

STATE OF AFFAIRS:

# The City of Cedar Rapids' Pursuit of Sustainability

SPRING 2016



# What is Sustainability?

To be sustainable is to meet the needs of today without preventing future generations from meeting their needs.

## Why is Sustainability Important?

The following information illustrates the need to broaden our conversations and how we measure success in the face of challenging, unsustainable trends.

**LAND USE:** 40-50% of land on Earth and increasing has been changed from prairie, forest, or wetland to cities and agriculture.

**ENERGY:** Gas, oil, and coal we use pollutes the air, land, and water and releases the energy equivalent to five atomic bombs per second into the atmosphere, which increases temperature, flooding, and drought and impairs species, habitats, and food and water supply.

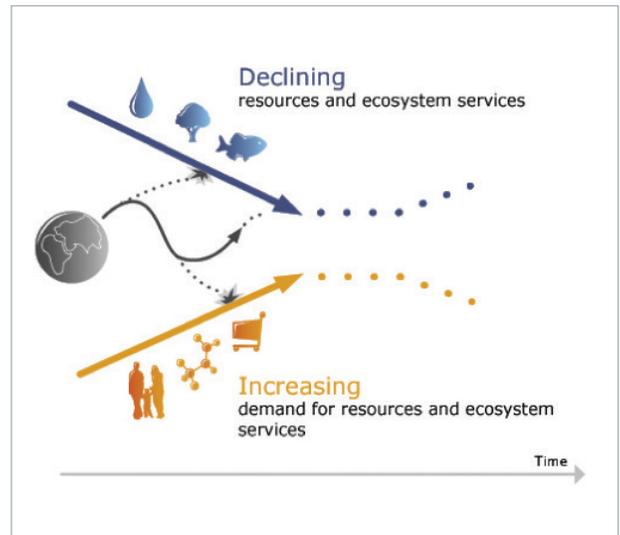
**WATER:** Conventional urban development does not absorb rain water but instead channels it quickly into streams and rivers, which worsens flooding and water quality.

**CONSUMPTION:** Americans consume natural resources five times faster than they can be regrown. Products we demand like batteries, coffee, fish, and clothes drive industries supported in part by 21 million forced laborers.

**FOOD:** 40% of food grown is wasted. 17% of children in Cedar Rapids are hungry. The food we demand relies on growing methods that degrade soil, water, habitat, and species.

**EQUITY:** Average graduation rate from high school is 87%; it is 76% for low income students. 26% of households do not make a living wage.

**HEALTH:** Persistent poverty and hunger are chronic stresses that create barriers to success in school and at work. In Iowa, 31% of adults are obese, and 29% do not participate in physical activity more than once per month.



The sustainability "funnel" illustration by The Natural Step

## Why Commit to Sustainability?

Committing to sustainability can address several priorities.

- **COST SAVINGS:** Reducing long-term, often compounding resource costs
- **ATTRACTING AND RETAINING TALENT:** Employee morale and satisfaction
- **CUSTOMER EXPECTATIONS:** Strengthening image and recognition
- **REGULATORY COMPLIANCE:** Staying ahead of legislation
- **LEADERSHIP:** Aligning practices with values, leading by example
- **STEWARDSHIP:** Committing to protection of public resources, the public good

## Who's Pursuing Sustainability?

Four out of five of the 40 largest U.S. cities identify sustainability as a top-five priority. 93% of the world's largest companies address sustainability in annual corporate responsibility reporting. In Iowa, all three regent universities prioritize sustainability in their strategic plans. Iowa cities including Dubuque, Iowa City, Davenport, Des Moines, Fairfield, Charles City, and Decorah have sustainability commitments.

**GRAND RAPIDS, MI:** In the last year of its 2011-2015 Sustainability Plan, the city reported being more resilient, healthier, and a better place to live, achieving 188 of 232 social, economic, and environmental targets. Prominent areas addressed are renewable energy, social equity, water pollution, recreation, and walkability. They won "Nation's Most Sustainable City" from the U.S. Chamber of Commerce in 2010 and the U.S. Conference of Mayors' Climate Protection Award in 2012.



**Member:** Compact of Mayors and STAR Communities.  
**[www.grcity.us/enterprise-services/officeofenergyandsustainability](http://www.grcity.us/enterprise-services/officeofenergyandsustainability)**

**BOULDER, CO:** The Climate and Sustainability Division prioritizes energy (efficiency and local renewables), climate (for health and resilience), and zero waste (reduce, reuse, recycle). The community aims to reduce carbon emissions by 80% from 2005 to 2050.



**Member:** Compact of Mayors.  
**[www.bouldercolorado.gov/planning](http://www.bouldercolorado.gov/planning)**

**FORT COLLINS, CO:** Plans include the Municipal Sustainability Plan and Community Climate Action Plan. The municipal plan has 11 focus areas: Carbon; Energy; Fleet; Waste Minimization; Education; Funding; Biodiversity; Water Conservation; Purchasing; Safety, Health, and Wellness; and Local Food. Guiding principles include Leading by Example, Place Matters, Shared Prosperity, and Climate Economy. From 2005 to 2014, city government reduced electricity by 15%, solid waste by 44%, and fleet fuel emissions by 27%.



**Member:** Compact of Mayors and STAR Communities.  
**[www.fcgov.com/sustainability](http://www.fcgov.com/sustainability)**

**ASHEVILLE, NC:** The Office of Sustainability is guided by a Sustainability Management Plan that integrates sustainable design, technology, and practice into municipal operations, infrastructure, and services. Focuses include management, employee education, greenhouse gas emissions, land use, facilities, transportation, water, and waste. Asheville prioritizes a management-driven approach to sustainability.



**[www.ashevillenc.gov/departments/sustainability/sustainabilityresources](http://www.ashevillenc.gov/departments/sustainability/sustainabilityresources)**

**DUBUQUE, IA:** Sustainability efforts include economic, social, and environmental priorities. Work is guided by 11 sustainability principles and the "50% by 2030 Community Climate Action and Resilience Plan," a plan to reduce GHG emissions 50% below 2003 levels by 2030. Dubuque's goal is to become an "international model for sustainability" for communities under 200,000.



**Member:** Compact of Mayors and STAR Communities.  
**[www.sustainabledubuque.org](http://www.sustainabledubuque.org)**

**DES MOINES, IA:** The municipality's "GreenDM" effort increased fuel efficiency in city fleet choices, use of LED street lights, and anaerobic digestion for city sewage to save roughly \$950,000 in operating costs.



**Member:** Compact of Mayors and STAR Communities.  
**[www.greendm.org](http://www.greendm.org)**

**IOWA CITY, IA:** Sustainability is driven by a "regenerative cities" approach that focuses on food, community, and energy systems that are regenerative. Iowa City releases an annual sustainability assessment. Collaboration and leadership is strengthened with the University of Iowa's presence, notably the Iowa Initiative for Sustainable Communities and Office of Sustainability.



**Member:** Compact of Mayors and STAR Communities.  
**[www.icgov.org/city-governments/departments-and-divisions/sustainability-services](http://www.icgov.org/city-governments/departments-and-divisions/sustainability-services)**

## Tools for Evaluating and Incorporating Sustainability

Sustainability is a pursuit to optimize long-term environmental, social, and economic health, often called the Triple Bottom Line. The following tools are widely used to guide and measure these pursuits.

### **FOR BUILDINGS AND NEIGHBORHOODS: Leadership in Energy and Environmental Design (LEED)**

LEED is a prominent planning and recognition tool. Seven goal areas include:

1. Reduce contribution to global climate change
2. Enhance individual human health
3. Protect and restore water resources
4. Protect and enhance biodiversity and ecosystem services
5. Promote sustainable and regenerative material cycles
6. Build a green economy
7. Enhance community quality of life.

### **FOR COMMUNITIES: STAR Communities (Sustainability Tracking and Rating System for Communities)**

STAR Communities provides an assessment tool, technical guide, and a ranking system for community sustainability performance. A full assessment requires the collection of 500 data points over 9-12 months. Cedar Rapids completed a shortened version called "Leading STAR Community Indicators." In Iowa, the following communities have completed the full STAR Community assessment: Indianola (no certification requested), Des Moines (3-star), Charles City (3-star), Dubuque (4-star), Iowa City (4-star), and Davenport (4-star). 5-star is the highest rating a community can achieve.

**The full assessment addresses 44 objectives and 7 goal areas:**



**1. Built Environment:** Quality, choice, and access on where to live, work, and play



**5. Equity and Empowerment:** Inclusion and access for all community members



**2. Climate and Energy:** Increase efficiency, reduce impact



**6. Health and Safety:** Strong, resilient, and safe



**3. Economy and Jobs:** Quality jobs, shared prosperity



**7. Natural Systems:** Protect and restore the resources of life



**4. Education, Arts, and Community:** Vibrant, connected, and diverse culture

 BUILT ENVIRONMENT	 CLIMATE & ENERGY	 ECONOMY & JOBS	 EDUCATION, ARTS & COMMUNITY	 EQUITY & EMPOWERMENT	 HEALTH & SAFETY	 NATURAL SYSTEMS
Ambient Noise & Light	Climate Adaptation	Business Retention & Development	Arts & Culture	Civic Engagement	Active Living	Green Infrastructure
Community Water Systems	Greenhouse Gas Mitigation	Green Market Development	Community Cohesion	Civil & Human Rights	Community Health & Health System	Invasive Species
Compact & Complete Communities	Greening the Energy Supply	Local Economy	Educational Opportunity & Attainment	Environmental Justice	Emergency Prevention & Response	Natural Resource Protection
Housing Affordability	Industrial Sector Resource Efficiency	Quality Jobs & Living Wages	Historic Preservation	Equitable Services & Access	Food Access & Nutrition	Outdoor Air Quality
Infill & Redevelopment	Resource Efficient Buildings	Targeted Industry Development	Social & Cultural Diversity	Human Services	Indoor Air Quality	Water in the Environment
Public Spaces	Resource Efficient Public Infrastructure	Workforce Readiness		Poverty Prevention & Alleviation	Natural & Human Hazards	Working Lands
Transportation Choices	Waste Minimization				Safe Communities	

STAR Communities' 7 goal areas and 44 objectives

**FOR PRODUCTS: Life Cycle Assessment (LCA)**

LCAs assess a building's materials and systems over its life cycle (whole-building LCA) or an individual product's total environmental impact over its lifespan from raw material extraction to the end of its life (product LCA).

**FOR INFRASTRUCTURE: Envision**

A planning, rating, and evaluating system that engages all participants in optimizing long-term environmental, social, and economic outcomes in sustainable infrastructure projects.

**FOR DEFINING SUSTAINABILITY: The Natural Step**

A sustainability communications and planning tool, The Natural Step is useful for identifying core sustainability challenges.

**FOR CLIMATE CHANGE: Compact of Mayors (CoM)**

Fossil fuel use, consumption, and land use changes increase energy inputs into the atmosphere and decrease the land's ability to absorb the energy. To catalyze cities, CoM is a commitment to measure greenhouse gas emissions and set goals for their reductions. In Iowa, mayors of Dubuque, Iowa City, and Des Moines are participants.

**URBAN SUSTAINABILITY DIRECTORS NETWORK (USDN)**

Cedar Rapids is a member of this national and regional network that provides resources, discussion forums, focus groups, and financial resources for innovative projects and partnerships.

In a sustainable society, nature is not subject to systematically increasing...

-  ...concentrations of substances extracted from the Earth's crust,
-  ...concentrations of substances produced by society,
-  ...degradation by physical means,

and, in that society...

-  ...people are not subject to conditions that systematically undermine their capacity to meet their needs.

The Natural Step: 4 systems conditions of a sustainable society

## Sustainability Assessment for Cedar Rapids Community

Cedar Rapids completed the Leading STAR Community Indicators assessment in January 2016, which was developed for cities beginning their sustainability pursuits. It spans environmental, social, and economic goal areas. Similar in breadth to the full STAR Community assessment (500 data points, 9-12 mo. to complete), the abridged version includes 21 indicators (roughly 50 data points, 2 mo. to complete) and was developed for cities beginning their sustainability pursuits.

	INDICATOR	PERFORMANCE Data for Cedar Rapids community, most recent available year
1	Drinking Water Quality	Zero EPA violations for total coliform, turbidity, or water pathogen levels.
2	Safe Wastewater Management	Zero EPA violations at treatment plant; 4 violations at regulated dischargers
3	Housing and Transportation Costs	88% of low income populations spend more than 45% of income on housing and transportation costs
4	Transportation Mode Split	Commuters: 82% drive-alone; 9.2% carpool; 1.3% transit; 2.6% walk; 0.6% bike; 3.3% work from home
5	Transportation Safety	0 bicycle and pedestrian fatalities
6	Climate Adaptation, Vulnerability Assessment	Not available
7	Greenhouse Gas Emissions	Not available
8	Renewable Electrical Energy Supply	12.7%
9	Total Solid Waste	190,691 tons
10	Third Grade Reading Proficiency	70.8%
11	High School Graduation Rate & Graduation Rate Equity	87% average: 74% African American; 78% Hispanic; 89% White; 73% Special Education; 85% English Language Learners; 76% Free and Reduced Price Lunch
12	Environmental Justice, Risk, and Exposure	Potential environmental hazards in predominantly low income and minority census tracts for airborne particulate matter (2.5), Traffic Proximity, Lead Paint, Superfund sites, RMP, hazardous substance sites (RMP); and significant concentrations of poverty, young, elderly, linguistically isolated, and less than high school education.
13	Equitable Access & Proximity to Foundational Community Assets	Insignificant findings; more disconnection found for large-lot, affluent sections of town
14	Businesses	6,559 business establishments in city
15	Employment	3.3% unemployment; 70.9% employment rate
16	Median Household Income	\$72,044 median household income
17	Living Wages	73.6% that meet a living wage standard
18	Food Security and Assistance	12.2% overall population food insecure; 17.3% children food insecure
19	Access to Healthful Food	8.3% population in food desert; 33.8% children and 28.7% seniors with low food access
20	Violent Crime Rate	Per 100,000: 167.96 assaults, 4.64 murders, 30.96 rapes
21	Green Infrastructure	8.5% land in green infrastructure (park, forest, prairie, wetland, ROW)

This assessment was used as an initial tool to benchmark and understand community sustainability performance. This 21 Indicator tool and the full STAR Assessment are options for future use.

Takeaways include.

- **Economic health:** Unemployment is low; roughly 75% of residents working earn a living wage, which is identified as a wage that can afford housing and transportation at 45% of earnings or below.
- **Social health:** Food access is a challenge for 34% of children and 29% of seniors; educational attainment gaps exist by race and income; transit, biking, and walking rates are low; reading proficiency is low.
- **Environmental health:** Drinking water and wastewater management quality is high; greenhouse gases have not been measured. Indicator #12 has a variety of issues that need to be explored.

## Sustainability Assessment City of Cedar Rapids Staff

To educate city staff about broad sustainability concepts and ask for their areas of interest and support, a Sustainability Assessment was delivered to all City of Cedar Rapids staff that included both a survey and an educational quiz.

**SURVEY RESULTS:** 322 responses out of roughly 1,400 staff

- 83 indicated they wish to stay closely connected to sustainability efforts
- Asked how important sustainability is: 49.4% very, 40.6% moderately, 1.9% not, 8.2% not sure what it means yet
- Most popular areas of interest: Recycling, paper waste reduction, water conservation, and energy conservation

**QUIZ RESULTS:** A 10-question quiz was for educational purposes and brought important global and local concepts to light.

- Quiz questions answered incorrectly most frequently included 1) the definition of environmental justice (fact that minorities and low income earners are disproportionately affected by environmental pollution) and 2) the percent of children in Cedar Rapids School District on Free and Reduced-Price Lunch (49%).
- Quiz questions answered right most frequently included 1) question asking about access to nature and improvements in work performance, classroom performance, and hospital stay times and 2) negative impact of nitrates in waterways and in the Gulf of Mexico.
- Percentage of people that found the quiz useful for educational purposes:
  - 17.7% strongly agree; 52.8% agree; 17.1% undecided; 8% disagree; 4.3% strongly disagree
  - Most common criticism was related to broadness and lack of focus with sustainability and wanting to know specific ways they could apply sustainability in their line of work.

### TAKEAWAY MESSAGES:

- Many people value sustainability and want to stay involved. These are potential advocates.
- Most connect to environmental objectives, like waste and energy reduction, activities requiring high participation.
- Sustainability is a broad concept. The learning curve is high, and focus is a challenge.
- People pointed out importance of using public resources efficiently and making financially prudent decisions.

## Recognizing Existing Sustainability Efforts

Important to recognize is that sustainability efforts are not new for the City of Cedar Rapids. A short list of projects follows that have triple bottom line considerations and impacts. The list is not exhaustive.

- **Parks and Recreation:** Goal to grow 1,000 acres of pollinator habitat will enhance human and ecosystem health.
- **Community Development:** Envision CR, the city's comprehensive planning document, prioritizes sustainability, a greenhouse gas inventory, infill development, parks, ecosystem services, neighborhood building, and more.
- **Public Works:** Stormwater infiltration through green infrastructure is a priority which will reduce flooding, increase green space, and improve water quality. Three employees are Envision Sustainability Professionals. Traffic Engineering is converting street lights to LED lights to decrease costs and fossil fuel use.
- **Utilities:** Middle Cedar Partnership Project prioritizes collaboration to reduce nutrients in waterways. The installation of electric sub-meters and software at wastewater and drinking water facilities will reveal efficiency opportunities.
- **Transit:** A study to increase ridership of transit services is underway. Ridership has increased partly due to making Saturday transit use free of charge.
- **Finance:** New policy includes Styrofoam ban, green cleaning supplies, and paper with recycled content. Waste reduction and idling reduction practices are improving. City has 90KW solar array on new bus garage. Downtown Library and Central Fire are LEED Platinum facilities.
- **Information Technology:** Reducing waste, all city printers print two-sided by default. Idling reduction technologies are being explored in IT and Fleet Services partnership.
- **Diversity:** A standing committee works to improve access and equity for current and prospective staff.
- **Library:** Promotes access of resources to all citizens, educational assistance, and the sharing economy.
- **Airport:** Grows Miscanthus, a dedicated energy crop, on airport grounds to sell as fuel for University of Iowa's power plant. Farmland owned by the airport also utilizes prairie strips to reduce erosion and improve water quality.
- **iGreenCR:** A network of city employees meets to share work, goals, and education.

## Recommendation: Build a "Sustainable City Government Plan."

The City of Cedar Rapids recognizes sustainability as a core value and the importance of it as a lens through which all decisions and opportunities are viewed. To operationalize sustainability, two actions are recommended for Fiscal Year 2017.

- **SUSTAINABILITY AT WORK:** Promote sustainability efforts that city employees in city buildings can take today (like composting, idling reduction, biking) in order to grow competence, adoption, and culture of sustainability in city staff. Communicating these efforts externally is an opportunity to create dialogue and find leaders within the community.
- **SUSTAINABILITY INTEGRATION COMMITTEE:** Form high-level committee of directors and operational managers to create Sustainable City Government Plan that integrates sustainability into municipal operations and defines priorities, metrics, goals, and funding.