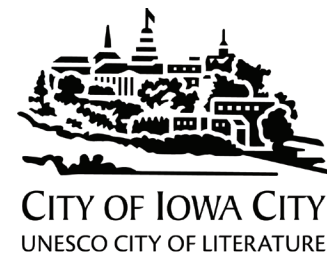




IOWA CITY

Climate Action Toolkit



Climate Action Toolkit

A Community Resource

This Climate Action Toolkit is a companion to the Iowa City Climate Action and Adaptation Plan, and serves as a resource guide to inspire residents, businesses, schools and community-based organizations to take part in our joint objective of reducing our City's greenhouse gas (GHG) emissions.








The Toolkit includes information, materials, checklists, and links to several valuable resources that can help facilitate conversations and allow us to take action immediately. These materials are directed to anyone interested in:

1. Learning about Iowa City's Climate Action and Adaptation Plan and climate action in Iowa City;
2. Understanding how they can contribute to Iowa City's goal of reducing GHG emissions;
3. Developing climate action project ideas; and
4. Identifying a place to start.

Individuals of any age, families, businesses, and communities can use these tools in many ways. For example, teachers may incorporate information contained in this Toolkit into their lessons, community leaders can use it to facilitate dialogue, business owners can decide to incorporate climate-friendly office policies and practices, and families can use it to plan action for all family members.

We are all in this together and hope that you can use this information to help us create a more sustainable, resilient, equitable and healthier community.

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For more information, visit:

<https://www.icgov.org/project/iowa-city-climate-action-and-adaptation-plan>

Iowa City

Climate Action and Adaption Plan

The **Iowa City Climate Action and Adaptation Plan (Plan)** was created to chart a path towards meeting our GHG emission reduction goals, while planning for the potential impacts caused by local changes in climate.

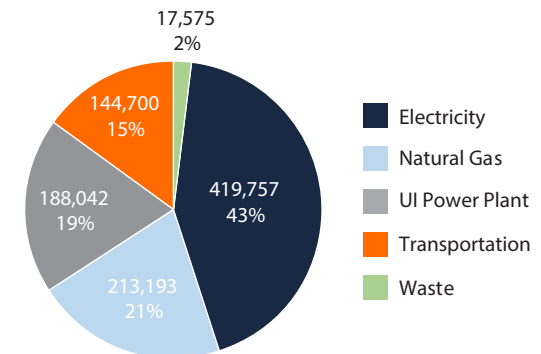
The Plan identifies numerous strategies that can be implemented, from changes in City operations to actions that can be taken by our residents and businesses. These strategies will integrate measures that improve quality of life, build prosperity, and enhance community resilience.

Greenhouse Gas Emission Reduction Goals

In 2016, the Iowa City City Council established two community-wide GHG goals:

- 25 to 28 percent reduction below 2005 emissions levels by 2025.
- 80 percent reduction below 2005 emissions levels by 2050.

2015 Community-wide Emissions by Source (metric tonnes CO₂e)



Get Started - Do Your Part

Follow the actions outlined in the next page, download the Iowa City Community Action Toolkit, talk to your neighbors, make a plan—it's time to act. Use the Toolkit resources to help you make smarter, greener, more sustainable living choices to help our City achieve its GHG reduction goals.

Collaborate with friends and family to make a bigger impact and track your change on social media. Learn from others what they are doing to make an impact. Start by making one change today! Collectively, we can make a difference.

Summary of Actions

Iowa City's Climate Action and Adaptation Plan identifies the following emission-reduction actions organized by topic area. Actions are prioritized to help the City reach its initial goal established by 2025, while planning beyond 2025 to identify what action will be needed to reach the more aggressive target for 2050.

Buildings

- 1.1 Increase energy efficiency in residences
- 1.2 Increase energy efficiency in businesses
- 1.3 Increase energy efficiency in new buildings
- 1.4 Increase on-site renewable energy systems and electrification
- 1.5 Initiate community solar projects
- 1.6 Support energy benchmarking tools
- 1.7 Continue to increase energy efficiency in City-owned buildings

Transportation

- 2.1 Increase use of public transit systems
- 2.2 Embrace electric vehicles, alternative fuel vehicles, and other emerging technologies
- 2.3 Increase bicycle and pedestrian transportation
- 2.4 Increase compact and contiguous development
- 2.5 Increase employee commuter options
- 2.6 Manage parking options
- 2.7 Reduce the City's vehicle emissions footprint

Waste

- 3.1 Increase recycling at multi-family properties
- 3.2 Increase composting of organics
- 3.3 Reduce consumption of material goods
- 3.4 Establish partnerships to divert construction waste from the Landfill
- 3.5 Reduce waste at City facilities
- 3.6 Create a comprehensive waste management plan
- 3.7 Take action on a study to efficiently capture and use methane from wastewater operations
- 3.8 Take action on a feasibility study on energy generation from Landfill methane

Adaptation

- 4.1 Conduct a vulnerable populations asset mapping exercise
- 4.2 Develop communications and outreach plan to connect with vulnerable populations
- 4.3 Analyze climate-related public health impacts in Iowa City
- 4.4 Coordinate extreme weather preparedness planning with local agencies
- 4.5 Assess Citywide and neighborhood stormwater management
- 4.6 Expand Iowa City's tree canopy

Sustainable Lifestyle

- 5.1 Encourage a plant-rich diet
- 5.2 Expand community gardens and access to healthy, local foods
- 5.3 Encourage the purchase of local products and responsible purchasing
- 5.4 Create funding mechanisms to support community-wide climate action
- 5.5 Incorporate this Climate Plan into the City's sustainability communications
- 5.6 Initiate a green recognition program
- 5.7 Develop internal City sustainability operations guide



Additional information on the Iowa City Climate Action and Adaptation Plan is available at

www.icgov.org/climateaction



What is Climate Change?

Frequently Asked Questions

What is the difference between climate change and global warming?¹

“Global warming” refers to the long-term warming of the planet. Global temperature shows a well-documented rise since the early 20th century and most notably since the late 1970s. Worldwide, since 1880 the average surface temperature has risen about 2°F, relative to the mid-20th-century baseline (of 1951-1980).

“Climate change” encompasses global warming, but refers to the broader range of changes that are happening to our planet. These include rising sea levels, shrinking mountain glaciers, accelerating ice melt in Greenland, Antarctica and the Arctic, and shifts in flower/plant blooming times.

What is the greenhouse effect?

The greenhouse effect is the way in which heat is trapped close to the surface of the Earth by “greenhouse gases.” These heat-trapping gases can be thought of as a blanket wrapped around the Earth, which keeps it warmer than it would be without them.

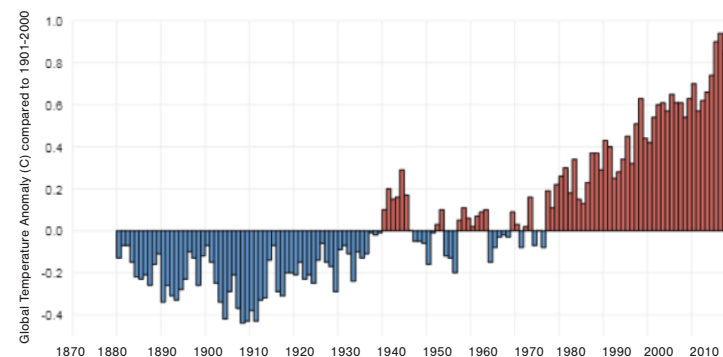
What is the evidence that shows the climate is changing?

Hundreds of independent lines of evidence confirm that our climate is changing. For example, scientists have documented long-term changes around the world in temperature, precipitation, sea level, and the amount of heat stored in the ocean. Dramatic changes are particularly alarming in the Arctic, where warming is reflected by increased melting of the ice caps. Rising sea levels are also affecting coastal communities in many parts of the world, including places like South Florida, Chesapeake Bay, and low-lying communities along the Gulf Coast in the United States. In the Midwest, extreme rainfall events and flooding have increased during the last century, and these trends are expected to continue, causing erosion, declining water quality, and negative impacts on transportation, agriculture, human health, and infrastructure.² Other changes in the length of growing seasons and pollen seasons, the timing of bird migrations, and range shifts in plants and wildlife provide still more evidence for recent changes in climate.³

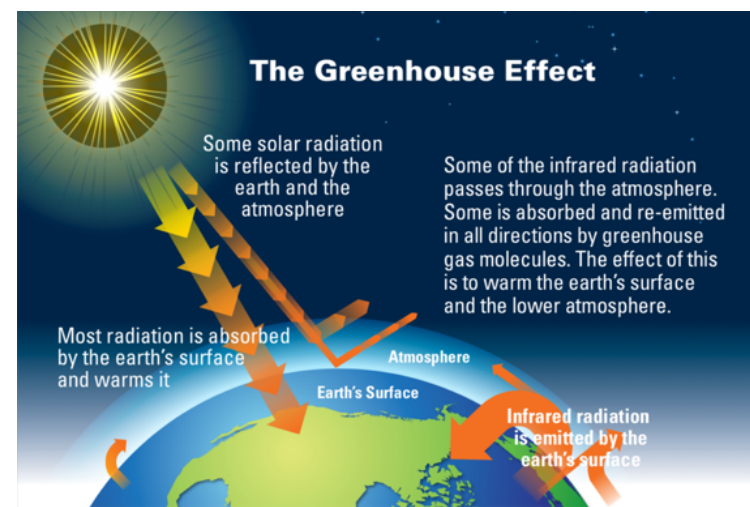
What is the difference between climate and weather?

The main difference between climate and weather is a measure of time. Climate refers to how the atmosphere “behaves” over relatively long periods of time. For example, this includes the change in average winter temperatures in the last century. Weather refers to short term (minutes to months) changes in the atmosphere. Weather is often referred to in terms of temperature, precipitation, and atmospheric pressure.

History of global surface temperatures since 1880



Source: <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>



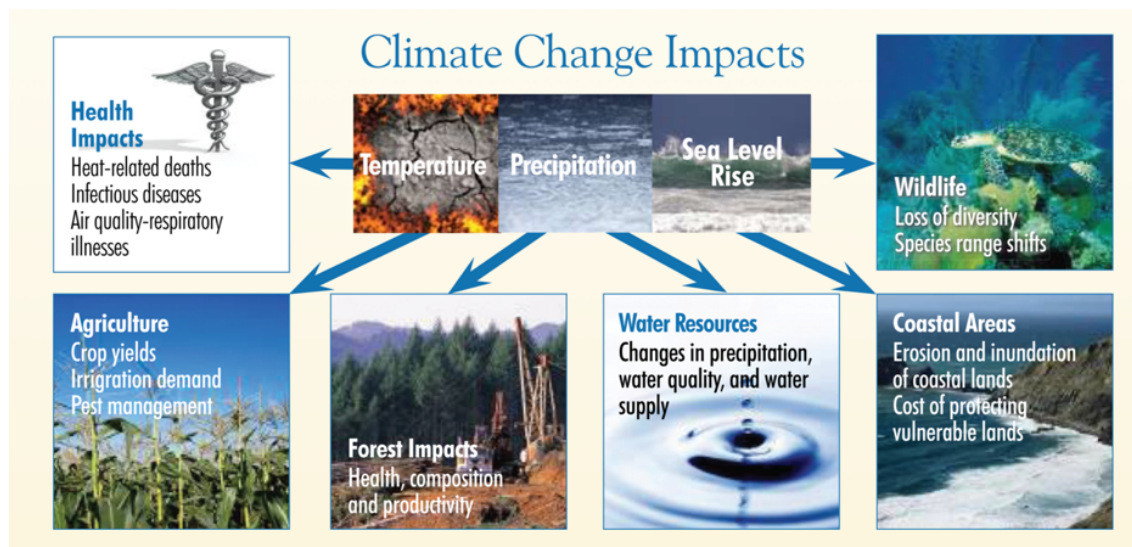
Source: https://downloads.globalchange.gov/toolkit/Climate_Basics_8pager_508_v4.pdf

Are we seeing any impacts of climate change in Iowa City?

In our community, climate change is causing more frequent hot summers and warm falls, more precipitation in general, as well as more frequent hazardous weather events like heat waves, storms, and floods.⁴ We are also experiencing higher temperatures, which in combination with the increased precipitation, is leading to increased soil erosion and the creation of a more favorable environment for pathogens and pests that could ultimately threaten our health. Beyond the next decade, our projected annual temperatures are expected to increase so much that the 30-year average temperature in the future will fall well above the hottest years of the normal historical temperature range. Annual precipitation is also expected to increase 10% by 2021-2050 and another 5% by 2051-2080.⁵ With these changes, experts believe that the results of our changing climate will make Iowa City feel more like summers traditionally experienced in our southern states.⁶

How do we know that humans are causing climate change?

Many lines of evidence demonstrate that human activities are primarily responsible for recent climate changes. First, physics dictates that increasing the concentration of CO₂ and other heat-trapping gases in the atmosphere will cause the climate to warm. Second, modeling studies show that when human influences are removed from the equation, climate would have cooled slightly over the past half century. And third, the pattern of warming through the layers of atmosphere demonstrates that human-induced heat-trapping gases are responsible, rather than some natural change.⁷



Source: https://downloads.globalchange.gov/toolkit/Climate_Basics_8pager_508_v4.pdf

Does climate change affect severe weather?

Yes, climate change can and has altered the risk of certain types of extreme weather events. An unusually warm month, a major flood or a drought, a series of intense rainstorms, unpredictable thaw/freeze cycles, big snowstorms, or an unusually severe winter inevitably lead to questions about possible connections to climate change.⁸

What are the most important greenhouse gases? Where are they coming from and how have they changed?

Many greenhouse gases, like water vapor and carbon dioxide (CO₂), are present naturally, and are part of the make-up of our atmosphere.⁹ But in the last century or so, humans have been interfering with the energy balance of the planet, mainly through fossil fuel burning (such as coal, natural gas, and gasoline/oil) and other human activities that add carbon dioxide and other gases to the natural mix at a faster rate than at any other time on record. Other important greenhouse gases produced by human activity include methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆).¹⁰

Who is affected most by climate change?

People will be affected by climate change in various ways, but some groups are more vulnerable than others, including those with low income, some communities of color, immigrant groups (including those with limited English proficiency), Indigenous peoples, children and pregnant women, older adults, persons with disabilities, and persons with preexisting or chronic medical conditions.¹¹ People living in flood plains, coastal zones, and some urban areas are generally more vulnerable as well.¹²

What does climate change mean for me?

In the Midwest, climate change means an increase in extreme heat, heavy downpours and flooding, which will affect infrastructure, agriculture, transportation, air and water quality, and more. In addition to these emergency events, we will experience increases in temperature and precipitation in general, too. Climate change also endangers our health by affecting our food and water sources, the air we breathe, the weather we experience, and our interactions with the built and natural environments.

Are there ways to minimize our contributions to climate change?

There are many ways in which each of us can contribute to minimizing climate change by reducing our greenhouse gas emissions, and this Climate Action Toolkit will offer many suggestions. Emissions can be reduced in many ways, including improvements in the efficient use of energy in our buildings and transportation, and lifestyle choices.



Sources:

¹ Adapted from: <https://climate.nasa.gov/faq/>

² <https://nca2014.globalchange.gov/highlights/regions/midwest>

³ Adapted from: https://19january2017snapshot.epa.gov/climatechange/frequently-asked-questions-about-climate-change_.html

⁴ Climate in the Heartland Report, 2015, available at: <http://www.marc.org/Government/GTI/pdf/ClimateintheHeartlandReport.aspx>

⁵ Climate in the Heartland Report, 2015, available at: <http://www.marc.org/Government/GTI/pdf/ClimateintheHeartlandReport.aspx>

⁶ Climate Central. 2015 States at Risk Project. <http://statesatrisk.org/iowa/extreme-heat>

⁷ Adapted from: <https://nca2014.globalchange.gov/report/appendices/faqs>

⁸ Adapted from: https://www.nasa.gov/mission_pages/noaa-n/climate/climate_weather.html

⁹ Adapted from: <https://climate.nasa.gov/faq/>

¹⁰ Adapted from: https://downloads.globalchange.gov/toolkit/Climate_Basics_8pager_508_v4.pdf

¹¹ Adapted from: https://19january2017snapshot.epa.gov/climatechange/frequently-asked-questions-about-climate-change_.html

¹² Adapted from: <https://nca2014.globalchange.gov/report/appendices/faqs>

Taking Climate Action: At Home

Checklist for Climate Action Around the Home

Fighting climate change requires everyone to contribute by taking action in their homes with small changes. Here are some suggestions of how you can help right now.

Energy:

- ☐ Unplug electronics and turn off lights when not in use or use a power strip.
- ☐ Replace old lightbulbs with LEDs that use less energy and last longer.
- ☐ Replace refrigerators and other appliances with those labeled ENERGY STAR®.
- ☐ Determine how much electricity you can save by plugging devices into an electricity usage monitor.
- ☐ Adjust your thermostat in the winter to 68°F during the day and lower while asleep or away from home. In the summer, keep your home warmer while away and 78°F only when you at home. Install a programmable thermostat for more savings.
- ☐ Only run the dishwasher with a full load and only do full loads of laundry.
- ☐ Take shorter showers and/or install a low-flow showerhead.
- ☐ Get a free energy audit/assessment for your home from MidAmerican or Green Iowa AmeriCorps.
- ☐ Ensure that your home is properly insulated.
- ☐ Consider installing a solar thermal system for your hot water needs.
- ☐ Take advantage of your utility's energy efficiency programs.
- ☐ Wash clothes in cold water and hang out to dry.
- ☐ Stay informed of opportunities to offset natural gas use for clean electricity use.

Transportation:

- ☐ Walk, ride a bike, use public transit, or carpool.
- ☐ Reduce the number of single-destination and single-occupant trips.
- ☐ Use your most efficient vehicle when feasible.
- ☐ Avoid idling your vehicle for long periods.
- ☐ Buy a more efficient or alternative fuel car, such as a hybrid or electric vehicle.

Food:

- ☐ Consume foods which are grown locally and/or are certified organic.
- ☐ Join a Community Supported Agriculture and shop at farmers' markets.
- ☐ Eat at restaurants that feature local and seasonal foods.
- ☐ Reduce your consumption of meat and dairy.
- ☐ Consider the carbon impact of food choices.

Others:

- ☐ Plant trees, especially where they'll provide shade for your house.
- ☐ Connect a rain barrel to your gutter system.
- ☐ Plant fruits and vegetables in your garden instead of buying them.
- ☐ Install a green roof, rain garden, or permeable pavement in your home.

Waste:

- ☐ Buy only items that are necessary and that you are sure you will use.
- ☐ Donate unused clothes and electronics to charity.
- ☐ Reduce junk mail by asking to be removed from mailing lists.
- ☐ Opt-in for electronic billing statements.
- ☐ Recycle.
- ☐ Take your own bags (e.g., cloth) to the store.
- ☐ Avoid buying products in single-serving packaging or buy in bulk.
- ☐ Reduce purchases of disposable products and instead focus on durable goods.
- ☐ Compost your organic (food, yard) waste.
- ☐ Use extra paper as scrap paper and print double-sided.
- ☐ Recycle, donate, or repurpose used textiles.
- ☐ Initiate or participate in "repair cafes" as a means of giving longer life to household items that might otherwise be discarded.

Community:

- ☐ Buy local products
- ☐ Support environmentally-conscious businesses.
- ☐ Share this information with your neighbors.

Taking Climate Action: At Home

Greenhouse Gas Emissions Calculator

Many of our daily activities - such as using electricity, driving a car, or disposing of waste - cause greenhouse gas emissions. Together these emissions make up a household's carbon footprint.

You can calculate your carbon footprint by using this [Carbon Footprint Calculator](https://www3.epa.gov/carbon-footprint-calculator/), developed by the U.S. Environmental Protection Agency: <https://www3.epa.gov/carbon-footprint-calculator/>

Did you ever wonder what reducing carbon dioxide (CO₂) emissions by 1 million metric tons means in everyday terms? The Greenhouse Gas Equivalencies Calculator, developed by the U.S. Environmental Protection Agency, can help you understand just that, translating abstract measurements into concrete terms you can understand, such as the annual emissions from cars, households, or power plants.

The [Greenhouse Gas Equivalencies Calculator](https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator) is accessible at: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

This calculator may be useful in communicating your greenhouse gas reduction strategy, reduction targets, or other initiatives aimed at reducing greenhouse gas emissions.

The screenshot shows the EPA Carbon Footprint Calculator interface. At the top is the EPA logo and navigation links. The main heading is "What is your carbon footprint?". Below it, a form asks for "Number of people in your household" and "ZIP Code", with a "Get Started" button. To the right is an illustration of a house with icons for "Home Energy", "Waste", and "Transportation". Below the form, there are sections for "About", "How To", and "Download". The "About" section explains that the calculator estimates a household's carbon footprint based on energy, transportation, and waste. The "How To" section provides tips on how to use the calculator. The "Download" section offers a spreadsheet version of the calculator.

The screenshot shows the EPA Greenhouse Gas Equivalencies Calculator interface. At the top is the EPA logo and navigation links. The main heading is "Energy and the Environment" followed by "Greenhouse Gas Equivalencies Calculator". Below this is a "Last Updated: September 2017" note. The main content area has a "Enter Your Data" section with a "choose a unit" dropdown and a "Calculate" button. To the right, there is an "About This Calculator" section with links to "How are the equivalencies calculated?", "Latest updates and revision history", and "Frequently asked questions". At the bottom right, there is a "Print Your Results" link.

Tips for a Climate Friendly Diet



Eat plant-based food. A vegan diet has the lowest carbon footprint and emits almost half of the carbon emissions of a diet that is heavily-based on meats.

Cook and eat at home. Plan meals ahead to reduce waste, save leftovers and eat them later, and if possible, make compost with the scraps or participate in the City's compost program.

Reduce waste and spoilage. Avoid serving supersized meals, where food ends up being discarded. Cook and store foods in more energy-conserving ways.

Eat organic. Organic farming methods for both crops and animals have a lower impact on the environment than conventional methods.

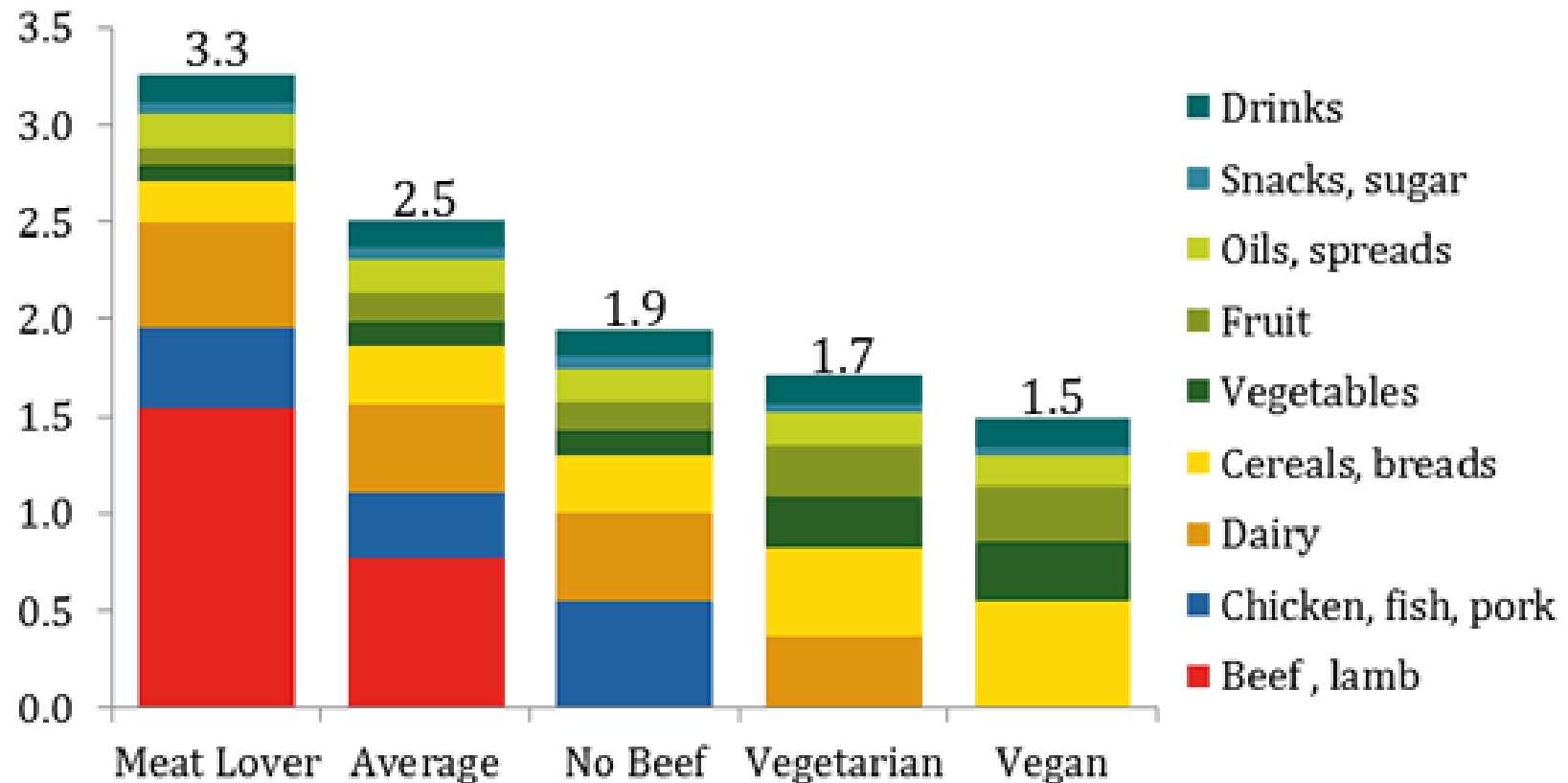
Eat local and in season. Growing food out-of-season demands excess water and energy, so try to buy in-season foods that are well-suited to your region and grown naturally.

Shop wisely. Avoid products that come with lots of packaging, buy in bulk, and buy fresh food.

Grow your own food. A fun way to make sure families have access to affordable, healthy, pesticide-free food.

PHOTO CREDIT: Wild Woods Farms

Foodprints by Diet Type: t CO₂e/person



Note: All estimates based on average food production emissions for the US. Footprints include emissions from supply chain losses, consumer waste and consumption.. Each of the four example diets is based on 2,600 kcal of food consumed per day, which in the US equates to around 3,900 kcal of supplied food.

Sources: ERS/USDA, various LCA and EIO-LCA data



Visit www.GreenEatz.com for more information.

Taking Climate Action: At Work

Checklist for Climate Action Around the Business

With the following tips and actionable items, businesses can implement strategies to improve eco-friendliness and save money. Take a look:

Energy:

- ☐ Conduct an energy audit to identify opportunities for energy savings.
- ☐ Benchmark your property or building to compare performance to peers or past energy use consumption by using U.S. EPA's free tool ENERGY STAR® Portfolio Manager.
- ☐ Install a programmable thermostat to turn system down after hours.
- ☐ In the summer, set your thermostat to 75 degrees when the workplace is occupied, and 85 degrees or off after business hours. In the winter, set your thermostat to 68 degrees when the workplace is occupied, and 60-65 degrees or off after business hours.
- ☐ Replace lightbulbs with LEDs and install motion sensors or other lighting controls.
- ☐ Use emergency EXIT lights that use LEDs.
- ☐ Set computer monitors to turn off after 15 minutes or less and shut down after business hours.
- ☐ Add power strips for each desk where constantly "on" electronics are used.
- ☐ Purchase ENERGY STAR®-certified equipment.
- ☐ Keep windows and doors closed when heating or air conditioning is running.
- ☐ Ensure that your office space is properly insulated.

Materials and Waste:

- ☐ Print double-sided.
- ☐ Reduce printing margins to <1 inch.
- ☐ Purchase products with the highest post-consumer recycled content available.
- ☐ Reduce or eliminate the purchase of bottled water.
- ☐ Purchase bulk-packaged supplies and buy products with the least amount of packaging.
- ☐ Minimize the purchase of disposable products.
- ☐ Explore options for the repair/reuse of products.
- ☐ Install water efficient appliances and fixtures.
- ☐ Fix leaking taps.
- ☐ If an irrigation system is used, set up sprinklers to water efficiently in morning hours with weather-based irrigation controllers.
- ☐ Substitute reused water for industrial process use.
- ☐ Recycle paper, glass, plastic, aluminum and other materials like laser jet cartridges and pallets.
- ☐ Use electronic billing methods.

Others:

- ☐ Take advantage of your utility's energy efficiency programs.
- ☐ Participate in a green certification program and in the Iowa City Sustainable Business Recognition program.
- ☐ Offset CO₂ emissions by buying carbon credits.

Transportation:

- ☐ Encourage employee walking, biking, carpooling, using public transit, and/or telecommuting through incentives such as flexible schedules, working from home, and special parking.
- ☐ Use teleconference services.
- ☐ Buy a more efficient or alternative fuel fleet of cars, if applicable, including hybrids or electric vehicles.
- ☐ Maintain your vehicles as specified by the manufacturer to ensure your vehicle is operating at its highest efficiency.

Community:

- ☐ Create a sustainability plan with a commitment to reduce GHG emissions.
- ☐ Support fair trade practices and seek to use local contractors and goods where possible.
- ☐ Buy locally to reduce your carbon footprint from the transport of goods and to support the local economy.
- ☐ Support restaurants that use local foods for catering, and include local, plant-based, and vegetarian options.
- ☐ Install signage to remind employees to turn off lights, conserve water, recycle, etc.
- ☐ Become active in the community.

Clean Energy Resources

Energy Efficiency

Energy Efficiency Tips: If you are interested in reducing your energy usage, consider an energy efficiency audit and implementing the recommendations. Other valuable resources include:

- The U.S. Department of Energy publishes the [Energy Saver Guide](#) with suggestions on how to make your home more energy efficient.¹
- The [Energy Saver Do-It-Yourself \(DIY\) Savings Projects](#) offer easy, step-by-step instructions to home energy efficiency improvements that will save you energy and money.²
- The [Green Iowa AmeriCorps Energy Assistance Program](#) offers free home energy audits and free weatherization materials for everyone that receives their services.³
- [Energy Efficiency Tips for Renters:](#) MidAmerican Energy offers tips and suggestions for renters to make their home more energy efficient through the save Some Green® campaign.⁴
- [Energy Efficiency Tips for Business:](#) MidAmerican Energy offers tips and suggestions for renters to make their home more energy efficient through the save Some Green® campaign.⁵

Incentive programs: Contact your utility to get more information about its energy efficiency programs or explore statewide programs available for qualifying residents and businesses:

- [MidAmerican Energy](#) offers a variety of programs and rebates to help you save money and conserve energy. Including incentives for your [Home](#) and your [Business](#).^{6,7,8}
- [Iowa Association of Electric Cooperatives](#)⁹
A trade association established to support member-owned electric cooperatives.
- The [Weatherization Assistance Program](#) is a federal grant program established to help reduce heating and cooling costs for low income persons, particularly the elderly, disabled, and children, by improving the energy efficiency of their homes, thereby reducing households energy bills. Besides the obvious benefit of conserving energy, the Iowa Weatherization Assistance Program also provides other benefits to Iowa and its residents. Individuals may apply for the program year-round at the [local Community Action Agency](#) outreach office in their county^{10,11}
- The [Low-Income Home Energy Assistance Program](#) is designed to assist low income families meet the cost of home heating. Applications are accepted on a first come/first served basis at your local community action agency from November 1 through April 30.¹²



Clean Energy Resources

Renewable Energy

The Iowa Utilities Board published an [Informational Guide for On-Site Generation](#) to help residential and small business customers who are considering installing electric generation (wind, solar, biomass, etc.) on their property. This document is for informational purposes only and use of the guide is voluntary. The topics covered include understanding the process, defining your project, choosing a dealer or equipment, and financing options.¹³

Solar Photovoltaic Energy Guide: The Iowa Energy Center published a guide to help homeowners navigate the process of installing solar panels at your property. The guide discusses conducting a site assessment, designing the solar array, and calculating the economic benefits of the project.¹⁴

Solar Photovoltaic Permit Application: A permit with the City of Iowa City is required to design, install, and operate solar photovoltaic cells on residential or commercial property. The City's permit application page includes the Solar Photovoltaic Permit Application, standard string array and micro-inverter array webforms, and helpful checklists.¹⁵

Solar Water Heaters: Also called solar domestic hot water systems, solar water heaters can be a cost-effective way to generate hot water for your home. Solar water heating systems include storage tanks and solar collectors.

- [Solar Water Heater Information](#) from the U.S. Department of Energy.¹⁶

Thermal Decarbonization (Also referred to as Building Electrification): Wind and solar are often used to produce renewable electricity, but cities are beginning to look at ways to also replace natural gas and other fossil fuels used to heat buildings. Heating buildings is commonly one of the largest sources of ghg emissions within a city. Replacing natural gas or propane furnaces and HVAC systems with ground-source or air-source heat pumps, which use renewable electricity to heat and cool buildings can be one way to reduce local ghg emissions.

- [Renewable Heating & Cooling Best Practice Action Guide: Thermal Decarbonization of Residential Buildings](#) by the Urban Sustainability Directors Network.¹⁷

Transportation Electrification: The automatic and transportation industry is turning to electric fuel sources to reduce fossil fuel consumption and associated GHG emissions. Tax incentives and costs savings are making electric vehicles more affordable.

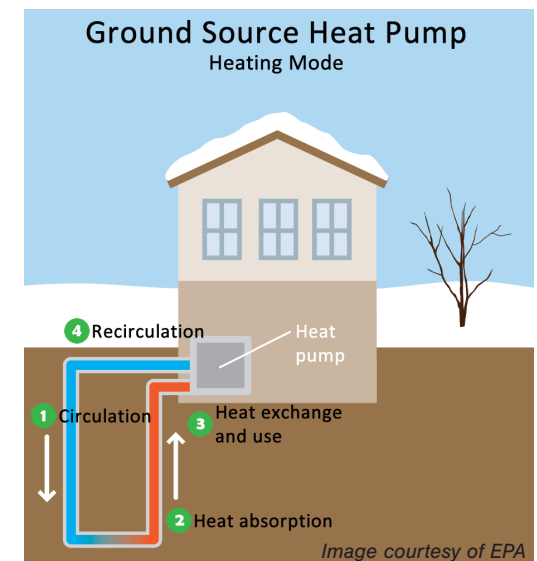
- [Electric Vehicles information](#) from the U.S. Department of Energy.¹⁸
- Alternative Fuels Data Center information on [hybrid and plug-in electric vehicles](#).¹⁹

Ground Source Heat Pumps: Ground-source heat pumps use the constant temperature of the earth by exchanging heat underground to heat and cool buildings. Despite climate and temperature differences around the U.S., the temperature in the ground remains fairly consistent. These systems provide constant, comfortable temperatures and immediate cost savings when compared to conventional heating and cooling systems.

- [Ground Source Heat Pumps information](#) from U.S. Department of Energy.²⁰

Community Solar Gardens: Iowa City's energy procurement strategy already derives most of its electricity from renewable generation sources, mostly from wind turbines. However, to reach 100% renewable energy penetration, additional diverse generation sources need to be incorporated. Solar photovoltaic cells will help to bridge the gap to 100%. Community solar helps to expand access to solar renewable energy by drastically reducing high start-up costs often attributed to renewable energy. Community renewable projects generally eliminate that barrier by developing an off-site renewable energy source with one or several "anchor" members that then offer subscriptions allowing others to essentially tap into the renewable energy source for a low fee. Types of projects vary from solar array "gardens" or fields to a collection of rooftop panels across a particular area.

- ["A Guide to Community Shared Solar"](#) by U.S. Department of Energy.²¹
- Presentation on ["community efficient and renewable energy workshop"](#) by the Iowa Economic Development Authority.²²










Clean Energy Resources

Alternative Fuel Vehicles

Switching to a vehicle powered by alternative fuels is an easy way to curb GHG emissions. Tax incentives, grants, and volatile gasoline and diesel prices are making hybrid and plug-in electric vehicles more affordable than ever. Accessible and visible electric vehicle charging infrastructure, efficient permitting and regulatory processes, and preparedness from the local utility will ensure a smooth transition to a more electric future. When it is not practical to walk or share a ride, consider choosing a single occupancy vehicle with reduced emissions.



Vehicles on the road Did you know?

Conventional	Alternative		
 <p>Gasoline Vehicle Most vehicles use gasoline, including hybrids.</p>	<p>E85</p>  <p>FFV Flexible fuel vehicles (FFVs) can use gasoline or E85 (a mixture of 85% ethanol and 15% gasoline). E85 can be found at over 2,000 stations nationwide.</p>	 <p>EV You can charge your electric vehicle (EV) at one of over 7,000 public charging stations in the United States. You can also charge your EV at home. In fact, depending on how far you drive each day, you may never need to visit a station.</p>	 <p>PHEV Plug-in hybrid electric vehicles (PHEVs) are powered with electricity and gasoline. How much gasoline you'll use depends on how often you plug in, how far you drive, and the vehicle's design.</p>
 <p>Diesel Vehicle Ultra-low sulfur diesel (ULSD) is the primary highway diesel fuel produced today, and allows diesels to be cleaner. Diesel vehicles and engines can also use blends of ULSD and biodiesel.</p>	 <p>CNG Vehicle Compressed natural gas (CNG) fueling station pumps look similar to gasoline pumps, but have specialized fittings for a leak-free connection to your natural gas vehicle.</p>	 <p>FCV Fuel cell vehicles (FCVs) use pressurized hydrogen, which you pump into your car through a special leak-free connection. The hydrogen powers a fuel cell, which then generates electricity to power the vehicle.</p>	<p>There are over 10,000 alternative fueling stations in the United States today.</p>

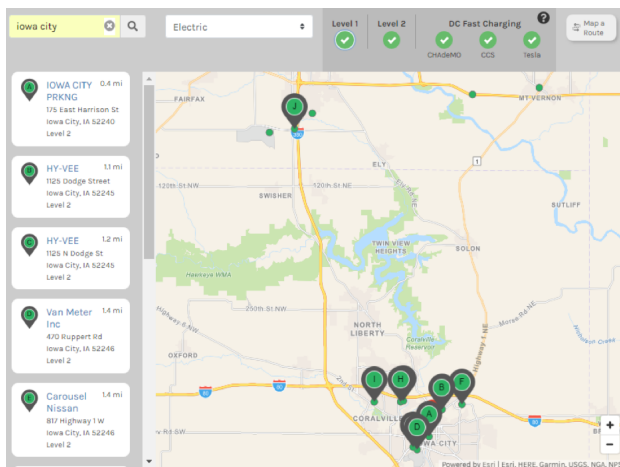
Source: <https://www.montway.com/blog/evs-the-roadmap-to-a-greener-world/>

Electric Vehicle Charging Station Locations:

Electric vehicle charging stations can be found using multiple platforms, including the [Alternative Fuels Station Location](#) tool on the U.S. Department of Energy website. The tool allows you to filter for electric vehicle charging stations and zoom in on a city, town, or zip code (see search results for “Iowa City,” below). Electric vehicle charging stations differ by the voltage and current output of plugs available. Level 1 electric charging stations use a 120 volt (V) standard wall plug and provide 2-5 miles of range per 1 hour of charging, compared to a level 2, 240V/208V plug that provides 10-20 miles of range per 1 hour of charging. Additionally, DC fast charging stations provide much faster charging for vehicles with the proper charge port.²³

Fueleconomy.gov: When making your next car purchase, we recommend that you compare the fuel economy of vehicles to find the most efficient option for you.²⁴

US EPA Certified SmartWay: A program by the U.S. EPA that awards a certification to cars and trucks that emit less GHG emissions and smog-forming tailpipe emissions than other vehicles.²⁵



Source: https://downloads.globalchange.gov/toolkit/ClimateBasics_8pager_508_v4.pdf

Energy Efficiency Resources:

- ¹ https://www.energy.gov/sites/prod/files/2017/10/f37/Energy_Saver_Guide-2017-en.pdf
- ² <https://www.energy.gov/energysaver/services/do-it-yourself-energy-savings-projects>
- ³ <http://www.greeniowaamericorps.org/energy-services>
- ⁴ https://www.midamericanenergy.com/content/pdf/ee/ee_renters_tips.pdf
- ⁵ https://www.midamericanenergy.com/content/pdf/ee/ee_ttt.pdf
- ⁶ <https://www.midamericanenergy.com/rebates-energy.aspx>
- ⁷ <https://www.midamericanenergy.com/for-your-home.aspx>
- ⁸ <https://www.midamericanenergy.com/for-your-business.aspx>
- ⁹ <https://www.iowarec.org/iowa-co-ops/our-members/>
- ¹⁰ <https://humanrights.iowa.gov/dcaa/weatherization>
- ¹¹ <https://humanrights.iowa.gov/dcaa/where-apply>
- ¹² <https://humanrights.iowa.gov/dcaa/liheap>

Renewable Energy Resources:

- ¹³ https://iub.iowa.gov/sites/default/files/files/misc/IUB_Informational_Guide_Distributed_Generation.pdf
- ¹⁴ https://www.iowaeconomicdevelopment.com/userdocs/programs/15302_IEC_SolarEnergyGuide_Web.pdf
- ¹⁵ <https://www.icgov.org/form/solar-photovoltaic-permit-application>
- ¹⁶ <https://www.nrel.gov/docs/fy12osti/54570.pdf>
- ¹⁷ https://carbonneutralcities.org/wp-content/uploads/2018/05/1.Final-Report-RHC-Action-Guide_12.29.17.docx
- ¹⁸ <https://www.energy.gov/energysaver/water-heating/solar-water-heaters>
- ¹⁹ <https://www.usdn.org/public/page/31/Energy#BoulderThermal>
- ²⁰ <https://www.energy.gov/eere/electricvehicles/electric-vehicles>
- ²¹ <https://www.afdc.energy.gov/vehicles/electric.html>
- ²² <https://www.energy.gov/energysaver/heat-and-cool/heat-pump-systems/geothermal-heat-pumps>

Alternative Fuel Vehicle Resources:

- ²³ <https://www.afdc.energy.gov/stations/#/find/nearest>
- ²⁴ <https://www.fueleconomy.gov/feg/findacar.shtml>
- ²⁵ <https://www.epa.gov/smartway>

Activities for K-12 Students



¹ <http://saveourepa.com/climatechange/kids/index.html>

² <http://saveourepa.com/climatechange/kids/resources/index.html>

³ <http://saveourepa.com/climatechange/kids/calc/index.html>

⁴ https://downloads.globalchange.gov/Literacy/climate_literacy_highres_english.pdf

⁵ <https://cleanet.org/index.html>

⁶ <https://downloads.globalchange.gov/toolkit/Wheelcard-GW.pdf>

⁷ <https://www.globalchange.gov/browse/educators>

⁸ <https://climatekids.nasa.gov>

⁹ <http://www.teachers-going-green.com>

¹⁰ <http://www.iptv.org/iowaoutdoors/teacher-resources>

Several government and non-profit organizations offer resources for teachers and students to incorporate climate change lessons and activities into their classrooms. Here are some good sources of ideas:

A Student's Guide to Global Climate Change: helps provide students and educators with clear, accurate information about the causes and effects of climate change, as well as the steps we can all take to help solve the problem.¹

Educator Resources: Teachers can explore this website for more tools and lesson plans to help them and their students learn about climate change.²

Action Calculator: This calculator helps students learn about some simple steps they can take to reduce their impact on the planet and its impact on GHG emission reductions.³

Climate Literacy: The Essential Principles of Climate Science: An interagency guide that provides a framework and essential principles for formal and informal education about climate change. The guide can serve educators who teach climate science as part of their science curricula.⁴

Climate Literacy and Energy Awareness Network: A collection of over 700 free, ready-to-use resources rigorously reviewed by educators and scientists.⁵

Global Warming Wheel Card: A fun tool created by the EPA for teaching about global warming and how to calculate GHG emissions in everyday human activities.⁶

US Global Change Research Program: Provides a dynamic list of the top resources developed and recommended by the partner agencies for educators.⁷

Climate Kids at NASA: Contains games, activities, videos, and other resources for students.⁸

Teachers Going Green: An information sharing forum for topics related to caring for the earth with a dynamic collection of lessons, resources, and incentives.⁹

Teacher Resources by Iowa Public Television: Websites and resources designed for teaching and learning with a focus on Iowa.¹⁰

The City of Iowa City strives to offer quality services to our community. The City's website (www.icgov.org) is frequently updated with information on programs and opportunities and includes valuable resources. Some of the existing resources that relate to Climate Action are described below.

Climate Action and Sustainability

- **City of Iowa City Sustainability webpage:** Iowa City is committed to being a leader in sustainability. This webpage includes information about Iowa City's sustainability efforts, including the Climate Action and Adaptation Plan.¹
- **City of Iowa City Monthly Sustainability Newsletter:** Sign up for the Sustainable Iowa City Newsletter or view posts on The City of Iowa City [Facebook](#) page to learn the latest in sustainability news and advice for residents and businesses in Iowa City.^{2,3}
- **Iowa City Community-wide Greenhouse Gas Emissions, June 2017 Update:** The purpose of the Community-wide Greenhouse Gas Emissions Report is to summarize the results of the community-wide GHG inventory using the Global Protocol for Community-Scale GHG Emissions, which identifies both the quantity and sources of emissions produced from activities within Iowa City. This data will assist in informed decision-making to determine future actions to be taken by the community.⁴
- **Iowa City Municipal Greenhouse Gas Emissions August 2017 Inventory Update:** This report reviews trends in GHG emissions, energy usage, and costs of fossil fuels used and produced from municipal operations.⁵
- **City of Iowa City Summary Report – ecoCity Footprint Tool Pilot:** This Summary Report presents the results of Iowa's Consumption Based Emission Inventory and Ecological Footprint, as created by the ecoCity Footprint Tool. It also provides an overview of the data collection methodology and identifies opportunities, challenges, and limitations specific to Iowa City.⁶
- **Sustainability Tools for Assessing & Rating Communities (STAR):** The nation's first comprehensive framework and certification program for evaluating community-wide sustainability, encompassing economic, environmental, and social performance measures. STAR provides a clear, data-driven approach to assessing communities' sustainability efforts.⁷



¹ <https://www.icgov.org/sustainability>

² <https://www.icgov.org/e-subscriptions>

³ <https://www.facebook.com/CityofIowaCity/>

⁴ <https://www.icgov.org/sustainabilityreports>

⁵ <https://www.icgov.org/sustainabilityreports>

⁶ <https://www.icgov.org/sustainabilityreports>

⁷ <https://www8.iowa-city.org/weblink/0/doc/1533698/Electronic.aspx>

Iowa City Resources

Bicycles

- **Bicycle Master Plan**: This Bicycle Master Plan provides the framework and recommendations for the City to become a Gold-Level Bicycle-Friendly Community. Building upon other City planning efforts, the plan will create a framework for expanding Iowa City's bicycle network, expanding the role that bicycling plays in achieving the City's stated goals for transportation, economic development, neighborhood livability, community identity, safety, environmental preservation, and health and wellness.¹
- **Bike Shorts**: The City of Iowa City is producing a series of short videos, or video shorts, that will focus on bicycle education and safety. The series called "Bike Shorts" is a follow-up to the Bicycle Master Plan.²

Food and Composting

- **Iowa City Farmers Market**: The Iowa City Parks and Recreation Department operate farmers markets at two locations, two days a week during the summer season. The Farmers Market runs on Wednesdays and Saturdays at the Chauncey Swan Ramp, 405 E. Washington Street. Season opening and closing dates, and event times are listed on this website.³
- **Compost Program**: Iowa City residents who receive curbside services can place yard waste and food waste at the curb to be picked up and transported to the Iowa City Landfill's compost facility, where it is made into compost.⁴
- **Curbside Composting Guide**: Learn which materials can and cannot be composted through curbside food scrap collection. Your food scraps, along with any yard waste, will be taken to the Iowa City Landfill and Recycling Center's Commercial Compost Facility and made into compost.⁵



- **Food Waste Reduction**: Iowa City offers tips and strategies for residents and businesses to reduce food waste.⁶
- **Iowa City Community Garden Plot Leasing Program**: Iowa City offers the opportunity to help individuals and families get the tools and support they need to begin growing their own food, as well as supporting the growth of a community garden plot.⁷

¹ <https://www.icgov.org/icbikeplan>

² <https://www.icgov.org/project/iowa-city-bicycle-master-plan>

³ <https://www.icgov.org/farmersmarket>

⁴ <https://www.icgov.org/foodwaste>

⁵ <https://www.icgov.org/foodwaste>

⁶ <https://www.icgov.org/foodwaste>

⁷ <https://www.icgov.org/gardenplots>

Iowa City Resources

Recycling

- **Curbside Recycling Program**: Curbside recycling is single stream in Iowa City, meaning residents do not need to sort materials. This website contains more information on recycling containers, drop-off locations, and recycling for apartment buildings.¹
- **Curbside Recycling Program Guide**: Includes recycling and disposal tips and addresses what can and cannot be recycled at the Iowa City Landfill and Recycling Center. Starting in 2018, clean cardboard is no longer accepted at the Landfill and must be recycled. Residents should cut cardboard into pieces no larger than 2 feet by 2 feet and place in their recycling bins.²
- **Iowa City Landfill and Recycling Center**: The Iowa City Landfill and Recycling Center serves Johnson County, Kalona and Riverside, and is used by both residential and commercial haulers. This website includes information on garbage disposal and recycling fees, educational opportunities, and the compost program.³
- **East Side Recycling Center**: At the East Side Recycling Center, 2401 Scott Blvd. SE, education is a priority. Residents come to enjoy unique programming and take advantage of special events, like mobile household hazardous waste collections. They can also rent the Environmental Education Center for their own use. East Side is a place where the community can recycle, collect compost, and also reuse, with the help of our partner organizations located on site. It is also a showcase for green infrastructure (green roof, biocells, rain gardens) and energy efficiency, since it is Leadership in Energy and Environmental Design (LEED) Platinum certified.⁴
- **Multifamily Apartments and Business Recycling**: Apartments, condominiums, non-profit organizations, and businesses that don't receive City curbside services can hire local haulers to provide recycling services at their facilities. All multi-family apartments and condominiums are required to provide recycling for their tenants.⁵

Green Spaces

- **Gather Here Park System Master Plan**: This plan provides a study of the City's current active park areas to evaluate accessibility, condition and lifespan of the facilities, as well as providing a visioning component to determine the park amenities and facilities desired by the community.⁶
- **Natural Areas Master Plan**: This plan provides a study of the functional, economic, recreational, and aesthetic value of the Iowa City Parks and Recreation system's natural areas. The results will inform a 10-year management plan intended to protect the value of these sites. The study also provides information about Iowa City's native plantings and climate plan.⁷

¹ <https://www.icgov.org/recycling>

² <https://www.icgov.org/recycling>

³ <https://www.icgov.org/recycling>

⁴ <https://www.icgov.org/esrc>

⁵ <https://www.icgov.org/recycling>

⁶ <https://www.icgov.org/parksrecmasterplan>

⁷ <https://www.icgov.org/sustainabilityreports>

Iowa City Resources



Public Transportation

- [Future Forward 2045 Long Range Transportation Plan \(2017-2045\)](#): The Future Forward 2045 Plan (approved May 2017) will help guide metropolitan area decision-making regarding transportation improvements and investments extending 25 years into the future. The plan considers all modes of transportation—car, truck, freight, transit, pedestrian and bicycle—and makes specific recommendations for transportation projects and funding sources.¹

¹ <https://www.mpoic.org/publications>