

GREEN CINCINNATI PLAN

(2013)



“CINCINNATI IS A BEAUTIFUL CITY; CHEERFUL,
THRIVING, AND ANIMATED. I HAVE NOT OFTEN
SEEN A PLACE THAT COMMENDS ITSELF SO
FAVORABLY AND PLEASANTLY TO A STRANGER
AT THE FIRST GLANCE AS THIS DOES.”

*Charles Dickens,
American Notes: For General Circulation*

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INTRODUCTION

IT'S EASY TO BE GREEN IN THE CITY OF CINCINNATI (and its getting easier)

Cincinnati is a great place to live sustainably. Whether you are looking for energy from renewable sources; carless transportation; fresh, plant based local food or any other component of a green lifestyle; they are abundant and affordable in Cincinnati. The “good bones” of a city of neighborhoods and Midwestern common sense and frugality are helping Cincinnati to become one of the best places to “go green.”

Most of the City of Cincinnati was developed before shopping centers and expressways were even an idea. Cincinnati is a series of neighborhoods – most of which have their own walkable business district. So you can still walk to the post office, library, store, restaurant or even your neighborhood watering hole with just a little shoe leather (and you can go faster and further with a bike ☺).

Cincinnati also makes reusing existing - and often historic - buildings easy. Redevelopment of neighborhoods like Over-the-Rhine saves on construction and demolition waste, reduces the need for new building materials, and creates the density that promotes use of transit, bikes and walking.

Cincinnati's topography has precluded wall to wall development. Many of the City's neighborhoods are surrounded by lush greenspace perfect to explore by foot or just to get away from it all.

The City of Cincinnati provides services to facilitate the sustainable lifestyle that our neighborhoods enable. A mature bus system (complete with bike racks on every bus), a modern streetcar in the works, car sharing on the ground and a planned bike share program are making sustainable transportation easier than ever.

Eating fresh, local food is a part of Cincinnati's green life style that the city supports through historic Findlay Market, an urban agriculture program, the 10% Shift Campaign and promotion of other farmers markets and community supported agriculture (CSA).

Curbside collection of recycling and yard debris is provided by the City of Cincinnati to minimize waste sent to the land fill – making it easier to get to zero waste.

The City helps make low cost energy assessments available and helps homeowners and businesses make energy efficiency improvement through links to rebates, incentives and tax breaks. And through electricity aggregation, the power for most of Cincinnati's homes and small businesses is from 100% renewable sources.



CAR FREE IN CINCINNATI

Going car free is just one way Cincinnatians are going green. Walking, biking, buses and car share service allow Cincinnatians to get around without owning a car.



PLAN CINCINNATI

Comprehensive planning is back in Cincinnati! **PLAN CINCINNATI**, the first comprehensive plan for the city in 32 years, helps weave together important aspects of the city including housing, transportation and the environment. The Green Cincinnati Plan reflects many aspects of the award winning **PLAN CINCINNATI** – particularly three of five of **PLAN CINCINNATI**'s initiative areas – Sustain, Connect and Compete. The Green Cincinnati Plan builds on **PLAN CINCINNATI** to create an implementation framework for portions of these initiatives. References to **PLAN CINCINNATI** including the Guiding Policy Principles and to a lesser extent Guiding Geographic Principles are noted throughout this document in green.

GOING GREEN – IT HELPS ALL OF US!

Cincinnati facilitates journeys to greener lifestyles which make Cincinnatians healthier, the community healthier and our economy stronger.

HEALTH

Going Green helps make Cincinnatians healthier. Almost every aspect of the Green Cincinnati Plan helps human health – recommendations from eating more vegetables to walking and biking to improvements in air and water quality can help address critical health issues in our community such as obesity and asthma. The most recent data show Greater Cincinnati's overweight/obesity rate is 64%. Obesity is related to a wide range of life-threatening diseases, such as high blood pressure, stroke, heart disease, and diabetes. A sustainable lifestyle includes eating more local fresh vegetables, using human power instead of fossil fuel power to get from place to place, and getting active in our outdoor environment – all three can help reduce obesity.

Within Hamilton County, Ohio, one in six children has been diagnosed with asthma, a figure that increases significantly for children who live below the poverty line. Air pollution – particularly ground level ozone – can lead to asthma attacks. Ground level ozone results from the burning of fossil fuels for electricity, heat and transportation. Many of the Green Cincinnati Plan's recommendations from transportation to energy help burn less fossil fuels and improve our air quality. [\(The Green Cincinnati Plan's focus on health helps implement PLAN CINCINNATI's Guiding Policy to develop a culture of health embodied by thriving residents\)](#)

\$MONEY\$

Going green creates jobs – More jobs are created when we recycle rather than bury "waste," more jobs are created when we deconstruct buildings rather than tear them down, and more jobs are created when we make energy efficiency improvements rather than burn coal.

Going green saves money – Saving energy and reducing our waste saves money – Electricity aggregation saves the average Cincinnati household 23% on its utility bill, Energy Services Performance Contracting saves the city \$1 million/year in energy costs, and enhanced recycling is saving the City \$500,000 per year. [\(The Green Cincinnati Plan's focus on money helps implement PLAN CINCINNATI's Guiding Policy to spend public funds more strategically\)](#)

Going green attracts corporations and individuals - Being green helps our economy by maintaining and attracting talented people to our community. Folks in this “creative class” like to be green and they like to make green – they are a demographic that is highly entrepreneurial and often create new businesses and jobs. (The Green Cincinnati Plan's focus on economic development helps implement PLAN CINCINNATI's Guiding Policy to increase our population)

ENVIRONMENT

Natural resources have brought people to Cincinnati for generations. Part of sustainability is to maintain and preserve Cincinnati's hillsides, vistas, wildlife, forests, trees, waterways, and other natural features for future generations of Cincinnatians. A movement to green infrastructure such as trees and greenways to help improve Cincinnati's air and water quality also improves the aesthetics of the community and provides habitat for wildlife. Preservation of Cincinnati's natural resources creates opportunities for healthy outdoor recreation. (The Green Cincinnati Plan's focus on the environment helps implement PLAN CINCINNATI's Guiding Policy to preserve our resources and facilitate sustainable development)

A SHIFT FROM GREENHOUSE GAS EMISSIONS TO SUSTAINABILITY

In the Green Cincinnati Plan (2008), greenhouse gas reduction measures were evaluated not only by their impact on greenhouse gases but also by the economic cost or benefit of the recommendation. In many cases like the enhanced curbside recycling and energy efficiency improvements in City facilities, the reduction in greenhouse gas resulted in reductions in fuel, electricity and/or natural gas usage resulting in dollar savings for the city. The recommendations were also evaluated in terms of their sustainability – in terms of its impact on the triple bottom line – how the recommendation sustains the environment, the people, and the economy of Cincinnati.

This Green Cincinnati Plan (2013) strengthens the connection between greenhouse gas emission reductions and sustainability by focusing first on the sustainability impacts of plan recommendations while not losing track of the quantifiable greenhouse gas emissions reductions. The new plan is more intentional about acknowledging and measuring when possible the recommendations' positive effects on people's health – through improved air and water quality or more active lifestyle; people's wallets – through lower energy costs; and the flora and fauna of the greater environment.

CINCINNATI'S PRIVATE SECTOR TAKING THEIR OWN “GREEN” STRIDES

Through the efforts of organizations like the Greater Cincinnati Green Business Council and the Greater Cincinnati Building Owners & Managers Association (BOMA), Cincinnati's private sector is leading on many green initiatives including the Kilowatt Crackdown, Energy STAR buildings and the Workplace Composting Toolkit.



AWARD WINNING GREEN CITY

The accomplishments of the Green Cincinnati Plan have been recognized by groups like the Greater Cincinnati Earth Coalition, Green Energy Ohio, Ohio Environmental Council, Hamilton County Recycling and Solid Waste District, EPA's Green Power Partnership, Hamilton County Regional Planning Commission, and the American Society for Public Administration.

FIVE YEARS OF GREEN ACCOMPLISHMENTS

In 2008 Cincinnati made history by adopting its first Climate Protection Action Plan, now known as the Green Cincinnati Plan. The plan has served as inspiration for our City and also as a model for others. In 2012, the City of Los Angeles cited the Green Cincinnati Plan when passing an ordinance promoting eating less meat. Since the adoption of the plan, the City continues to make history in the implementation of the plan. Becoming the largest city in the nation to buy 100% green electricity for its citizens has helped Cincinnati reach the Green Cincinnati Plan's ambitious goals to reduce our greenhouse gas emissions by 2% per year and garnered national recognition including being highlighted by Greenpeace's Executive Director in their 2012 Fall Update. In 2013, Cincinnati was named a World Wildlife Fund Earth Hour City Challenge finalist along with San Francisco and Chicago. *(The awards received for Green Cincinnati Plan successes help implement PLAN CINCINNATI's Guiding Policy to be recognized)*

The City has made significant strides in lowering greenhouse gas emissions (GHGs) through the implementation of actions recommended by the Green Cincinnati Plan. Reducing waste landfilled was accomplished through an enhanced curbside recycling program for residents and new opportunities for food scrap composting (particularly for institutions and food processing businesses). Below are some of the highlights of the accomplishments of the first five years of the Green Cincinnati Plan and the GHGs reduced and dollars saved.

Highlights of the Green Cincinnati Plan's Accomplishments of the First Five Years	Greenhouse Gas Emissions Reduction (tons/year)	Estimated Dollars Saved per year
Green Electricity Aggregation	600,000	\$6,650,000
Food Waste Composting	18,500	\$185,000
Enhanced Recycling	16,000	\$500,000
Energy Star in Commercial Buildings	12,000	\$11,200,000
Energy Services Performance Contracts	9,000	\$1,000,000
Greater Cincinnati Energy Alliance	2,000	\$1,800,000
What's Your Green Umbrella	3,200	\$385,000
Solar on City Facilities	1,400	\$0
Green Fleet Plan	700	\$585,000
Total	662,800	\$22,305,000

THE CHANGING LANDSCAPE

The landscape for sustainability work in Cincinnati is constantly changing. Most notable is the emergence of the Green Umbrella organization as the regional sustainability alliance. By using a collective impact model Green Umbrella has facilitated linkages between more than 200 businesses and organizations committed to sustainability to improve their impact. The integration of Green Umbrella Action Teams into the process of creating this Plan has built in partner organizations that can help the City implement many of the Plan's recommendations.

Other organizations (many of which are now members of Green Umbrella) were created after the Green Cincinnati Plan was adopted in 2008. An example is the Greater Cincinnati Energy Alliance (GCEA) which has leveraged federal funding from the Department of Energy (DOE) to help with energy efficiency improvements in homes and non-profits in Hamilton, Boone, Campbell, and Kenton Counties. Other new sustainability organizations include the Greater Cincinnati Green Business Council, the Green Partnership for Greater Cincinnati and the Cincinnati Electric Car Club.

External changes have impacted the implementation of the Green Cincinnati Plan (2008) and influenced the selection of strategies for the Green Cincinnati Plan (2013). The "Great Recession" and federal response impacted greenhouse gas emissions and city budgets. The increase in domestic production of natural gas (and oil to a lesser extent) through the process known as "fracking" has had significant impacts on how our electricity is generated and strengthened the economic case for powering vehicle fleets through compressed natural gas. Even Superstorm Sandy has changed the country's perspective on climate change.

Some local changes should also be noted. In May 2008, Ohio enacted broad electric industry restructuring legislation (SB 221) containing energy efficiency requirements for investor-owned utilities. In addition to the efficiency standard, SB 221 established the Ohio Alternative Energy Portfolio Standard (AEPS), requiring utilities to obtain 12.5% of their energy for distribution from renewable resources by 2024, and an additional 12.5% of electricity from advanced resources by 2025. As of the writing of this plan, the Ohio General Assembly is considering weakening the AEPS. At the city level there is increased prioritization of sustainability. PLAN CINCINNATI, the city's comprehensive plan, has a chapter dedicated to sustainability. A priority driven budget process revealed citizen preferences for sustainable city programs.

For many sustainability practices, the needle is moving. In 2007, just being certified by the US Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) was a notable - now projects are going for the highest rating - platinum. In 2007, a 20kW installation on the Zoo's education building was a big deal - now people want to build bigger than the Zoo's 1600kW canopy. In 2007 there was no GCEA, now well over 1,800 homes have been retrofitted by them for energy efficiency.

The Green Cincinnati Plan itself has changed the sustainability landscape in Cincinnati. In the 5 years since its adoption, more than half of its 82 recommendations have been implemented. The work done to implement the Green Cincinnati Plan has helped to elevate sustainability to be one of Cincinnati's core values.



Green Umbrella

REGIONAL SUSTAINABILITY ALLIANCE

The Green Umbrella is a non-profit organization working to improve the economic vitality and quality of life in the region around Cincinnati by maximizing the collective impact of individuals and organizations dedicated to environmental sustainability.

In partnership with our area's leading planning initiatives — Vision 2015 in Northern Kentucky and Agenda 360 in Southwestern Ohio — Green Umbrella facilitates collaboration among over 200 area non-profits, businesses, educational institutions and governmental entities focused on the environmental aspects of sustainability. Green Umbrella and it's members aim to meet the environmental, social, and economic needs of today while preserving the ability of future generations to do the same.

Green Umbrella has united around the Collective Impact Model, which has produced remarkable results for the STRIVE Partnership, the collaborative that promotes innovation in our local education system. The model teaches that success requires having a common agenda, using a shared measurement system, supporting mutually reinforcing activities and maintaining continuous communication.

Green Umbrella is the "backbone organization" that helps all member organizations work better together to promote a more environmentally sustainable region.



THE GREEN CINCINNATI PLANNING PROCESS

With the shift to the broader focus of sustainability rather than climate protection, and an interest to tap into the expertise of sustainability topic experts, the Office of Environmental Quality partnered with Green Umbrella, the regional sustainability alliance for Greater Cincinnati, to develop the recommendations of the new plan. Green Umbrella is structured through topically based action teams that helped form the structure for the new plan. Chapters from the 2008 plan overlapped with four of the eight Green Umbrella action teams. The table below shows the relationships between the Green Cincinnati Plan (2008), the Green Cincinnati Plan (2013) and the Green Umbrella Action Teams.

2008 Green Cincinnati Plan	2013 Green Cincinnati Plan	Green Umbrella Action Teams
Transportation	Transportation	Transportation
Energy	Energy Efficiency	Energy Efficiency
	Renewable Energy	Renewable Energy
Waste	Waste	Waste
Land Use	Land Use	
Advocacy		
Food	Food	Local Food
	Land Management	Land Management
	Water	Water
	Outdoor Recreation and Nature Awareness	We Go Outdoors
	Adaptation	

More than 200 members of Green Umbrella Action Teams and other interested individuals participated in the drafting of the new Green Cincinnati Plan (2013). City staff led each of the Green Umbrella Action Teams (and other interested individuals) through a strategic planning process that included four meetings. The sequence of meetings started with a brainstorming session which led to a second meeting of evaluation and prioritization. The third meeting refined the recommendations and finally the action team reviewed and finalized draft chapters of the plan at a fourth meeting.

Leadership for this effort was provided by a Steering Committee that reviewed the plan and suggested improvements. The Steering Committee was selected to include broad representation from the public, private and civic sectors as well as sustainability topic experts. The Steering Committee helped shape the plan process including the partnership with Green Umbrella. As the plan neared completion, the Steering Committee held a charrette to finalize the recommendations in the plan.

IMPLEMENTATION

The Green Cincinnati Plan (2013) includes a commitment to implementation. To ensure that we implement and reach Cincinnati's goals, the City is taking a three pronged approach. First, the City will continue to lead by example by greening government operations and looking for efficiency gains that save the City money. Second, the City will green its services. Whenever it is practical to increase the sustainability of the services the city delivers to its citizens - be it waste management or transportation infrastructure - the City will implement such improvements. Third, Cincinnati is full of businesses, non profits and other institutions that play a key role in moving Cincinnati toward sustainability. Many times these entities can help accomplish sustainability measures that are not well suited for City implementation. The City will partner with these entities and promote their initiatives.

Some specific implementation actions are also necessary to move the City forward down its path to sustainability. First, the Office of Environmental Quality should be rebranded as the Office of Sustainability. Sustainability has become a core value in Cincinnati. It plays a prominent role in **PLAN CINCINNATI**, and in the City's Priority Driven Budgeting effort, but it does not appear in the City's organizational chart. Rebranding OEQ will provide sustainability with a high profile home within City government. Second, to strengthen the reach of the new Office of Sustainability, a cross functional sustainability team should be formed. Modeled after other successful teams that cut across City functions like the Strategic Program for Urban Redevelopment (SPUR) Team and Energy Management Team, the sustainability team will help sustainability become a citywide initiative and accelerate progress on plan implementation. Finally, the Office of Sustainability should create a foundation modeled after the Parks Foundation to help implement recommendations of this plan that need financial resources outside of traditional government funds.

MEASUREMENT

The City will also use metrics to measure the progress of this plan. Many of the metrics are derived from the Green Umbrella 2020 Goals:

CLIMATE PROTECTION: Reduce Greenhouse gas emissions 2% per year, achieving a 24% reduction from 2006 levels.

RENEWABLE ENERGY: Double the local production of renewable energy each year.

ENERGY CONSERVATION & EFFICIENCY: Reduce the total energy consumption in the built environment by 15%.

TRANSPORTATION: Reduce the use of gasoline and diesel as motor fuels by 20%.

WASTE REDUCTION: Reduce waste disposed in the residential/commercial sector by 33% as we transition to "zero waste".

LAND MANAGEMENT: Increase the acreage of high quality greenspace by 10%.

LAND USE: Increase the population in urban core neighborhoods, and within

walking distance of neighborhood business districts, by 2% per year.

FOOD: Double the percent of fruits and vegetables sourced and consumed within our region.

WATER: Protect, enhance and celebrate all streams, rivers and other water resources by making a measurable improvement in 75% of them.

OUTDOOR RECREATION & NATURE

AWARENESS: Increase participation in recreational and educational activities, events and venues that get people outdoors into nature by 20%.

ADAPTATION: No increase in the number of heat related hospital admissions. No increase in the average annual dollar value of storm damage.

A BIT ABOUT THE ORGANIZATION OF THE CITY

To the average citizen the City is a monolith where all things "Cincinnati" are housed. The realities of the organization are filled with complexities and nuance. Significant functions that the average Joe might think are controlled by the city - the Metro bus system, Cincinnati Public Schools and Cincinnati Metropolitan Housing Authority- have significant impact on the City but are governed by separate boards.

Even within City operations, a significant distinction exists between General Fund and Enterprise Fund departments. Greater Cincinnati Waterworks (GCWW) is a City department with regional scope. The Metropolitan Sewer District (MSD) of Greater Cincinnati is owned by Hamilton County but the City provides management of MSD's daily operations. Smaller enterprise functions include the convention center and the parking system. Finally, other city functions (Health, Parks, & Recreation), though funded in part through the City's general fund, are governed by independent boards. These complexities and nuance are important to consider when thinking about how the City can bring sustainable practices to government, public services, and the larger community.



GREEN CINCINNATI PLAN FORMAT

Each chapter of the Green Cincinnati Plan addresses one of the major focuses of urban sustainability. A consistent format is used throughout the plan to ensure readers are easily able to understand and find the information they seek. Each chapter is organized into three sections: an introduction, a list of recommendations and an implementation matrix. A detailed description of each of the individual recommendations included in each chapter is found in Appendix 1. Below are descriptions of each of these sections:

INTRODUCTION

The two-page introduction at the beginning of each chapter serves as a preface for the rest of the chapter. As more detailed descriptions of each recommendation are included in the appendices, the introduction paints a picture of how all the recommendations come together under the main focus of the chapter. Readers without in-depth knowledge on the topic of the chapter are encouraged to first read the introduction because it provides a brief overview and the benefits associated with each recommendation. The information in the introduction can help the reader identify which recommendations they are most interested in reading in order to get more in depth specifics.

LIST OF RECOMMENDATIONS

The list of recommendations provides a compact statement of the chapter's substantive content. This section is useful for all readers to understand the order of the recommendations in the chapter so they can be easily found for further details. The list of recommendations can also be useful for those readers familiar with the topics discussed in the chapter because it allows the reader to go straight to the recommendation they are interested in learning about.

DESCRIPTION OF INDIVIDUAL RECOMMENDATION (APPENDIX 1)

The description of each individual recommendation is the section of the Green Cincinnati Plan where readers will have access to specific details relating to each recommendation. This section is especially useful for those readers not familiar with the specifics or technicalities for each recommendation. Each description of an individual recommendation has the same format, regardless of the chapter the recommendation is included under. The format is as follows:

- Brief description of recommendation
- Reason recommendation is important to Cincinnati
- Current examples, strategies or resources for recommendation
- Recommendation's effect on greenhouse gas emission
- Organizational roles: leadership, partnerships, etc.
- City of Cincinnati's role in initiation of recommendation
- Potential obstacles
- Cost
- Additional positive impacts of recommendation
- Timeline for implementation

Appendix 1 can be found online at www.cincinnati-oh.gov/oeq/

GREEN CINCINNATI PLAN STEERING COMMITTEE

The Green Cincinnati Plan Steering Committee provided strategic direction on the development of the Green Cincinnati Plan. They participated in monthly sessions with OEQ Staff to review and further develop strategies from each Green Umbrella Action Team. Steering Committee members include experts and knowledgeable individuals working in all facets of the Green Cincinnati Plan topics. Below are the participating members of the Steering Committee and the organizations with which each member is affiliated:

NAME	COMPANY	AFFILIATION
Susan Brownknight	LADD	Blue/Green Alliance
Holly Christmann	Hamilton County Recycling and Solid Waste District	Hamilton County
Vicki Ciotti	Civic Garden Center	Civic Garden Center
Ann Dougherty	Xavier University	Xavier University
Jen Eismeier	Mill Creek Watershed Council of Communities	Mill Creek Watershed Council of Communities
Melissa English	Ohio Citizen Action	Ohio Citizen Action
Mark Fisher	Cincinnati Zoo & Botanical Gardens	Cincinnati Zoo & Botanical Gardens
Eric Gruenstein	University of Cincinnati	At-large
Scott Hassell	CBRE/Fifth Third Bank Account	Greater Cincinnati Green Business Council
Shawn Hesse	Emersion Design	USGBC - Cincinnati
Sallie Hilvers	Metro	Metro
Andy Holzhauser	Greater Cincinnati Energy Alliance (GCEA)	GCEA
Janelle Lee	Uptown Consortium	Uptown Consortium
Brad Mank	University of Cincinnati	Environmental Advisory Council
Beth McGrew	University of Cincinnati	University of Cincinnati
Sam McKinley	Sustainable Places Studio, LLC	Sierra Club
Mary Miller	Jancoa	BOMA Greater Cincinnati
Tyra Oldham	LAND sds	At-large
Laure Quinlivan	City of Cincinnati	Cincinnati City Council - Chair
Brewster Rhoads	Green Umbrella	Green Umbrella
Paul Shirley	GBBN/CPS	American Institute of Architects
Mary Stagaman	Agenda 360 c/o Cincinnati USA Regional Chamber	Agenda 360
John Stowell	Duke Energy Corporation	Duke Energy
Charles Tassell	Greater Cincinnati Northern Kentucky Apartment Association (GCNKAA)	GCNKAA
Icy Williams	National Sustainability Coalition	National Sustainability Coalition



ENERGY EFFICIENCY

"Because the cleanest power plant is the one that is never built, we believe that energy efficiency is the greatest untapped resource in reducing greenhouse gases in the near term." – Duke Energy

"Cincinnati sees energy efficiency as an important way to strengthen our bottom line, cutting energy waste from the budget. Last year the City undertook upgrades of more than 69 of our municipal facilities, saving more than \$1 million on annual operating costs." – Mayor Mark Mallory

GREATER CINCINNATI ENERGY ALLIANCE (GCEA)

GCEA has helped retrofit over 1,700 homes and done \$4 million in commercial projects in Greater Cincinnati saving thousands of tons of greenhouse gas emissions. By focusing on air sealing and insulation, GCEA helps homeowners get the biggest bang for their buck on energy efficiency improvements.



DISTRICT HEATING & COOLING

Two district cooling plants provide chilled water for part of downtown Cincinnati. These plants provide chilled water under the streets of Cincinnati through a network of large pipes. The plants use economies of scale to increase energy efficiency.

Energy efficiency is a cornerstone of the Green Cincinnati Plan. Anyone from a child, to a homeowner, to a sustainability coordinator at a Fortune 500 company, can help Cincinnati on its sustainable path through energy efficiency measures. Because no-cost behavior changes can save energy and money, taking a first step – turning the lights out when you leave a room, line drying clothes, or washing clothes in cold water – can lead to bigger investments in energy efficiency. For many, shaving utility bills with these little changes leads to the money and the motivation to take the next steps – energy efficient lighting, programmable thermostats, insulation, and more. Evaluations of energy efficiency and renewable energy programs show \$3 to \$4 in benefits from every \$1 invested. The savings from these modest investments flow right into an energy audit and retrofit that can save significant dollars for the lifetime of a home. Then these savings can be directed to larger investments, such as a ground source heat pump or solar panels, that when combined with energy efficiency improvements can quickly lead to a net-zero energy home or business.

OVERVIEW

Many of the recommendations in this chapter focus on making residential energy efficiency easier than ever. From basic awareness, to a marketing campaign, to a one stop shop where all incentives and financing alternatives can be tailored to a homeowner's specific situation, to establishing local incentives that can make energy efficiency investments even more of a "no brainer," the Green Cincinnati Plan aims to have every house in Cincinnati saving money by using less energy.

The City of Cincinnati has a diverse makeup of buildings in which Cincinnati residents live. There are many ways to effectively incorporate energy efficient techniques into all housing situations, including retrofits for multi-family houses and low-income weatherization assistance. Retrofitting can result in improved cash flow for owners, healthier living environments for residents, higher quality assets for investors and job opportunities for the community.

Not only do these recommendations benefit citizens living in Cincinnati, but also businesses in the city and region. Our commercial and industrial sector is on the path to sustainability. However, helping the commercial and industrial sector to make these changes faster is a challenge for Greater Cincinnati. Initiatives like the Green Business Council of Greater Cincinnati's embrace of the EPA's Energy Star Portfolio Manager are helping individual businesses save energy and money and putting Cincinnati on the map as a place where existing green businesses expand and new green businesses are created. Just as the commercial sector is using Portfolio Manager implementation as a tool to increase energy efficiency, on the residential side, greater building performance disclosure is key to driving better efficiency choices and properly promoting green buildings to their full value.

As Cincinnati's commitment to sustainability attracts more businesses and residents, they will be building new structures that the City wants to make sure are as green as possible. The existing LEED tax abatement helps many decision makers build energy efficient buildings, but further incentives to help all new buildings integrate the thinking of the latest energy and building codes are needed. Recent examples of new green construction include Usquare@ the Loop and The Banks.

One of the simplest ways to gain efficiency in heating and cooling is to use the constant temperature of the subsurface. Ground source heat pumps are a good investment for our climate and soils. The City can also reward green developments with an expedited permitting process.

BENEFITS OF BEING GREEN

In addition to saving money and reducing greenhouse gases, increasing energy efficiency will help improve health in the region. Since the majority of our electricity comes from burning coal which impacts our air quality, using less electricity can improve the air we breathe. Home energy audits can also identify problems with indoor air quality such as carbon monoxide leaks.

Energy efficiency also means local jobs and more disposable income. The Greater Cincinnati Energy Alliance (GCEA) is an example of a local organization working to improve energy efficiency and the local economy. Hundreds



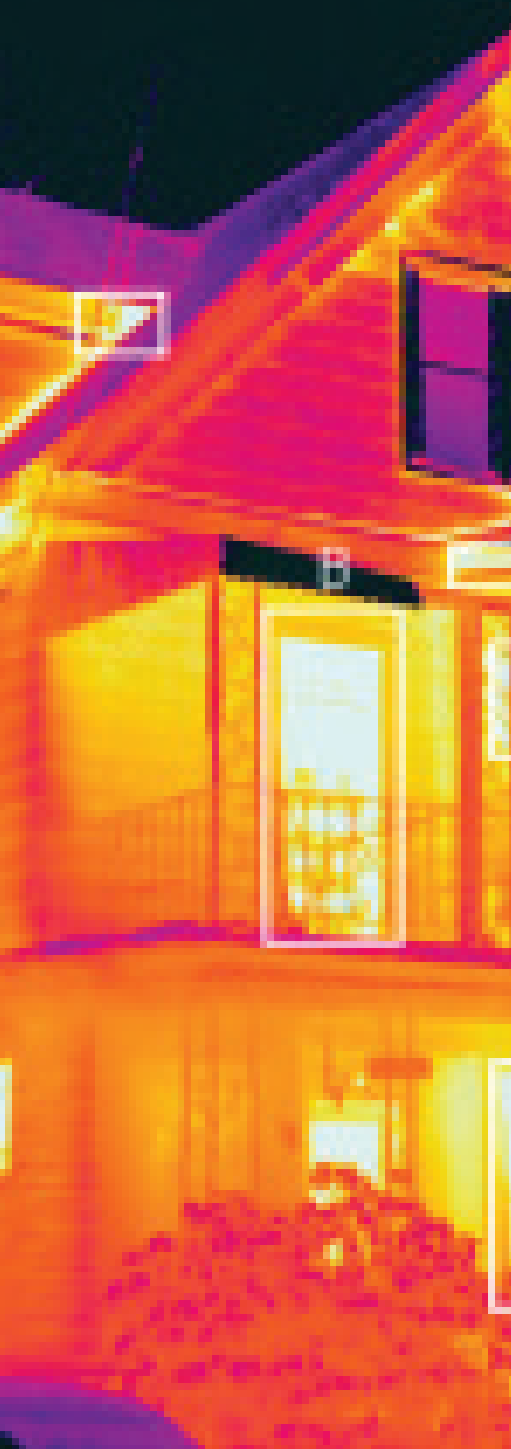
PROGRAMMABLE THERMOSTATS

Programmable thermostats are one of the easiest ways to save energy and money. The latest generation of programmable thermostats can even be controlled by your smart phone!



NET ZERO ENERGY HOMES

Potterhill Homes is a local neighborhood developer that has built net-zero residences by using energy efficiency techniques and renewable energy methods such as solar panels and ground source heat pumps.



of jobs for Cincinnatians have been created by GCEA through facilitating investment in energy efficiency for homeowners, non-profit organizations, and commercial building owners through outreach and education, project management, and financing solutions.

Cincinnati is a city that knows its history - the heritage of immigrants that understood the importance of frugality and cost savings is in the city's bones. This culture of our forefathers is still embedded in the city today, making it only natural that Cincinnati be on the forefront of leading the country in creating and implementing strategies to save money through energy conservation and efficiency.

GREEN CINCINNATI PLAN (2013) ENERGY EFFICIENCY RECOMMENDATIONS

Cincinnati identified energy efficiency strategies with help from the Green Umbrella Energy Efficiency Action Team. Those strategies that were prioritized highly, have significant sustainability impacts, and were most pertinent to the City of Cincinnati include:

1. Closed Loop Ground Source Heat Pumps for New Construction
2. Green Permitting
3. Building Performance Disclosures
4. Marketing of Energy Efficiency to Residents and Businesses
5. Renewed Focus on Commercial/Industrial Efficiency Efforts
6. Existing Construction Energy Efficiency Tax Abatement

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

The four Green Umbrella metrics for energy efficiency are energy intensity per capita, energy intensity per \$1,000 of GDP, number of LEED certified projects, and number of Energy Star certified buildings. The Green Umbrella goal for energy efficiency is to reduce the total energy consumption of the built environment by 15% by 2020. Achieving this goal would reduce CO2 emissions by 568,000 tons CO2e.

ENERGY EFFICIENCY IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>1 Ground Source Heat Pump – pass ordinance mandating GSHP for City projects</p> <p>2 Green Permitting – maintain green training for Planning and Buildings</p>	<p>2 Green Permitting – maintain green training for Planning and Buildings</p>	<p>1 Ground Source Heat Pump – include GSHP as option for meeting efficiency standards in update building code</p> <p>2 Green Permitting – maintain green training for Planning and Buildings</p>
CITY PARTNERS	<p>4 Marketing of Energy Efficiency – leverage industry marketing (Efficiency First, Dow, etc.)</p> <p>5 Commercial/Industrial focus – promote commercial/industrial incentives (Duke Energy)</p> <p>5 Commercial/Industrial focus – Create commercial PACE program (GCEA, Port Authority)</p>	<p>4 Marketing of Energy Efficiency – leverage industry marketing (Efficiency First, Dow, etc.)</p> <p>5 Commercial/Industrial focus – promote commercial/industrial incentives (Duke Energy)</p> <p>6 Existing Construction Tax Abatement – implement LEED changes into existing CRA tax abatement (USGBC)</p>	<p>4 Marketing of Energy Efficiency – leverage industry marketing (Efficiency First, Dow, etc.)</p> <p>5 Commercial/Industrial focus – promote commercial/industrial incentives (Duke Energy)</p>
CITY SUPPORTS	<p>1 Ground Source Heat Pump – promote use of GSHP (Efficiency First, USGBC)</p> <p>3 Building Performance Disclosure – system for green MLS (Green Umbrella Action Team)</p> <p>4 Marketing of Energy Efficiency – enhance GCEA one-stop-shop (GCEA)</p>		



CITY LEADS ON SOLAR INSTALLS

In 2012 the City of Cincinnati installed its 20th solar power system. The system is located on the roof of the College Hill Recreation Center.



MACY'S SOLAR

Macy's (headquartered in Cincinnati) was the fifth largest commercial user of solar energy in the U.S. according to the Solar Energy Association.

RENEWABLE ENERGY

The Ohio River is a touchstone for Cincinnati's development and is one of the signature images for the City. The banks of the Ohio River are also home to most of the region's electric generation plants. By providing inexpensive access to coal and a source of cooling water, the Ohio River is an ideal location for these plants. Through the use of "scrubbers" and other pollution control equipment, the impact of these plants on Cincinnati's air quality has been reduced. However, they continue to have the largest impact on air emissions (including mercury, fine particulates, ozone precursors, and greenhouse gases), generate tons of fly- ash waste, and impact water quality. Renewable energy - primarily solar, wind, biomass, and hydro - offers Cincinnati an opportunity to create local jobs and reduce the region's reliance on coal fired power plants. Although parts of Ohio that are located near Lake Erie are better suited for harnessing wind power, Cincinnati is a good location for solar. In fact, the country with the most solar electricity production is Germany. When compared to Germany, Cincinnati has more potential to make electricity from the sun (more southern latitude, and fewer average hours of cloud cover per year).

Today, the most challenging aspect of solar photovoltaic installations is around financing projects rather than the technology of converting the sun's energy to electricity. To help lower Ohio's dependence on fossil fuels, the General Assembly passed a bill to require utilities to use more renewable power (called the Renewable Portfolio Standard (RPS) Senate Bill 221 revised by SB 315). A financing tool called Solar Renewable Energy Credits (or SRECs) was created to help utilities meet the renewable energy goals. Federal tax credits and a State of Ohio grant program helped make solar a "no-brainer" for many businesses and residents. But these financing tools were fleeting. The Great Recession caused the grant program to shift to a loan program, and a change in the definition of the types of renewable energy eligible for "energy credits" led to less value for these credits - negatively affecting the financials of solar projects. Even the federal credits are set to expire at the end of 2016.

Despite these challenges, under the right circumstances, solar energy projects make economic sense right now in Cincinnati. The cost of installing solar has dropped sharply from \$9/watt a few years ago to less than \$3/watt today. Combined with a 30% federal tax credit and special financing programs, solar projects can be built with no up-front investment and positive cash flow.

OVERVIEW

In order to increase awareness regarding the benefits of renewable energy in our region, residents need to know where the City's energy is currently coming from. Making residents more conscious of the City's reliance on coal as a main source of generating electricity, will help show the need to invest more in renewable energy sources.

Once the region is aware of the need for renewable energy projects, there needs to be lobbying of the State of Ohio to strengthen and support the market for renewable energy projects, especially solar projects. The use of solar energy in Cincinnati is growing rapidly. If current market conditions can be maintained or improved, solar use will continue to ramp up.

As renewable energy projects become more attractive to residents, investors and businesses in the region, the identification and promotion of financing tools to back these projects is essential. In order to become a leader and innovator in renewable energy, there needs to be an abundance of available financing tools to help those interested have a way to afford the renewable energy projects. Financing for renewable energy is challenging for most interested parties and is often the greatest hurdle to starting a renewable energy project. Cincinnati plans to work with interested parties to lessen this obstacle and encourage investment in renewable energy.

Cincinnati has already used power purchasing agreements to complete several solar projects on City buildings. The City and others that have used solar power purchase agreements can show others how to take advantage of this financing tool.

Shared solar is often used as an efficient and simple opportunity to address some of the common issues faced by solar generators. Virtual net metering allows a customer to assign the net production from their solar panels to other metered accounts that are not physically connected to that generator.

Finally, converting organic wastes like sewage sludge and food wastes to energy is another potential source of renewable energy. Anaerobic digesters are one way to take this organic waste and convert it to natural gas which can be used to generate electricity or fuel motor vehicles.

BENEFITS OF BEING GREEN

Most renewable energy strategies can help reduce energy costs for the City and its residents if properly implemented. Not only will residents be saving money, but by using renewable energy techniques, they will have environmentally friendly energy sources and reduce the region's reliance on fossil fuels. Renewable energy strategies will improve quality of life for people living in the region and stir economic growth as renewable energy projects are started, creating local jobs. When it comes to renewable energy, Cincinnati will look to the sun.



GREEN POWER AGGREGATION

The solar canopy at the Cincinnati Zoo & Botanical Gardens provides some of the "green" power that Cincinnati residents and businesses purchase as part of an electricity aggregation program.



GREEN CINCINNATI PLAN (2013)

RENEWABLE ENERGY RECOMMENDATIONS

With help from the Green Umbrella Renewable Energy Action Team, Cincinnati identified five renewable energy strategies that are prioritized high, have significant sustainability impacts, and are most pertinent to the City of Cincinnati.

1. Educate the Public About How the Region's Electricity has Historically Been Generated and the Transition from Fossil Fuel toward Renewable Energy Generation.
2. Lobby State of Ohio to Strengthen the Market for Solar Projects
3. Identify and Promote Other Renewable Energy Financing Tools
4. Expand Solar Power Purchase Agreement – more solar on city facilities and share experiences so other government entities can use.
5. Use Virtual Net Metering to Allow for Shared Solar Projects
6. Anaerobic Digestion, or other technologies to convert biomass to energy

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

Three Green Umbrella metrics for renewable energy are total megawatts (MW) of renewable energy capacity installed, new MW of renewable generation capacity, and number of new renewable energy installations. This information is tracked by the Public Utilities Commission of Ohio (PUCO) under the SB221 Energy & Environment Approved Facilities Report. The Green Umbrella goal for renewable energy is to double the production of renewable energy each year through 2020.

GREENHOUSE GAS IMPACTS

According to egrid, Cincinnati's electricity generating portfolio emits approximately 1 ton of CO₂ per megawatt hour. Since electricity generated by solar panels emits zero tons of CO₂ per megawatt hour, each megawatt hour of solar electricity reduces the emission of a ton of CO₂. If we assume that through the recommendations in this chapter, twenty percent of businesses and households have installed solar systems by 2028, Cincinnati could reduce its emissions of CO₂ by approximately 200,000 tons per year.

	Total (est.)	Twenty percent	Average PV system (kw)	Total CO ₂ removed (tons)
Residences	150,000	30000	4.4	132000
Businesses	15,000	3000	22.0	66000
Total				198000

RENEWABLE ENERGY IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>2 Virtual Net Metering - agreements with city electric providers to allow virtual net metering inside city government</p> <p>3 Promote Financing Tools - Pass Commercial PACE ordinance</p> <p>3 Promote Financing Tools - Include new tool in 2nd round of aggregation and/or city electric contract</p>		
CITY PARTNERS	<p>1 Lobby State of Ohio - Protect RPS from legislative action (Green Umbrella, Ohio USDN)</p> <p>4 Electricity Generation Awareness (Green Umbrella, GCEE)</p> <p>5 Power Purchase Agreements - Share with CPS, CMHA, Library</p> <p>6 Anerobic Digestion - partner with Compost Cincy to bring to city.</p>	<p>1 Lobby State of Ohio - Strengthen RPS when it expires in 2016 (Green Umbrella, Ohio USDN)</p> <p>2 Virtual Net Metering - lobby PUCO to include provisions (Green Umbrella, Ohio USDN)</p> <p>4 Electricity Generation Awareness (Green Umbrella, GCEE)</p> <p>5 Power Purchase Agreements - Share with Hamilton County, OKI</p>	<p>1 Lobby State of Ohio - push for more solar in building code (Green Umbrella, Ohio USDN)</p> <p>4 Electricity Generation Awareness (Green Umbrella, GCEE)</p>
CITY SUPPORTS	<p>3 Promote Financing Tools - (Green Umbrella)</p>		



WAY TO GO METRO*

Since early in 2013, Metro has been working on the development of a short-term and long-term transit improvement plan. Metro collected feedback through public meetings, telephone research, on-board surveys, ridership tracking by bus stop, regional travel pattern analysis, and on-line and written surveys to assure that the plan reflects the needs and wants of the community.



ZIPCAR

Zipcar is a car sharing service that gives people access to a car when they need it without all the hassles of ownership. Those who use car sharing tend to use more transit and walk and bike more.

TRANSPORTATION

Transportation has played a key role in Cincinnati's history. From early settlers' journey down the Ohio, to steamboats and canals, to today's highways and railroads, accessibility has been important to the founding, growth, and development of the city.

The people of Cincinnati are constantly on the go. This means the decision of how to go from place to place is part of their every day routines and essential to the flow of their lives. This chapter of the Green Cincinnati Plan aims to build a more effective and efficient transportation system in Cincinnati that offers transportation choices that are healthy for people, the environment, and pocketbooks.

OVERVIEW

The easiest way to make people healthier is by replacing trips that burn gasoline and diesel with trips that burn calories – by walking and biking. Not only does this modal shift reduce air pollution, fuel consumption, and save money, but it also helps fight the obesity and related diabetes epidemics and results in better cardiovascular fitness.

Queen City Bike, in cooperation with the City of Cincinnati's Department of Transportation and Engineering, is leading a biking renaissance in the city. The transportation program Safe Routes to Schools is helping to make improvements to the pedestrian network so school children and the greater community can safely get to their destination – be it school, the grocery store, etc. The Green Cincinnati Plan recommends that the City continue to implement its Bike Plan, improve pedestrian connectivity, and support Queen City Bike's bike commuter program.

Shifting away from the method of one person per car (also known as a Single Occupancy Vehicle, "SOV") can make transportation more efficient. Shifts to transit of all kinds from vanpools to buses to streetcar and to rail – means more people moved per gallon of fuel. Ensuring all these transportation modes are interconnected is also essential to creating a regional transportation system that is easy for residents to use.

Becoming more efficient in our trips – more people per car, combining trips, traffic signal optimization, up-to-date maintenance of vehicles, investing in higher mileage vehicles and electric vehicles – is also important to making transportation in our city more effective.

Transportation between Cincinnati and other cities can be more sustainable by using intercity modes such as trains or buses. Freight, too is an aspect of transportation where rail has an advantage over truck when it comes to fuel used per ton of goods transported.

Alternative fuel options listed in the recommendation for the City's fleet are important to ensuring the City is using fuel efficient methods and helping to reduce emissions. Whenever possible, city vehicles including pickup trucks, off-road equipment, police cruisers, and administrative sedans should be replaced with more fuel efficient or alternative fuel vehicles.

BENEFITS OF BEING GREEN

Increasing the number of residents riding bicycles or using public transit will help decrease the amount of traffic on our city's roadways. This means less congestion when traveling and an increase in the lifespan of roads, decreasing the amount spent on construction maintenance.

Greenhouse gas emissions are also significantly reduced as people use alternative modes of transportation and reduce reliance on SOVs. This will help improve air quality in the region, reduce smog, and reduce health issues related to poor air quality.

Health benefits that result from biking and walking include lower blood pressure, reduced hypertension, and less obesity. Increasing pedestrian connectivity will help increase the probability people will choose to walk instead of using another mode of transportation. This recommendation also will help increase safety for pedestrians and make the city more pedestrian friendly.

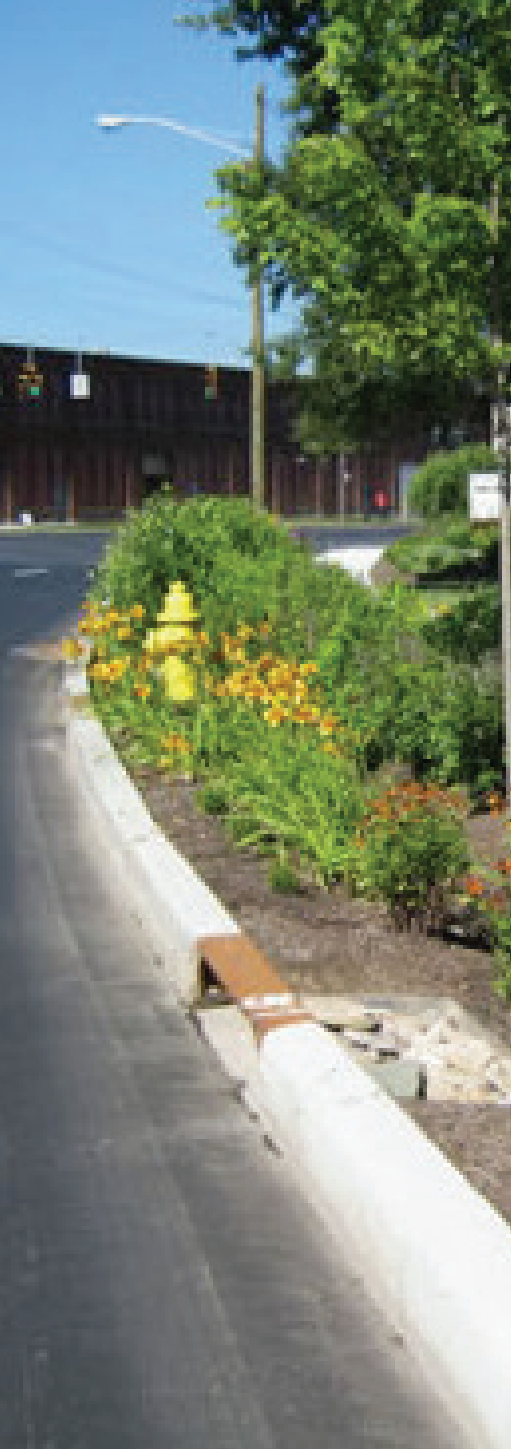
After housing, transportation is the second-highest household expense for most families. There are several recommendations which reduce reliance on a car and show the economic benefit that can result from this change. By relying on bicycling or public transit, households can reduce their transportation expenses, freeing up money for other things.

As transportation has always played a key role in the success and growth of Cincinnati, it is time for Cincinnati to increase its focus on strategies in and around the city that create a more efficient, effective, and easily accessible transportation system.



BIKE NETWORK

The City's bike plan calls for an expanded network of trails, lanes and paths to connect all parts of the city - making biking a safer, viable mode of transportation



GREEN CINCINNATI PLAN (2013)

TRANSPORTATION RECOMMENDATIONS

With help from the Green Umbrella Transportation Action Team, Cincinnati identified twelve transportation strategies that were prioritized as high, had significant sustainability impacts, and were most pertinent to the City of Cincinnati.

1. Develop and Implement a Regional Transit Plan
2. Preserve right-of-way for transit improvements (I-75, I-71, Wasson, Subway, Riverfront Transit Center)
3. Implement short-term transit plans
4. Continue Implementation of City's Bike Plan
5. Best in Class Commuter Biking Plan
6. Freight Rail Network Improvements (Freight and passenger rail impacts)
7. Enhance intercity transit (Amtrak, Midwest Regional Rail, 3C Rail, Greyhound, Megabus)
8. Improve pedestrian connectivity (sidewalks, trails and signals)
9. Interconnect modes of transportation
10. Traffic Signal Optimization
11. City Fleet Fuel Efficiency
12. Expand Incentives for Electric Cars

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

The five Green Umbrella metrics for transportation are gallons of gas and diesel sold in the region, number of electric, hybrid and alternative vehicles sold in the region, public transit riders, means of transportation to work and number of people commuting by carpool. The Green Umbrella goal for transportation is to reduce the consumption of gasoline and diesel as motor fuels by 20% by 2020. Achieving that goal in the City will reduce CO2 emissions by 360,000 tons per year CO2e.

GREENHOUSE GAS IMPACTS

The transportation sector emits the second largest quantity of greenhouse gases, behind the emissions from the building sector. The 2009 City of Cincinnati's greenhouse gas inventory calculated the emissions from the community's transportation sector to be 1.8 million metric tons of CO2 equivalents. The largest potential impact on this figure comes from the increased fuel economy standards for cars and trucks. Reducing the number of commuters who travel alone by vehicle from the current rate of 71 percent to 51 percent by adopting the best practices of our peer cities in carpooling, transit, walking, biking, and telecommuting can reduce overall transportation emissions by 2 percent. An additional 2 percent reduction in emissions can be achieved by switching 10 percent of the relatively short distance personal errands and school trips to walking and biking.

TRANSPORTATION IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>2 Preserve Right-of-Way for Transit Improvements - Wasson Line Interim Development Control (IDC) Overlay District and complete Wasson Line Land Use Study (P&B)</p> <p>3 Implement Short Term Transit Plans build streetcar</p> <p>4 Continue Implementation of City's Bike Plan Bike share (DOTE)</p> <p>8 Improve Pedestrian Connectivity - adopt "complete street" manual (DOTE)</p> <p>10 Traffic Signal Optimization - ongoing see capital budget (DOTE)</p>	<p>2 Preserve Right-of-Way for Transit Improvements Purchase Wasson Line</p> <p>4 Continue Implementation of City's Bike Plan (DOTE)</p> <p>7 Enhance Intercity Assets - revisit rail recommendations after 2014 gubernatorial election (OEQ)</p> <p>8 Improve Pedestrian Connectivity - incorporate pedestrian considerations in maintenance and new facilities (DOTE)</p> <p>10 Traffic Signal Optimization - ongoing see capital budget (DOTE)</p>	<p>4 Continue Implementation of City's Bike Plan (DOTE)</p> <p>6 Freight Rail Network Improvements - build Museum Center siding (DOTE)</p> <p>8 Improve Pedestrian Connectivity - incorporate pedestrian considerations in maintenance and new facilities (DOTE)</p> <p>10 Traffic Signal Optimization - ongoing see capital budget (DOTE)</p>
CITY PARTNERS	<p>1 Regional Transit Plan (RTP) - RTP "Super Committee" created Fall 2013 (Multiple - OKI, Green Umbrella, Metro, etc.)</p> <p>8 Improve Pedestrian Connectivity - work with safe routes to schools (SR2S) on missing pedestrian links and operational issues like signal timing</p> <p>11 City Fleet Fuel Efficiency - RFP for CNG fueling (DPW, Clean Fuels Ohio, CNG providers)</p> <p>12 Expand Incentives for Electric Cars - install charging stations at select locations (Duke Energy, Parks, 3CDC)</p>	<p>1 Regional Transit Plan (RTP) - RTP completed Fall 2015 (Multiple - OKI, Green Umbrella, Metro, etc.)</p> <p>1 Regional Transit Plan (RTP) - RTP recommendations adopted into OKI LRTP Fall 2016 (OKI)</p> <p>6 Freight Rail Network Improvements - incorporate rail recommendations into constrained LRTP (OKI)</p> <p>6 Freight Rail Network Improvements - build Hopple Street Passing Track and Crossovers (railroads)</p> <p>11 City Fleet Fuel Efficiency - Build CNG fueling & purchase CNG vehicles (DPW, Clean Fuels Ohio, CNG providers)</p> <p>12 Expand Incentives for Electric Cars install charging stations at select locations (Duke Energy, Parks, 3CDC)</p>	<p>1 Regional Transit Plan (RTP) - First capital project begins 2017 (Metro)</p> <p>11 City Fleet Fuel Efficiency - continue to purchase CNG vehicles (DPW, Clean Fuels Ohio, CNG providers)</p> <p>12 Expand Incentives for Electric Cars install charging stations at select locations (Duke Energy, Parks, 3CDC)</p>
CITY SUPPORTS	<p>1 Regional Transit Plan - Metro Way to Go Plan released Spring 2013 (Metro)</p> <p>3 Implement Short Term Transit Plans implement MetroPlus and uptown transit district (Metro)</p> <p>5 Best in Class Commuter Biking Plan (Queen City Bike and Cincinnati Bike Center)</p> <p>7 Enhance Intercity Assets - promote Amtrak, Megabus and Greyhound.</p> <p>9 Interconnect Modes of Transportation - support new metro route 1 (Metro)</p>	<p>7 Enhance Intercity Transit - promote Amtrak, Megabus and Greyhound.</p> <p>9 Interconnect Modes of Transportation - support bike lockers near Greyhound/Megabus/ Union Terminal (Museum Center 3CDC?)</p>	<p>7 Enhance Intercity Assets - promote Amtrak, Megabus and Greyhound.</p>



RECYCLING SUCCESS!

Several Green Cincinnati Plan recommendations were completed in the first five years of the plan increasing recycling by 6,000 tons per year and saving the city \$1 million/year!



COMPOSTCINCY

Compost Cincy's mission is to divert as much food, yard and organic waste from the landfill as possible and transform it into compost products for gardens, construction projects, and stormwater management.

REDUCING WASTE

There is nothing like driving down the streets of Cincinnati and seeing recycling carts dwarfing garbage cans – it sends a message that the City is serious about reducing waste. Imagine what kind of message would be sent if there wasn't a garbage can at all? Cincinnati's goal is to reduce landfilled waste to zero. The following recommendations will set the foundation to creating a city with minimal waste.

The City of Cincinnati's enhanced recycling program shows that when the city sets up a system that makes it easy for citizens to decrease their waste, the citizens respond. Replacing the weekly collection of small recycling bins with a biweekly collection of larger wheeled carts with lids has increased the amount city residents recycle by 50 percent! – It is easy to go green in Cincinnati!

With the right systems in place, most so-called waste materials are actually valuable resources. From organics collection (yard debris and food scraps), to cart based trash service, to a more formal system of handling obsolete electronics, the waste chapter of the Green Cincinnati Plan outlines the steps needed to continue on a path toward zero-waste.

OVERVIEW

Many people respond to better systems that help make it easy to reduce waste. To expand the percentage of people taking advantage of these systems requires ongoing awareness and education efforts. The Green Cincinnati Plan recommends that a “best in class” marketing campaign be implemented to help residents and businesses understand the benefits of waste reduction and encourage them to share this message with others around the city. This will help set the foundation to implement the other recommendations in this chapter.

With the introduction of CompostCincy, Cincinnati is becoming a leader in the diversion of food scraps and yard debris from landfills. A cart based trash collection program will further incentivize recycling. The ultimate goal is to implement a Pay-As-You-Throw (PAYT) system for waste, as this is a direct economic incentive for residents to increase recycling and composting. Versions of PAYT have already been introduced in the City of Madeira and Village of Mariemont. A City of Cincinnati Charter provision restricting the ability to charge for trash collection is an obstacle to PAYT that must be overcome to minimize the City's waste.

Not only can organics and yard debris be diverted from the landfill, so can old electronics (e-scrap). Businesses are required to recycle e-scrap; however, this

is not the case for residents. Since there is no uniform system for residential e-scrap disposal, residents are often unaware of how to properly handle their e-scrap. This creates an opportunity to implement e-scrap pick-up and drop-off programs to ensure these items, which are often hazardous to the environment if incorrectly disposed of, are collected and safely recycled.

Approximately two-thirds of waste in local landfills is from the commercial sector. Although many local businesses, especially larger organizations, have waste management programs, some do not, and most of the existing programs can be improved. Cincinnati can work with its local businesses to improve current programs, increase the number of new programs and provide resources to organizations on how to implement waste reduction programs. The Hamilton County Recycling and Solid Waste District and the Greater Cincinnati Green Business Council are two city partners that are helping the commercial sector reduce their wastes.

As recycling increases in the Cincinnati region, the recommendation focusing on utilizing recycled materials sets a plan for how these previously discarded materials will be used as resources leading to local revenue, job creation and business expansion.

Internal City operations are making great strides in reducing the waste the city generates. In 2011, the City's internal recycling program recycled 185 tons of paper and single stream recyclables; and 533 tons of metal. Installing standard operating procedures for reducing waste could increase these totals.

Other cities have passed ordinances aimed at reducing waste by eliminating single use items like plastic bags and styrofoam. These ordinances could be models for Cincinnati.

BENEFITS OF BEING GREEN

By utilizing resources that are currently being landfilled, Cincinnati can dramatically reduce the City's greenhouse gas emissions. These discarded materials have imbedded energy - the energy that was used to manufacture the product - and much of this energy is recaptured when a product is recycled.

Rumpke, our local landfill, has been experiencing a subsurface reaction for three years and odor complaints are increasing. Reducing the amount of waste generated will reduce the amount of tons going to the landfill. This lessens the need for new landfills or landfill expansions. Even though new landfills are built to higher environmental standards than the unlined pits of yesteryear, they still have impacts - such as odor and truck traffic; they are still prone to failures, such as liner leaks and subsurface fires; and they consume land that could be allocated to more productive uses.



WORKPLACE COMPOSTING TOOLKIT

The Greater Cincinnati Green Business Council has issued a Workplace Composting Toolkit to support Greater Cincinnati business participation in sustainability efforts, waste reduction efforts, operational cost savings and to help support and develop a business model for composting in the Greater Cincinnati Area.



Reducing waste not only is environmentally beneficial, but can also bring local jobs to the region. The more Cincinnati recycles the more workers that are needed to pick-up, sort, and process the recyclable materials. In addition, as the market for reuse of these recyclable materials continues to grow this will create jobs in areas such as turning plastic bottles into composite decks and furniture, or paper into insulation products.

The 3Rs - reduce, reuse and recycle - are naturals for Cincinnati. Our culture is one of Midwest efficiency and self reliance. By reducing waste, we can look to our own resources rather than those from our regional competitors or from distant lands. Be it the simple natural cycle of turning food scraps into compost into produce, or recycling used glass bottles into new bottles for a fresh batch of locally brewed beer, Cincinnati can be on the forefront of creating and implementing strategies to reduce waste.

GREEN CINCINNATI PLAN 2013 TOP IDEAS REDUCING WASTE

With help from the Green Umbrella Waste Action Team, Cincinnati identified seven waste management strategies that were prioritized highly, had significant sustainability impacts and were most pertinent to the City of Cincinnati.

1. Pay-As-You-Throw
2. Funded, "Best in Class" Marketing Campaign
3. Source Separated Organics Collection-Yard Debris and Food Scraps
4. Dedicated E-scrap Collection-Permanent drop-off locations and/or curbside collection
5. Develop a Commercial Recycling Plan
6. Develop markets for residential recyclables
7. Enhanced City Facility Waste Management
8. Reduce waste - by discontinuing single use items like plastic bags and styrofoam.

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

The Green Umbrella metric for waste reduction is tons landfilled per capita. The Green Umbrella goal for waste reduction is to reduce waste disposal in the residential/commercial sector by 33% by 2020. Achieving this goal in the City of Cincinnati will reduce CO₂ emissions by 78,000 tons CO₂e.

WASTE REDUCTION IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>3. Source Separated Organics Collection - begin initial pilot program (DPS, OEA)</p> <p>7. Enhance City Facility Recycling - Recycling in each City building and facility will be enforced, & promoted (OEA)</p>	<p>1. PAYT - Propose a new amendment to allow implementation of the PAYT system</p> <p>3. Source Separated Organics Collection - initial pilot program continues</p> <p>6. Markets for Recyclables - Identify land suitable for a green industrial park, provide incentives for businesses using recycled material to site here, publicize local availability of recycled feed stocks for industry (T&D, OEA)</p>	<p>3. Source Separated Organics Collection - expand pilot program</p> <p>6. Markets for Recyclables - Identify land suitable for a green industrial park, provide incentives for businesses using recycled material to site here, publicize local availability of recycled feed stocks for industry</p>
CITY PARTNERS	<p>2. Marketing Campaign - Partner with Hamilton County, Green Umbrella and Rumpke for the creation and promotion of its marketing campaign to achieve goals identified in recommendation</p> <p>4. Electronic Waste - Hamilton County and the City need to be more aggressive partnering together</p> <p>5. Commercial Recycling - The City partners with local businesses, GCGBC, Hamilton County, Rumpke, Republic, Bavarian, Forest Green, etc. to promote and encourage recycling in the commercial sector</p> <p>6. Markets for Recyclables - City partner with Rumpke to identify best target markets</p>	<p>2. Marketing Campaign - Work with Hamilton County, local companies and local neighborhoods to build collection of data and metrics from the marketing campaign to measure effectiveness and identify how it can be improved</p> <p>4. Electronic Waste - Work with Hamilton County and local neighborhoods to increase availability/accessibility of drop-off points</p> <p>5. Commercial Recycling - The City partners with local businesses, GCGBC, Hamilton Co., Rumpke, Republic, Bavarian, Forest Green to continue to promote/encourage recycling in commercial sector</p> <p>8. Reduce single use plastics - Work with Green Umbrella and Sierra Club to develop city policy</p>	<p>4. Electronic Waste - Work with Hamilton County and local neighborhoods to increase availability/accessibility of drop-off points</p> <p>5. Commercial Recycling - The City partners with local businesses, GCGBC, Hamilton County, Rumpke, Republic, Bavarian, Forest Green, etc. to continue to promote and encourage recycling in the commercial sector</p>
CITY SUPPORTS			



DAFFODILS & DAYLILIES

The Daffodils & Daylilies program began as a joint effort between Keep Cincinnati Beautiful and the Cincinnati Park Board to beautify highway greenspace areas and deter litter.



GREEN INFRASTRUCTURE

Using best management practices (BMPs), like green infrastructure, stormwater can be returned to the natural environment, peak flows and volumes can be managed, and water quality can be improved.

LAND MANAGEMENT

“Tree planting is always a utopian enterprise, it seems to me, a wager on a future the planter doesn’t necessarily expect to witness.”

– Michael Pollan, *Second Nature: A Gardener’s Education*

From 1,459 acres of Mt. Airy Forest, to remnant parcels far smaller than an acre, how the city takes care of its property can make the city more sustainable. By influencing private development and partnering on land management plans, the City’s impact can go far beyond its own land.

OVERVIEW

Building on the original Green Cincinnati Plan’s focus on the positive greenhouse gas impacts of planting trees, this plan update broadens this focus to the impact of land management on things like storm water, invasive species, and native plantings. Sustainable management of land will help protect our urban forests from invasive species like Amur (bush) Honeysuckle, Emerald Ash Borer, and Asian Long-horned Beetle. Native plantings can also save the city money by moving away from labor-intensive mowed green spaces. Some green spaces can even be transitioned to productive uses like gardens and orchards or even simple foraging areas - a recommendation of the Food chapter that is tied to Land Management. The City’s public rights-of-way are opportunities for creating “green streets” that incorporate good land management practices.

Partner organizations like the Western Wildlife Corridor, Hamilton County Park District, and Spring Grove Cemetery and Arboretum are playing a role in the protection of natural corridors within the city. Even land outside the city, like French Park in Amberley Village and the watersheds that drain to the city, should be incorporated into sustainable land management practices. These management practices must include proper planning and maintenance. Partners can also help with the proper planning and maintenance needed for sustainable land management. Possible planning and maintenance partners include the Park Board, Keep Cincinnati Beautiful, Hamilton County Sheriff work detail and private sector adoption.

Finally, through planning and subdivision regulations, the city can help foster good land management on private property. These regulations might include tree preservation and rain gardens additions to land development codes. Incentives and regulations may also be used to encourage the reduction of impervious surfaces in the City.

BENEFITS OF BEING GREEN

Trees and native plantings have many positive sustainability impacts. Trees and native plantings can reduce runoff flows into combined sewers, improve water quality and slow down the rate at which stormwater enters creeks. Deciduous trees serve many environmental purposes: shade during the hot summer months, provide falling leaves that can be transformed into compost for the following year's plantings, and allow the sun to shine through their branches in the winter.

Other benefits of trees and native plantings include providing habitat for wildlife, increasing property values, reducing the urban heat island effect, and adding to the beauty of the city through flowering plants and autumn leaf color.

First time visitors are struck by Cincinnati's green hillsides and sweeping river valley views. The city has made a determined effort to weave this green image throughout its landscape through street tree plantings and maintenance of parks and greenspaces. Perhaps even more powerful than the words of the Green Cincinnati Plan, is the visual impact of seeing the green of plants throughout our environment. It truly tells the story of a green city- as they say, a picture is worth a thousand words.



TAKE ROOT CINCINNATI

The Green Partnership of Greater Cincinnati has recently started a program to plant trees to replace those lost from the Emerald Ash Borer. The Partnership is just one example of the many initiatives to keep our City full of flora!



GREEN CINCINNATI PLAN (2013)

LAND MANAGEMENT RECOMMENDATIONS

With help from the Green Umbrella Land Management Action Team, Cincinnati identified five land management strategies that were prioritized as high, had significant sustainability impacts and were most pertinent to the City of Cincinnati.

1. Preservation and management of natural corridors (typically along hillsides and streams)
2. Urban forestry that aggressively plants native, pest resistant and, where appropriate, productive trees and eradicates invasive species that threaten the city's trees
3. Continue to incorporate trees and green infrastructure into road right-of-ways as part of "complete streets"
4. Use native low-maintenance plantings to replace mowed areas.
5. Reduce impervious surfaces

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

The Green Umbrella metric for Land management is the number of acres classified as preserves or parks by OKI. The Green Umbrella goal for Land Management is to increase the acreage of high quality green space by 10% by 2020.

GREENHOUSE GAS IMPACTS

A medium growth coniferous tree, planted in an urban setting and allowed to grow for 10 years, sequesters 23.2 lbs of carbon.

According to the EPA, trees and vegetation lower surface and air temperatures by providing shade and through evapotranspiration. Shaded surfaces, for example, may be 20–45°F (11–25°C) cooler than the peak temperatures of unshaded materials. Evapotranspiration, alone or in combination with shading, can help reduce peak summer temperatures by 2–9°F (1–5°C).

According to a 2011 study produced by the Cincinnati Park Board and Department of Transportation and Engineering, Cincinnati's street trees provide \$8 million worth of environmental benefit per year. These benefits accrue due to trees positive impacts on air quality, stormwater management, carbon sequestration and reduced cooling costs.

LAND MANAGEMENT IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>1 Preservation & Management of Natural Corridors – Pass and enforce regulations such as the Hillside Overlay District</p> <p>1 Preservation & Management of Natural Corridors Acquire property through the Hamilton County Land Bank or through initiatives like MSD's Project Groundwork</p> <p>2 Urban Forestry increase street tree assessment</p> <p>3 Incorporate Green Infrastructure into Road Right-of-Ways</p> <p>4 Use Native Low-Maintenance Plantings – create cross-functional team to identify areas to be targeted for transition to natives</p> <p>5 Reducing Impervious Surfaces – Influence by implementing incentives and regulations</p>	<p>1 Preservation & Management of Natural Corridors – Pass and enforce regulations such as the Hillside Overlay District</p> <p>1 Preservation & Management of Natural Corridors Acquire property through the Hamilton County Land Bank or through initiatives like MSD's Project Groundwork</p> <p>3 Incorporate Green Infrastructure into Road Right-of-Ways</p> <p>4 Use Native Low-Maintenance Plantings – Continue transition of mowed areas to incorporate native plants</p> <p>5 Reducing Impervious Surfaces – Influence by implementing incentives and regulations</p>	<p>1 Preservation & Management of Natural Corridors – Pass and enforce regulations such as the Hillside Overlay District</p> <p>1 Preservation & Management of Natural Corridors Acquire property through the Hamilton County Land Bank or through initiatives like MSD's Project Groundwork</p> <p>3 Incorporate Green Infrastructure into Road Right-of-Ways</p> <p>4 Use Native Low-Maintenance Plantings – Continue transition of mowed areas to incorporate native plants</p> <p>5 Reducing Impervious Surfaces – Influence by implementing incentives and regulations</p>
CITY PARTNERS	<p>1 Preservation & Management of Natural Corridors The City can partner with other land preservation organizations to protect designated greenspaces. (Land Trusts)</p> <p>2 Urban Forestry create tree planting guidelines that reflect invasive threat and climate change impacts (Green Umbrella Land Management Action Team)</p>	<p>1 Preservation & Management of Natural Corridors The City can partner with other land preservation organizations to protect designated greenspaces. (Land Trusts)</p>	<p>1 Preservation & Management of Natural Corridors The City can partner with other land preservation organizations to protect designated greenspaces. (Land Trusts)</p>
CITY SUPPORTS	<p>2 Urban Forestry – Work to improve/increase number of trees in the City and region (Green Umbrella Land Management Action Team)</p> <p>3 Incorporate Green Infrastructure into Road Right-of-Ways I-75 reconstruction (ODOT)</p>	<p>2 Urban Forestry – Work to improve/increase number of trees in the City and region (Green Umbrella Land Management Action Team)</p> <p>3 Incorporate Green Infrastructure into Road Right-of-Ways I-75 reconstruction (ODOT)</p>	<p>2 Urban Forestry – Work to improve/increase number of trees in the City and region (Green Umbrella Land Management Action Team)</p> <p>3 Incorporate Green Infrastructure into Road Right-of-Ways I-75 reconstruction (ODOT)</p>



52 NEIGHBORHOODS

The City is made up of 52 neighborhoods each with their own character. The majority of these neighborhoods have pedestrian oriented business districts which help provide the backbone for sustainable living.



MIXED USE

Using best management Unlike most modern development where land uses like office parks and subdivisions are separated, most of the City has Cincinnati has places of work and residences within walking distances. Sometimes these uses are even in the same building.

LAND USE

"The more concentrated types of dwellings should be erected near thoroughfares or transit lines and nearest to places of work, leaving the more open land behind for low cost, single family housing." - Official Plan of the City of Cincinnati 1925

The connection between land use and transportation has been recognized by the City of Cincinnati longer than most. Transportation and buildings are also connected to greenhouse gas (GHG) emissions. These sectors are responsible for the majority of GHG emissions. Cincinnati can make land use/transportation connections more efficient to minimize the City's carbon footprint and maximize our sustainability by building on the existing structure of the city. Most of Cincinnati was built when cities were designed for people rather than cars. The annexation patterns of the city explain how the basin - what we now refer to as Downtown, Over-the Rhine, the West End, and Queensgate - was home to close to 100,000 people in 1850. These areas have mostly been remade while the other 52 neighborhoods continue to resemble a series of small towns. These towns have the mix of housing and walk/bike-able scales that can promote a sustainable lifestyle.

"Sustain" is one of the five primary initiatives of [PLAN CINCINNATI](#), the City's award winning (and long overdue) Comprehensive Plan that was adopted in 2012. The intent of the Green Cincinnati Plan (2013) is not to restate the good work of [PLAN CINCINNATI](#) but to look at "putting meat on the bones". By adding this content, the Green Cincinnati Plan (2013) helps map out in more detail the path to implementation of the [PLAN CINCINNATI](#). The implementation strategies of the Green Cincinnati Plan (2013) point the way to how Cincinnati will become more sustainable by making our existing buildings more energy efficient.

[PLAN CINCINNATI](#) makes it easier to live a sustainable lifestyle by supporting places that help lower the economic/environmental and social costs of transportation and buildings. The framework of [PLAN CINCINNATI](#) helps set the stage for neighborhoods with active cores that provide a wide range of housing choices; and that are connected to other centers of activity, and the regional centers of commerce (Downtown) and health and higher education (Uptown).

Key initiatives of [PLAN CINCINNATI](#) are already being implemented by the City's Department of Planning and Buildings. The City is updating its development codes (specifically its Subdivision and Zoning codes) through efforts like adopting form-based codes that apply to certain neighborhoods and PlanBuildLive, a \$2.4 million project to transform land development regulations to ensure they work better for the City.

OVERVIEW

The Green Cincinnati Plan (2013) aims to capitalize on and reinforce efforts to implement **PLAN CINCINNATI** by celebrating and promoting the City's mixed use centers. **PLAN CINCINNATI** identifies neighborhood centers that are evolving and some that need to be transformed (and even some new centers). The Green Cincinnati Plan calls for a re-densification of these areas through development of vacant and brownfield properties.

The City uses its considerable resources to help support development projects on City-owned properties or in strategic locations. Given the subsidies that the City provides these projects, they should serve the public interest not only fiscally but socially and environmentally. Using a triple bottom line approach will guarantee the best use of city resources.

BENEFITS OF BEING GREEN

A more densely populated city brings multiple sustainability benefits. More people in the city helps better use our existing infrastructure and services. Many of our roads, parks and other city facilities have the capacity to serve more residents. Services like recycling can be more efficient in more densely populated areas.

Denser living also results in energy savings in the transportation and building sectors. Attached housing units share walls; lessening the heating and cooling loads of living spaces. Mixed use buildings by definition put commercial uses within close proximity of residences making walking and biking the preferred type of transportation.





GREEN CINCINNATI PLAN (2013) LAND USE RECOMMENDATIONS

Cincinnati identified three land use strategies that were prioritized highly, had significant sustainability impacts and were most pertinent to the City of Cincinnati.

1. Mixed Use Centers
2. Infill Vacancy and Brownfields
3. Triple Bottom Line for City Funded Projects

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

The first Guiding Policy Principle of **PLAN CINCINNATI** is to Increase our Population. Agenda 360 and Vision 2015's Regional Indicator's Report benchmarks our population against comparison regions: Austin, TX; Charlotte, NC; Cleveland, OH; Columbus, OH; Denver, CO; Indianapolis, IN; Louisville, KY; Minneapolis, MN; Pittsburgh, PA; Raleigh, NC; and St. Louis, MO. The goal of this plan is for the City of Cincinnati to increase its population at a rate equal to or better than the average of these competitor regions. Between 2010 and 2012, Greater Cincinnati was estimated to grow by 0.7% while the average for the 12 comparison regions was 2.1%.

HOW DOES LAND USE AFFECT GREENHOUSE GAS EMISSIONS?

According to the Brookings Institute's study of the per capita greenhouse gas emissions of regions, the average Cincinnati has 2.2 times the footprint of the average New Yorker. Cincinnati's neighborhoods centers create an opportunity to live a low carbon lifestyle by reducing transportation and housing costs. If 20,000 people made the choice to live in the CBD and neighborhood business districts rather than in a new suburban community, CO2 emissions would be reduced by 12,000 tons CO2e.

LAND USE IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>1. Mixed Use Centers – Keep the Plan Build Live site currently updated with the City's development regulations and help identify key areas which could be targeted</p> <p>2. Infill Vacancy and Brownfields – Acquire federal funding for revitalization of buildings and brownfields, properly identify and market these to public</p> <p>3. Triple Bottom Line for City Funded Projects – City Council can pass a policy that directs the administration to include broader analyses of how city funded projects can contribute to the City's sustainability</p>	<p>2. Infill Vacancy and Brownfields – Acquire federal funding for revitalization of buildings and brownfields, properly identify and market these to public</p>	<p>2. Infill Vacancy and Brownfields – Acquire federal funding for revitalization of buildings and brownfields, properly identify and market these to public</p>
CITY PARTNERS	<p>1. Mixed Use Centers – Planning and Buildings can work with architects, local planners, local communities, development companies, local businesses, restaurants to continue to bring mixed centers to identified areas</p> <p>2. Infill Vacancy and Brownfields – Economic Development can work with Port Authority, HCLRC, HCDC, 3CDC, developers, architects, Cincy Preservation Assoc., entrepreneurs to develop buildings and brownfields</p> <p>3. Triple Bottom Line for City Funded Projects – The Community Development and Economic Development Departments can work with architects, urban planners, local communities, development companies on terms and conditions of city funded project agreements</p>	<p>1. Mixed Use Centers – Planning and Buildings can work with architects, local planners, local communities, development companies, local businesses, restaurants to continue to bring mixed centers to identified areas</p> <p>2. Infill Vacancy and Brownfields – Economic Development can work with Port Authority, HCLRC, HCDC, 3CDC, developers, architects, Cincy Preservation Assoc., entrepreneurs to develop buildings and brownfields</p> <p>3. Triple Bottom Line for City Funded Projects – The Community Development and Economic Development Departments can work with architects, urban planners, local communities, development companies on terms and conditions of city funded project agreements</p>	<p>1. Mixed Use Centers – Planning and Buildings can work with architects, local planners, local communities, development companies, local businesses, restaurants to continue to bring mixed centers to identified areas</p> <p>2. Infill Vacancy and Brownfields – Economic Development can work with Port Authority, HCLRC, HCDC, 3CDC, developers, architects, Cincy Preservation Assoc., entrepreneurs to develop buildings and brownfields</p> <p>3. Triple Bottom Line for City Funded Projects – The Community Development and Economic Development Departments can work with architects, urban planners, local communities, development companies on terms and conditions of city funded project agreements</p>
CITY SUPPORTS			



LOCAL FOOD AT P&G CAFETERIAS

Procter and Gamble worked with its cafeteria contractor and food provider to increase locally sourced food to 10 percent of all food purchases.



A PRICE HILL CSA

The Enright Ridge Urban Ecovillage Farm project uses Community Supported Agriculture (CSA) to supply locally grown produce for 150 people during the growing season.

FOOD

Ohio's No. 1 industry - food and agriculture - is a \$105 billion dollar industry responsible for employing one out of every seven Ohioans. – Ohio Department of Agriculture

"The way we eat represents our most profound engagement with the natural world. Daily, our eating turns nature into culture, transforming the body of the world into our bodies and minds." – Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals*

"Eating is an agricultural act." – Wendell Berry

What we eat, where we grow it and how it gets to us makes for one of the most complex pieces of the Green Cincinnati Plan, but it's also one way all Cincinnatians can impact sustainability every day. No other chapter more clearly demonstrates the web of how sustainability touches all aspects of our environment. Discussions of food, and local food in particular, crossover into many other parts of the plan – the Land Management chapter calls for putting City properties to more productive uses; Water access is key to vegetable production; Transportation ties into our food distribution network and access to food; the Waste chapter describes how transforming yard debris and food scraps into compost is a key recommendation; and the Nature Awareness chapter promotes activities such as going outside and tending a garden.

OVERVIEW

As with many aspects of this plan, the role of the City of Cincinnati during implementation varies from full ownership, to partnering with other organizations, to acting as a cheerleader. One area the City has direct control over is how to use its land, from establishing community gardens at recreation centers, to matching farmers to vacant properties which become productive farms. The City will continue to build on its successful urban agriculture program by putting more land into production and by supporting farmers through long-term leases and access to water.

The City also has a direct role in using subdivision and zoning regulations to make sure urban agriculture is supported and becomes a part of new development. Allowing mobile produce vendors to use designated city streets and properties can help mitigate food deserts. In addition to its role in zoning, the City can also help achieve this recommendation through use of existing city resources from the Health Department and Public Services. These resources can assist with the promotion of eating more vegetables and less meat and with the collection of yard debris and food scraps. Plan Cincinnati's work can be utilized as this topic is covered in its plan and can be used as a resource for this recommendation as well.

The City will partner with organizations, such as those participating on the Green Umbrella Local Food Action Team, to address many of the remaining recommendations in this chapter. For example, The Civic Garden Center is one of several organizations

that can help train farmers in the best management practices for sustainable urban agriculture. The Green Umbrella Local Food Action Team is also leading the way to help match production of local food to distribution outlets including farmers markets, community supported agriculture (CSA) programs, food delivery services or institutional food distributors.

Promotion of local foods specifically is supported through the recommendations highlighting the 10 % Shift to Local Foods campaign and the creation of local food purchasing guidelines for institutions. Publications including Edible Ohio Valley and the Central Ohio River Valley (CORV) Local Food Guide are also identified in the plan as great resources for connecting people to foods grown in the region.

BENEFITS OF BEING GREEN

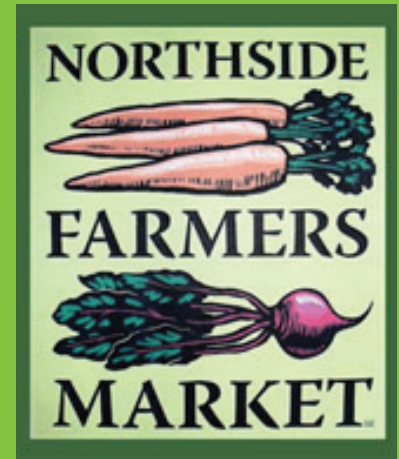
Food has significant sustainability impacts ranging from reducing the energy needed to transport food, to lower energy impacts of eating less meat, to the water quality impacts of turning vacant lots or impervious surfaces into productive agriculture uses. As with many of the Green Cincinnati Plan's recommendations, the food recommendations positively impact the economy and health of Cincinnati. Urban agriculture is a labor intensive enterprise and although nobody is going to get rich becoming a farmer, local farmers are finding ways to make a living off the land. Even backyard gardeners help supplement their income by lowering their grocery bills.

In an era of an obesity epidemic and food deserts, the health impacts of urban agriculture need to be highlighted. Access to the healthy choices from an urban farm can help provide options to the processed, high sugar offerings of convenience store food.

Reducing meat consumption is critical for those who want to minimize their impact on the planet's resources. For example, the land needed to feed 6 people on grain will feed only 1 person if the grain is fed to cows and people eat the resulting beef.

HOW DOES FOOD AFFECT GREENHOUSE GAS EMISSIONS?

The current industrial agriculture system is accountable for high energy costs for the transportation of foodstuffs. The average conventional produce item travels 1,500 miles and if shipped by tractor-trailer, uses 1 US gallon of fossil fuel per 100 pounds. The energy used to transport food is decreased when local urban agriculture can provide cities with locally grown food. A 10% increase in the amount of local food eaten by Cincinnatians would reduce CO₂ emissions by 3,000 tons per year. Livestock, especially cattle, produce methane (CH₄) as part of their digestion. This process is called enteric fermentation, and it represents one-third of the greenhouse gas emissions from the agriculture sector. The way manure from livestock is managed also contributes to greenhouse gas emissions. Manure storage methods and the amount of exposure to oxygen and moisture can affect how these greenhouse gases are produced. Manure management accounts for about 15 percent of the total greenhouse gas emissions from the agriculture sector in the United States. As a result, eating less meat, particularly from cows, can significantly impact greenhouse gas emissions. If 10% of Cincinnatians ate meat one less day per week, CO₂ emissions would be reduced by 75,000 tons per year.



NORTHSIDE FARMERS MARKET

The Northside Farmers Market is just one of many successful City of Cincinnati neighborhood farmers markets. Not only do the vendors at these markets offer local produce but also locally crafted foods.



GREEN CINCINNATI PLAN (2013) FOOD RECOMMENDATIONS

With help from the Green Umbrella Local Food Action Team, Cincinnati identified eleven food strategies that were prioritized highly, had significant sustainability impacts and were most pertinent to the City of Cincinnati.

Production has sustainability impacts related to decreasing the use of fossil fuels needed to transport foods into the city, reducing fossil fuels used in food production, and increasing storm water infiltration.

1. Increase city capacity for urban food production through zoning, incentives for food producing land and long-term leases that support community gardens, urban farms, and indoor farms. Provide garden spaces for community residents (recreation centers, parks, city owned parcels).
2. Promote local sustainable urban farming best practices to reduce fossil fuel expenditures (soil, cover crops, etc).
3. Create an accessible database of food production capacity in the city to include location, square footage, etc. (Conduct a land inventory of the city to determine properties suitable for food production such as urban farms, community gardens, municipal edible landscapes.)
4. Support the incorporation of urban agriculture features into developer plans to include indoor agriculture, edible forestry, community gardens, etc.

Processing

5. Assess, develop and adopt financial incentives for small to midsize food processors, especially local fruits and vegetables.

Distribution

6. Support policies and programs that increase access to food in all neighborhoods through traditional grocery stores and non-traditional channels such as farmers markets, co-ops, corner stores, mobile markets, CSA's, etc. (aligned with **PLAN CINCINNATI**)

Consumption

7. Develop local purchasing guidelines and incentives for governments, hospitals and institutions.
8. Support the 10 Percent Local Food campaign to encourage eating fresh, local foods in homes, institutions and businesses.
9. Promote eating more fruits and vegetables and less meat, based on the significant health and environmental impacts of meat production.

Waste

10. Begin City of Cincinnati recycling of its organic wastes locally and make compost available for food production. Assess, develop and implement a city compost program that assists residents and businesses to compost food waste and food packaging.

Education

11. Raise awareness around local and plant based food issues through promotion and awareness efforts, including for school aged children.

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

FOOD IMPLEMENTATION MATRIX

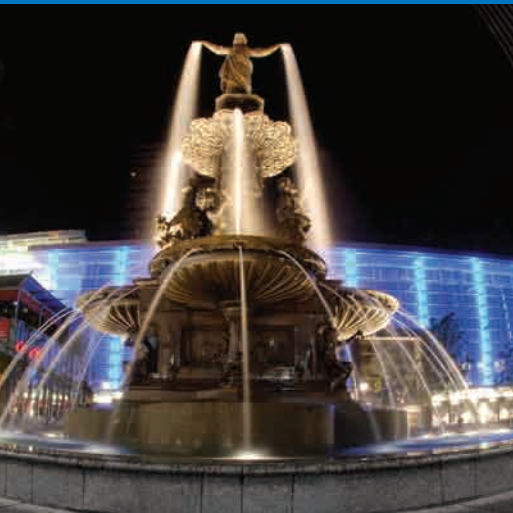


	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>1 Increase Urban Food Production – in Plan Build Live process update zoning and subdivision regulations to promote Urban Ag</p> <p>1 Increase Urban Food Production – evaluate Grow to Own program for vacant lots</p> <p>1 Increase Urban Food Production – create long term leases on targeted City property</p> <p>4 Incorporate Urban Ag into New Developments – as part of the PlanBuildLive process include regulations for Urban Ag features</p> <p>5 Increase Access to Local Foods – create regulations that allow for farmers markets and mobile produce vendors</p> <p>9 Eat More Fruits and Vegetables – pass a Meatless Monday resolution like Covington</p> <p>10 City Compost Program – support Compost Cincy in return for residential and city compost</p>	<p>8 Support the 10% Shift to Local Foods campaign – adopt 10% local food goal for City food purchases (CRC)</p>	
CITY PARTNERS	<p>1 Increase Urban Food Production – work with Hamilton County Land Bank to assemble properties for Urban Ag</p> <p>3 Urban Agriculture Database – intern to complete project (UC, Seagood Foundation)</p> <p>9 Eat More Fruits and Vegetables – promote Meatless Mondays with area restaurants and CPS (restaurants and CPS)</p>	<p>9 Eat More Fruits and Vegetables –promote Meatless Mondays with area restaurants and CPS (restaurants and CPS)</p>	<p>9 Eat More Fruits and Vegetables –promote Meatless Mondays with area restaurants and CPS (restaurants and CPS)</p>
CITY SUPPORTS	<p>2 Farmer Best Practices – promote existing training resources (Green Umbrella Local Food)</p> <p>5 Increase Access to Local Foods – support healthy corner store initiative and existing farmers markets (Center for Closing the Health Gap, Green Umbrella Local Food Action Team)</p> <p>6 Support Midsize Food Processors/ Distributors – support CUCI's Food Hub Initiative (CUCI, Green Umbrella Local Food)</p> <p>7 Local Purchasing Guidelines – Promote the Greater Cincinnati Health Council's Sustainable Produce Initiative and P&G program</p> <p>8 Support the 10% Shift to Local Foods campaign – promote the campaign (Green Umbrella Local Food Action Team)</p> <p>11 Education and Awareness of Local Foods – promote existing resources (Green Umbrella Local Food)</p> <p>11 Education and Awareness of Local Foods – promote CPS programs on local food (CPS)</p>	<p>2 Farmer Best Practices11 Education and Awareness of Local Foods 11 Education and Awareness of Local Foods</p>	<p>2 Farmer Best Practices – promote existing training resources (Green Umbrella Local Food)</p> <p>11 Education and Awareness of Local Foods – promote existing resources (Green Umbrella Local Food)</p> <p>11 Education and Awareness of Local Foods – promote CPS programs on local food (CPS)</p>



LICK RUN

MSD is implementing a bold and ambitious plan to transform Lick Run from a buried sewer to a green asset for the community. MSD's investments are not only improving water quality and meeting its Consent Decree obligations, it is transforming a neighborhood.



FOUNTAIN SQUARE

The Tyler Davidson Fountain, also known as the "Genius of Water" has presided over Cincinnati's downtown for nearly 130 years.

WATER

"Water is the driving force of all nature." – Leonardo da Vinci

Water has played a major role in the City of Cincinnati's past and present development. Fresh water is important to the vitality of the City's residents and economic growth. This chapter focuses on how to efficiently manage and utilize our water in order to become a more sustainable city. The specific recommendations focus on: 1) the reduction of combined and sanitary sewer overflows; 2) watershed restoration; 3) source water protection; and 4) water advocacy.

The City of Cincinnati has a valuable asset in its nationally recognized, state-of-the-art water system. Greater Cincinnati Water Works (GCWW) has consistently pioneered advances in water quality research and technology to protect public health.

OVERVIEW

Reduced Combined and Sanitary Sewer Overflows

The Metropolitan Sewer District of Greater Cincinnati (MSD) is working to eliminate sanitary and combined sewer overflows to improve the water quality of our local rivers and streams. MSD is taking an innovative approach that uses a combination of "green" and "grey" practices to significantly reduce overflow volume and generate additional environmental benefits.

Watershed Restoration

Managing our water resources at the watershed scale is critically important to improving water quality in the region. Practices once considered standard operating procedures such as channelizing and burying streams have had detrimental long-term effects that must be remediated and where possible reversed. Several strategies such as water quality monitoring program expansion/ enhancement, riparian corridor protection, low-head dam mitigation, hilltop detention in developed areas, bioretention, reforestation, stream daylighting and septic system maintenance/upgrades will all aid in the watershed restoration process. These are all strategies to help deal with watershed development projects.

Water Advocacy

Cincinnati's plentiful supply of water should be celebrated through source water protection, drinking tap water, and other wise use of this resource. The Green Cincinnati Plan calls for Cincinnati to encourage its residents to drink more tap water instead of bottled water or sugary drinks. Tap water is a safe, convenient and healthy option for drinking and needs to be better promoted to our residents.

Smart Water Management

As residents increase consumption of tap water to quench their thirst, the City should encourage wise use of this plentiful resource overall. The strategies for this recommendation encourage residents to use smart water management practices. Strategies include updating out of date or inefficient plumbing and water fixtures, collecting rainwater to irrigate plants and making an effort to send less water down the drain, especially during rain events when MSD's collection system has to handle high stormwater volumes in addition to sanitary flows.

BENEFITS OF BEING GREEN

Effective combined and sanitary sewer overflow management can provide many benefits to the community. Not only can there be reduction in sewer surcharging and localized flooding, but management projects can lead to redevelopment opportunities. Numerous ecological tools such as restoring surface streams, increasing vegetative cover and reducing impervious surfaces can lead to better management of these overflows. These management practices also allow for streams to be more safely used for recreational purposes.

Watershed restoration plays a large role in the management and quality of our water sources. The strategies described in this recommendation will help keep the water sources clean and reduce flooding in the area. Watershed restoration also works to restore ecosystems and wildlife in these areas. In addition, there are numerous benefits related to economic development, recreation and health.

Encouraging residents to drink more tap water as opposed to bottled water has many direct positive impacts on our region. Tap water consumption decreases GHG emissions, air pollution and fossil fuel use required for the transportation of bottled water. Health, cost, and convenience benefits also make drinking tap water advantageous to residents in the area.



THE OHIO RIVER

Cincinnati has historically benefited from its location on the fresh water source of the Ohio River. This location has provided the City with numerous economic and water management advantages over the years.



Smart water use strategies described in this chapter will help build a healthy, environmentally friendly and more sustainable city. This will ensure the City and its residents are saving money by using water wisely. In addition, efficient use of our plentiful water resources can encourage business development and growth opportunities throughout the Cincinnati community – particularly as other regions struggle with water shortages.

GREEN CINCINNATI PLAN (2013) WATER RECOMMENDATIONS

With help from Greater Cincinnati Water Works, the Metropolitan Sewer District of Greater Cincinnati and the Lower Mill Creek Watershed Action Plan group, the City has identified four water strategies that were prioritized highly, had significant sustainability impacts, and were most pertinent to the City of Cincinnati.

1. Reduced Combined and Sanitary Sewer Overflows
2. Watershed Restoration
3. Water Advocacy
4. Smart Water Management

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

The key Green Umbrella metric for water is the number of stream miles in compliance with the Clean Water Act. Water Quality criteria based on Total Maximum Daily Loads (TMDLs) are used by the EPA to measure compliance on an annual basis. The Green Umbrella goal for water is to make a measurable improvement in 75% of the streams, rivers and other water resources in the region.

WATER IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>2. Watershed Restoration – Adopt best practices such as using less salt, vegetation management, rain barrels, rain gardens</p> <p>3. Water Advocacy – Develop campaign with GCWW to promote drinking tap water</p> <p>4. Smart Water Management – Lead by example by having all City facilities engage in Smart Water Management best practices</p>	<p>2. Watershed Restoration – Adopt best practices such as using less salt, vegetation management, rain barrels, rain gardens</p> <p>3. Water Advocacy – Promote GCWW drinking tap water campaign</p> <p>4. Smart Water Management Lead by example by having all City facilities engage in Smart Water Management best practices</p>	<p>2. Watershed Restoration – Adopt best practices such as using less salt, vegetation management, rain barrels, rain gardens</p> <p>3. Water Advocacy – Promote GCWW drinking tap water campaign</p> <p>4. Smart Water Management Lead by example by having all City facilities engage in Smart Water Management best practices</p>
CITY PARTNERS	<p>1. Reduced Combined and Sanitary Sewer Overflows – Implement Lower Mill Creek Partial Remedy - MSD</p> <p>1. Reduced Combined and Sanitary Sewer Overflows & 2. Watershed Restoration – Complete Lower Mill Creek Watershed Action Plan Partners include: Lower Mill Creek Team, MSD, Project Groundwork</p> <p>4. Smart Water Management – Rainwater harvesting campaign - MSD</p>	<p>1. Reduced Combined and Sanitary Sewer Overflows – Implement Lower Mill Creek Partial Remedy - MSD</p> <p>2. Watershed Restoration – Implement LMCWAP projects such as stream daylighting, bioretention/detention, mainstem Mill Creek solutions, I-75 improvements as specified in plan – Partners include: Hamilton County Park District, MSD, Ohio EPA, Mill Creek Watershed Council of Committees, local neighborhoods, Groundwork Cincinnati, Mill Creek</p> <p>4. Smart Water Management – Website and providing technical advice on efficient water usage for residential and commercial users</p>	<p>1. Reduced Combined and Sanitary Sewer Overflows – Implement Lower Mill Creek Partial Remedy - MSD</p> <p>2. Watershed Restoration – Implement LMCPR, bioretention/detention projects - MSD – Implement LMCWAP proposal to switch septic tanks to sewer – Partners include: MSD, Ohio EPA, Mill Creek Watershed Council of Committees, local neighborhoods, Groundwork Cincinnati, Mill Creek</p> <p>4. Smart Water Management – Promote smart water management best practices identified in recommendation to the larger community</p>
CITY SUPPORTS			

OUTDOOR RECREATION & NATURE AWARENESS

SUPER REGIONAL ASSETS

Red River Gorge is under three hours drive from Cincinnati and provides multiple opportunities for outdoor recreation such as hiking, canoeing, climbing, camping and exploring nature on its numerous trails.



KIDS OUTDOOR ADVENTURE EXPO

Cincinnati is home to the largest outdoor water safety and environmental education program for children in the Midwest.

Winston Churchill called Cincinnati the most beautiful inland city in America. The French translated the Native American word “Ohio” as La Belle Riviere (the Beautiful River). Our natural landscapes lend themselves to a variety of outdoor activities through which Cincinnatians can take advantage of this beauty. Now more than ever, being active outdoors can be a part of a healthy lifestyle and pathway to a more sustainable lifestyle that emanates from a better appreciation of the natural world.

Outdoor recreation comes in many shapes and forms. However, this chapter places a large focus on hiking, paddling, and camping opportunities in our region to attract people to the outdoors. Cincinnati’s network of corridors and trails is highlighted in this chapter because it serves as a great link to the larger region. In addition to assets within our region, we are fortunate to have incredible resources just down the road such as Clifty Falls, John Bryan State Park, Hocking Hills and Red River Gorge.

There are many existing resources and programs within our city to help promote outdoor recreation and nature awareness. Cincinnati Recreation Commission (CRC) holds several events each year, helping connect Cincinnatians with nature and the outdoors. Special programs such as Bicycling Inspires Kids Environmentally (BIKE) and Natural Wonders are also available to educate children.

The recommendations regarding outdoor recreation and nature awareness also closely tie in with topics of land management and transportation. Several suggestions of this chapter provide alternatives for how to preserve the region’s land and use environmentally friendly options for transportation.

OVERVIEW

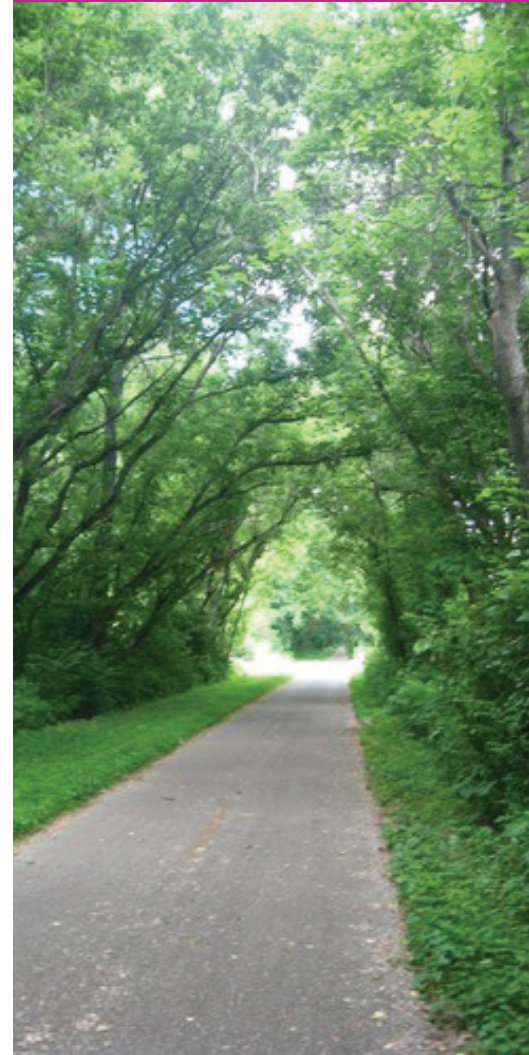
Increasing the amount of time spent outdoors interacting with nature will help Cincinnatians better appreciate their connection to nature. As this stronger connection to outdoor recreation and nature awareness grows, it can lead to behavior changes in some of the other areas of this plan including transportation, food, and land use choices. The City of Cincinnati is full of opportunities to get outdoors, get active, and appreciate our beautiful river city. The CRC and the Cincinnati Park Board have hundreds of facilities offering opportunities to recreate outside. Other resources including bike lanes managed by the Department of Transportation and Engineering, facilities of CPS and many non-profit programs add to these outdoor options.

BENEFITS OF BEING GREEN

There are many green benefits that can result from implementing recommendations for increasing outdoor recreation and nature awareness. These recommendations are important because often people are interested in activities relating to the outdoors or nature but are not familiar with available opportunities or how these opportunities are beneficial to the environment. By linking and engaging the urban population to outdoor and nature-related activities and resources, utilization of these resources will increase and create a network of people who share an interest in outdoor activities. As more people in Cincinnati engage in outdoor activities, this will create a cleaner, safer city where residents take pride and ownership in the outdoor areas around them.

Health Benefits

Many health benefits will result from the implementation of the recommendations in this chapter. These recommendations work to increase the physical activity of residents and promote being outdoors. By educating residents to encourage them to engage in outdoor and nature activities, this will help instill healthier habits and ultimately create an overall healthier city.



GROWING BIKING NETWORK

The Little Miami Bike Trail offers over 70 flat, paved miles. Along the trail bikers can experience nature such as Canadian geese and ducks paddling through the river, deer darting through the woods and watching nature bloom during the spring.



GREEN CINCINNATI PLAN (2013) OUTDOOR RECREATION & NATURE AWARENESS RECOMMENDATIONS

With help from the Green Umbrella Outdoor Recreation and Nature Awareness (We Go Outdoors) Action Team, Cincinnati identified four strategies that were prioritized highly, had significant sustainability impacts and were most pertinent to the City of Cincinnati.

1. Use existing resources better through assessment, marketing, and coordination.
2. Support events like Kids Outdoor Adventure Expo
3. Link natural areas to urban populations through transit, events, etc.
4. Establish mentor programs

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

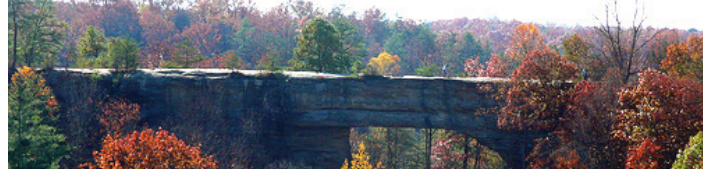
MEASURING OUR PROGRESS

A Green Umbrella metric for outdoor recreation and nature awareness is the number of participants in Great Outdoor Weekend. The Green Umbrella goal for recreation and nature awareness is to increase participation in recreational and educational activities, events and venues that get children and adults outdoors into nature by 20% by 2020.

HOW DOES IT AFFECT GREENHOUSE GAS EMISSIONS?

There are limited greenhouse gas impacts of the Outdoor Recreation and Nature Awareness Chapter recommendations as is. The overwhelming impact of getting more people to connect with nature through outdoor recreation, however, could have an indirect impact on leading to more sustainable behaviors.

OUTDOOR RECREATION & NATURE AWARENESS IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS			
CITY PARTNERS	<p>1. Use Existing Resources: compiling information on events & change attitudes on outdoors (DOTE, Parks, CRC, schools etc.), begin to organize database on GU website (GU)</p> <p>2. Kids Expo: increased marketing (Parks, Green Umbrella, schools, etc.)</p> <p>3. Link Natural Areas: more trails, creation of map, promotion of metro (Parks, DOTE, Metro, etc.)</p> <p>4. Mentoring Program: identify & match orgs. & volunteers, identify kids to participate (GU, schools, local companies)</p>	<p>2. Kids Expo: increased marketing (Parks, Green Umbrella, schools, etc.)</p> <p>4. Mentoring Program: identify & match orgs. & volunteers, identify kids to participate</p>	<p>2. Kids Expo: increased marketing (Parks, Green Umbrella, schools, etc.)</p> <p>4. Mentoring Program: identify & match orgs. & volunteers, identify kids to participate</p>
CITY SUPPORTS	<p>1. Use Existing Resources: encourage cooperation (all orgs involved over time)</p> <p>2. Kids Expo: support these events and the organizations hosting them (Parks, DOTE, Green Umbrella, etc.)</p> <p>3. Link Natural Areas: proper transportation available (Metro, bike trails and DOTE)</p>	<p>1. Use Existing Resources: support & promote database (GU)</p> <p>2. Kids Expo: creation of similar event (GU, Parks, outdoor orgs.)</p> <p>3. Link Natural Areas: proper transportation available (Metro, bike trails and DOTE)</p>	<p>1. Use Existing Resources: support database to employees through health initiative (GU)</p> <p>3. Link Natural Areas: proper transportation available (Metro, bike trails and DOTE)</p>



SOUTHERN MAGNOLIA TREE

Temperature increases will cause changes in growing zones. Cincinnati can expect to see an increase in new plant species such as the southern magnolia, which is currently indigenous to areas including Virginia, Alabama and Florida.



EPISODES OF PROLONGED HEAT

The 2000 to 2010 decade was the hottest on record so far. Research shows temperatures are expected to continue to rise.

CLIMATE ADAPTATION

Scientific evidence shows there is a high probability the temperature will continue to increase in our region, causing issues such as periods of prolonged heat, changes in growing zones and increased effects of urban heat islands. Annual precipitation totals are expected to rise and storms will be both more frequent and more severe. As climate change continues to have these effects on our city, the challenges involving human health and economic prosperity will also continue to grow. Realizing these challenges lie ahead, the City of Cincinnati is committed to prepare for a hotter, wetter future.

Although the timing and severity of climate change is uncertain, Cincinnati has been actively planning for issues that could arise. The goal of this chapter is to identify key recommendations for how Cincinnati can take action to prepare its communities for the harmful consequences of climate change.

OVERVIEW

This chapter's recommendations lay a framework for how Cincinnati can deal with current climate change challenges. The recommendations focus on strategies to deal with periods of prolonged heat, changes in growing zones, reducing urban heat islands and improving infrastructure to withstand stormier weather.

Average U.S. temperatures are projected to rise 7°F to 11°F by the end of the century under a high carbon-emissions scenario and 4°F to 6.5°F under a low carbon-emissions scenario. As temperatures rise, so too will the probability of prolonged heat in Cincinnati. Prolonged heat is especially detrimental to human health. The first recommendation of this chapter focuses on vulnerability assessments of the City and high risk buildings, making 24 hour cooling centers accessible to residents and ensuring an effective monitoring and alert system is in place to inform residents during these times of prolonged heat.

Climate change can also have a drastic effect on the native ecosystems within our region. Even if successful measures are taken and GHG emissions are dramatically reduced, our plant hardiness zone could significantly change. Several plant and animal species could die off as additional stress may be put on some species which are dependent on specific, climate driven

landscape characteristics. New plant and insect pests would likely take over as wildlife migrations occur as species adjust to higher temperatures. There is the potential for these new species to cause increased disease and allergies. The second recommendation of this chapter includes several strategies for preparing Cincinnati's natural environment for climate impacts on biodiversity. The City and its partners will work to publish a new plant-growing list, focusing on plants that can thrive in warmer conditions.

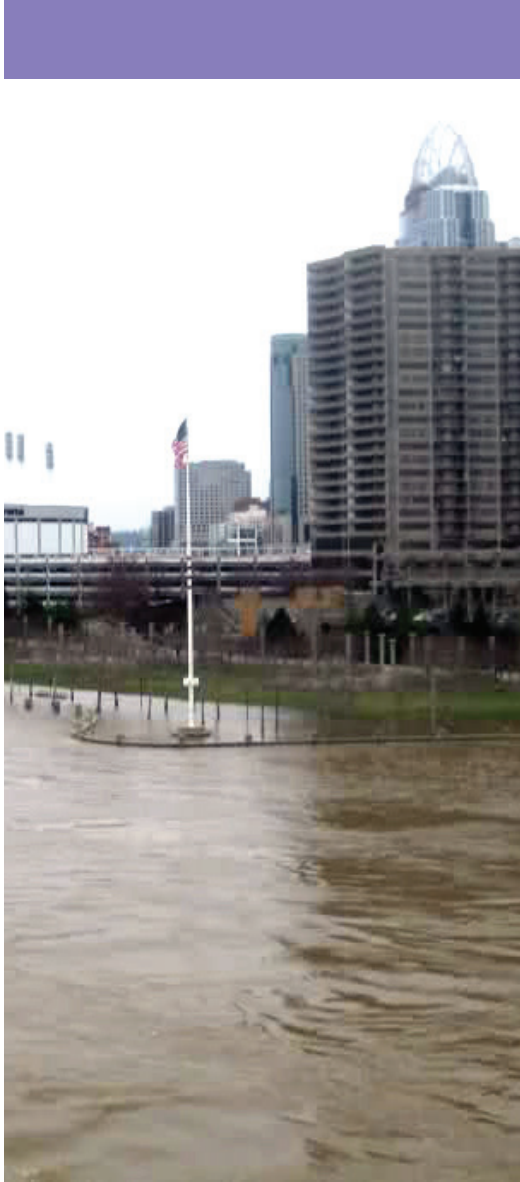
Due to what is called the urban heat island effect, temperatures in U.S. cities can be as much as 10°F hotter than surrounding areas. U.S. cities tend to consist of many buildings with dark surfaces and a large amount of asphalt pavement. Building a city means replacing vegetation with structures, resulting in losses of the evaporative cooling advantages of vegetation. Heat islands cause issues such as human health risks, increased energy consumption and an elevated amount of pollution. The third recommendation of this chapter focuses on preparing the city infrastructure for climate change by implementing strategies to reduce the urban heat island effect. Some strategies recommended include the implementation of green roofs, cool roofs, increased trees and vegetation and legislation for policies to decrease heat island effects.

As climate changes in our region, it is important for the City of Cincinnati to focus on improving its infrastructure so it is able to withstand stormier weather. As the storms in the area get worse, there will likely be lasting effects on the City's infrastructure. Planning ahead to ensure a strong infrastructure is in place before the severe weather hits is essential to the City and its residents' well-being.

BENEFITS OF BEING GREEN

Some of the benefits from the strategies in this chapter include the City's ability to improve the health of its residents, reduce the amount of pollution in the region and bolster community outreach efforts in relation to climate adaptation. Specifically relating to prolonged heat, there is a need to protect the health of sensitive residents. As the communication of many climate related events is often time sensitive, the communication network needs to be improved. The network should aim to reach all residents and target those who are health sensitive, especially during events such as prolonged heat. Once improved, the network can reach residents during all climate events including prolonged heat, severe storms and flooding.

As the climate changes, Cincinnati is expected to find itself in a warmer growing zone. The City of Cincinnati can implement the strategies described in this recommendation to help prepare farmers, gardeners and ecosystems in the region for these changes. The season suitable for crop growing may



FLOODING IN CINCINNATI
The looming prediction of increased severe weather presents risk to the community. Infrastructure will need to be strengthened to mitigate the impact of storms and their aftermath, such as increased flooding.



become longer, providing more opportunity for farmers. Although some plant and animal species may not be able to survive, this is an opportunity to increase biodiversity in the region with the ability for new crops to be grown and for new animals to migrate to the region.

The urban heat island effect is present in Cincinnati and is one issue the City can effectively combat. Scientists are able to identify the cause of urban heat islands, making it clear what strategies can be applied to help control it. By implementing strategies such as green roofs and increasing tree coverage, the City of Cincinnati can help improve the health of its residents, decrease pollution, improve stormwater management and decrease energy usage in the city.

Planning ahead by improving the infrastructure of the City to withstand stormier weather is a strategy that can help the area deal with these stronger storms. Having a stronger infrastructure in place can help eliminate costs related to possible damages from the storms, create a safer environment for residents and improve stormwater management to decrease flooding during these times of stormier weather.

GREEN CINCINNATI PLAN (2013) CLIMATE ADAPTATION RECOMMENDATIONS

Cincinnati has identified four climate adaptation strategies that were prioritized highly because they will have significant sustainability impacts and are most pertinent to the City of Cincinnati.

1. Dealing with Prolonged Heat
2. Selecting plants based on Changes in the Growing Zone
3. Mitigating Urban Heat Islands
4. Improving Infrastructure to Withstand Stormier Weather

Detailed descriptions of each recommendation can be found in Appendix 1 which can be found online at www.cincinnati-oh.gov/oeq/.

MEASURING OUR PROGRESS

Metrics for Climate Adaptation are currently being developed. Consideration will be given to measures including the number of hospital admissions for heat related health effects in Cincinnati, the dollar value of storm damage each year, and the differences in average summer temperature between urban core locations and rural or wooded locations.

CLIMATE ADAPTATION IMPLEMENTATION MATRIX



	1-2 YEARS (Short-Term)	3-4 YEARS (Mid-Term)	5-6 YEARS (Long-Term)
CITY LEADS	<p>1. Dealing with Prolonged Heat - Review City's Emergency Plan and incorporate language for heat emergencies.</p> <p>1. Dealing with Prolonged Heat - make residents aware of heat situation, what strategies to take to deal with heat and where to go</p> <p>2. Changes in Growing Zone - Change recommended plant species in landscape ordinance.</p> <p>2. Changes in Growing Zone - The City will plant appropriate trees</p> <p>3. Mitigating Urban Heat Islands - Plant street trees</p> <p>4. Improving Infrastructure to Withstand Stormier Weather - Complete vulnerability assessment</p>	<p>1. Dealing with Prolonged Heat - Include resources in budget to implement recommendations in updated Emergency Plan.</p> <p>2. Changes in Growing Zone - The City will plant appropriate trees</p> <p>3. Mitigating Urban Heat Islands - incorporate requirements for cool/green roofs, landscaping into zoning and subdivision regulations</p> <p>4. Improving Infrastructure to Withstand Stormier Weather - Make targeted infrastructure investments</p>	<p>2. Changes in Growing Zone - The City will plant appropriate trees</p> <p>4. Improving Infrastructure to Withstand Stormier Weather - Make targeted infrastructure investments</p>
CITY PARTNERS	<p>1. Dealing with Prolonged Heat - make residents aware of heat situation, what strategies to take to deal with heat and where to go (Duke Energy, National Weather Service)</p>	<p>1. Dealing with Prolonged Heat - make residents aware of heat situation, what strategies to take to deal with heat and where to go (Duke Energy, National Weather Service)</p>	<p>1. Dealing with Prolonged Heat - make residents aware of heat situation, what strategies to take to deal with heat and where to go (Duke Energy, National Weather Service)</p>
CITY SUPPORTS	<p>2. Changes in Growing Zone - Support nurseries, developers, urban planners, Cincinnati Zoo and Botanical Gardens, Hamilton County Park District, Civic Garden Center on educating and promoting correct plan</p> <p>3. Mitigating Urban Heat Islands - Promote Cool/Green Roofs</p>	<p>2. Changes in Growing Zone - Support nurseries, developers, urban planners, Cincinnati Zoo and Botanical Gardens, Hamilton County Park District, Civic Garden Center on educating and promoting correct plan</p>	<p>2. Changes in Growing Zone - Support nurseries, developers, urban planners, Cincinnati Zoo and Botanical Gardens, Hamilton County Park District, Civic Garden Center on educating and promoting correct plan</p>

APPENDIX 1 – DESCRIPTION OF INDIVIDUAL RECOMMENDATIONS

For more detailed descriptions of the recommendations of the Green Cincinnati Plan, please see the online Appendix at www.cincinnati-oh.gov/oeq/. This 200 page document includes additional information to help readers better understand what the plan recommendations entail. The following is a complete list of all the recommendations.

ENERGY EFFICIENCY

- Closed Loop Ground Source Heat Pumps for New Construction
- Green Permitting
- Building Performance Disclosures
- Marketing of Energy Efficiency to Residents and Businesses
- Renewed Focus on Commercial/Industrial Energy Efficiency Efforts

RENEWABLE ENERGY

- Lobby State of Ohio to Strengthen the Market for Solar Projects
- Virtual Net Metering for Shared Solar
- Identify and Promote Other Renewable Energy Financing Tools
- Educate the Public about how the Region's Electricity has Historically Been Generated and the Transition from Fossil Fuel toward Renewable Energy Generation
- Expand Solar Power Purchase Agreement
- Anaerobic Digestion

TRANSPORTATION

- Develop and Implement Regional Transit Plan
- Preserve Right-of-Way for Transit Improvements
- Implement Short-Term Transit Plans
- Continue Implementation of City's Bike Plan
- Best in Class Commuter Biking Plan
- Freight Rail Network Improvements (Freight & Passenger Rail Impacts)
- Enhance Intercity Transit
- Improve Pedestrian Connectivity
- Interconnect Modes of Transportation
- Traffic Signal Optimization
- Cincinnati Fleet Fuel Efficiency
- Expand Incentives for Electric Cars

REDUCING WASTE

- Pay-As-You-Throw
- Funded, "Best in Class" Marketing Campaign
- Source Separated Organic Collection - Yard Debris & Food Scraps
- Electronic Waste Collection
- Commercial Recycling Program
- Develop Markets for Residential Recyclables
- Enhanced Management of City Waste

LAND MANAGEMENT

- Preservation and Management of Natural Corridors
- Urban Forestry
- Continue Incorporation of Green Infrastructure into Road Right-of-Ways
- Use Native Low-Maintenance Plantings to Replace Mowed Areas
- Reduce Impervious Surfaces

LAND USE

- Mixed Use Centers
- Infill Vacancy and Brownfields
- Triple Bottom Line for City Funded Projects

FOOD

- Increase City Capacity for Urban Food Production
- Promote Urban Farming Best Practices
- Create Accessible Database of City's Food Production Capacity
- Support Incorporation of Urban Agriculture Features into Developer Plans
- Increase Access to Local Foods in all Neighborhoods
- Access, Develop and Adopt Financial Incentives for Midsize Food Processors and Distributors
- Develop Local Purchasing Guidelines and Incentives
- Support 10 Percent Shift to Local Food Campaign
- Eating More Fruits and Vegetables
- City Compost Program
- Promote Education & Awareness of Local Food

WATER

- Reduced Combined and Sanitary Sewer Overflows
- Watershed Restoration
- Water Advocacy
- Smart Water Management
- Outdoor Recreation and Nature Awareness
- Use Existing Resources Better through Assessment, Marketing, Coordination
- Support Events like Kids Outdoor Adventure Expo
- Link Natural Areas to the Urban Population
- Establish Mentoring Programs

CLIMATE ADAPTATION

- Dealing with Prolonged Heat
- Changes in Growing Zone
- Mitigating Urban Heat Islands
- Improving Infrastructure to Withstand Stormier Weather



For More Information Visit: cincinnati-oh.gov/cityofcincinnati/



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