Champaign Growing Greener

2013 Environmental Sustainability Plan

City of CHAMPAIGN

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Appendix and Additional Studies Available Digitally at www.greenchampaign.com

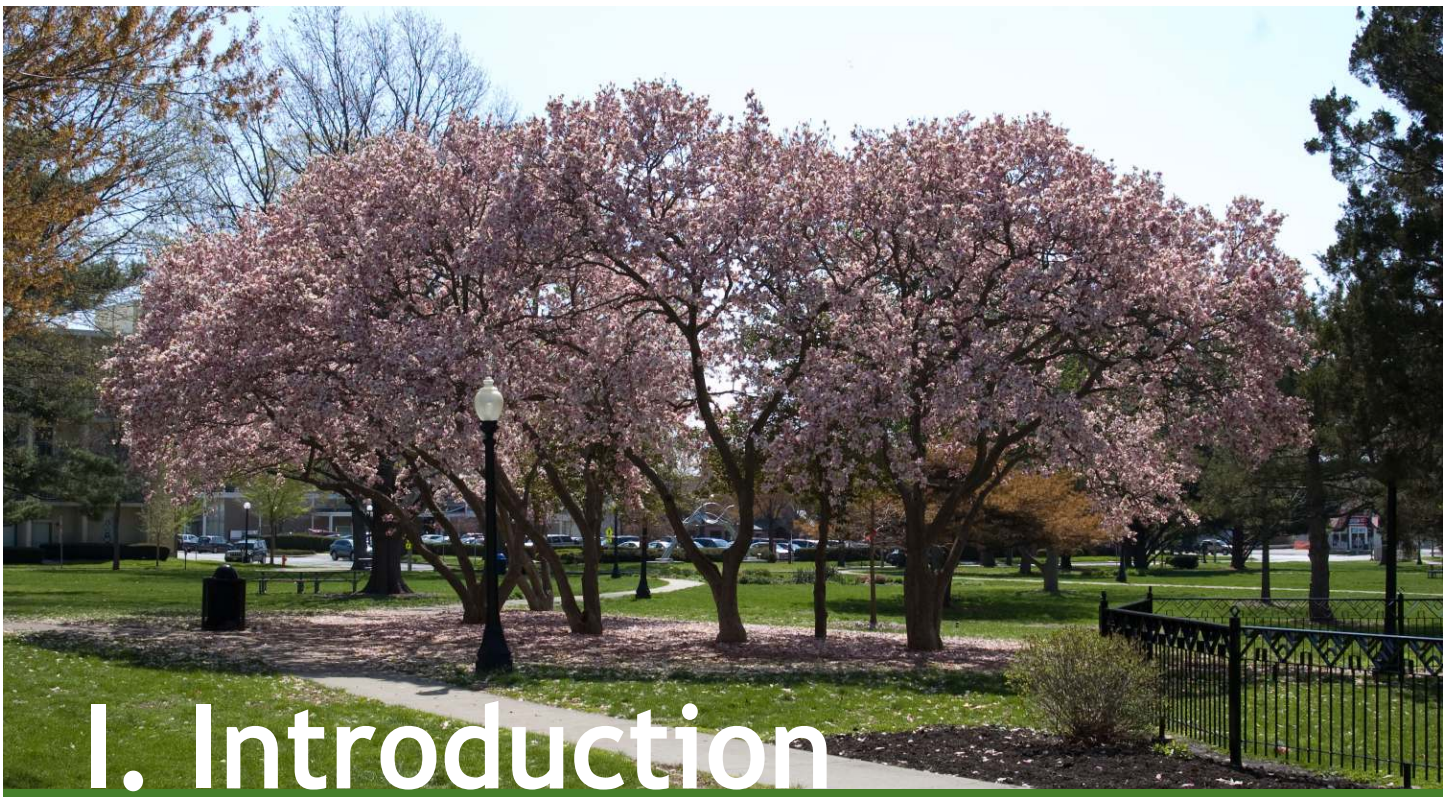
Focus Group Participants:

It was determined that expertise in the seven sustainability topics would be essential to the success of the *Champaign Growing Greener* Sustainability Plan. To accomplish this, local experts were invited to participate in a focus group discussion around each topic area.

The input gathered in these discussions resulted in meaningful goals and strategies for implementation. The outcomes of the Champaign Growing Greener Plan will reflect the knowledge and experience of participants.

City Council, Plan Commission, and The *Champaign Growing Greener* project team thanks these community members for sharing their time to help build an environmentally sustainable future for Champaign.

Green Economy	Erik Kotewa, Champaign County Economic Development Corporation Rev. Zernial Bogan, Champaign County Black Chamber of Commerce Will Kyles, Champaign County Black Chamber of Commerce Paul Faraci, Illinois Department of Commerce and Economic Opportunity Andrea Young, Parkland College Craig Rost, Deputy City Manager Cassie Carroll, Illinois Green Business Association Anthony Santarelli, Illinois Green Business Association
Water	Steve Wegman, Illinois American Water Glynnis Collins, Prairie Rivers Network Alex Nagy, Public Works Rick Manner, U-C Sanitary District Jenny Putman, U-C Sanitary District Board of Directors George Roadcap, Illinois State Water Survey David Larson, Illinois State Geological Survey
Solid Waste & Recycling	Tom Falendar, Mervis Industries Angela Adams, City Recycling Coordinator Steven Rosenberg, Green Purpose Marcus Ricci, Department of Urban Planning Student, University of Illinois Steve Smith, ABC Sanitary Rich Galloway, Republic Services Steven Pauli, Republic Services
Built Environment	Larry Happ, Building Safety Ken Payne, Clark Dietz Chris Gutkowski, Clark Dietz Bryan Demyunck, Ratio Architects Don Fournier, Smart Energy Design Assistance Center Jennifer Hagen, Ameren Act On Energy Mike Lambert, Neighborhood Services Department Glen Berger, Public Works John Karduck, Public Works Lorrie Pearson, Planning Department
Energy	Greg Knott, Center for Advanced Bio-Energy Research Bill Fabian, Midstate Solar Energy Keith Erickson, University of Illinois Ben Leroy, Planning Department
Food & Urban Agriculture	Steve Ayers, University of Illinois Extension Jacqueline Hannah, Common Ground Food Co-Op Brian Sauder, Faith in Place Nicole Bridges, North First Street Prosperity Garden Leslie Mitchell, Neighborhood Services Department and Local Grower Dex Conaway, Sola Gratia Farm Todd Saterthwaite, Sola Gratia Farm



I. Introduction

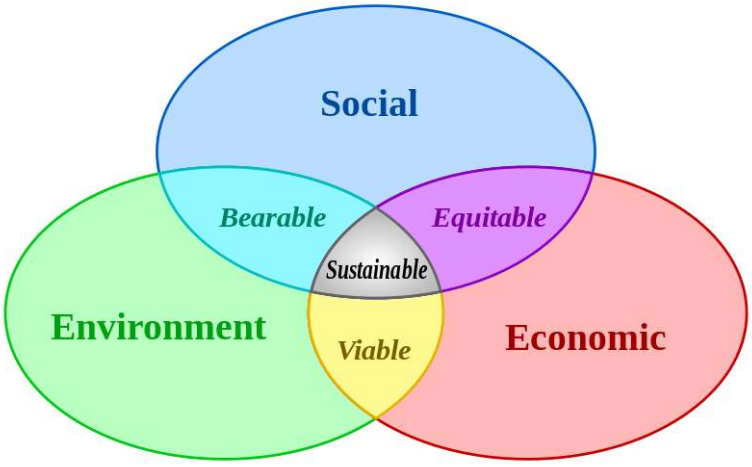
Sustainability *(Definition)*:

"The ability to meet present needs without compromising the ability of future generations to meet their needs."

What is Sustainability:

According to the U.S. Environmental Protection Agency (USEPA), "Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations."

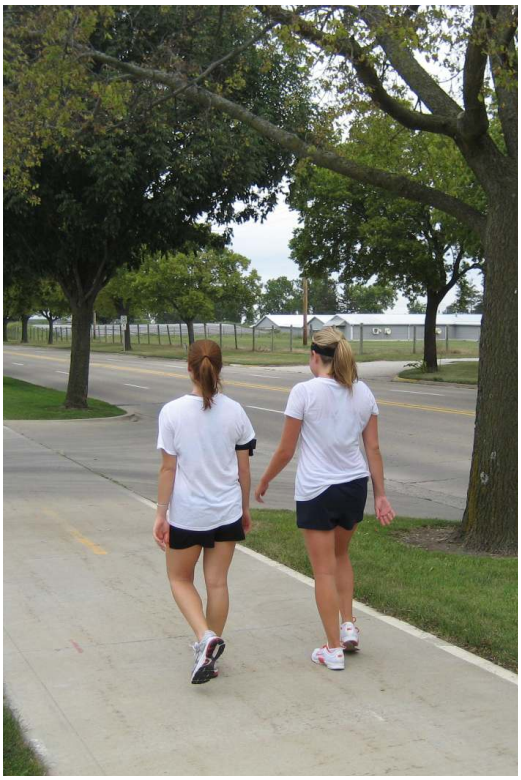
Sustainability is important to making sure that we have, and will continue to have, the water, materials, and resources to protect human health and our environment.



Source: http://en.wikipedia.org/wiki/File:Sustainable_development.svg, J. Dréo, 2007

What is Champaign Growing Greener?

The *Champaign Growing Greener* Environmental Sustainability Plan is the City's first community-wide plan on sustainability. The Plan is funded through an Energy Efficiency and Conservation Block Grant (EECBG). This funding has also paid for energy-saving upgrades to City-owned facilities and a grant program for local non-profits to make energy-saving upgrades to their facilities.



Why was this plan created?

The City of Champaign has been taking steps to grow in a more compact way, promote infill development, conserve energy, improve transportation choices and much more. These actions are helping Champaign become a more environmentally friendly city, conserve natural resources and save money. The *Champaign Growing Greener* Plan will target concerns related to our local environment, with specific strategies for implementation. It will compile a variety of environmental efforts into one plan to be more effective.

City Council Goals:

City Council Vision

"Champaign is an inclusive community that welcomes all. City residents enjoy a great quality of life, first class educational opportunities and easy mobility. Champaign is a vibrant community with an active center city and healthy neighborhoods. The City is designed for quality and sustainability, and has a growing economy."

City Staff pose with the hybrid bucket truck used to do maintenance around Champaign.

Goal 5: Our City is a Model for Environmental Sustainability

Strategic Initiatives

- Promote Champaign as a green community
- Encourage the use of alternative modes of transportation
- Recruit and retain innovative green business and industry
- Adopt incentives and regulations to encourage environmental responsibility
- Reduce energy consumed by our City government
- Preserve the Mahomet aquifer as a long-term healthy water supply

Key Projects

1. Reduce electric power costs by pursuing electric aggregation
2. Expand recycling opportunities

Planning Process:

Sustainability Assessment: The first step in the planning process was the completion of existing conditions reports, with assistance from the Champaign County Regional Planning Commission (CCRPC). These reports included the Champaign Greenhouse Gas Emissions Inventory, Water Resources Inventory Report, Energy Mapping, and Transportation Report. This information plus additional research was compiled in the 2012 Champaign Sustainability Assessment. The Assessment uses data and analysis to identify key issues that should be addressed in the Plan and the metrics that can be used to track progress as the Plan is implemented.

Sustainability Expo: On April 23rd, the City hosted a sustainability expo to share the results of the Sustainability Assessment and to launch the Champaign Growing Greener planning process. The expo also featured local non-profit organizations who provided information on how to 'go green.'

Focus Groups: Focus group discussions were organized for each of the seven topic areas of the Plan. Participants included practitioners, researchers, scientists, members of advocacy groups, City staff and more. These discussions allowed participants to share their perspectives and identify the key concerns around each topic. The contributions of local experts were invaluable. Their time and contributions provided an excellent foundation for the Plan, based in knowledge and experience. The results of the focus group discussions were used to develop the goals and strategies.

Sustainability Team: The City Sustainability Team acted as a steering committee for the planning process. This group is an interdepartmental team that includes a variety of viewpoints about the environment. The team discussed the results of the Sustainability Assessment and the outcomes of the focus group discussions to craft goals and strategies.

Creating the Plan: The Plan features broad long-lasting goals followed by actionable strategies. Strategies are intended to be actions that could reasonably be completed or started within five years. As these strategies are completed, additional strategies can be crafted in the future. Staff discussed the outcomes of the Sustainability Assessment and the draft goals and strategies with Plan Commission and City Council throughout the process.

In recent years, the Champaign City Council has made an effort to become a more environmentally friendly organization. These changes have not only reduced the consumption of resources, they are also cost effective.

Going Green:

The City of Champaign organization:

City-Owned Facilities:

Energy Audits- Completed for Fire Station #1, the Police Department and the City Building by Smart Energy Design Assistance Center. All light fixtures upgrated to high efficiency fluourescents in City facilities.

The Champaign Public Library- Built to Leadership in Energy and Environmental Design Silver standards.

Heating, Ventilation and Air Conditioning- HVAC systems were upgraded at Fire Station 1 and the City Building using Energy Efficiency and Conservation Block Grant funds. Fire Station #5 and the Police Department also have efficient HVAC systems.

Recycling- All City offices have recycling collection.

Electronics- When computers and other office electronics are replaced, old units are donated to local non-profit organizations, who refurbish them for those in need.

Public Safety:
The Fire Department converted all flashlights to LED, increasing battery life and saving $1,000 annually in battery costs.

Fleet:
Car Sharing- Zipcar is used to reduce the reliance on City-owned cars for staff to travel to meetings, reducing the total fleet.

Fuel Efficiency- By replacing aging vehicles with fuel efficient vehicles, the City fleet has saved 40,000 gallons of fuel each year.

The Community:

Traffic & Street Lights-
- All traffic lights converted to LED fixtures. New fixtures use $18,000 of energy annually, saving $162,000 each year.
- New fixtures are LED and use 50% less energy. All new street lights are required to be 'Dark Sky Compliant.'

Stormwater Management-
- Boneyard Creek multi-phase Improvements; John Street Watershed improvements and plans for West Washington Watershed.
- Stormwater Utility Fee incentives encourage 'green' site improvements.

Bike Lanes- There are currently 7.75 miles of on-street bike lanes with more planned.

Safe Routes to School- The City partners with Unit 4 to complete plans that support walking and biking to school.

Solid Waste & Recycling- All waste haulers are required to collect recycling free of charge. The 'Feed The Thing' program ensures multi-family properties have recycling available.

Urban Forest- Champaign has been a Tree City USA since 1986.

Walking/Biking/Transit:
- Champaign helps organize the annual Bike To Work Day.
- The City of Champaign has been designated a *Bicycle Friendly Business* by the American League of Bicyclists.
- Staff members can receive free annual passes for Champaign-Urbana Mass Transit.

Organization Procedures:
Sustainability Team- An interdepartmental team leads the implementation of environmental goals.

Meeting packets- Most members of City Council and other boards and commissions receive their packets electronically to save paper.

Planning and Policies-
Champaign Tomorrow – The City's Comprehensive Plan guides the way the community will grow over the next 20 years, emphasizing infill development, building a 'complete' community with parks, schools and services near neighborhoods and an active transportation system.

Buildings & Development:

Curtis Road Interchange District - Future Development in the Curtis Road Interchange Overlay District will be required to be more energy efficient than the building code, does not allow potable water to be used for landscaping, and offers for density if the building meets LEED (Leadership in Energy and Environmental Design) standards.

New Buildings In Champaign Use Less Energy - All new commercial and residential buildings in Champaign are required to meet the standards of the Illinois Energy Conservation Building Code. This code requires higher values of insulation, sealed duct work, and other features that save energy. This code is mandated by the State of Illinois but not all communities enforce it.

II. Lessons Learned

"The task ahead of us is never as great as the power behind us"

- Ralph Waldo Emerson

The Importance of Sustainability:

Champaign Growing Greener identifies seven Focus Areas for sustainability-based action within the community: The Green Economy; Water; The Built Environment; Energy; Transportation ; Solid Waste & Recycling; and Food & Urban Agriculture. Separating the complex concept of sustainability into these discrete subject matters ensures that the City takes a comprehensive approach to improving our community's performance. Each Focus Area identifies several simple goals that the plan hopes to achieve. For instance, Goal 1 of the Solid Waste Focus Area is to "reduce the amount of solid waste that is landfilled." Within each goal, the plan highlights several strategies that can be employed to help achieve that specific goal. Also found within each focus area are indicators, metrics that establish how well Champaign is already performing within the various focus areas. By combining goals, strategies, and indicators, the Champaign Growing Greener focus areas paint a picture of where sustainability is Champaign today and what is expected in the future.

The Green Economy:

The Green Economy focus area acknowledges the importance of pairing environmental sustainability with economic growth. Champaign businesses and educational institutions have been pushing our local economy in this direction over the past several years. The City hopes to partner with these important community members to create a community that is both environmentally and economically vibrant. One way the City will advance these efforts is supporting services that equip workers with the skills to participate in a burgeoning green economy, especially those belonging to groups that have traditionally been underrepresented in our local workforce. Additionally, the City can promote connections between consumers and sustainable businesses to assist the latter in growing robust customer bases.

Green Jobs: They can be existing jobs that are influenced by the shifting of the economy or new jobs that require specialized skills or training in response to green technology. The Department of Labor Occupational Information Network (O*NET) reports that there are three main categories for green jobs:

- ***New and Emerging Occupations:*** Jobs that result from new technology or innovations, such as wind turbine installers.
- ***Increased Demand Occupations:*** Jobs that are in greater demand due to changes in the green economy, like building managers who can operate high-tech control systems.
- ***Enhanced Skills Occupations:*** Existing jobs that are changed by new green technology and require additional skills, such as hybrid vehicle auto mechanics.[1]

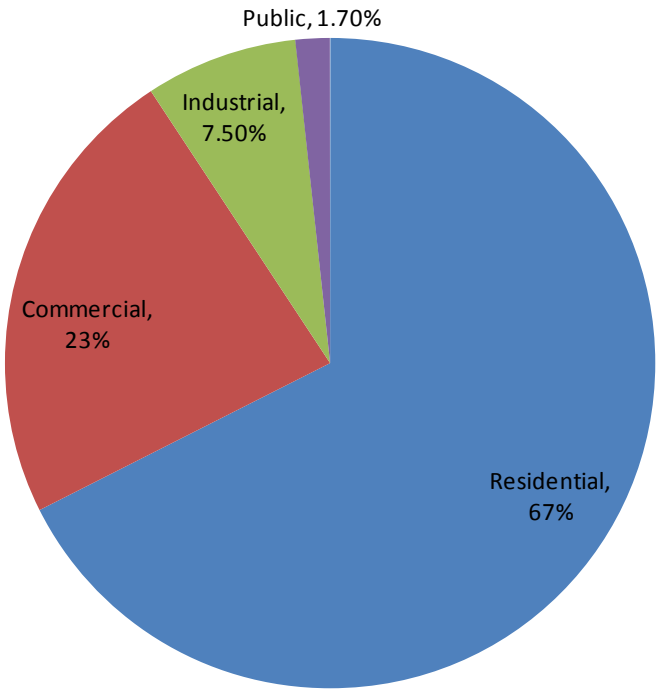
1 *Illinois Green Economy Network, www.igencc.org/greenworkforce*

Water:

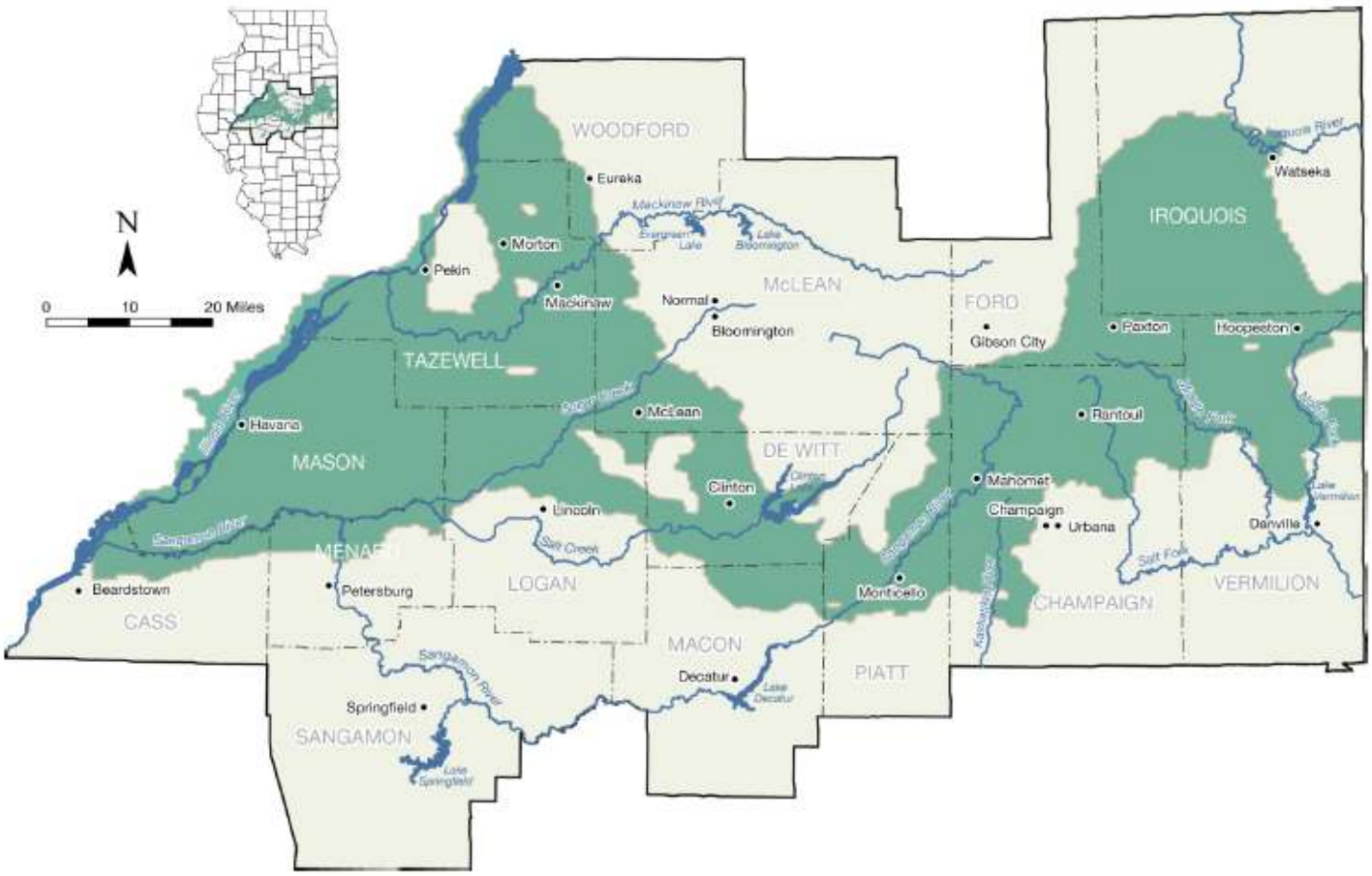
Water is one of Champaign's most important resources. Indicators show that changes in fixtures and building codes have helped reduce per person consumption. Protecting the quality and quantity of Champaign's surface and groundwater supplies will keep the community healthy and growing. The quality of water resources can be protected through increased attention to stormwater runoff and the disposal of household hazardous wastes. Naturalized stormwater management can filter pollutants and relieve the sewer system of the burdens caused by heavy precipitation.

Water Use: Illinois American Water Company is responsible for providing water to customers in this area. According to their data, customers in the City of Champaign use between 2,300 and 2,700 million gallons of water annually (2006 - 2010). This includes residential, commercial, industrial and public users. A new facility was built in 2009, west of Champaign, to handle increased demand for water as a result of population growth.

Water Consumption in the City of Champaign by Land Use, 2006



The Mahomet Aquifer:



Source: Roadcap, Knapp, Wehrmann, Larson, 2011, "Meeting East-Central Illinois Water Needs to 2050: Potential Impacts on the Mahomet Aquifer and Surface Reservoirs," Page 4.

The water supply for Champaign comes from the Mahomet Aquifer, a groundwater resource that stretches across East Central Illinois. Illinois American Water, a privately operated company, pumps, treats and supplies water to the community. Champaign does not have a municipal system All water piped to residences is potable or suitable for drinking, including water piped to bathrooms, laundry rooms and outdoor spigots.

The Mahomet Aquifer is the water supply for communities in 11 counties. The aquifer serves over one million people living in the service area and many communities are growing. Champaign grew by almost 20% between 2000 and 2010. Research shows that while the total amount of water used is increasing, the amount of demand per person appears to be decreasing.[1] Research projects that the quantity of water being drawn out of the aquifer is currently at approximately 30 million gallons per day (mgd) for the region, but is expected to increase to 45 mgd between 2025 and 2040.

1 *Roadcap, Knapp, Wehrmann, Larson, 2011, "Meeting East-Central Illinois Water Needs to 2050: Potential Impacts on the Mahomet Aquifer and Surface Reservoirs,"*

Wastewater: Wastewater is liquid waste that has been used in bathing, laundry, flushing the toilet, washing dishes and other like activities.[1] It includes contaminants that must be treated and removed. Most wastewater is discarded through the sanitary sewer system.

Wastewater is managed by the Urbana and Champaign Sanitary District (UCSD). UCSD serves Champaign, Urbana, Savoy and the University of Illinois. All wastewater is treated in two treatment plants, the Northeast plant in Urbana and the Southwest plant in Champaign. Wastewater is treated and processed into bio-solids and liquids, called effluent, according to State regulations. Bio-solids are used for fertilizer. The Southwest plant in Champaign discharges treated liquid effluent into the Copper Slough. The treatment facilities capture the gases created through the anerobic digestion of bio-solids to power the facility.

Wastewater is classified as gray water and black water. Gray water comes from baths, showers, washing machines, non-kitchen sinks, etc. Black water comes from toilets and kitchen sinks. Communities in areas with dry climates and water shortages have implemented gray water reuse programs. State law currently prohibits gray water reuse in Illinois.

1 *University of Nebraska-Lincoln, http://water.unl.edu/web/sewage/wastewater*

Precipitation, Runoff and Water Quality: A watershed is the area of land where all precipitation and runoff drain into a common place. The Champaign area is part of three watersheds, the Vermillion, Embarras/ Middle Wabash, and Upper Kaskaskia. The area is also the headwaters, or starting point, for the Kaskaskia, Embarras, and Boneyard/Salt Fork drainage systems.

Precipitation permeates the soil or runs into storm sewers, detention basins, and water bodies. Development affects the way water acts within the watershed, changing how precipitation infiltrates the soil and the ability of streams and rivers to contain it. Impervious or solid surfaces, like streets, parking lots and buildings, prevent precipitation from being absorbed into soil and increase flood risk. Because this water cannot percolate into the soil, a significant portion of precipitation is captured in storm sewers, detention basins and other infrastructure to reduce flooding during storm events. These changes to the landscape change the way water naturally flows to streams and penetrates the soil.

Nearly two-thirds of all impervious surfaces in Champaign are found in commercial and institutional developments.

Surface Water Quality: All of the chemicals, soil erosion, and litter that are found in the environment are eventually washed into surface water bodies, unless prevented. This primarily occurs through stormwater runoff and wind. Non-point source pollution, also called runoff, comes from the materials that wash into water bodies. This pollution includes oil on roadways, animal waste, litter, and agricultural and lawn fertilizers. These contaminants are the major contributors that negatively impact surface water quality in our area.

The City of Champaign Public Works Department administers the National Pollutant Discharge Elimination System (NPDES) to address pollution in surface water.

National Pollutant Discharge Elimination System
Six Focus Areas for Municipalities:

1. Public Education and Outreach
2. Public Participation and Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention and Good Housekeeping

The Built Environment:

Nearly 80% of the greenhouse gases produced in Champaign come from energy used by the built environment. Improving the energy efficiency of the built environment presents an opportunity for meaningful progress on energy consumption and greenhouse gas emissions. New construction is being improved through changes to the Illinois Energy Conservation Code, which sets high standards for energy consumption. Existing buildings have the greatest need for improvements.

City Facilities: City facilities have had improvements to lighting and heating and ventilation to improve efficiency. All traffic lights were converted to low energy light emitting diode (LED) fixtures, saving $163,000 in energy costs annually. Street lights consume over 40% of the energy used by all City-owned facilities. With over 3,000 street lights, converting to LED fixtures would use half as much energy as traditional street lights. New policies will foster greater balance between the built environment and our community's natural features.

Light Pollution: Light pollution, or the brightening of the night sky, is a growing concern. A dark night sky is needed for astronomy, natural ecosystems and sleep patterns, as well as simple stargazing.[1] This light comes primarily from street lighting, signage and building lighting. Design of light fixtures can mitigate light pollution by using a 'dark sky compliant' design. New City-owned street lights in Champaign are required to be 'dark sky compliant.'

Trees: The City owns and maintains over 21,000 trees throughout the City. Most are located along streets. Trees provide shade, have deep roots that collect stormwater and provide habitat. The cooling power of trees can reduce temperatures by 4.5 degrees Fahrenheit compared to an unshaded site. Mature trees can also save 12% of energy costs annually.

1, 2 International Dark Sky Association, www.darksky.org

Energy:

Energy: In Champaign, buildings are primarily powered by a combination of electricity and natural gas, with natural gas being used for heating. Electricity is generated at power plants throughout Illinois. According to Ameren Illinois, over 75% of electricity generated in our region is produced through coal combustion.[1] The residents of Champaign and Urbana recently voted for electric aggregation. The City Council voted to select an energy provider that uses 100% renewable energy, which was also purchased at a 30% reduced cost from energy purchased through Ameren. Ameren is the area's power utility.

Renewable energy is energy that comes from resources that are readily replenished, rather than non-renewable fossil fuels or nuclear reaction. Common renewable resources are wind and solar power, as well as bio-mass, which are fuels created from plant materials. Illinois adopted a statewide renewable energy standard in 2007. This standard requires the State's utilities to produce at least 25% of electricity from renewable sources by 2025. The law also includes standards for energy efficiency that requires utilities to reduce electric usage by two percent of demand by 2015, using energy efficiency improvements.[2]

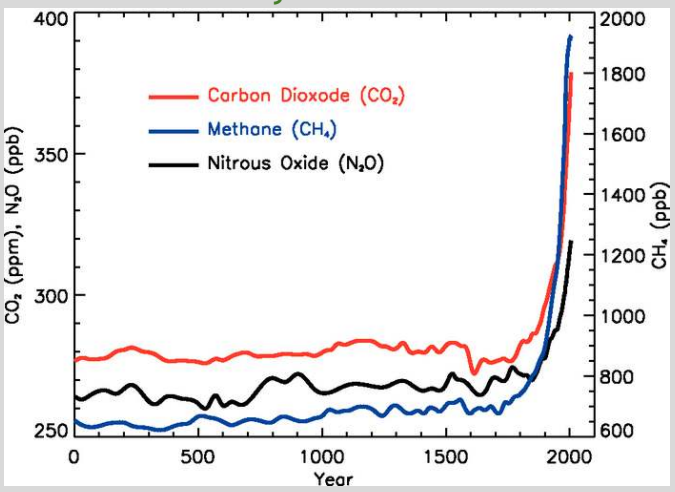
1 http://www.icc.illinois.gov/downloads/public/en/a%20m%20erenillinois.pdf

2 United States Energy Information Administration, 2009, http://205.254.135.7/state/state-energy-profiles-print.cfm?sid=IL

Greenhouse Gas Emissions

Greenhouse gases (GHG) are chemicals in the atmosphere that trap sunlight and heat, causing a 'greenhouse' effect. They include carbon dioxide, methane, nitrous oxide and even water vapor. While many of these chemicals occur in nature, the increase in quanity is a direct consequence of burning fossil fuels, like coal, natural gas and petroleum, to produce energy for the built environment and to power vehicles.[1] Nationally, the built environment contributes 65% of GHG emissions.[2] Locally, the built environment contributes 78% of emissions. This includes Abbott Power Plant, which serves the University of Illinois campus.[3] Scientists show the amount of GHG present in the atmosphere has increased significantly since the 1900's, due to industrialization and increased emissions.

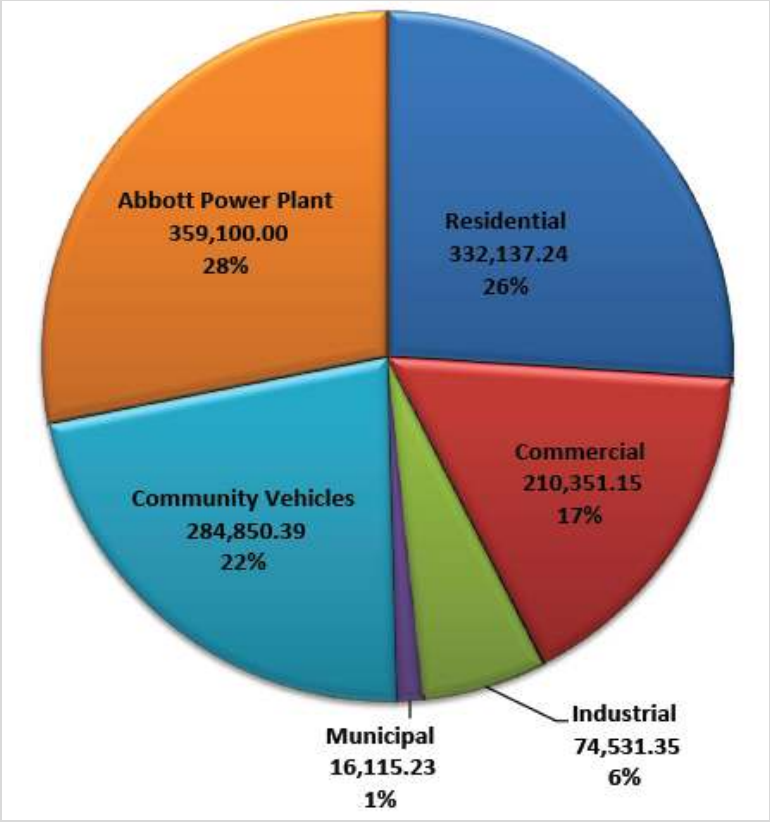
Concentrations of GHGs, from year 0 - 2005



Source: Intergovernmental Panel on Climate Change, www.ipcc.ch/publications_and_data/ar4/wg1/en/faq-2-1-figure-1.html

1 Energy Information Administration, www.eia.doe.gov
2 U.S. Green Building Council, 'Green Building and Climate Resistance,' page 14, https://www.usgbc.org/ShowFile.aspx?DocumentID=18496
3 City of Champaign Greenhouse Gas Inventory Report, CCRPC,pg 8

Champaign Greenhouse Gas Emissions by Sector, 2010



Transportation Behavior:

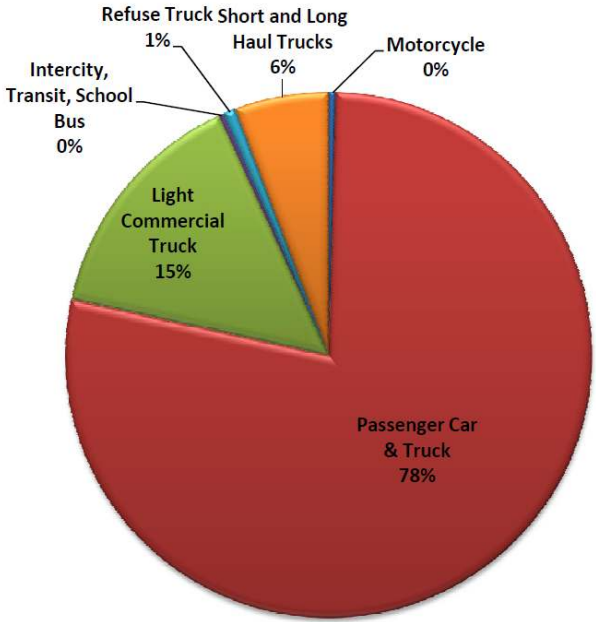
Champaign has been working to improve transportation options and to grow in a way that supports walking, biking and transit choices. In 2008, Champaign adopted *Champaign Moving Forward*, the transporation master plan that guides decisions relating to transportation infrastructure. The Plan called for a transportation system comprised of shopping, service and employment 'nodes' or centers linked by corridors. This pattern of development is efficient for vehicular traffic and also supports transit service and walkable neighborhoods. The *Champaign Tomorrow* Comprehensive Plan builds on this concept and calls for building neighborhoods that are located near centers, parks and schools to minimize how much residents must rely on their vehicles.

Vehicle Miles Traveled: Vehicle miles traveled (VMT) is a measure of the total miles traveled by vehicles within a specified geographic area.[1] Local VMT is provided by the Illinois Department of Transportation (IDOT) from their annual traffic counts for 2010.

Getting to Work: The U. S. Census Bureau tracks the way residents commute or get to work. In Champaign 30% of residents use active transportation, walking, bicycling, transit or carpooling, to get to work, compared to 22% at the state level. In 2002, the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) conducted a Travel Survey that showed that 15% of daily trips in Champaign are home-based work trips, meaning that the person travels from home to work and back, with no other stops.

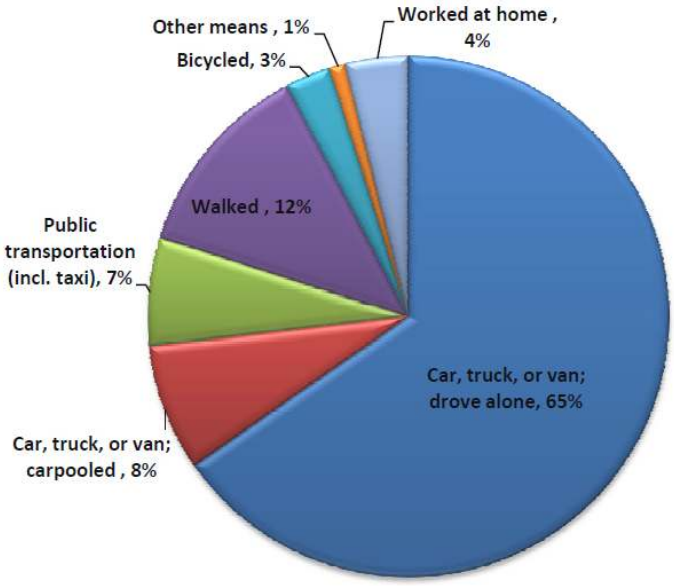
Champaign has a consistently low commute time. Between 2000 and 2010, the commute time has remained 14 minutes, despite 20% population growth. This is much lower than the 28 minute average commute for Illinois.

Champaign Daily VMT, 2010



Source: Page 7, Transportation Inventory by CCRPC

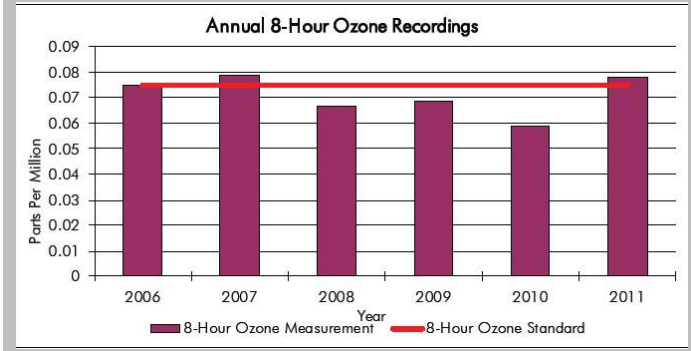
Means of Transportation to Work, 2010



Mode	***City of Champaign***	***State of Illinois***
Car, truck, or van; drove alone	65%	74%
Car, truck, or van; carpooled	8%	9%
Public transportation	7%	9%
Walked	12%	3%
Bicycled	3%	1%
Other Means	1%	1%
Worked at home	4%	4%
Source: 2010 American Community Survey, 5-year Estimates, U.S. Census Bureau		

1 *www.epa.gov/otaq/invntory/overview/definitions.htm*

Air Quality:



Air quality is determined by the amounts of six pollutants in the atmosphere. These include carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone and sulfer dioxide.[1] Note that Greenhouse Gases (GHG) and air pollution are not the same. Though they both come from emissions, air pollution lives lower in the atmosphere and impacts health, like asthma and lung cancer, that GHGs do not.

Part of the funding process for transportation improvements requires that air quality is monitored. The Champaign-Urbana Urbanized Area Transportation Study (CUUATS) is the local agency responsible for reporting this information to the EPA. Under the Clean Air Act, the EPA maintains a set of standards that communities must meet to be considered attainment communities, or meeting the standard. Two key indicators are the measurement of ozone and particulate matter. In 2011, the 8-hour ozone measurement exceeded the 0.07 ppm standard. Particulate matter also increased, but was in the acceptable limit. The report card from the CUUATS Long Range Transportation Plan can be found in the appendix. In this area, air pollutants come primarily from emissions from the transportation system.

1 *http://www.epa.gov/airquality/urbanair/*

Active Transportation: The Champaign-Urbana Mass Transit District (CUMTD) operates the main transit system serving Champaign-Urbana and Savoy. The CUMTD regularly wins awards for excellent service. Community wide, there were more than 55,000 boardings each week in 2010. Just under half of all CUMTD trips are run in the City of Champaign.

Transit ridership has been increasing steadily since 2007. Community wide, annual ridership has increased at a rate of 3-6% annually and grew by nearly 10% from 2009 to 2010 to over 10 million rides. Ridership is highest during months when University of Illinois classes are in session.

The City of Champaign is also working to improve bicycle infrastructure and to build a walkable community. More information on this topic can be found in the Transportation Behavior focus group on page 50.

Municipal Fleet: The City of Champaign operates 612 vehicles as part of its municipal fleet. This fleet includes public works and fire trucks, police cars, code and parking enforcement vehicles and a small number of vehicles for attending meetings. In recent years, the City has worked with Zipcar car sharing service to reduce the number of cars needed for attending meetings. Steps are also being taken to make the fleet more fuel efficient and now includes seven hybrid vehicles, including a heavy duty bucket truck. Fuel consumption has been reduced by 40,000 gallons annually.

Food & Urban Agriculture:

Champaign is located in a rich agricultural setting, but most food in the grocery store has traveled over 1,000 miles to reach the shelf. Finding local 'farm-to-table' or ready to eat food can be difficult. Renewed interest in health and wellness has shown that community and backyard gardens can help educate foks on eating well, increase the food supply and encourage activity. Backyard and community garden programs are also important neighborhood gathering places.

Locally Grown Foods: The Illinois legislature has realized the economic development potential of building a local foods economy. The 2007 Local Food, Farms and Jobs Act is intended to support farmers, create new economic opportunities around local foods and reduce the resources consumed in long distance shipping. Common Ground Food Co-op has a mission to source as much food as possible locally, or within 400 miles of Champaign-Urbana. They work hard to build relationships with farmers yet only 20% of their products are able to be locally sourced.

Urban Food Production: In recent years, interest in home and community gardening and food production has been renewed. Home and community food production is an excellent way to supplement the food supply. During the World War II era, nearly 41% of vegetables eaten in the U.S. were grown in home or community gardens.[1] Today, less than 15% of food worldwide is grown in urban areas and it is lower in the United States. Urban food production could include community kitchens, greenhouses, refrigeration areas or other structures in addition to outdoor growing plots. Currently, the zoning ordinance does not have categories for agriculture or agri-business. Keeping chickens and bees is also prohibited within the City. Reviewing these codes can ensure that zoning is not an obstacle to urban food production.

Food Access and Insecurity: Access to nutritious food is an important part of building a healthy, sustainable community. The term food desert is used to describe low income areas with limited access to grocery stores. The USDA defines a food desert as an area where there is a poverty rate of 20% or more or a median family income at or below 80% of the community's median family income. Low access means that at least 33% of the population of the area must live more than one mile from a large grocery store.[2] According to the USDA food desert locator map, Champaign does not have any officially designated food deserts. However, there are known areas that have limited access to full service grocery stores.

Many residents struggle to meet their basic food needs. The United Way reports that nearly 20% of Champaign County residents are food insecure, meaning they did not have a consistent supply of food. The number of people needing food assistance is growing. This issue is particularly acute among children, with one in six students in eastern Illinois experiencing food insecurity. In the City of Champaign, approximately 56% of students qualify for free and reduced school lunches.[3]

1 *"City Bountiful: A Century of Community Gardening in America", Laura Lawson*

2 *http://www.ers.usda.gov/data/fooddesert/about.html*

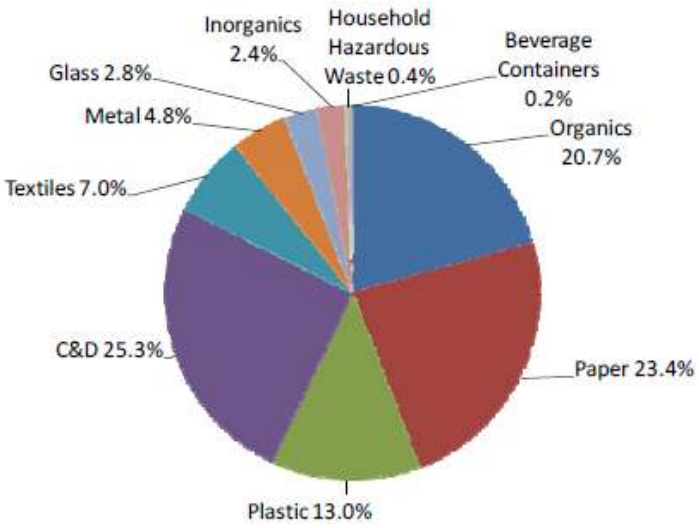
3 *2011 United Way of Champaign County Community Report, pgs. 8 and 14*

Solid Waste & Recycling:

Municipal solid wastes are items that are abandoned for discard or recycling. These items are typically referred to as garbage and may include food scraps, containers and packaging, paper, damaged or unwanted household items and appliances, yard debris and more. Once solid waste is collected it is processed and taken to, a recycling facility, reuse facility or a landfill. How these items are processed has a significant impact on the environment, from the capacity of landfill space to the generation of greenhouse gases created in decomposition.

Solid Waste Collection: The City of Champaign does not provide solid waste collection, but the City does have a set of requirements that private waste haulers must follow. Haulers must be licensed through the City and must provide recycling pick up at no extra charge. The goals of this Plan continue the Solid Waste Goals and Objectives established by the Public Works Department. The strategies contained here are intended to emphasize sustainability and programmatic improvements.

Total Municipal Solid Waste Generation in Illinois (by material), 2007
18.9 million tons, before recycling



Illinois Commodity/Waste Generation and Characterization Study, 2009. Page 20

Landfilled Waste: According to the Illinois Commodity/Waste Generation and Characterization Study, total statewide municipal solid waste amounted to 18.9 million tons in 2007 or 8.06 pounds per person per day. The major sources of individual generated solid waste materials include uncoated OCC/ Kraft, food scraps, and newsprint. The largest categories of landfilled waste in Illinois are construction and demolition waste, paper and food waste, also called organics. Efforts to reduce landfilled waste should be targeted towards these areas and increasing recycling.

Litter: Litter is an eyesore as well as a pollutant. The City does not currently have a comprehensive litter reduction approach.

Recycling: Recycling is an important part of the City's solid waste goals and objectives. A survey conducted in 2011 showed that only 53% of Champaign residents report that they 'recycle regulalrly.' In 2010, "Feed The Thing," a multifamily recycling program was implemented for properties with five or more residential units and rooming houses. This is a fee-based program that the City organizes and all recyclables are collected by a single hauler.

Chapter 1
Green Economy

"We do not inherit the earth from our ancestors, we borrow it from our children."

- Native American Proverb

Defining the green economy is a difficult task. It is best described by its outcomes. The Illinois Green Economy Network states that the green economy results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.[1]" The green economy is the segment of economic activity that results from investment in efforts to improve the environment and use resources more efficiently. These activities could include improvements that reduce energy consumption, the development of clean technology, the use of new technology like hybrid/electric vehicles or the creation of a local food system.

This is not a parallel economy, rather it could be called the 'greening of' the global economy. To respond to this shift, new careers will be created, demand will increase for certain jobs and re-training will be needed for some existing occupations. In many cases, re-training programs will need to be developed, creating yet another opportunity and challenge. There are a number of local institutions that can help. The University of Illinois and Parkland College are building a culture of environmental awareness and creating new training programs to meet these demands. The Illinois Green Business Association, which is headquartered in Champaign, offers tools to help businesses use resources more efficiently through their 'green business' certification program.

1 *UNEP 2010, http://www.unep.org/greeneconomy/Portals/88/documents/ger/1.0_Introduction.pdf*

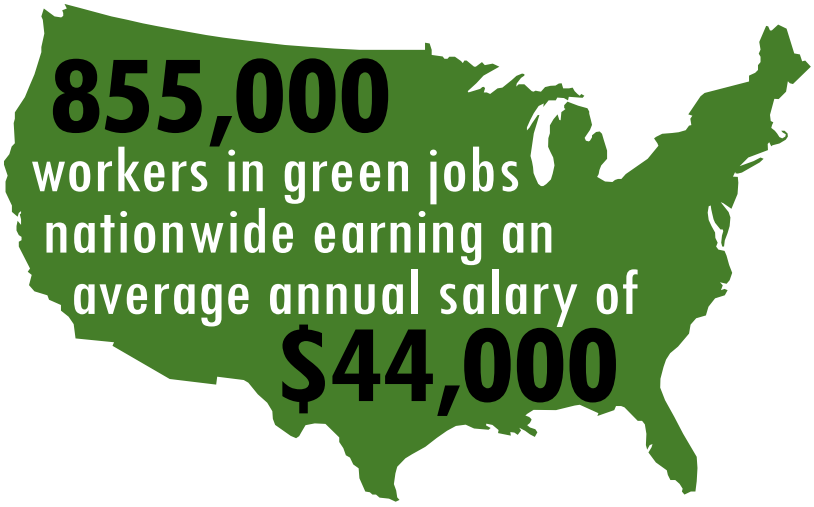
BY THE NUMBERS

Workers trained through the Parkland College Green Jobs Training Program, funded by ILDCEO.

CHAMPAIGN COUNTY ILLINOIS ECONOMIC DEVELOPMENT CORPORATION

ILLINOIS DEPARTMENT OF COMMERCE & ECONOMIC OPPORTUNITY DCEO

*Local, state, and federal agencies **support** and **partner with** local businesses*



Categories of the Green Workforce, by Demand

*Source: 'Greening of the World of Work: Implications for O*NET-SOC and New and Emerging Occupations" www.igencc.org/greenworkforce*

ILLINOIS GREEN Business Association

4 Businesses in Champaign enrolled in the 'Green Businesses' program through the IGBA.

9 Businesses in Champaign that are CERTIFIED 'Green Businesses' through the IGBA

"A road map to individual, community, and business sustainability through job training, education and awareness"

The Green Economy Focus Group Vision Statement

Indicators:

Preparing the Green Workforce:

- Parkland College Green Jobs Training Program trained over 300 workers through a state grant from the Department of Commerce and Economic Opportunity.

Growing a Green Economy:

- Research and training at the University of Illinois and Parkland College **is contributing to emerging and advancing green technology. These are not quantified**, but include bio-fuels and renewable energy, solid waste and composting, food production, and much more.

Certified and Enrolled Green Businesses:

- Through the Illinois Green Business Association certification program:
  - 9 certified green businesses, 2012
  - 4 enrolled green businesses, 2012

Goal 1: Improve access to resources that will build a workforce ready to participate in the green economy.

To take advantage of the greening of the economy, the workforce must be prepared with the right skills. The Illinois Green Economy Network (IGEN) is an initiative of the Illinois Community College system, with funding from the Illinois Governor's Office, the Illinois Department of Commerce and Economic Opportunity and the U.S. Departments of Education and Energy[1]. The mission of IGEN includes creating partnerships with the business community to identify and develop training programs around the green economy. As a member of this network, Parkland College is an excellent local resource. Their Green Jobs Training Program trained 300 employees. Parkland College staff also work closely with the business community to create training programs as needed.

1 *Illinois Green Economy Network, http://www.igencc.org/about-us*

Strategy 1:

Work with community institutions to create a network of neighborhood technology labs.

Through partnerships with UC2B, Unit 4, Parkland College and the University of Illinois, these labs can offer curriculum that will prepare the community for skills needed for green jobs. Neighborhood technology labs are particularly helpful to senior citizens as they obtain computer literacy. Technology labs can offer resources for entrepreneurship as well. Using online tools for promotion or online retail services like Etsy or Ebay can allow a business to get established before investing in a brick and mortar location.

Getting Started: Work with Neighborhood Services Department, UC2B and Community Relations Department staff to identify community institutions that have technology labs. Develop relationships with those institutions to determine willingness to participate and what curriculum is desired.

Strategy 2:

Identify ways the Summer Youth Employment program can advance sustainability and teach young people green job skills.

The Summer Youth Employment program was developed to provide internships and teach needed job skills to local high school students. It is funded through the City with many partners. Through the program, students are placed in interships with partner businesses. Unit 4 Schools report that students who participate have better attendance and fewer discipline issues after completing the program.

Getting Started: Work with the Community Relations Department and Unit 4 Schools to identify opportunities for the Summer Youth Employment program to incorporate green job skills.

An Eco-Friendly Auto Shop:

Lucious Garage is a woman-owned business in San Francisco that realized the need to provide service for the growing number of hybrid and electric vehicles. They service personal autos by day and the City's fleet of taxis by night. The business also works to make the practices of the shop and the facility as environmentally responsible as possible. Practices include paperless transations with receipts e-mailed to patrons, and plants throughout the business. The shop is located in a restored warehouse, uses skylights with solar sensors that activate overhead lights only when needed, rainwater catchment systems, solar cells for energy generation and achieves near zero-waste[1].

Luscious Garage in San Francisco specializes in hybrid and electric vehicles. The facility also uses environmentally responsible practices, achieving near zero waste.

1 *www.lusciousgarage.com*

Strategy 3:

Work to ensure that Parkland College and the Illinois WorkNet Center can continue to provide training resources with an emphasis on sustainability in Champaign.

Parkland College and the Illinois WorkNet Center are highly valued by the local business community for providing training for new and existing workers. When business leaders identify needs, they work quickly to design and execute new training programs in a short time frame. A recent green jobs training program trained over 300 workers. These training resources are invaluable to preparing a workforce ready for the green economy.

Getting Started: Collaborate with Parkland College on job training resources with an emphasis on sustainability.

Strategy 4:

Advance equity by encouraging the involvement of women and minority owned businesses in the green economy.

A sustainable community is also an equitable community. Helping women and minorities, who are underrepresented in business ownership, realize their potential is also a goal of the Community Relations Office. As steps are taken to build the local green economy, opportunities for women and minority owned businesses should be sought.

Getting Started: The Community Relations Office has a women and minority owned business initiative.

Goal 2: Build the local green economy.

Raising awareness of environmentally responsible practices can also raise demand for those practices. The converse is also true. City Council has a strategic initiative to "Promote Champaign as a green community." To create awareness, the City must work with fellow public institutions and partner with business and community organizations to both gather and share information. Building the local green economy will also create greater opportunities for the community.

Reusonomics is a Champaign business specializing is recycling and reuse. Members can drop material at their facility for processing, shown here.

Strategy 1:

Recruit and promote businesses engaged in the green economy.

Building a community culture of environmental stewardship is the first step in fostering the local green economy. Champaign has a strong knowledge based economy and existing resources through the University of Illinois and Parkland College that are attractive to the business community. Through economic development efforts, the City should actively promote existing businesses and recruit new businesses who are engaged in the green economy.

Getting Started: Work with partners like the Champaign County Economic Development Corporation, the Illinois Green Business Association and Illinois Department of Commerce and Economic Opportunity to develop promotion and recruitment tools that effectively target the green economy.

Strategy 2:

Promote the actions local businesses and institutions are taking to become more environmentally friendly.

This is also part of the City Council strategic initiative "Promote Champaign as a green community." To build awareness and opportunities in the local green economy, the City must build a network of partners. Many businesses have already implemented social and environmental responsibility policies. Working with the local business community to highlight their efforts will also help the City show appreciation.

Getting Started: Work with the Champaign County Economic Development Corporation, Chamber of Commerce, Black Chamber of Commerce and Center City Partnership to identify businesses with social and environmental responsibility policies.

Strategy 3:

Promote a forum for community and business leaders in the green economy to meet periodically to share ideas and opportunities.

Many business and community leaders report that they would be willing to take actions to become more environmentally responsible, but they need assistance or models to follow. Learning about best practices is most effective when the lessons come from those who have implemented them.

Getting Started: Work with business and community leaders to identify topics they would be interested in learning about.

Strategy 4:

Build a digital information hub that offers resources for job seekers and employers as well as training and grants for opportunities in the green economy.

Business leaders shared that there are job training and grant opportunities available for folks seeking to become involved in the green economy. Navigating through those opportunites can be difficult. A digital information hub would allow for opportunities to be shared more quickly and efficiently.

Getting Started: Work with partners like the Champaign County Economic Development Corporation, the Illinois WorkNet Center and Illinois Department of Commerce and Economic Opportunity to identify sources of information as well as resources for building the hub.

Strategy 5:

Develop partnerships with the Illinois Green Business Association and other organizations that work on sustainability to create a Champaign Growing Greener Award Program.

An award program is a way to show appreciation for businesses and organizations that are reducing their impact on the environment. This is also part of the City Council strategic initiative "Promote Champaign as a green community."

Getting Started: Work with the Illinois Green Business Association and Economic Development Corporation to develop an awards program

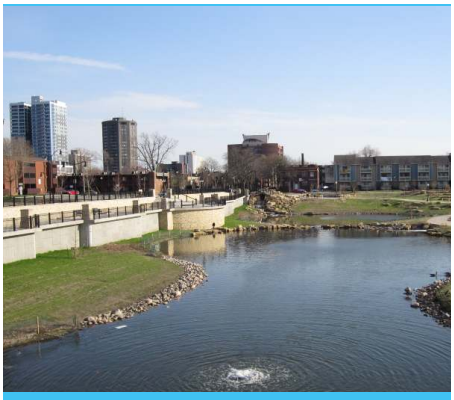
Strategy 6:

Build relationships with neighborhood leaders to ensure information about sustainability and opportunities around the green economy are reaching the community.

Ensuring that information reaches all citizens is the first step in building equity in the green economy. Building relationships is the most effective way to create two-way conversation, learning about community needs and sharing opportunities.

Getting Started: Partner with the City's Neighborhood Coordinator and members of the green economy focus group to identify leaders and develop an effective outreach program.

Chapter 2
Water



"Water is the driving force of all nature"

- Leonardo da Vinci

Water is a key component of life. Understanding all of the ways water is involved in daily living is very complex. For the purposes of this planning effort, water resources are classified in five key categories; groundwater, watersheds, streams, rivers, stormwater and wastewater.

Our region has a plentiful groundwater resource, primarily from the Mahomet Aquifer. The aquifer serves 11 counties in the region, not just Champaign-Urbana. With over one million people relying on this water resource for drinking, bathing, irrigation and everyday life, it must be used wisely.

Champaign has an interesting relationship with water. Though there is a vast underground aquifer, there are few natural surface water bodies in Champaign. Because of the flat terrain and slow draining soils, managing stormwater often requires the construction of retention basins. Champaign residents are very familiar with drainage and stormwater issues. Champaign is part of three watersheds, the Vermillion, Embarras/Middle Wabash, and Upper Kaskaskia. This is also the headwaters or starting point for the Kaskaskia, Embarras and Boneyard/Salt Fork drainage systems. The actions of this area have an impact to all of the communities downstream.

Above: These turtles enjoy a sunny day in the improved Boneyard Creek Basin, between Springfield Avenue and White Street. Photo by Brandon Haist

BY THE NUMBERS

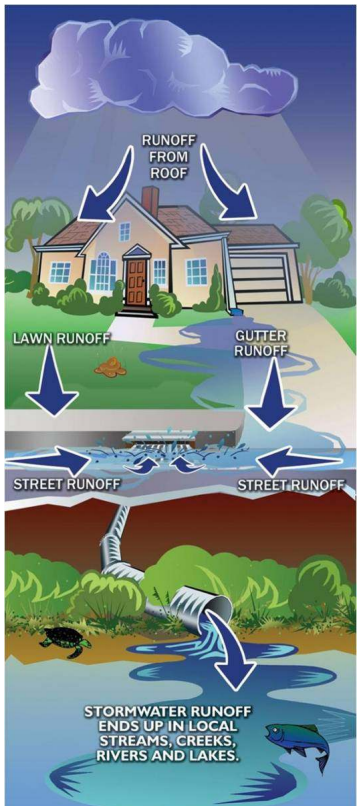
316
Rain Barrels
In 2012, 316 people took advantage of the City's Rain Barrel Incentive Program

12
Rain Gardens
As of 2010, there were 12 rain gardens in Champaign

2.5
BILLION
GALLONS OF WATER ARE USED IN CHAMPAIGN *EVERY YEAR.*

60% OF IMPERVIOUS SURFACES IN CHAMPAIGN ARE FOUND IN COMMERCIAL OR INSTITUTIONAL DEVELOPMENTS.

128 GALLONS OF WATER ARE CONSUMED BY EACH HOUSEHOLD IN CHAMPAIGN EVERY DAY.



Indicators:

Indicators are quantifiable characteristics that can be used to measure progress.

Water Use:
- Champaign Water Use, 2010
  - On average residents use 128 gallons of water per household daily, or 29,959 gallons per person annually.
  - Total use in Champaign ranges between 2.3 and 2.7 billion gallons annually.

Surface Water Quality:
- The City of Champaign adheres to the standards of the U.S. EPA - National Pollution Discharge Elimination System (NPDES) permit for municipalities to reduce non-point source pollution.

Impervious Surfaces:
- Nearly 60% of impervious surfaces are found in commercial and institutional development.

Stormwater Management:
- In 2012, there were 316 Rain Barrel Incentive Program participants
- In 2010, there were 12 rain gardens in Champaign

Wastewater:
- Champaign does not have a gray water reuse program at this time.

Goal 1: Preserve our groundwater supply.

The Mahomet Aquifer provides high quality water to Central Illinois, serving over one-million people and growing. Per-capita consumption has been reduced over the last ten years. A group called the East Central Illinois Regional Water Supply Planning Committee (RWSPC) studies the issue of supply and demand. Their analysis shows that the water supply is sustainable through 2050 with current population growth rates.

The greatest threats to water supply are drought and negligence. Droughts will happen and can not be controlled, but their effects can be mitigated through planning. Negligence is avoidable but requires the city to participate in the water resources planning process. Groundwater resources are plentiful and of high quality, which help to attract businesses that are large water users. An increase in water usage could impact the aquifer negatively, as the supply of water is not infinite or endless.

Strategy 1:

Support legislative actions to improve state water protection laws.

Illinois lags far behind states that have limited water resources in regards to efforts to protect water. The City of Champaign will support the efforts of groups like the Prairie Rivers Network and other advocates as they work at the legislative level to improve water protection laws.

Getting Started: Coordinate with Prairie Rivers Network and provide technical information and resources available to assist.

The Copper Slough

Strategy 2:

Coordinate with Illinois American Water Company and surrounding communities to develop a water conservation ordinance to be used in dealing with water emergencies.

As a private company, Illinois American Water is not able to enact water conservation regulations. This is the responsibility of local governments through an ordinance. Currently, Champaign does not have a water conservation ordinance. With coordination from surrounding cities, Illinois American Water Company and the Champaign County Regional Plan Commission, a consistent water conservation ordinance will be adopted for use in emergencies.

Getting Started: The Champaign County Regional Planning Commission has initiated discussions with their member communities to create a draft water conservation ordinance.

Strategy 3:

Tailor City development requirements to promote landscaping using plants that do not need irrigation.

Development codes require new commercial, employment and institutional properties to include landscaping. The landscaping code requires a certain mix of plants, trees and shrubs, which must be maintained over the life of the property. Requiring plants that naturally thrive in this climate will reduce the need for irrigation, saving water and cost for property owners.

Getting Started: Enlist the assistance of a landscape architect or horticulturalist in a review of the landscaping code.

Strategy 4:

Engage in regional water planning around development and industry that have impacts on the water supply and surrounding communities.

Planning around development and industry, like mining or landfills, that impact the regional water supply is disjointed. Study of groundwater supply is conducted by Illinois Geological Survey (ISGS) and Illinois State Water Survey (ISWS) and the United States Geological Survey (USGS). The Mahomet Aquifer Consortium and East Central Illinois Regional Water Supply Planning Committee use this information to conduct outreach and advocate for change. Continued coordination with scientists, planning groups across all jurisdictions, and their stakeholders is needed.

Getting Started: Address this topic with the Champaign County Regional Planning Commission Technical Committee.

Strategy 5:

Incorporate an analysis of water use when considering new developments.

Currently, water use analysis is not considered when a major development is proposed. When development projects are proposed that will use large quantities of water, the project should provide an analysis of water use. At this time, standards for water consumption do not exist.

Getting Started: Research water impact statement requirements from other municipalities and codes that address water consumption.

Rain garden at Land of Lincoln Legal Services, 300 N. First Street

Goal 2: Protect the quality of streams, rivers and groundwater.

The biggest threat to surface water in Champaign and the urbanized area is from runoff. Runoff is the water that is shed from parking lots, roofs and other surfaces through precipitation. Runoff contains pollutants, like like oil, grease, and road salt from parking lots and streets, as well as litter on the ground.

In Champaign, potable water comes from groundwater. Pollutants in runoff are also a threat to the quality of groundwater. The greatest threat in this area comes from landfills, particularly older landfills that were not built to today's environmental protection standards.

The quality of the groundwater that is used in this region can also be impacted from pollutants outside the City.

Strategy 1:

Actively participate in measures to prevent PCBs and other hazardous waste from being stored above the Mahomet Aquifer.

The Clinton Landfill, located above the Mahomet Aquifer, has planned to dispose of Polychlorinated Biphenyl (PCB) contaminated waste. The City of Champaign has joined with other area governments and area residents to prevent this from happening. The group has also begun working on achieving Sole Source aquifer designation, which will provide greater environmental protections for landfills or projects receiving Federal funding that are constructed over the aquifer.

Getting Started: The group of partners working to prevent the disposal of PCBs at the Clinton Landfill continues to work through the legal system. This group has also submitted an application to the Environmental Protection Agency to designate the Mahomet Aquifer as a Sole Source Aquifer.

Strategy 2:

Explore strategies to contain and filter runoff before it reaches surface water.

Regulations mandated by the Illinois Environmental Protection Agency (ILEPA) through the National Pollution Discharge Elimination System (NPDES) have standards for managing stormwater runoff. The ILEPA has recently announced that more strict standards are coming. These standards will require the first 1.35 inches of rainfall over the impervious area be contained on site. This 'first flush' of stormwater runoff is known to contain the most pollutants. With proper design, most pollutants found in runoff can be filtered and dissipated in a short period of time.

Getting Started: Public Works staff will stay informed about these changes through the management of the City's NPDES permit.

A goose and five goslings swim in the improved Boneyard Creek basin. Photo by Brandon Haist.

Strategy 3:

Investigate options for increasing the frequency of household hazardous waste collections and education about proper disposal.

Household hazardous waste includes paints and finishes, cleaners, motor oils, batteries and other items that are prohibited from being disposed of in a landfill. Though it is not allowed, these liquids are mistakenly poured onto the ground, storm drains and poured or flushed into the sanitary sewer. Community wide collection and disposal events are held periodically, the expense of hosting an event has prevented more frequent collection.

Getting Started: Representatives from the City of Champaign, City of Urbana and the Champaign County Regional Planning Commission have begun meeting to discuss collections.

Goal 3: Promote a naturalized stormwater drainage pattern.

Naturalized stormwater management uses a variety of site features to capture and filter precipitation, allowing it to infiltrate (or percolate into) the soil. These site features include bio-swales, permeable pavement, rain gardens and planting islands that are located throughout the development.

Incorporating naturalized stormwater management has many benefits. These benefits include a reduction in the size of structured detention basins and storm sewers. Bio-swales, rain gardens and other features can capture and cleanse pollutants, keeping them out of streams and eventually groundwater. When designed properly, these features can also add beauty.

Strategy 1:

Incorporate 'Low-Impact Site Design' into development codes to preserve natural drainage ways on development sites.

'Low-Impact Design' or LID is the practice of creating site plans and stormwater management systems that work with natural features, emphasizing natural drainage ways. Rather than a single large detention basin, LID uses the natural drainage of the site and a series of smaller, scattered features that capture, filter and allow stormwater to infiltrate the soil.

Getting Started: The Zoning Ordinance is being updated currently. As part of this update, work with Engineering Staff and a Low-Impact Site Design expert to incorporate this concept into development codes.

Strategy 2:

Promote sustainable stormwater management solutions as part of the City's Stormwater Utility Fee incentive programs.

The Stormwater Utility Fee is based on the amount of load the property puts on the stormwater infrastructure. This is determined by the amount of impervious or solid surfaces, like pavement or roof cover, on each lot in the City. Property owners can have the fee reduced by making site improvements, including the installation of rain gardens, rain barrels and pervious pavement.

Getting Started: All of the tools or incentives that can be used to reduce the fee will be outlined in a guidebook. This is an excellent opportunity to promote sustainable solutions throughout the City, as a way to offset the fee.

Stormwater Utility Fee:

The Stormwater Utility Fee is rooted in the idea that each property creates runoff that must be managed by drainage infrastructure. The price of the fee is based on the amount of stormwater load the property contributes. This is calculated by the amount of impervious or solid surfaces, like pavement or roof cover, on each lot in the City. Revenue from the Stormwater Utility Fee is used for operation, maintenance and rehabilitation costs of managing stormwater. Property owners can reduce this fee by installing features like rain barrels, rain gardens and pervious pavement that capture stormwater on-site. The full package of incentives is available from the Public Works Department.

The John Street Watershed improvements include pervious paving, rain gardens and other sustainable features. Engineer Alex Nagy explains the project to students from the University of Illinois.

Strategy 3:

Develop a pilot program to showcase best-practices in drainage and stormwater management.

A pilot program would identify publicly and privately owned stormwater management projects that would be able to utilize best management techniques. These techniques could be tested through the pilot program to determine the most effective designs and potential problems.

Getting Started: Assemble a committee with representatives from Neighborhood Services, Planning and Engineering to identify stormwater infrastructure, both public and privately owned, that could be part of this program.

Strategy 4:

Support the identification of groundwater recharge areas.

Illinois State Geological Survey, Illinois State Water Survey, and the United States Geological Survey conduct research to map the materials underground and model how water flows through these materials. Groundwater recharge is the process by which precipitation infiltrates the soils and replenishes water supplies buried below the ground. Infiltration occurs at different rates across the landscape and in part controlled by the composition of the soil. In some places water infiltrates the ground more quickly than others. Development demands should be balanced with the need to replenish groundwater in prime recharge areas.

Getting Started: When high priority groundwater recharge areas are identified, consider them in land use planning. These areas can be protected by limiting impervious surfaces within the recharge area.

Goal 4: Reconsider wastewater as a positive resource.

Wastewater is water that has been used in cleaning, bathing and washing in households and businesses as well as water that has been used for industrial purposes and some stormwater that must be disposed of. Though this water has been used once, it still has value.

Wastewater is piped to one of two treatment facilities in Champaign-Urbana where it is pumped through a series of processes that separate solids from liquids. Through anaerobic digestion, the solids produce energy which is captured to power the treatment facilities. The leftover product is free of bacteria and is used as fertilizer. The liquid, called effluent, is treated and released into adjacent streams. The water released from the treatment facility is tested regularly to meet high standards set by the Environmental Protection Agency.

Strategy 1:

Support legislative action at the state level that would allow the reuse of graywater.

Household wastewater is made up of blackwater, which comes from toilets and kitchen sinks, and graywater, which comes from bathtubs, bathroom sinks and washing machines. Graywater has a lower level of contamination because it does not include human or food wastes. It can be piped, treated and reused apart from blackwater when proper systems are installed. Currently, the State of Illinois plumbing code prohibits the use of graywater.

Getting Started: Work with Prairie Rivers Network and the Urbana-Champaign Sanitary District to stay informed about legislative action.

Strategy 2:

Explore options to increase the frequency of medicine collections to prevent disposal in wastewater.

Unused medications are often disposed off by rinsing down a household drain on being flushed in a toilet. These medications are then present in wastewater. Although wastewater is treated for bacteria and other contaminants, medications are not able to be fully removed. Treated wastewater, called effluent is released in streams. Medications that are present in effluent are consumed by fish, frogs and other waterborne creatures as well as the animals and people that eat them. State law mandates that the collection and destruction of unused medications may only be managed by an approved law enforcement agency.

Getting Started: Discussions regarding options for community-wide medicine collections have begun. Representatives from the Champaign Police Department, Urbana Police Department, University of Illinois Police Department and the Champaign County Regional Planning Commission are participating.

Flooding on Neil and Logan Streets in 2010. Prior to the completion of improvements to the Boneyard Second Street Reach and creation of the Boneyard Basin, heavy rain frequently caused dangerous flooding.

Strategy 3:

Investigate the use of treated wastewater rather than potable water for industrial uses.

Certain industrial processes use water for activities like cooling, construction and dust management. These processes often consume large quantities of potable water. Using treated wastewater could reduce impacts on groundwater.

Getting Started: This strategy is also dependent on Strategy 1, "Support legislative action at the state level that would allow the reuse of graywater." Work with the Urbana-Champaign Sanitary District to identify opportunities.

Strategy 4:

Support ongoing efforts of the Urbana-Champaign Sanitary District to capture energy from bio-solids and organic material to power treatment facilities.

The wastewater treatment facilities use anaerobic digestion of bio-solids and organic material to produce energy. Currently, the energy that is produced is not enough to offset the full amount of energy needed to run the facilities.

Getting Started: *Collaborate with the Urbana-Champaign Sanitary District on efforts to increase the amount of organic material collected to boost energy production.*

Chapter 3

The Built Environment

"A society grows great when old men plant trees whose shade they know they will never sit in"

- Greek Proverb

The built environment includes the infrastructure beneath the ground to the tallest building and everything in between. All things in Champaign have been shaped by people since the 1840's when the City was established. At the same time, the built envornment shapes the way resources are consumed, from the energy used to power buildings and street lights to the materials needed in construction. Moreover, the urban design of the community dictates how people get around and the amount of energy required to do so.

According to the 2010 Champaign Greenhouse Gas Emissions Inventory, 78% of greenhouse gas emissions come from the energy used by the built environment. Improving energy efficiency, reducing energy consumption and exploring renewable energy options in the built environment are essential to reducing the community's environmental impact.

Champaign Tomorrow, the City's Comprehensive Plan, guides the way the community will grow over the next 20 years. Growing in a compact, contiguous way is the most effective way to conserve limited resources and become more environmentally sustainable. The Plan emphasizes infill development and building a 'complete' community with parks, schools, and services near neighborhoods. The strategies in this Plan can help bring that vision to fruition.

BY THE NUMBERS

78% The percent of greenhouse gases that come from energy used by the built environment.

$163,000
The amount of money in energy costs saved EACH YEAR by converting the City's traffic lights to LED fixtures.

TREE CITY USA

Champaign has been a Tree City USA since 1984.

The Tree City USA program is a collaborative effort of the USDA Forest Service Urban and Community Forestry Program and the National Association of State Foresters.

8 As of 2012, there were 8 certified LEED buildings & 8 registered LEED buildings in Champaign. **8**

21,476 The number of City owned trees in Champaign. Most are street trees.

Streetlights consume **44%** of energy used by City owned facilities

{ Only 3% of City owned streetlights have LED fixtures. }

Indicators:

Indicators are quantifiable characteristics that can be used to measure progress.

Energy Efficiency:

- Champaign enforces the Illinois Energy Conservation Code (IECC), requiring new and significantly remodeled buildings to be more energy efficient.
- State policy mandates that utilities must reduce energy consumption by 2% of demand by 2015 using efficiency improvements.

Lighting:

- All traffic lights have been converted to LED, saving $163,000 in energy annually.
- In 2012, 105 City-owned streetlights were LED. That is about 3% of the City's 3,330 streetlights.
- City codes require all new streetlights to be dark sky compliant.

LEED Buildings:

- 8 LEED certified buildings, 2012
- 8 LEED registered buildings, 2012

Goal 1: Reduce energy consumed by the built environment.

The built environment includes buildings, street lights, parking lots, streets and other infrastructure. For the purposes of this goal, energy consumed by the built environment includes buildings, outdoor lighting, street lights and traffic lights.

According to the 2010 Champaign Greenhouse Gas Emissions Inventory, 78% of local greenhouse gas emissions come from the energy used by the built environment.

Reducing the energy consumed by the built environment is an effective way to reduce greenhouse gas emissions.

While infrastructure like pipes that deliver water or remove sewage may not use energy, the facilities that pump that material use large quantities of energy. See Water, Goal 4, Strategy 4.

Strategy 1:

Continue to enforce the Illinois Energy Conservation Code that ensures energy efficiency in new construction.

The Illinois Energy Conservation Code requires all new buildings to meet high standards for energy efficiency. This code is enforced through the building permit process and will result in a significant reduction in energy consumed by new buildings.

Getting Started: This code is mandated by the State of Illinois, has been adopted by City Council and is enforced by the Building Safety Division.

Strategy 2:

Develop partnerships to better promote and explain incentives available for energy reduction.

Numerous incentives are available to reduce the cost of energy efficency improvements. These incentives come from a variety of agencies and include rebates, tax credits and other tools. The Database of State Incentives for Renewables and Efficiency (DSIRE) is one source of information, but it is not well known. In order to encourage citizens to make energy efficiency improvements, it is important for the incentives to be accessible and easy to understand.

Getting Started: Assemble a team to identify incentives. Work to promote incentives and make these tools more easily accessible.

Strategy 3:

Review existing improvement programs and develop new programs that focus on making housing more affordable by making homes more energy efficient.

Existing buildings are not subject to the Illinois Energy Conservation Code unless they are undergoing a major renovation. The built environment is responsible for 78% of Greenhouse Gas emissions locally due to energy consumption. Existing buildings are a key component to reduction in greenhouse gas emissions. City inspectors report homes in some neighborhoods have utility payments that are as high as rent or mortgage payments because of inefficiency. They emphasized the need for energy improvements in existing properties to reduce the cost of housing.

Getting Started: Review City programs for building improvements, such as weatherization and other programs primarily managed by the Neighborhood Services Department.

Strategy 4:

Target improvements to existing building stock, both commercial and residential.

The built environment focus group strongly recommended focusing energy efficiency improvements on existing building stock. The Illinois Energy Conservation Code is producing highly efficient new buildings, but the energy efficiency of existing buildings is lagging behind.

Getting Started: When energy efficiency programs are developed, work with the Neighorhood Services Department and partners to target existing building stock.

Strategy 5:

Create a program to promote Ameren 'Act on Energy' audits. Through a rebate program, results will be used to create targeted programs for improving energy efficiency.

The Ameren 'Act On Energy' program offers home energy audits for a reduced cost. Audits include a thorough top to bottom inspection of the home, installation of LED lightbulbs, faucet aerators and other simple upgrades. The audit also provides a report detailing what improvements are needed. The program also offers rebates and incentives for home improvements that reduce energy consumption, if owners decide to complete recommended changes.

Getting Started: Audits currently cost $25 per home to complete. Research the audit incentive programs used in other communities to develop a model program.

Strategy 6:

Review existing codes to allow smaller home sizes and smaller lot sizes to promote energy efficiency.

The Zoning Ordinance has a minimum lot size for development. This lot size may be a disincentive to the creation of smaller homes. Through the zoning ordinance update, these lot sizes could be amended to permit smaller homes.

Getting Started: Research codes from communities that allow smaller lot sizes.

Goal 2: City facilities are a model of energy efficiency and environmental design.

The City must take a leadership role in the effort to become an environmentally sustainable community. City officials can show leadership by ensuring City owned facilities are energy efficient and sustainable. This can be accomplished through upgrades to existing facilities as well as through committments to build new facilities to high standards.

All new buildings in Champaign must be constructed to the standards established in the Illinois Energy Conservation Code (IECC), but the 2012 International Green Construction Code (IGCC) or Leadership in Energy and Environmental Design (LEED) standards are optional. City facilities are built for long-term use, so operational costs are a concern. Building to IGCC or LEED standards can save operational costs over the life of the building.

Strategy 1:

Create a City Council policy that will ensure that all new City facilities are built to 2012 International Green Construction Code (IGCC) or LEED standards.

It is important that the City show committment to sustainability by building new facilities to environmentally responsible standards.

Getting Started: Identify policies from other communities that build public facilities to sustainable standards.

Strategy 2:

Ensure that the new Fire Station Three and community center are built to 2012 International Green Construction Code (IGCC) or LEED standards.

A new Fire Station Three with a community center is planned for the Bristol Park Neighborhood. New City-owned facilities are not built frequently. This project is an opportunity to build to a sustainable standard.

Getting Started: Identify area architecture firms experienced in designing fire stations.

Strategy 3:

Continue ongoing work to improve the energy efficiency of City facilities.

In 2010, the Smart Energy Design Assistance Center completed energy audits for the Police Station, Fire Station One and the City Building. Upgrades to lighting, heating, ventilation and air conditioning have been completed at each facility. All traffic lights have also been converted to efficient LED bulbs, saving $163,000 in energy costs every year.

Getting Started: Develop a checklist of improvements identified in the facilities energy audits and determine what has been completed and what is yet to be completed.

Leadership in Energy and Environmental Design:

The U.S. Green Building Council has developed a certification program for buildings and site designs that conserve energy and resources. This program is called Leadership in Energy and Environmental Design (LEED) certification. LEED sets consistent standards that must be met in order to acheive certification, with Certified at the lowest level, then Silver, Gold and Platinum being the highest. LEED considers the building systems that consume energy, but also transportation, water use, indoor air quality, waste and construction materials.[1] LEED certification is most common in newly constructed buildings, but there are also programs available for the operations and maintenance of existing buildings, commercial interiors and neighborhood development. There are also specialized programs for schools, retail and healthcare buildings.

Top: A LEED Silver certified fire station in Elmhurst, Illinois. Bottom: A LEED Gold certified fire station in Charlotte, North Carolina.

1 U.S. Green Building Council, 'Green Building and Climate Resistance,' https://www.usgbc.org/ShowFile.aspx?DocumentID=18496

Strategy 4:

Adopt a standard requiring all new City street lighting to use energy efficient fixtures.

Energy efficient fixtures like those using LED bulbs use roughly half the amount of energy as traditional street lights. The City owns over 3,330 street lights and only 3% of them had LED fixtures as of 2012. An additional 1,600 street lights are leased by the City from Ameren. A timeframe should be established to transiton all existing street light fixtures to energy efficient fixtures.

Getting Started: Consider reinvesting savings gained from energy improvements to fund additional energy efficiency projects.

Strategy 5:

Develop a policy establishing standards for requiring the use of the 2012 International Green Construction Code or LEED when City incentives are granted.

To encourage development, the City provides incentives in certain situations. Discussion around these incentives and the possibility of requiring sustainable building practices when they are issued has raised many questions. A policy must be developed to determine when or if sustaible measures should be required.

Getting Started: Work with the City's Economic Development Team to craft a policy that outlines standards.

Goal 3: The built environment should respect the natural environment.

There are many specific steps that can be taken to build a more sustainable community. Taking a broader approach, the underlying philosophy of each action is that the built environment should respect the natural environment. This includes considering the night sky when building outdoor lighting, building the tree canopy for habitat and shade, and selecting construction materials with a lighter impact on the earth.

Low-impact storwater management features like vegetated islands with curb cuts capture precipitation.

Strategy 1:

Revise codes to ensure that all new parking lot, parking canopy and street lighting will be dark sky compliant.

New City owned street lights are required to use dark-sky compliant fixtures. Development codes should be revised to ensure new parking and street lighting will use fixtures approved by the International Dark Sky Association.

Getting Started: Amend development codes to require International Dark Sky Association (IDA) approved fixtures. The IDA offers a model ordinance to provide a starting point.

Strategy 2:

Review lighting standards to ensure appropriate light levels, timing of lighting and current technology are specified.

City lighting standards have not been updated in many years. Specifying the appropriate amount of light, spacing of fixtures and technology can save large amounts of energy.

Getting Started: Identify time for Public Works lighting specialists to review and update lighting standards.

Strategy 3:

Adopt the 2012 International Green Construction Code or LEED as the standard for builders wishing to build an environmentally responsible building.

Using a consistent standard will ensure consistency. This will be tied to the building permit review process, so if a builder constructs their building to this standard, all future owners or tenants of the building can be sure that sustainable materials and standards were used throughout the home. This will help to reduce the cases of a builder claiming a building is sustainable, when it is not.

Getting Started: Building Safety staff will review the 2012 International Green Construction Code to determine what portions should be adopted.

Protecting the Night Sky:

Light pollution, or the brightening of the night sky, can negatively impact ecosystems, wildlife migration patterns and other natural phenomena. A brighter night sky is a major concern of astronomers and takes away from simple pleasures like stargazing. In spite of this, outdoor lighting is needed for safety and recreation.

To balance the needs of the built environment and the natural environment, the International Dark Sky Association (IDA) developed a design that accomplishes both. Light fixtures that direct light downward and shields light from going above ninety degrees can acheive Dark-Sky Compliant certification[1]. Dark-Sky Compliant fixtures save energy by directing light where it is needed, reduce glare and prevent light spill-over.

The IDA also offers model ordinances, education resources, lighting specification guides and other practical tools.

1 *International Dark Sky Association, www.darksky.org*

Non-Compliant Light Fixtures

Dark-Sky Compliant Light Fixtures

Strategy 4:

Support the creation and maintenance of the tree canopy to reduce heat, manage stormwater and provide habitat.

Champaign is a Tree City USA. Studies show that trees can reduce the heat island effect created by roads and parking lots, reducing temperatures by up to 47 degrees inside a vehicle. Trees also absorb stormwater through their deep root systems and provide wildlife habitat.

Getting Started: Review existing standards for street trees, parking lot trees and landscaping to ensure that the desired urban tree canopy is being established.

Goal 4: Developments are designed to work with natural forces, not against them.

Efforts to become an environmentally sustainable community must balance the need for human development. There are many site design best practices that are common in the development community. These range from Low-Impact Design to Leadership in Energy and Environmental Design to the National Pollution Discharge Elimination System.

Developers and City leaders understand that the cheapest and easiest practices rarely result in an urban environment that is desirable, attractive and cost effective to maintain over time. Working with natural forces rather than against them can produce vibrant spaces that also use less energy, produce less runoff and provide habitat for wildlife.

Strategy 1:

Consider adopting key principles of Leadership in Energy and Environmental Design for Neighborhood Development (LEED ND).

LEED ND is a series of design principles for the creation of environmentally responsible neighborhoods. It may not be realistic for every neighborhood to meet all LEED ND standards, but certain principles could be universally applied to improve the sustainability of new and redeveloped neighborhoods. These code changes would only apply to new developments over one acre in size.

Getting Started: Work with Planning and Neighborhood Services Staff who are certified in LEED practices to review the requirements for LEED ND certification. Review the LEED ND floating zone language recently completed by the United States Green Building Council.

Strategy 2:

Review codes to prepare for the Illinois Environmental Protection Agency (ILEPA) changes to the National Pollution Discharge Elimination System (NPDES) that will require the first 1.35 inches of stormwater be retained on-site.

Cities are required to submit a NPDES permit to the ILEPA annually. The NPDES permit has standards that must be met, including public education, clean-up events and City-administered development requirements for managing stormwater. This change will be more strict than the existing standard.

Getting Started: Public Works Engineering Staff will follow ILEPA notifications.

The Power of Trees:

The old adage that "money doesn't grow on trees," may not be totally accurate. A mature tree can reduce energy costs by nearly 12% annually[1], can help a home sell 83% faster[2], and add 10% to a property's value[3]. Trees also improve the environment. They soak up stormwater, reducing runoff, and collect carbon dioxide.

Trees can also reduce temperatures. A study published in the Journal of Aboriculture compared the temperature of vehicles in a shaded parking lot and an unshaded parking lot in July and August. Inside shaded vehicles, the temperature was over 47°(F) lower and solar radiation was nearly 80% lower at the shaded location. The study measured the temperature of vehicle fuel tanks to determine the amount of heat being radiated back from the parking lot commonly known as the heat island effect. Fuel tanks in shaded vehicles were between 3.6° and 7.2°(F) cooler[4].

The study also compared unshaded rural areas, unshaded suburban style areas and established neighborhoods with mature trees. The study showed that unshaded rural areas were 4.5°(F) cooler than the unshaded suburban style development. The established neighborhoods with mature trees were 4.5°(F) cooler than the unshaded rural site.[4]

1 Dr. E. Greg McPherson, Center for Urban Forest Research, http://www.arborday.org/trees/benefits.cfm

2 Arbor National Mortgage & American Forests, http://www.arborday.org/trees/benefits.cfm

3 USDA Forest Service, http://www.arborday.org/trees/benefits.cfm

4 Scott, Klaus I., Simpson, James, R., McPerson, E. Gregory. Journall of Aboriculture, May 1999, "Tree Cover Effects on Vehicle Emissions and Parking Lots," pgs 137 and 138.

Strategy 3:

Offer training sessions for property owners and site designers on the best strategies for reducing stormwater runoff.

As part of the education around the stormwater utility fee program, training sessions would offer best design strategies for managing stormwater.

Getting Started: Incentives for the stormwater utility fee include sustainable practices.

Strategy 4:

Implement parking maximums to reduce impervious surfaces.

Impervious surfaces include parking lots, roads, buildings and other structures that do not allow water to permeate the soil. The City sets a minimum number of parking spaces, but does not currently set a maximum number. It is not uncommon for a business or institution to build an excess of parking spaces. Setting a maximum amount of parking is an effective way to reduce impervious surfaces to reduce stormwater runoff.

Getting Started: This issue is being studied for the update to the Zoning Ordinance.

Chapter 4
Energy

"When one tugs at a single thing in nature, he finds it attached to the rest of the world."

- John Muir

Energy is essential to everyday life. Homes, schools and businesses rely on energy for heating, cooling and power every day of the year. Vehicles need fuel to provide transportation for people, the movement of goods and provision of services. The growth in technology, including computers, cell phones and similar devices, has increased reliance on energy to ensure the flow of information. Increasing the use of renewable energy, like wind and solar power, while also reducing energy consumption can result in a sustainable energy supply. Increased supply of renewable energy can also keep demand for non-renewable energy steady, reducing the need for power plant expansion.

Most of the energy consumed in this area is produced using fossil fuels, which are non-renewable resources like coal and natural gas. Using renewable energy can also reduce Greenhouse Gas emissions. Greenhouse Gases (GHG) are chemicals in the atmosphere that trap sunlight and heat, causing a 'greenhouse' effect. They include carbon dioxide, methane, nitrous oxide and even water vapor. Scientists show the amount of GHG present in the atmosphere has increased significantly since the 1900's, due to industrialization and increased emissions[1].

1 *Source: Intergovernmental Panel on Climate Change, www.ipcc.ch/publications_and_data/ar4/wg1/en/faq-2-1-figure-1.html*

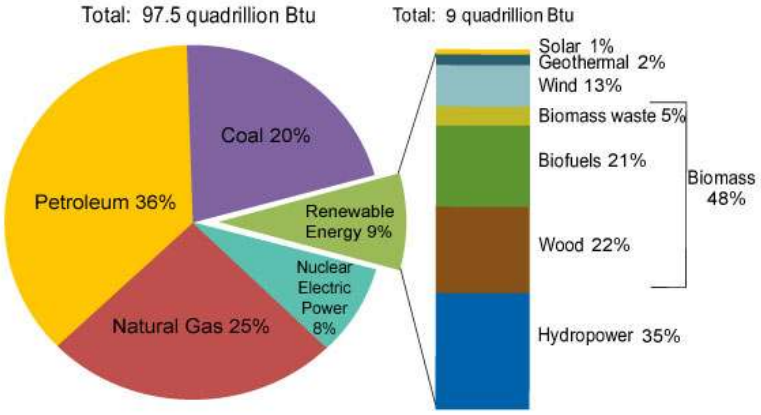
BY THE NUMBERS

100%

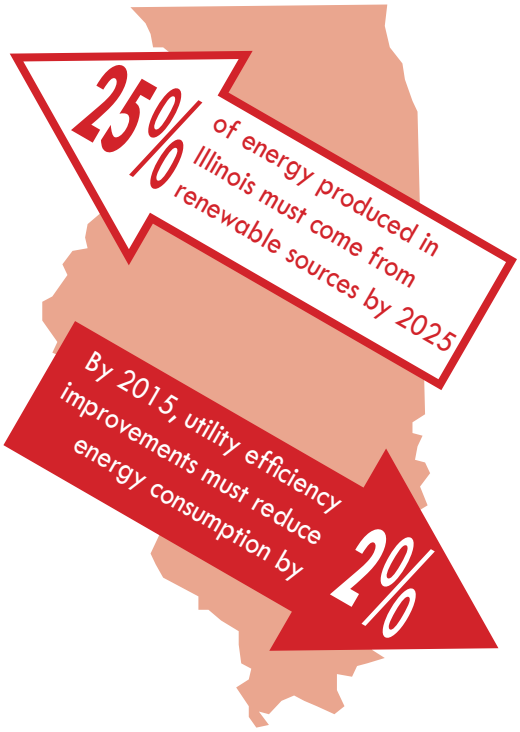
of energy credits purchased by Municipal Electric Aggregation are from renewable sources

The City of Champaign has more than **200 vehicles** in its fleet, yet has reduced annual fuel consumption by over **40,000 gallons.**

U.S. Energy Consumption by Energy Source, 2011



Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 10.1 (March 2012), preliminary 2011 data.



Indicators:

Indicators are quantifiable characteristics that can be used to measure progress.

Energy Generation:

- Over 75% of the energy used in this region is produced through coal combustion.
- Statewide, at least 25% of energy must come from renewable sources by 2025.
- Utilities must reduce energy consumption by 2% of demand by 2015 using efficiency improvements.

Greenhouse Gas Emissions:

Local GHG Emissions:

- 78% from the built environment

Of the GHG emissions from the built environment:

- 26% from residences
- 17% from commercial uses
- 6% from industrial uses
- 1% from municipal uses

Goal 1: Reduce consumption of non-renewable energy to reduce greenhouse gas emissions.

Greenhouse gases are primarily created when non-renewable fossil fuels are burned to create energy. Locally, energy used in the built environment is responsible for 78% of greenhouse gases, while vehicles create 22%.

Illinois adopted a statewide renewable energy standard in 2007. This standard requires the State's utilities to produce at least 25% of their power from renewable sources by 2025. Seventy-five percent of that renewable energy must come from wind, with the remainder coming from solar, bio-mass, and existing hydroelectric power. The law also includes standards for energy efficiency that requires utilities to reduce electric usage by two percent of demand by 2015, using energy efficiency improvements.[1]

1 *United States Energy Information Administration, 2009, http://205.254.135.7/state/state-energy-profiles-print.cfm?sid=IL*

Strategy 1:

Reduce energy consumption in the built environment.

More detailed strategies are contained in the Built Environment chapter on page 34.

Strategy 2:

Continue to utilize renewable energy credits through the municipal electric aggregation program.

Residents of Champaign voted in favor of municipal electric aggregation in 2011. Through the program, the City can receive bids for the best electric rates through a group buying program. In 2011, Council voted to purchase 100% renewable energy credits at a rate lower than the Ameren rate for non-renewable energy.

Getting Started: When new contracts are bid, continue to utilize renewable energy credits.

Strategy 3:

Increase the number of projects in the Capital Improvements Plan that support active modes of transportation to reduce vehicle miles traveled.

Currently, $45,000 is set aside annually for the construction of bicycle infrastructure. Increasing the number of active transportation projects in the Capital Improvements Plan will speed up the rate that a connected system of active transportation infrastructure can be built. More use of active transportation can reduce the amount of vehicle miles traveled, reduce fuel consumption and greenhouse gas emissions.

Getting Started: Review the Capital Improvements Plan to determine funding for active transportation.

Strategy 4:

Continue to reduce fuel consumption in the City fleet through the use of car sharing, purchase of electric, hybrid and fuel efficient vehicles and mileage reduction strategies.

The City fleet, comprised of 222 vehicles, has reduced fuel consumption by 40,000 gallons. This was accomplished by improving overall fuel efficiency and reducing the total number of vehicles by using Zipcar car sharing services. The fleet now has seven hybrid vehicles including one hybrid bucket truck.

Getting Started: The City fleet management division in Public Works has goals to continue improving fuel efficiency. Work with this group to ensure that these goals are promoted and implemented.

Strategy 5:

Promote awareness of energy consumption through the use of smart utility meters.

Smart meters allow users to understand the cost of their energy based on demand. Demand is based on the amount of people using energy, making it more or less expensive throughout the day.

Getting Started: Work with Ameren Act On Energy to develop a program to promote the use of smart meters Citywide.

Smart Meters:

Smart meters transmit detailed energy consumption information to the utility company, including time of day. Traditional meters simply tally the total energy consumed and billing is based on an average price per kilowatt hour or gas therms.

Customers who have smart meters have access to an online tool that shows the real-time cost of energy and they can plan to use more or less energy accordingly. For example, energy prices are more expensive in the morning when the workday is starting and less expensive in the evening when fewer people are using energy.

Why is this important? The capacity of an energy utility is based on peak demand. If peak demand can be reduced, the need to expand or build new power plants can be mitigated.

Goal 2: Improve local energy security through the generation of renewable energy.

Energy that comes from natural resources that can be regenerated is called renewable energy. In theory, these resources are unlimited. Renewable energy primarily includes solar power, wind power, water power, geothermal and biomass. It does not include energy generated using fossil fuels or nuclear power.

Producing energy locally can reduce reliance on energy produced at distant power plants and transmitted through the power grid. This could also provide a buffer for rate increases and could reduce concerns about electricity generation. Public safety officials have been exploring the benefits of having local facilities that can be powered through renewable energy. These facilities could be important in a storm event or emergency that disrupts power distribution, creating self-reliant shelters or command centers.

Strategy 1:

Identify best locations for solar energy generation in Champaign.

Solar energy has the greatest potential for implementation within the City of Champaign. Solar energy potential is determined by availability of sun light at certain times of day. Site features, like buildings and trees, affect the placement of solar panels. Simple analysis shows that buildings in regional commercial and employment centers could have excellent potential for solar energy generation.

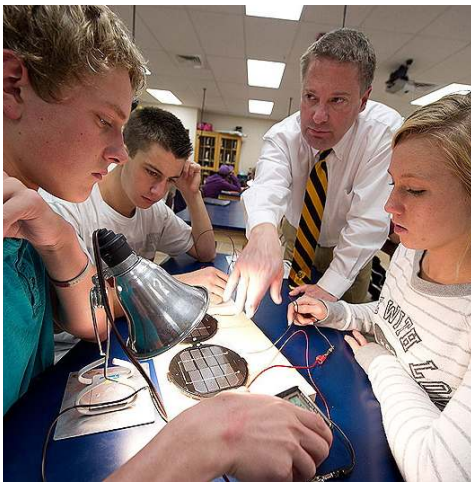
Getting Started: Assemble a team of Planning and Public Works Staff and experts on solar energy to identify the best locations for solar energy retrofits or farms.

Strategy 2:

Partner with other public agencies to identify opportunities for renewable energy generation.

Public agencies, including schools and parks, have a committment to get the most out of limited funding. They also have large facilities to operate. Because public agencies often control large tracts of land, these sites have more potential for renewable energy. Many Unit 4 schools have recently installed geothermal energy systems to save money. In many cases, grant dollars are available to offset the cost of renewable energy installation for public agencies. Working together on renewable energy generation can benefit the entire community

Getting Started: Assemble a team of representatives from public agencies in the community to discuss opportunities, successes and challenges.



Left: Nock Middle School in Newburyport, Massachusetts has numerous solar panels on the roof, helping the school district save money. Right: Students in the engineering class at Chatfield High School in Colorado study solar energy. They track how much energy is produced by the solar panels on the roof of the high school and how it is affected by weather.

Strategy 3:

Explore renewable energy generation at the new Fire Station Three and community center facility.

Incorporating renewable energy at the new Fire Station Three and community center facility is an excellent way to reduce operating costs. It is also a way to educate the community about renewable energy. In the event of a storm, this facility could be designed to be able to produce energy to sustain itself. This strategy is also in keeping with Goal 2, Strategy 2 in the Built Environment Chapter to seek LEED certification for Fire Station 3.

Getting Started: When planning for Fire Station 3 begins, ensure that renewable energy and LEED certification are part of the design.

Chapter 5
Transportation Behavior

"Nothing compares to the simple pleasure of a bike ride"

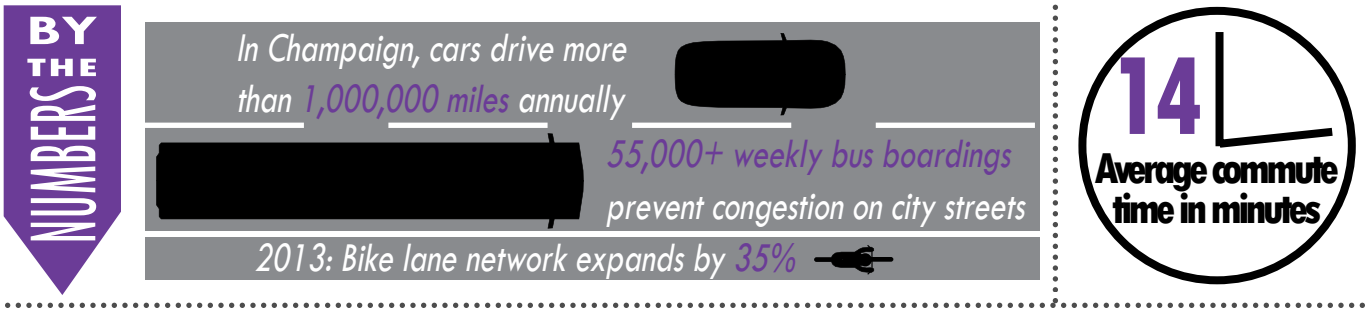
- John F. Kennedy

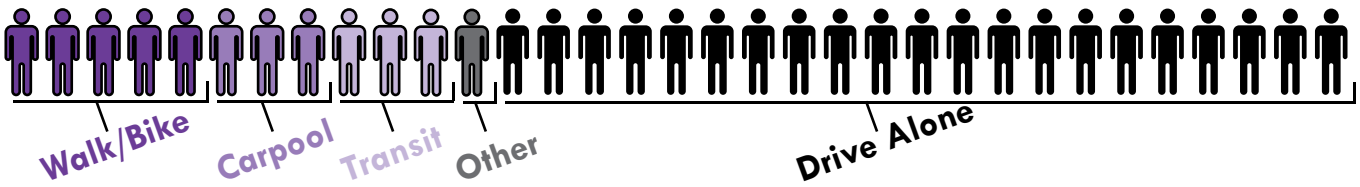
The City has been working to build a connected, efficient transportation network that supports auto, transit, bicycle and pedestrian activity. The City's Transportation Master Plan has a Complete Streets Policy that outlines a transportation network to accommodate all users. A Bicycle Master Plan and Pedestrian Plan are in progress.

Transportation infrastructure is important to efforts to reduce reliance on personal automobiles and total vehicle miles travelled. Infrastructure needs are outlined in the Transportation Master Plan and construction is part of capital improvements planning. This Plan will target non-infrastructure and programmatic strategies that can help change transportation choices.

Champaign is a regional employment, entertainment and retail destination, meaning the total vehicle miles traveled reflects the travel of non-residents. This is important to the local economy and should be encouraged. For the purposes of this plan, efforts to reduce vehicle miles traveled will primarily target community residents.

Above: City employees Teri Legner and Craig Rost participate in Bike to Work Day.





5 Champaign stations for C-U Bike to Work Day

6 Zipcars available at **4** locations around town

zipcar
wheels when you want them

Indicators:

Indicators are quantifiable characteristics that can be used to measure progress.

Vehicle Miles Traveled:

- 1.3 million vehicle miles traveled annually, 2010
- *2010 Vehicle Composition, Percent of Daily VMT*
  - 78% of trips are passenger cars and trucks,
  - 15% are light commercial trucks,
  - Less than 0.3% are all transit and school buses.

Getting to Work:

- *Means of Transportation to Work, 2010*
  - 65% drove alone, 15% walked or bicycled, 8% carpooled, 7% used public transit.
- Commute time in 2000 and in 2010 remained steady at 14 minutes.

Transit Use:

- *Annual ridership, 2010*: 10 million rides
- *Weekly community boardings:* 55,000

Bicycling:

- 2012 - 5.75 miles of on street bike lanes, 2013 - 7.75 miles of on street bike lanes
- The City of Champaign is a designated *Bicycle Friendly Business* by the American League of Bicyclists

Champaign Municipal Fleet:

- 612 total vehicles, 1.3% are hybrids; 7 hybrid vehicles, including 1 heavy duty bucket truck
- Fuel use was reduced by 40,000 gallons annually to 185,000 gallons annually.

Goal 1: Reduce vehicle miles traveled through an increase in active commuting.

Active commuting is traveling to work by walking, bicycle, or transit. According to the 2010 Census, 65% of Champaign residents drove alone while nearly 30% carpooled, walked or bicycled, and 7% used public transit. Champaign has a higher percentage of active commuters than Illinois. Increasing active commuting also helps relieve auto congestion. Between 2000 and 2010, the commute time remained 14 minutes in Champaign, despite a nearly 20% increase in population.

Strategy 1:

Work with partners on outreach and educational events, like 'Bike to Work Day,' to encourage commuting.

Partners like the CUMTD, Champaign County Bikes and The Bike Project are all working to promote active transportation. Events and outreach can provide expertise about active commuting and encourage novices to participate.

Getting Started: Assemble a team to work on outreach and educational events around active commuting.

Strategy 2:

Enhance the high frequency transit corridor along White Street between Downtown and Campustown.

The Champaign Transportation Plan, *Champaign Moving Forward*, calls for the creation of a transit corridor along White Street. The first step has been completed with the improvements to Logan Street and the bridge improvements to White Street over the Boneyard Creek.

Getting Started: Apply for a 'Small Starts' grant in 2014. Plans are in place for street reconstruction in 2018.

Strategy 3:

Continue to work with Unit 4 on 'Safe Routes to School' planning.

The Federal Safe Routes to School Program is part of the Federal Highway Administration. This program is intended to create safe routes for walking and biking to school that enable children to be more active and more healthy. Currently, the City partners with Unit 4 schools and the Champaign County Regional Planning Commission (CCRPC) to complete Safe Routes to School plans. These plans outline the specific steps each school can take to facilitate walking and biking.

Getting Started: Continue to work with Unit 4 and CCRPC to complete these plans.

Strategy 4:

Work with the CUMTD to create a comfortable transit experience through improved waiting locations and shelters.

The comfort and convenience of the transit experience can be the deciding factor between choosing to ride or choosing to take a private automobile. Providing improved waiting stations/shelters can be an incentive for folks considering the option of commuting by transit.

Getting Started: The Champaign-Urbana Mass Transit District has standards for their waiting shelters, typically located along the public right of way. Development standards include provisions for sidewalks in new developments. In the zoning ordinance update, consider how development requirements can result in better waiting areas in highly utilized areas.

Strategy 5:

Investigate additional ways the City can encourage active commuting among employees.

The City of Champaign offers employees transit passes for CUMTD in lieu of a parking pass. A variety of active transportation incentives could encourage greater participation. Active transportation is also a healthier option than driving to work.

Getting Started: Include active commuting as part of the City's wellness encouragement efforts.

Strategy 6:

Design future infrastructure improvements to accommodate transportation choice.

Through the City's Transportation Master Plan and Complete Streets Policy, Champaign has been working to build a transportation network that accommodates all users. In order to build a culture of active transportation, the infrastructure must support that choice. Elements like sidewalks, bicycle lanes or routes and transit shelters must be included as standard features, not extra amenities.

Getting Started: Design infrastructure to Complete Streets standards to accommodate all users.

Goal 2: Build a community culture supportive of active transportation.

Champaign has a good start on building a community culture that is supportive of active transportation. The Champaign-Urbana Mass Transit District provides excellent transportation service and is highly utilized. As of 2013, 7.75 miles of on-street bicycle lanes have been constructed. Champaign has also applied to be designated a 'Bicycle Friendly Community' by the American League of Bicyclists.

Strategy 1:

Create a comfortable bicycling experience through connected bicycle infrastructure network .

With flat terrain and a connected grid street network, Champaign is ideal for bicycling. The City's Bicycle Master Plan recommends a network of on-street bicycle lanes with dedicated funding in the Capital Improvements Plan. Working with the University and the CUMTD, bicycle repair stations have been installed in the Center City. Development requirements also require new commercial buildings to include bicycle parking.

Getting Started: Continue to build the bicycle infrastructure outlined in the Bicycle Master Plan. If available, additional funding could increase the rate at which this connected network is built.

Strategy 2:

Work with service providers and active transportation advocacy groups like the Champaign Mass Transit District, The Bike Project, and Champaign County Bikes on outreach and education.

Local service providers like the Champaign Mass Transit District and advocacy groups like Champaign County Bikes and The Bike Project share the goal of creating a culture of active transportation. Current programs include the 'Light the Night' event that installs free bicycle lights, funded by the Campus Area Transportation Study (CATS) member agencies, including the City of Champaign.

Getting Started: Work with partners to develop outreach and education that improves safety and encourages participation among all members of the community.

Strategy 3:

Reduce reliance on personal automobile through car sharing.

Car sharing services act like a short term, as needed rental car service. Through a membership, users can sign up to use a vehicle to make trips. This works very well for residents who do not need a personal car everyday. It is also useful for businesses and tourists who arrive by bus, rail or air. Zipcar has service in Champaign with most vehicles near the University of Illinois campus and Downtown.

Getting Started: Continue to support the Zipcar program through the use of City-owned parking spaces and City-employee memberships.

Strategy 4:

Understand gaps in active transportation infrastructure through the creation of a Pedestrian Plan.

The presence of sidewalk infrastructure is very important to facilitating walking. A Pedestrian Plan will identify gaps in sidewalks and will also prioritize locations that should be corrected.

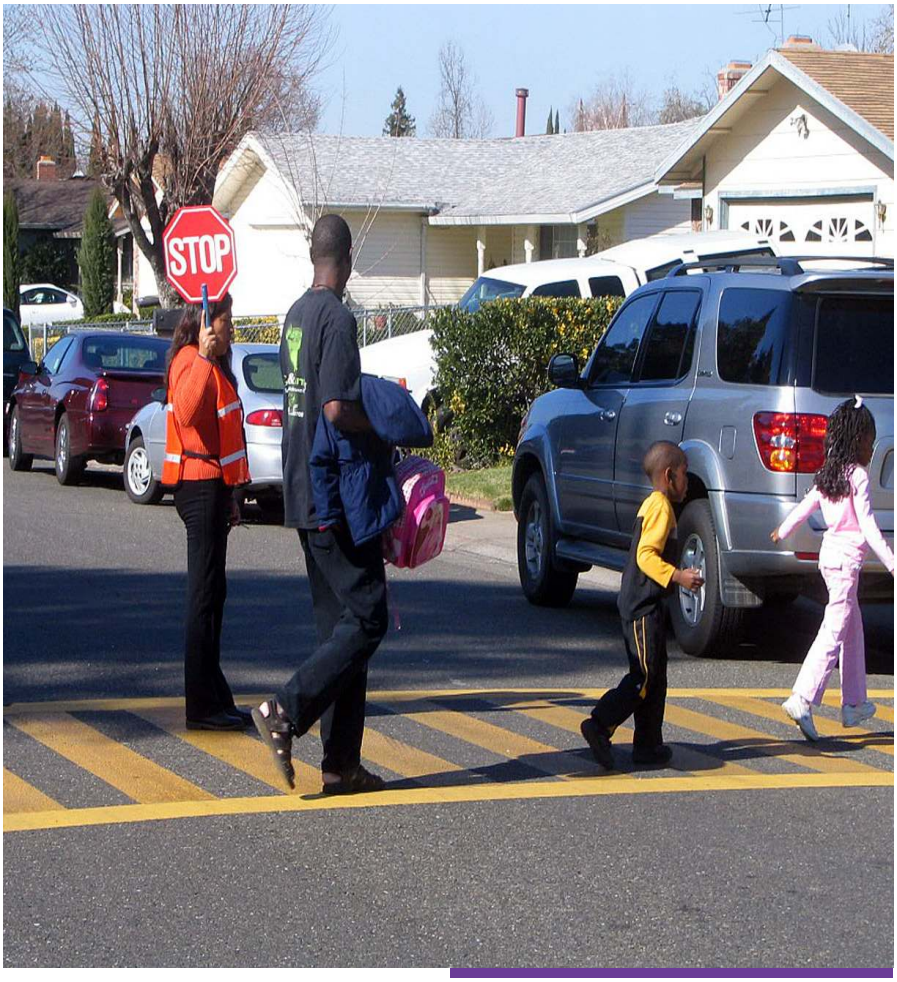
Getting Started: This planning process is scheduled to begin in 2013. Work with staff in Planning and Public Works to develop the plan.

Strategy 5:

Support inter-city transit connections to Champaign by bus, rail and air.

Inter-city transit connections in Champaign are important to a culture of active transportation, because they reduce reliance on a personal automobile. The large student population at the University of Illinois and Parkland College frequently use bus and rail to travel home. Combined with good transit, car sharing, and density, the need for personal cars for Downtown and Campus dwellers is greatly reduced.

Getting Started: Collaborate with the Champaign-Urbana Mass Transit District on the future expansion of Illinois Terminal.



Chapter 6

Solid Waste & Recycling

"Give a hoot, don't pollute!"

- Woodsy the Owl

Trash, garbage and rubbish are all names for solid waste. Most people do not spend time thinking about the items they discard, once they are placed in the waste bin. These items do not simply disappear. The reality is, an entire industry is devoted to collecting, transporting, processing, repurposing and landfilling the items in that bin. After processing, waste is transferred to a recycling facility, reuse facility or a landfill.

Although the general population has limited awareness of this industry, each person plays a role in it. By choosing an aluminum can or a plastic bottle, a reuseable shopping bag or disposable plastic bag, a series of consequences result. For example, the aluminum can may be recycled an infinite number of times, the plastic bottle may only be recycled a limited number of times. Plastic bottles are often 'downcycled' into items like carpeting or fleece fabric than cannot be recycled any longer. The reuseable shopping bag creates no waste, while the plastic bag does. Simple choices each day can have a big impact on how much waste is created and ultimately the number of landfills needed to store it.

This plan will focus on municipal solid waste. Industrial and hazardous wastes are managed by other authorities. Municipal solid waste may include paper, containers and packaging, food scraps, damaged or unwanted household items and appliances, yard waste and more. It also includes construction and demolition waste.

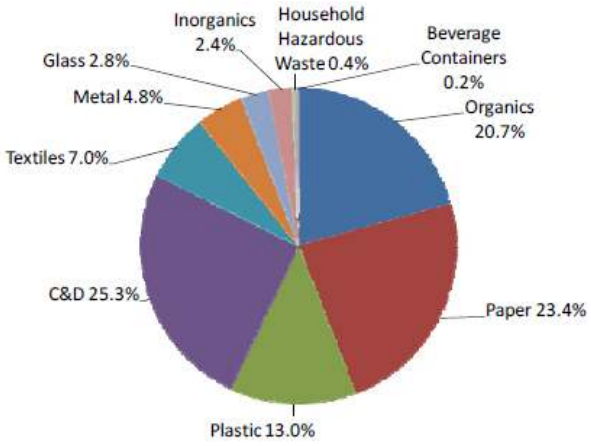
BY THE NUMBERS

8.06 pounds of solid waste per person per day is generated in Illinois. That is nearly 3,000 pounds of solid waste per person each year, roughly the weight of a prius.

Infinity. The number of times an aluminum can can be recycled.

Total Municipal Solid Waste Generation in Illinois (by material), 2007

18.9 million tons, before recycling



Illinois Commodity/Waste Generation & Characterization Study, 2009. Pg. 20

4.1 pounds of recycling per household collected in Champaign each week. Urbana averages 9.5 pounds.

53%

The number of Champaign residents who regularly recycle.

Indicators:

Indicators are quantifiable characteristics that can be used to measure progress.

Disposal Resources:

- *Champaign County maintains a website with proper disposal resources for the area*
  - www.co.champaign.il.us/recycling

Recycling:

- *Single Family Recycling Participation, 2011 (survey)*
  - 53% regularly recycle
  - 26% recycle sometimes
  - 20% do not recycle
- *Multi-family Recycling Participation, 2011 (actual)*
  - 2.7 pounds collected per household/week, with a goal of 6.25 pounds per household/week
- *Public Recycling Bins, 2011*
  - 3 - Campustown, 2 - Boneyard Basin, 2 - Downtown

Construction and Demolition Waste:

- *Area facilities accept 6 key items*:
  - Architectural salvage, Asphalt, Brick & Concrete, Wood, Glass, Metals

Electronic Waste:

- *Champaign County Regional Planning Commission Countywide Electronic Recycling Collection Events*
  - 2010, 291 tons of electronic items
  - 2011, 200 tons of electronic items

Goal 1: Reduce the amount of solid waste that is landfilled.

The City requires all approved waste haulers to collect recycling for no additional charge. A recent survey of Champaign residents showed that only 53% of respondents regularly recycle. Comparing recycling quantity, Champaign residents collect 4.1 pounds of recycling per household each week, while Urbana residents collect 9.5 pounds per week.

The Illinois Commodities Waste Study estimates that 8.06 pounds of waste is generated per person per day. The study also concluded that landfills in Illinois are currently diverting only 19.1% of waste through re-use, recycling, and composting. This shows that there is signficant market potential to increase reuse, recycling and composting and reduce landfilled waste.

Recyclable materials have a value. They are exchanged like commodities and sold to industries that use the material to create something else.

Strategy 1:

Increase the minimum number of items collected for recycling to the industry standard of 30 items or more.

Recyclables are classified into many different categories. The layperson thinks of cans, bottles and plastics, but the categories are much more specific. Within the recycle symbol found on packaging is a number that identifies the item category. Each category is based on the composition of the material. While metals are fairly easy to identify, plastics and paper can be more difficult. For example, there are many different categories of plastics. Solid waste processors commonly accept 30 standard recyclable items. To reflect this, licensed waste haulers in the City should be required to collect those items. Currently, the City requires waste haulers to collect only five items in order to be licensed.

Getting Started: Identify the 30 standard recyclable items and revise the licensing standard. Set a time frame for currently licensed haulers to come into compliance. Track the increase in recyclables through the City's required reporting program and report.

Strategy 2:

Enhance programs that reclaim items discarded during move-out and move-in times of University of Illinois and Parkland College students.

The Neighborhood Services Department helps organize move-out events that recapture usable items. They also take steps to prevent rubbish from being discarded improperly, creating a nuisance enforcement issue. There is an opportunity to improve recycling availability and awareness during move-out and move-in.

Getting Started: Continue to work with partners like the Campus YMCA to collect reusable items and non-perishable foods during move-out

Strategy 3:

Explore partnerships for reuse of commercial food waste.

In many businesses, diverting food waste from landfills can be managed efficiently with a food waste specific hauling program. Businesses in the food industry like grocery stores, restaurants and institutions like school cafeterias likely generate the greatest amount of food related waste. If collected properly, this organic material can be converted to animal feed, compost and even used to generate energy through anaerobic digestion.

Getting Started: Identify businesses and institutions that would benefit from a food waste composting program and complementary businesses that accept the waste.

Strategy 4:

Implement a residential composting incentive program.

Food waste is highly compostable, being used to create nutirient rich soils and for energy production. Diverting food waste could prevent nearly 20% of waste from entering a landfill annually. Nationally, 33 million tons of waste is from food waste. This also results in less waste that must be trucked to the landfill, saving fuel and other resources. At the residential level, it is more efficient to compost in a home compost bin. An incentive program could be in the form of a bulk purchase program or another incentive system coupled with education.

Getting Started: Research bulk purchase programs and identify funds available for incentives.

Strategy 5:

Incorporate a waste diversion strategy for construction and demolition waste into demolition permits.

Construction and demolition waste makes up 25.3% of material landfilled in the State of Illinois. Before a building can be demolished, a demolition permit must be issued by the Building Safety Division. A number of local and nearby organizations accept certain construction and demolition (C & D)waste. When processing facilities are in the community, a waste diversion plan for those items should be included in the permit. C & D waste must be taken to special landfills

Getting Started: Identify the construction and demolition materials accepted by local processing facilities. Work with the Building Safety Division to incorporate waste diversion into the demolition permit process.

Strategy 6:

Learn more about the source of paper waste and develop targeted recycling programs.

Paper waste comprises 23.4% of material that is landfilled annually. Paper is highly recyclable.

Getting Started: Work with local waste haulers to understand how paper recycling rates could improve and identify organizations that could be targeted.

Goal 2: Reduce litter in the City.

Litter pollutes the environment and poisons wildlife who mistake it for food. It can clog storm sewers, wash into streams and damage farm equipment. Litter can also have a negative impact on the image of a community. The Neighborhood Services Department primarily manages litter through enforcement and neighborhood clean-ups. Public Works is also involved through street sweeping. The City does not have an active litter prevention program at this time.

Strategy 1:

Review existing litter clean-up programs and consequences.

Litter is managed by the Neighborhood Services Department through the property maintenance code, though they primarily target residential properties. There is growing concern about litter in the North Prospect Shopping area, particularly wind-blown rubbish and plastic shopping bags.

Getting Started: Identify code language and consequences that address litter, as well as all departments responsible for enforcement.

Strategy 2:

Increase the number of waste and recycling bins that are available on public streets.

To ensure recycling participation, it is important to have recepticles that are easy to find. In 2011 there were seven public recycling bins. In 2013, 24 recycling bins will be available in downtown, campustown and midtown. The ongoing cost of collection is a greater challenge than providing the bins. When these areas have adequate recycling bins, areas outside the Center City that would benefit from public recycling bins should be identified.

Getting Started: Identify locations where recycling bins are needed and funding to add the bins and collect the material.

Strategy 3:

Work towards becoming a designated 'Keep America Beautiful' community, to address litter and beautification.

Keep America Beautiful (KAB) is a national organization that offers resources for litter prevention and clean-up, tree and flower planting and other actions. Program fees are offset by entitlement grant dollars offered by the state chapter.

Getting Started: Work with the City Sustainability Team to assign roles and responsibilities needed for KAB designation.

Goal 3: Provide quality, cost effective solid waste and recycling services.

The City does not have a municipal waste collection service, but it does require a licensing program for waste haulers who operate locally. The City also has the opportunity to increase the availability of solid waste and recycling services through permitting and regulations. The purpose of the City's recycling coordinator is to develop programs, regulations and outreach that encourage recycling participation.

Recyclables in a waste can during an outdoor event.

Strategy 1:

Increase recycling participation among residential customers.

The City's recycling coordinator has been working with City Council to determine the best way to increase participation in curbside recycling. In a recent survey of Champaign residents, only 53% of respondents report that they recycle regularly.

Getting Started: Through receipts from waste haulers, measure the amount of recyclable material collected as well as the participation rate to determine a starting benchmark.

Strategy 2:

Explore recycling collection at commercial, educational and institutional buildings.

City recycling strategies are focused on municipal buildings, multi-family properties and residential curb-side collection. Commercial, educational and institutional buildings are responsible for their own recycling program.

Getting Started: Through the Recycling Coordinator, work with waste haulers and commercial, educational and institutional organizations to undertand their recycling practices.

Strategy 3:

Require that recycling is collected at community events through the event permit process.

Offering recycling at special events will bring attention to the community's sustainability efforts and divert waste from the landfill. Waste collection is already a provision in the event permit process.

Getting Started: Work with staff who manage the special event permit process to complete this change.

Chapter 7

Food & Urban Agriculture

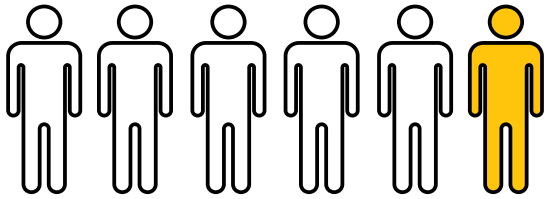
"The first supermarket supposedly appeared on the American landscape in 1946. That is not very long ago. Until then, where was all the food?"

- Joel Salatin

Champaign has a long agricultural heritage. With rich soils and large, flat fields, this area is ideal for the production of commodity crops, including corn, soybeans and other grains. Soil tests have confirmed that 90% of the soils in Champaign are considered 'prime farmland' and 78% are considered 'best prime farmland,' which is some of the most productive soil on earth. With the growth of the urbanized area comes the conversion of farmland to other uses, like housing and businesses. The Comprehensive Plan, *Champaign Tomorrow*, calls for compact and contiguous growth, emphasizing infill and reuse of existing properties. This land use approach can help mitigate the conversion of productive farmland.

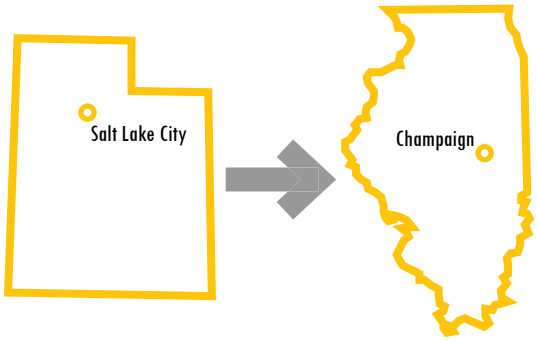
Healthy eating and local food production is a growing area of interest. First Lady Michelle Obama had a kitchen garden built at the White House, the first to be built since Eleanor Roosevelt's Victory Garden. The First Lady also has a healthy eating and exercise initiative called, "Let's Move." Restaurants are creating seasonal menu items to accommodate local producers. High-end retailers like Williams-Sonoma are now selling backyard chicken coops, raised bed kits and fashionable garden equipment. Popular websites like Pinterest showcase gardening, canning and baking using fruits and vegetables from the backyard. A cookbook from 'The Pioneer Woman' is on the New York Times Best Sellers list. In short, knowing where food comes from - and even growing your own - is not only healthy, it is popular.

BY THE NUMBERS



1 in 6 children in Champaign County experiences food insecurity.

{ 20% of Champaign County residents experiences food insecurity. }



Locally grown foods travel an average of **56** miles. Most food in the grocery store travels an average of **1,400** miles. That is roughly the distance between Champaign & Salt Lake City, Utah.

Common Ground Food Co-op has a mission to provide locally grown and organic food. They are only able to source **20%** of their products locally.

41%

The percent of vegetables eaten in the United States that were grown in home or community gardens during WWII. Today, only **15%** of the ***world's*** food is produced in urban areas.

Champaign-Urbana has...

5 Five direct sale farms and gardens.

4 Four farmers markets.

3 Three gardens and farms that produce food for sale.

2 Two gardens with community plots.

1 One local foods grocery co-op.

Indicators:

Indicators are quantifiable characteristics that can be used to measure progress.

Food Security:

- Nearly 20% of Champaign County residents are food insecure.
- Currently, 1 in 6 students in eastern Illinois is food insecure.
- Eastern Illinois Food Bank is the key resource for addressing hunger in the region.

Food Production:

- Community Gardens in Champaign, 2012
  - 2 gardens with community plots
  - 3 gardens/farms that produce food for sale

Farmers Markets:

- Farmers Markets, Direct Sale or Food Co-Ops in Champaign-Urbana
  - 4 farmers markets
  - 5 direct sale farms/gardens
  - 1 food co-op

Goal 1: Ensure that healthy foods are accessible to all residents.

A food desert is determined based on the income of a neighborhood and distance to a grocery store. Champaign does not have any areas that meet the government definition of food desert. Despite this, there are neighborhoods where residents have limited access to a grocery store and transportation challenges. In these areas, convenience stores commonly provide food, though healthy products are limited.

Convenient access to healthy foods, especially ready to eat healthy foods, is a challenge experienced by many communities. A number of other communities have attempted to address this issue, with some success. Issues of demand also influence what stores choose to stock. Education around healthy eating must be part of improving access.

Strategy 1:

Where access to healthy foods is limited, explore partnerships to improve access to healthy foods.

Champaign does not have any areas that meet the government definition of food desert. There are neighborhoods where residents have limited access to a grocery store and transportation challenges. Often, convenience stores with a limited selection of healthy products are common.

Getting Started: Work with the Food Equity Group to review their analysis on food access in Champaign. Identify potential partner organizations and businesses who would be willing to work on this issue.

Strategy 2:

Explore the potential for a neighborhood supported grocery co-op.

The Common Ground Food Co-op has grown rapidly in the last ten years, locating in a high profile location and completing two expansion projects. This example shows that a member-supported grocery store can be successful here. Common Ground has a mission to provide locally grown and organic food and reinvest in the community. A neighborhood supported grocery co-op may not have the same mission. Theirs may be focused on access to healthy foods, education around healthy choices and neighborhood reinvestment, for example.

Getting Started: Work with neighborhood leaders to identify areas with concerns about access to nutritional foods.

In Focus: The Healthy Corner Stores Initiative:

The Healthy Corner Stores Network (HCSN) is a non-profit organization working to "increase the availability and sales of healthy, affordable foods through small-scale stores in underserved communities."1 The network has over 600 members, including non-profit organizations, public health organizations and municipalities.

The HCSN compiles information from projects around the nation, conducts independent research, issues practical tool-kits and provides resources on how to create healthy retail. Much of their material emphasizes working with existing retailers, like convenience stores, as partners.

1 *Healthy Corner Stores Network, http://www.healthycornerstores.org/about-us*

One successful example is the Philadelphia Healthy Corner Stores program, which develops partnerships with existing retailers to improve access to healthy foods, but also to be profitable for store owners. The program has been in place since 2010 and has yielded the following lessons:

1) Partnering with corner stores can be an effective strategy to improve healthy food access in underserved communities.

2) Corner store owners are willing to introduce healthy inventory, but they need support and simple steps to follow.

3) Making small investments in equipment for corner stores can significantly increase the stores' capacity to sell healthy products.[2]

2 *Philadelphia Healthy Corner Stores Initiative Report, 2010-2012, http://www.thefoodtrust.org/php/programs/HCSI_Y2report_FINAL.pdf*

Strategy 3:

Develop partnerships with organizations like the Public Health Department to create healthy eating programs that can be shared through City neighborhood groups and City sponspored events.

The Public Health Department and other groups have a mission to help build a healthy community. By working together on this issue, each organization can use the strengths of the other.

Getting Started: Meet with the Public Health Department to find ways to work on common goals.

The Chicago Healthy Corner Stores program works with convenience stores to improve access to healthy foods.

Goal 2: Improve the availability of locally grown foods.

The Illinois legislature has realized the economic development potential of keeping dollars spent on food within the state through the 2007 Local Food, Farms and Jobs Act. The program seeks to build a local foods economy to support farmers, create new economic opportunities around local foods and reduce the resources consumed in long distance shipping. The task force report states that the majority of food in the average grocery store travels an average of 1,400 miles to reach that store. Locally grown foods travel an average of 56 miles to reach the consumer. Commercial food distributors consider locally grown food to be grown within a 400 mile radius.

The United States Department of Agriculture is also working on locally grown foods through their 'Know Your Farmer, Know Your Food' program.

Strategy 1:

Create a community-wide work group for practitioners working on local and healthy foods that will meet regularly.

The participants of the Food and Urban Agriculture focus group expressed interest in meeting regularly to collaborate on projects, share ideas and identify resources around local food. Practitioners represent farmers markets, the Common Ground Food Co-Op, community gardens, urban farms, public health and advocacy groups. Participants would represent organizations in both Champaign and Urbana.

Getting Started: The Champaign County Regional Planning Commission has agreed to host the work group to include organizations throughout the County.

Strategy 2:

Support the effort to create a food hub, a place where locally grown foods are aggregated for distribution that would serve this area.

A food hub is a warehouse and distribution center where food from many producers can be aggregated for shipment to grocery stores, restaurants, or institutions. The food hub helps farm-to-table producers contribute to large quantity orders demanded by major buyers. Often, food hubs also provide refrigerated storage and packaging services.

Getting Started: The creation of a food hub is also a goal of the Local Foods Policy Council, a committee of the Champaign County Board. Work with the local foods practitioners work group and Local Foods Policy Council to identify opportunities.

Efforts to Build a Local Foods Economy:

Common Ground Food Co-op: Common Ground Food Co-op is a member owned grocery store that prioritizes the sale of food from local farmers and organic, fair-trade products, located at Lincoln Square Mall in Urbana. The organization has a committment to community education and investment. The Flatlander Community Kitchen, located inside the store provides classes and meeting space. Non-members can also shop at the co-op and participate in their events.

Local Foods Policy Council: The Local Foods Policy Council is a commission of members appointed by the County Board. The purpose of the Council is to encourage, "the establishment of small businesses; the offering of better and fresher food available locally; larger institutional entities to commit to the use of 10% of local food to support growth and the local economy; the efficient use of land, and preservation and conservation of agriculture; reduction in food transportation; and to promote educational resources for the local population."[1]

1. *Resolution Establishing the Champaign County Local Foods Policy*

Strategy 3:

Support the use of the Supplemental Nutrition Assistance Program at local farmers markets.

The Supplemental Nutrition Assistance Program (SNAP) or food stamp program can be used at local farmers markets. In previous years, a grant program has doubled the value of food stamps at farmers markets to offset cost differences between the supermarket and the farmers market.

Getting Started: Work with partners like the Champaign County Public Health Department and Prosperity Gardens to ensure that SNAP benefits can be used at farmers markets or produce stands in Champaign.

Goal 3: Advance urban food production.

Today, there is a renewed interest in urban food production, through home and community gardens, canning and other culinary pursuits. This movement is influenced by interest in healthy living, eating locally produced food, food safety and taste.

Producing food in the City can supplement the food supply, encourage healthy eating and provide social benefits. During World War II, when food was being rationed for troops, nearly 41% of vegetables eaten in the United States were grown in home or community gardens[1]. Today, only 15% of the world's food is produced in urban areas, and in the United States it is much lower.[2] Community gardens can also provide opportunities for education about horticulture, healthy meals and entrepreneurship.

1 "City Bountiful: A Century of Community Gardening in America," Laura Lawson
2 http://afsic.nal.usda.gov/farms-and-community/urban-agriculture

Strategy 1:

Explore the potential of a small-scale permaculture program, which includes perennials like fruit and nut trees and berry plants, in identified areas, such as the Boneyard Greenway.

Permaculture is about selecting perennial plants that can provide many benefits to the environment. For example, a tree may provide shade and habitat, but also fruit and nuts for food. The City owns property along the Boneyard Creek that is being reserved for flood control. There may be other locations that would also be appropriate for permaculture. A key component of this strategy is to partner with a group that is willing to maintain and harvest the produce.

Getting Started: Identify locations that would be appropriate for permaculture and organizations that could maintain and harvest the produce.

Strategy 2:

Partner with local organizations, like the University of Illinois Extension Service, to create a program to encourage home gardening.

Home gardening is an important component of an urban food production program. In the World War II era, the U.S. government War Department created a Victory Garden program, promoting home gardening to supplement the food supply. Promotional efforts included artist-designed posters and guides on what to plant. Reprints of these posters continue to be sold today.

Most home gardens are intended to provide seasonal vegetables, fruits and herbs for a single family, though there are local efforts to distribute surplus garden produce through the Eastern Illinois Food Bank. Common Ground Food Co-op is offering a series of classes to teach gardening skills and how to cook with fresh, seasonal produce.

Getting Started: Identify partners to develop and implement a home gardening program.

Strategy 3:

Investigate the potential for allowing poultry and bee keeping within the City.

~~Keeping chickens or having bee hives is prohibited within the City limits. * A number of other cities permit these uses under certain conditions. Conditions may include an annual inspection to ensure animals are kept in humane and hygenic conditions, the approval of a waste disposal plan and prohibitions on roosters.~~

**Editor's Note: Due to a misinterpretation of standards regarding agricultural uses, this strategy stated that bee hives are not allowed within municipal limits This is incorrect. After further analysis, it has been determined that the Champaign Municipal Code does not prohibit bee keeping. Residents who produce honey for sale will have to follow rules regarding home based businesses in order to sell their products.*

In 2013, City Council passed CB 2013-230, allowing backyard hens with a Coop License.

Strategy 4:

Consider urban agriculture in large scale publicly funded residential developments.

Research shows that gardening can improve health, supplement the food supply and build community. When a large scale residential development receives public funding, space for garden plots or other food production should be provided. This is commonly included in Leadership in Energy and Environmental Design certified projects.

Getting Started: Identify publicly funded residential developments that have garden space and how that space was acheived.

Strategy 5:

Create a program for leasing vacant City lots for food production.

The City owns a number of vacant lots that have potential for gardens. At this time, no procedures are in place for making these lots available for food production.

Getting Started: Research programs used in other communities. Identify properties that would be suitable for inclusion in a leasing program for food production.

The Victory Garden of Tomorrow program was started by an artist in Portland, Oregon who was inspired by the promotional efforts of the WWII era. This could provide a model for partnering with the local arts organization, 40 North, to bring awareness to sustainability efforts.

Goal 4: Encourage farm-to-table food producers in the City's growth area.

To build an economy around local food, more farm-to-table producers are needed. Common Ground Food Co-op manager Jacqueline Hannah reports that only 20% of their products can be sourced locally. Most agricultural land is outside the City's jurisdiction. By law, the City has planning authority over the area 1.5 miles outside the municipal boundary. The majority of this land is used for commodity based agriculture. In Champaign's growth area, there are two direct-sale farms, Curtis Orchard and Alto Vineyards. Both of these businesses are also categorized as agri-tourism uses, attracting visitors from outside the community.

Because of infrastructure limitations, some parts of the growth area are not suitable for many kinds of development. Agricultural businesses can provide opportunities in these locations.

Strategy 1:

Revise City zoning regulations to recognize agriculture and agricultural business.

The City's zoning ordinance does not currently have a zoning district or definition for agricultural use or specialty agri-business. In current practice, land that is annexed into the City is typically converting from an agricultural use to another use that requires urban services. Because agricultural uses rarely need urban services, this has not been a conflict. Discussions with the Champaign County Farm Bureau and focus group members foresee opportunities for agricultural production and associated businesses within the City's zoning authority.

Getting Started: The Zoning Ordinance is being updated currently. As part of this update, work with the Champaign County Farm Bureau, University of Illinois Extension and other members of the agriculture community to craft effective code language.

Strategy 2:

Develop a program that supports organizations that are addressing local food insecurity through urban agriculture.

A variety of local organizations are working independently to reduce hunger through urban agriculture. One program, the North Randolph Street Community Garden, teaches youth volunteers to prepare soup using vegetables from the garden. The team shares the soup with the Times Center, a shelter for homeless residents. The Eastern Illinois Food Bank also accepts surplus garden produce for distribution and all gardeners are welcome to participate. A program that supports these organizations would reinforce the efforts of independent groups to acheive the common goal of reducing food insecurity in the community.

Getting Started: Identify groups working on issues of hunger and urban agriculture in the community.

Prosperity Gardens:

The garden provides hands-on experience growing food in a garden. The experience includes starting seeds, vermiculture or worm composting, planting, harvesting and more. Today, students from the R.E.A.D.Y school, or the regional alternative high school, use the garden as a living lab for learning science and horticulture skills. In summer months, the daily Garden Club provides an opportunity to learn about gardening, nutrition and to have fun.

Prosperity Gardens at 300 N. First Street began as a collaboration between the Don Moyer Boys and Girls Club, Land of Lincoln Legal Assistance, University of Illinois Extension, Champaign County Master Gardeners, the J.U.M.P Juvenile Mentoring Program, the City of Champaign and Champaign County Regional Planning Commission.

PROSPERITY GARDENS

Strategy 3:

Review City building and development codes that impact urban agriculture.

Like the zoning ordinance, other building and development codes do not have considerations for agriculture or associated uses. By not considering agriculture, these codes may be unintentionally preventing those projects from happening.

Getting Started: Work with the Champaign County Farm Bureau, University of Illinois Extension, other members of the agriculture community and City code enforcement staff to identify potential conflicts in existing codes. Collaborate to create effective code language.

“The task ahead of us is never as great as the power behind us”

- Ralph Waldo Emerson