home grown” electric power of a clean and renewable nature. First, obtaining new clean energy systems via the Connecticut Clean Energy Communities Program provides the City with the capability to generate its own power for limited internal consumption. Continuing to obtain these systems could enable the City to power a number of municipal facilities at little or no cost.

The City should also encourage the installation of renewable energy systems for commercial and residential properties. Through the CCEF’s On-Site Distributed Generation (OSDG) program, businesses may qualify for grants to help pay for renewable energy system equipment and installation. In addition, residential properties that utilize renewable energy systems are already

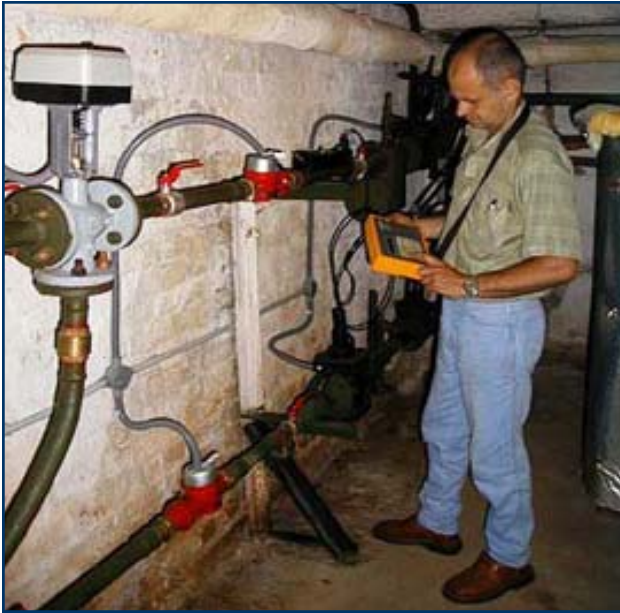
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The City should strive to increase annually the percentage of its energy needs supplied by clean and renewable energy sources, with an ultimate target of achieving 100% attainment from clean energy sources by the year 2030.



Depiction of a fuel cell, similar to that being utilized at the Connecticut Science Center.

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An energy audit of municipal facilities should be completed.



Replacing Hartford's traffic signal and street lights with LEDs will save energy and money.

eligible for a property tax exemption on the value of the energy generation system. The City should lobby the Connecticut General Assembly to expand this property tax exemption to commercial properties as well.

Any surplus energy generated by private and/or municipal OSDG systems could potentially be tied into the regional power grid and sold back to the electric utility companies, representing a potential new revenue stream for both the City of Hartford and businesses within its borders.

Efficiency

The area of energy management in which the City can have the greatest impact from public policy implementation is energy efficiency. The following is a list of possible policies and actions that the City of Hartford could pursue to improve municipal energy efficiency.

- Complete an energy audit of municipal facilities to determine where improvements can be made to increase energy efficiency. Development a City-wide energy management plan.
- Retrofit municipal buildings with energy efficient equipment and features, where appropriate and feasible. Ensure that new equipment purchased meets appropriate energy efficiency standards.
- Raise energy usage awareness among municipal employees and encourage appropriate energy conservation

practices in municipal office and facilities.

- Integrate energy efficiency with public education by promoting energy conservation practices at Hartford schools. Have individual schools “compete” against one another to see which school can achieve the highest level of energy efficiency.
- Replace incandescent traffic signal lights and street lights with energy saving LED lights. With increased efficiency and decreased maintenance – about once every five years – the lights will save taxpayers about \$13,000 per year.

Waste Reduction

Status and Current Initiatives

The City contracts its solid waste disposal services with the Connecticut Resources Recovery Authority (CRRRA), which participates within the Mid-Connecticut Project Area. Solid wastes are disposed of at Mid-Connecticut Refuse Derived Facility (RDF) trash to energy facility which is located at 300 Maxim Road.

The former Hartford landfill, previously operated under contract by the Metropolitan District, was actually two landfills – a double-lined ash disposal area and the main disposal area, which received process residue and other bulky and non-processible waste. The landfill has now been closed, having received its final delivery of waste on January 7, 2009. The revised closure plan approved by the Connecticut Department

of Environmental Protection plan calls for the installation of a state-of-the-art geomembrane cap for the entire 80 acre landfill, a process overseen by CRRA and expected to continue through 2011. The future of the site is unknown; one possible reuse could be the development of a park and multi-use trails.

The Mid-Connecticut Project has a container recycling facility, located at 211 Murphy Road, Hartford, and a paper recycling facility, located at 123 Murphy Road, Hartford. City sanitation operations include residential curbside refuse collection, curbside recycling, drop-off bulky waste and drop-off leaf collection.

Household hazardous waste collection is coordinated through the MDC. Household hazardous waste collections are conducted six times per year and are hosted in different communities in the region. Collection of household electronics occurs on an annual basis in the downtown by CRRA.

The City has undertaken several notable waste reduction initiatives to date. The Hartford Gold – Leaf Composted Give Back Program takes leaves collected from spring and fall pick-up, composts them and makes the composted material available to the public. In 2008, this program provided 900 cubic yards of compost back-haul for use by Hartford residents and community gardeners. The City’s electronic recycling (E-Waste) collection service provides

for both drop-off and curbside pick-up of electronic waste for residents.

The City has also participated in a one-year pilot program through the National Recycling Partnership called “Go Green Use Blue.” This pilot program involved “single stream recycling,” which allows all recyclable materials to go in one large bin rather than being separated. The purpose of the pilot program was to make recycling more convenient for residents and to increase recycling participations rates.

The City has also started a Waste and Recycling Academy designed to educate people about the rules and regulations behind Hartford’ waste management efforts and strategies.

Goals and Strategies

Hartford’s strategic approach to reducing solid waste should be based on a five-tiered hierarchy of disposal methods. This hierarchy, ranked from the most desirable to the least desirable methods of disposal, is as follows:

- Reduction
- Reuse
- Recycling & Composting
- Incineration
- Landfill

The City should pursue an overall strategy of utilizing as many policies and actions that fall within the categories of reduction, reuse, recy-

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The Hartford Landfill is in the process of being capped.



The Mayor promotes single stream recycling.

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Hartford provides free compost each Spring.



Hartford now has single stream recycling

clinging and composting so that the smallest amount possible of solid waste ends up at incinerator and landfill facilities. Below are

Solid Waste Source Reduction

- Investigate “Pay-As-You-Throw” solid waste programs, and determine if such a program would be feasible and desirable in Hartford.
- Consider adding a surcharge on the use of plastic bags by local businesses.
- Develop a program of incentives to spur commercial and industrial solid waste reduction efforts.
- Develop and promote a backyard composting program for City residents, most likely in conjunction with individual neighborhood organization.

Solid Waste Reuse

- In conjunction with the Connecticut Resource Recovery Authority (CRRRA) and the Metropolitan District (MDC), work to develop a regional Waste Exchange Program.
- Emphasize public education and promotion about reusable products.
- Continue to coordinate efforts with the MDC on the collection of household chemicals, cleaners, paint and other hazardous materials, which in turn could be reused.

Recycling & Composting

- Continue the “single stream” approach to

recycling as demonstrated in the recent “Go Green Use Blue” pilot program.

- Develop and promote a backyard composting program for City residents, most likely in conjunction with individual neighborhood organization.
- Continue the “Hartford Gold” leaf composting program.
- Promote recycling city-wide through various media forms, neighborhood groups, schools, etc.
- Continue the Waste and Recycling Academy program as a means to educating Hartford residents about waste management rules and regulations.
- Continue to support and promote CRRRA’s electronics recycling program.
- Promote recycling in all City offices and agencies.

Incineration and Landfill Usage

- Through the use of measures under the previous three headings, minimize the amount of solid waste that is disposed of through incinerator and landfill facilities.

Urban Design & Green Building

Status and Current Initiatives

By its very nature, Hartford’s urban design pattern is much more energy efficient and sustainable than other forms of development. With its high-density development patterns and mixing of uses, the City makes much more efficient use

of its land than traditional suburban development or regional transportation corridor “sprawl” development patterns. Hartford’s emphasis on guiding and supporting new development and the reuse of vacant properties in the Downtown area, as well as established commercial corridors and neighborhood centers, promotes a form of urban design that efficiently utilizes both the land and the infrastructure resources of the City.

New development in Hartford is also leading the way in sustainable design. The restoration of the historic Capitol Building at 410 Asylum Street for mixed-income residences and commercial space includes many sustainable design elements, such as a green roof, low flow water fixtures, energy efficient heating and lighting systems and EnergyStar appliances. When renovation of the building is complete, the building will be the first LEED (Leadership in Energy and Environmental Design) certified residential building in Connecticut.

The Mary M. Hooker Environmental Studies Magnet School will be the first LEED Gold project in the Hartford Public School system. The Mark Twain House and Museum has also been renovated to LEED certification standards, and the new Connecticut Science Center has received a “Gold” level LEED certification. It is expected that many future development projects will also seek to attain at least some level of LEED certification.

Goals and Strategies

- Provide incentives for including sustainable design elements in new construction and renovations/expansions, such as:
 - ◆ Passive solar heating
 - ◆ Natural ventilation
 - ◆ Passive heat recovery ventilation
 - ◆ Green roofs
 - ◆ Energy self-sufficiency
 - ◆ Energy efficient building systems
 - ◆ Water conservation systems
 - ◆ Geothermal heating
- Require that all new commercial construction 50,000 square feet or greater in size must be at least LEED Certified Silver.
- Develop Green Building Guidelines and incentives such as expedited site plan permitting to encourage the development of “green” buildings without forcing excessive costs or other burdens upon developers, building owners or occupants.
- Require that all municipal buildings constructed 5,000 square feet or greater in size must be at least LEED Certified Silver.
- Over the next decade, complete a City-wide tree canopy assessment and targeted tree planting program to improve air quality, lower air temperatures and enhance the aesthetics of Hartford’s street system.
- Revise the City’s existing zoning regulations to provide for more green building systems and components, such as rain

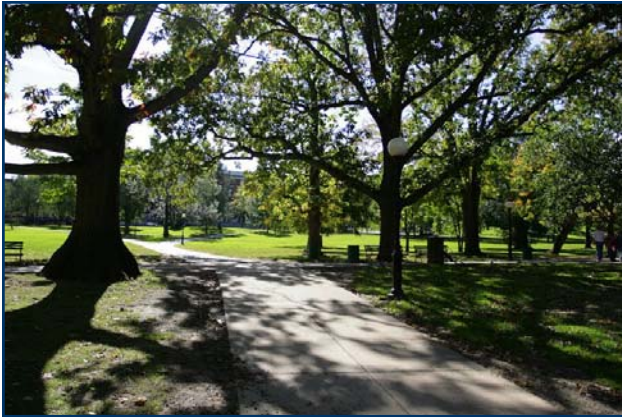
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Rendering of the Mary Hooker School



Rain gardens, or bio-retention basins, reduce stormwater runoff.



A tree canopy inventory is recommended



Open space protection is vital

gardens, green roofs and permeable paving materials to help reduce storm water runoff.

Natural Environment

Status and Current Initiatives

As part of its 2009/2010 Capital Improvement Plan, the City has allocated \$250,000 over the next ten years for the reforestation of City parks. This spending is intended for replanting the woodland areas of Hartford's parks with appropriate tree species, as well as to support the development of at least one tree nursery in the City. The reforestation project is only one component of a broad parks and recreation improvements effort, which encompasses over \$13.7 million in capital spending over the next decade.

For the fifteenth year, Hartford has been named a Tree City USA community by the Arbor Day Foundation. This designation is available to cities and towns that complete an application and meet the following four criteria:

- Must have some type of tree care ordinance
- Must have a board, commission or department that addresses trees
- Must have a community forestry program with budget of at least \$2 per capita, based upon the community's population
- Must have an Arbor Day observance and

proclamation

Goals and Strategies

- Maximize the value and utility of the existing system of parks, recreational facilities and open space resources throughout Hartford, and add to the open space system as resources and opportunities permit.
- Emphasize the value of urban forestry and tree programs for improving the City's appearance, improving energy efficiency and air quality, providing wild-life habitat and providing recreational opportunities. Undertake efforts to monitor, maintain and enhance these resources through tree improvement programs as part of the City's maintenance and capital planning programs
- Continue to provide a variety of municipal protections for open space resources. Maximize accessibility to all open space resources.
- Work with CROG and other municipalities in the region to develop a long-term regional vision for growth management and open space preservation.

Transportation

Status and Current Initiatives

The City of Hartford is currently engaged in a number of critical long-term transportation planning and design initiatives. The Hartford-New

Britain Busway, which is intended to link Downtown New Britain with Downtown Hartford via a dedicated busways using existing rail and highway rights-of-way, is presently in the final phase of design. Operational planning for the Busway is also underway, and physical construction of the Busway is expected to be completed by the end of 2013.

The proposed New Haven-Hartford-Springfield commuter rail service will bring many workers directly into the center of Downtown Hartford and remove vehicles from the interstate system during peak traffic hours. The development of the commuter rail Fuel Cell Bus service will alleviate traffic congestion on the highways and improve air quality. In addition, a more robust utilization of Union Station will help support transit-oriented development around the station, thereby promoting a more compact and energy-efficient use of this portion of Downtown.

As part of its 2009/2010 Capital Improvements Plan, the City has allocated \$500,000 in grant funds from the Connecticut DEP for the development of the Park River Greenway from Newfield Avenue to Hamilton Street. The Park River North Greenway, to be developed in the future, will run alongside the north branch of the Park River from the University of Hartford campus to Farmington Avenue.

Goals and Strategies

Transportation Modes

- Centralize the public transportation system around Union Station, creating a multi-modal transit center that includes supportive, transit-oriented mixed use development.
- Continue to support and promote the development of the New Haven-Hartford-Springfield commuter rail service and the Hartford-New Britain Busway.
- Place a strong emphasis on improving bicycle and pedestrian infrastructure throughout the City.
- Continue to work collaboratively with neighboring cities and towns, the Capitol Region Council of Governments and the State of Connecticut to evaluate and develop other regional mass transit systems.
- Continue to pursue the development of various trails and greenways around the City, with an emphasis on creating linkages with regional and national trail systems, and with connecting Hartford residents with employment centers both in Hartford and in the surrounding communities.

City Vehicles

- Continue to transition the City's fleet of vehicles from gasoline and diesel powered

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Union Station will become a multi-modal transit center



The City is transitioning its fleet to CNG vehicles.



Healthy Hartford is a wellness campaign designed to promote healthy lifestyle choices.

vehicles to ones that operate using alternative fuel sources such as natural gas, electric power or hydrogen fuel cells.

- Investigate the feasibility of replacing older City school buses with buses that use alternative fuel sources.

Supportive Public/Private Sector Initiatives

- Encourage the development of additional Zipcar locations around the City, particularly in the Downtown, at the hospitals and at the insurance company campuses.
- Encourage carpooling among employees in the Downtown area by offering discounted parking rates for multiple occupant vehicles at Hartford Parking Authority facilities.
- Encourage private use of hybrid fuel technology vehicles by providing discounted rates or preferred parking for such vehicles in the Downtown and at transit centers.

Environmental Health

Status and Current Initiatives

The City of Hartford has undertaken a number of environmental health initiatives. Health Information programs on a variety of topics have been developed. City staff have increased responsiveness to health safety and building code enforcement, and have continued programs that address rodent control and emergency demolition issues. The City has also made

progress in addressing the presence of lead paint in Hartford's housing stock. As part of the 2009/2010 Capital Improvements Plan, the City has allocated \$3.1 million over the next ten years to complete environmental surveys of all municipal buildings; inventory all asbestos-containing materials, lead paint and suspected mold conditions; prepare a management and abatement plan; and abate the inventoried hazardous materials. The City has also allocated \$15 million in grant funds for asbestos and lead paint removal and remediation at the Burgdorf Building on Coventry Street.

The City's Department of Health and Human Services coordinates a wide variety of programs aimed at improving the environmental and public health of both the City and its residents. These programs include lead poisoning prevention and lead abatement; food service regulation; nuisance control; and public health education. One of the public health education programs is the Healthy Hartford Initiative, which addresses issues of lead poisoning; asthma; indoor air quality; outdoor air quality; open space; brownfields; and environmental justice.

Goals and Strategies

Air Quality

- Reduce the number of vehicles traveling on Interstate 84 and Interstate 91 by focusing future investment on public

transit.

- Evaluate the synchronization of traffic signals in the City. Make improvements where necessary to reduce the number of intersections where vehicles are forced to idle for extended periods of time.
- Over the next decade, complete a City-wide tree canopy assessment and targeted tree planting program to improve air quality, lower air temperatures and enhance the aesthetics of Hartford's street system.

Water Quality

- Continue to work with the MDC on the Clean Water Project to reduce sewage discharges into the Connecticut River and completely overhaul the region's sewer system over the next decade.
- Continue to support the efforts of the Park River Watershed Revitalization Initiative and the Farmington River Watershed Association to expand public awareness of the watershed boundaries and to improve water quality within them.
- Complete a comprehensive storm water management plan for the city.
- Resolve the issue of shared storm responsibility between the City and the MDC
- Use regulatory site plan review as a tool to ensure storm water quality measures are implemented in new development.

Public Health

- Continue to fund and support lead paint abatement and remediation programs. Work to provide lead-free "safe homes" for families impacted by lead poisoning during remediation work.
- Improve public awareness of asbestos and asbestos-related health and environmental issues. Dedicate community development funds to removing or remediating asbestos in residential structures as part of housing rehabilitation efforts.
- Continue public outreach, awareness and education programs regarding asthma. Continue data collection efforts under the Hartford Schools Asthma Initiative to accurately monitor and track asthma cases.
- Support the efforts of the Hartford Asthma Call to Action Taskforce to raise awareness of asthma in the community and to provide asthma management strategies.
- Work with the State of Connecticut and private developers to identify and remediate brownfields in the City to eliminate potential environmental and public health problems and to return such properties to active economic use.
- Reduce littering and illegal dumping through aggressive enforcement and fines for violators.

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Asthma can be caused and exacerbated by poor air quality.



The MDC water treatment facility

- Ensure that the issue of environmental justice is a key consideration in future land use, development and policy decisions in the City of Hartford.

Water Resources

Status and Current Initiatives

Hartford receives its drinking water supply from well outside of its municipal boundaries, courtesy of the Metropolitan District Commission (MDC). The City is served by the MDC's West Hartford Water Treatment Facility located on Farmington Avenue. This facility was constructed in five stages between 1920 and 1960 and has the capacity to treat more than 50 million gallons per day (MGD). The sources of Hartford's drinking water are the Barkhamsted Reservoir, located in the towns of Hartland and Barkhamsted, and the Nepaug Reservoir located in the towns of New Hartford and Burlington. These two reservoirs have a combined capacity of nearly 40 billion gallons. The water system in Hartford is a mature system, in which every street in the City is served. There has been a shrinking demand for water in recent years; from 1990 to 2000, the system-wide water demand dropped from 66 MGD to 60 MGD.

Since Hartford's drinking water originates from a distance of approximately 12 to 16 miles away from the City's western boundary, the City does not have direct protective jurisdiction over its drinking water supply; this responsibility falls to

the MDC. In addition, as a heavily urbanized community with 100% of its residents served by public water, Hartford does not have an aquifer area that is either used for drinking water or in need of explicit protection. Hartford's water resources include the Connecticut River, the Park River and the small number of ponds that are scattered among the City's larger parks. It is important to continue to protect these resources for environmental and recreational purposes.

Flood control efforts along the Park River and the Connecticut River are also important components of managing Hartford's water resources. The City is continuing to address long-range flood control infrastructure issues through its Capital Improvements Plan, which includes nearly \$3.3 million in bond sales revenue for flood control projects. The City has also requested \$17 million in grant funds from the State of Connecticut for flood control projects over the next ten years.

Goals and Strategies

- Protect identified floodplains and riparian corridors by controlling development in these environmentally sensitive areas.
- Pursue the goal of improved water quality for both the Connecticut River and the Park River.
- Promote the recreational use of the Connecticut River and the Park River

through improved public access.

- Work with the State of Connecticut to evaluate expanding the Department of Environmental Protection’s Urban Fishing program to include Goodwin Park, in addition to maintaining Keney Park Pond as a location for catfish stocking.
- Support watershed management efforts for the Park River.
- Support State level legislation regulating the use of herbicide and pesticides in the maintenance of municipal grounds and facilities.
- Aggressively address the improvement and renovation of flood control infrastructure components.