

RockfordRegion



SIGNS

Regional Plan for
Sustainable Development



THE STATE OF ENVIRONMENTAL WELL-BEING
ROCKFORD METROPOLITAN AGENCY FOR PLANNING

July 2013



This report was prepared in cooperation with the U.S. Department of Housing and Urban Development, the U.S. Department of Transportation and the U.S. Environmental Protection Agency. The contents, views, policies and conclusions expressed in this report are not necessarily those of the above agencies.

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STATE OF ENVIRONMENTAL WELL-BEING IN THE ROCKFORD REGION

FOREWORD

In 2010, the U.S. Department of Housing and Urban Development's Partnership for Sustainable Communities awarded the Rockford Metropolitan Agency for Planning (RMAP) a \$600,000 grant to create a Regional Plan for Sustainable Development (RPSD) and a "data commons" that would house regional indicators and sustainability metrics. With RMAP as the grantee, the sustainability initiative is known as the Rockford Region Vital Signs project. This report, "The State of Environmental Well-being of the Rockford Region" is the final of three reports that will document the research and indicator data for 16 distinct areas of sustainability, collectively representing an assessment of current conditions in Boone and Winnebago counties.

Vital Signs is led by a local consortium of over 30 regional agencies agreeing to support and align their strategic plans and long-range visions to the final sustainability plan. The RMAP Policy Committee also formed a Steering Team of nearly 100 community leaders to help develop regional goals for the sixteen areas of sustainability and to recommend a governance structure empowered to implement the RPSD upon its submission and acceptance by the Department of Housing and Urban Development.

Many individuals have contributed to the development of the Vital Signs project. In particular the grant management staff wish to recognize the significant contribution of the Winnebago County Geographic Information System (WinGIS) for their technical expertise and assistance with deployment of the Vital Signs website and the open data platform on which it resides.

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THE SUSTAINABLE COMMUNITIES FEDERAL PARTNERSHIP

In 2009-2010 three federal departments came together to form the Partnership for Sustainable Communities, including the Department of Transportation (DOT), Environmental Protection Agency (EPA), and the Department of Housing and Urban Development (HUD). With HUD as the lead agency this federal partnership is guided by “Livability Principles” that seek to enhance the sustainability of local communities. The principles are:

1. Provide more transportation choices

Develop safe, reliable and economical transportation choices to decrease household transportation costs, reduce the nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions and promote public health.

2. Promote equitable, affordable housing

Expand location- and energy-efficient housing choices for people of all ages, incomes, races and ethnicities to increase mobility and lower the combined cost of housing and transportation.

3. Enhance economic competitiveness

Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers as well as expanded business access to markets.

4. Support existing communities

Target federal funding toward existing communities—through such strategies as transit-oriented, mixed-use development and land recycling—to increase community revitalization, improve the efficiency of public works investments, and safeguard rural landscapes.

5. Coordinate policies and leverage investment

Align federal policies and funding to remove barriers to collaboration, leverage funding and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy.

6. Value communities and neighborhoods

Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.



IMPORTANCE OF BEING A SUSTAINABLE COMMUNITY

The term sustainability may mean a lot of things to a lot of individuals. Yet, being a sustainable community is universal to all residents. The goal of community sustainability is for residents committing to incrementally make better decisions and habits in the short-term, with the aim to keep the social, economic, and environmental well-being of their community thriving in the long-term.

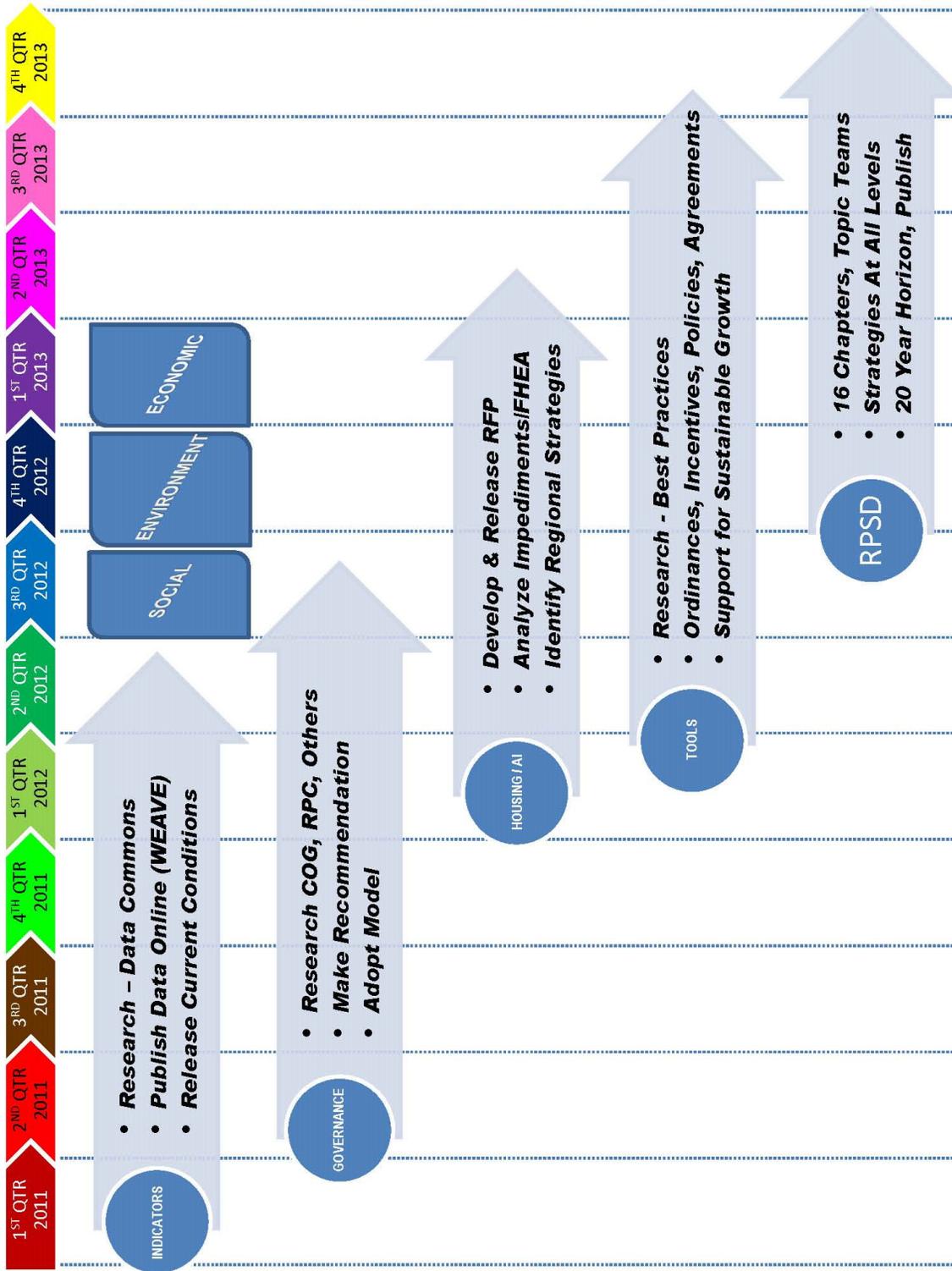
VITAL SIGNS BACKGROUND

This narrative, “State of Environmental Well-being in the Rockford Region”, is the final of three reports being released as a part of the Vital Signs project to help document the current conditions of the region. For the purposes of this report the Rockford region is defined by the entirety of Boone and Winnebago counties, which matches the traditional designation of the Rockford Metropolitan Statistical Area (MSA). All references to the “Rockford region”, “metro area” or simply “region”, mean the Rockford MSA. Any reference to the municipal jurisdiction of Rockford will be shown as the “City of Rockford”.

The Vital Signs project includes five agreed upon deliverable products to HUD, shown graphically on page 7. They are:

- An open data platform consisting of a “data commons” that contains publicly-available and privately-purchased data sets to help document the current conditions of the region and to guide future performance measurement of sustainability implementation. As of the writing of this document this work is essentially complete. The Vital Signs website is www.ourvitalsigns.com.
- A regional governance model that empowers the region to compete, receive and implement sustainability initiatives and to plan for the entire metro area. RMAP has already received “Preferred Sustainability Status” from HUD, but currently the RMAP Policy Committee is only empowered to act on behalf of the census-defined urban areas within the two counties. As of this writing the recommendation of a regional governance model is before the RMAP Policy Committee.
- A formal regional analysis of housing, defined for grantees as a “Fair Housing Equity Assessment” by HUD. Additionally, RMAP has agreed to also include a regional “Analysis of Impediments to Fair Housing Choice”. This additional work will position entitlement grantees within the region (City of Rockford, Rockford Housing Authority) to align their HUD-required plans with a regional focus.
- A toolkit of model codes, ordinances, policies, incentives and agreements known as “implementation tools” that can assist the implementation of the RPSD.
- The final Regional Plan for Sustainable Development document. This plan document will have a 20-year horizon and include strategies and action steps for all levels of the region including local governments, businesses, non-profits, neighborhoods and individual citizens.





THE PLANNING PROCESS

Sustaining a community isn't the same thing as having a sustainable community. The RPSD for the Rockford Region aims to:

- Create a higher quality of life for residents
- Establish 21st-Century economic strategies for businesses, economic development and wealth creation
- Maintain world-class sustainable environmental systems for the physical environs, including the built infrastructure

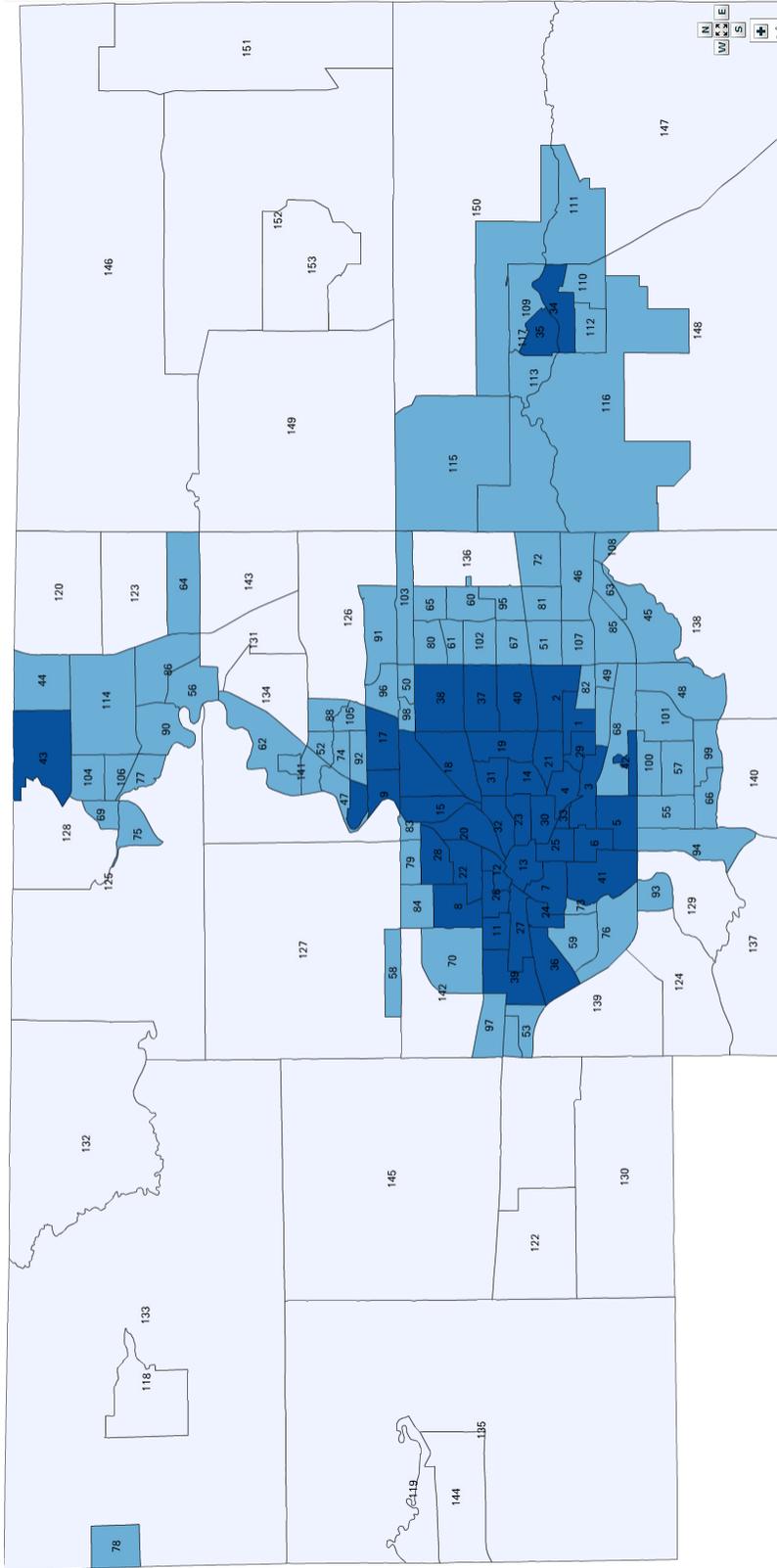
The Environmental report is intended to:

- Broadly explore the idea of environmental well-being within the greater context of **text**
- Engage traditionally marginalized communities including low income citizens, people of color and limited-English speaking residents
- Reference data collected by the Vital Signs grant management team to inform the regional conversation of environmental well-being
- Reference professional journal articles to provide current research to assist the understanding of the data sets
- Lead to the formation of goals, objectives, action steps and policies to maximize the effectiveness of the RPSD
- Show relationships between indicators and suggest areas for further study, but not confirm causation

The first and second reports, the State of Social and Economic Well-being of the Rockford Region, were released in February and April of 2013, respectively. Collectively these three reports serve as the grant deliverable of current conditions, and inform the final RPSD. Elected officials and community leaders can use the current conditions as a benchmark to measure performance of the region's diverse initiatives and programs, and help initiate the conversation of sustainability in the greater regional context.

Sustainability "Districts" were established as the basic unit of measurement for the Vital Signs project. Districts are based on census block groups and were defined for urban, suburban and rural geographies within the region. Urban districts were formed from 2-6 census block groups combined so that they encompass approximately one square mile, which is considered the basic walkability standard. Suburban districts were formed from 1-2 block groups, and in many cases, were already one square mile in size. Rural districts were formed from one census block group. The RPSD will have distinct goals, objectives and action steps for urban areas





District Numbers

Source: Rockford Metropolitan Agency for Planning.
Date: 2012.

- Rural
- Suburban
- Urban



different than suburban, and suburban different than rural. A map of the Vital Signs Districts is on page 9. Urban districts can be found within the City of Rockford, the City of Loves Park, the City of Belvidere and the City of South Beloit. The area delineated by the combination of urban and suburban districts is substantially the same as the census-defined urban area that governs the traditional planning area for RMAP as the Metropolitan Planning Organization (MPO).

CURRENT STATUS

This report continues the region's sustainability playbook – developed by households, neighborhoods, organizations, businesses, and governments FOR the region's households, neighborhoods, organizations, businesses, and governments.

Now the three reports are released the community's leaders serving on the Vital Sign's Steering Team are developing high-level goals for the Regional Plan for Sustainable Development, or RPSD. This phase is scheduled to be completed later this summer of 2013. In addition, with the release of each report the data covered with the narratives will be released to the online data portal at www.ourvitalsigns.com. Several "Data Day Training Sessions" will be held for community members to understand the Vital Signs site, hear about the usefulness of community data, and learn how to explore the information online so that it is useful to the region.

Finally, Topic Teams will be formed of community members from diverse backgrounds and expertise to help shape the tasks and strategies of the playbook. Collectively these strategies will help ensure the region's sustainability goals are achieved in 20 years. This phase will be completed the fall of 2013. The RPSD plan will be finalized and adopted by early 2014.

SPEAKUP! AND COMMUNITY INVOLVEMENT

All interested parties have a role and are ambassadors for the Vital Signs project. Vital Signs is using several forms of community engagement including committees, public meetings, open houses and social media. In addition Vital Signs has secured a web-based tool called MindMixer that allows input in a "digital town hall meeting" format. Input and feedback opportunities on all aspects of the Vital



Signs project are available at <http://speakup.ourvitalsigns.com>. Ideas can be for households, neighborhoods, businesses, organizations, or local governments to make the community more sustainable. The website allows interested parties to submit, vote and comment on sustainability topics. The engagement results will inform the Topic Teams that community members may join to help identify and develop targeted strategies for the region to improve sustainability and well-being.

WHY ENVIRONMENTAL WELL-BEING IS IMPORTANT TO SUSTAINABILITY

Having choices is the American way of life. The Vital Signs Staff believe the more choices we have the better our society will become. However the amount of choices does not always equate to positive outcomes, as Doug Farr points out in Sustainable Urbanism, the lifestyle Americans have selected is affecting our health and well-being. We are growing more sedentary and staying indoors longer. And, a large part of this is due to the way we have built our cities.

BUILT ENVIRONMENT STRAINED

The nation's built environments are aging (i.e. Seattle bridge of recent news) and the public sector is struggling to both maintain existing infrastructure and build newly demanded structures. Financial climate and personal opportunity in recent decades has brought constructing larger buildings that are farther apart. Buildings promoting walking and climbing stairs are actively discouraged by building fire codes. Ventilation systems are creating climate-controlled environments we rarely leave. If we do, we drive as the infrastructure actively is built to encourage efficient driving. The average house has doubled in square footage in our lifetimes while on average we're adding only one additional resident per housing unit. Neighborhoods are becoming less dense and walkable, and are rarely near the amenities and services we need in our daily lives. We are less apt to patronage neighborhood stores as the preference is big box retail with convenient parking.



WEAKENING NATURAL ENVIRONMENT

Meanwhile, the natural environment is suffering. The amount of agriculture land available is shrinking. The majority of the ag land we do have does not produce local crops for human consumption. To stay economically viable farmers are forced to use mono-crop practices and chemicals to grow as much per acre as possible. These chemicals contribute to resistant germs and find their way into nearby land and water. Stormwater runoff is carrying silt and valuable nutrients downstream. In turn, the average food product in America travels 1,800 miles; products used to keep food “fresh” for this trip contribute to antibiotic resistance and other diseases as well. And, habitat loss is resulting in the endangered species list to continue to grow.

SOCIAL COSTS

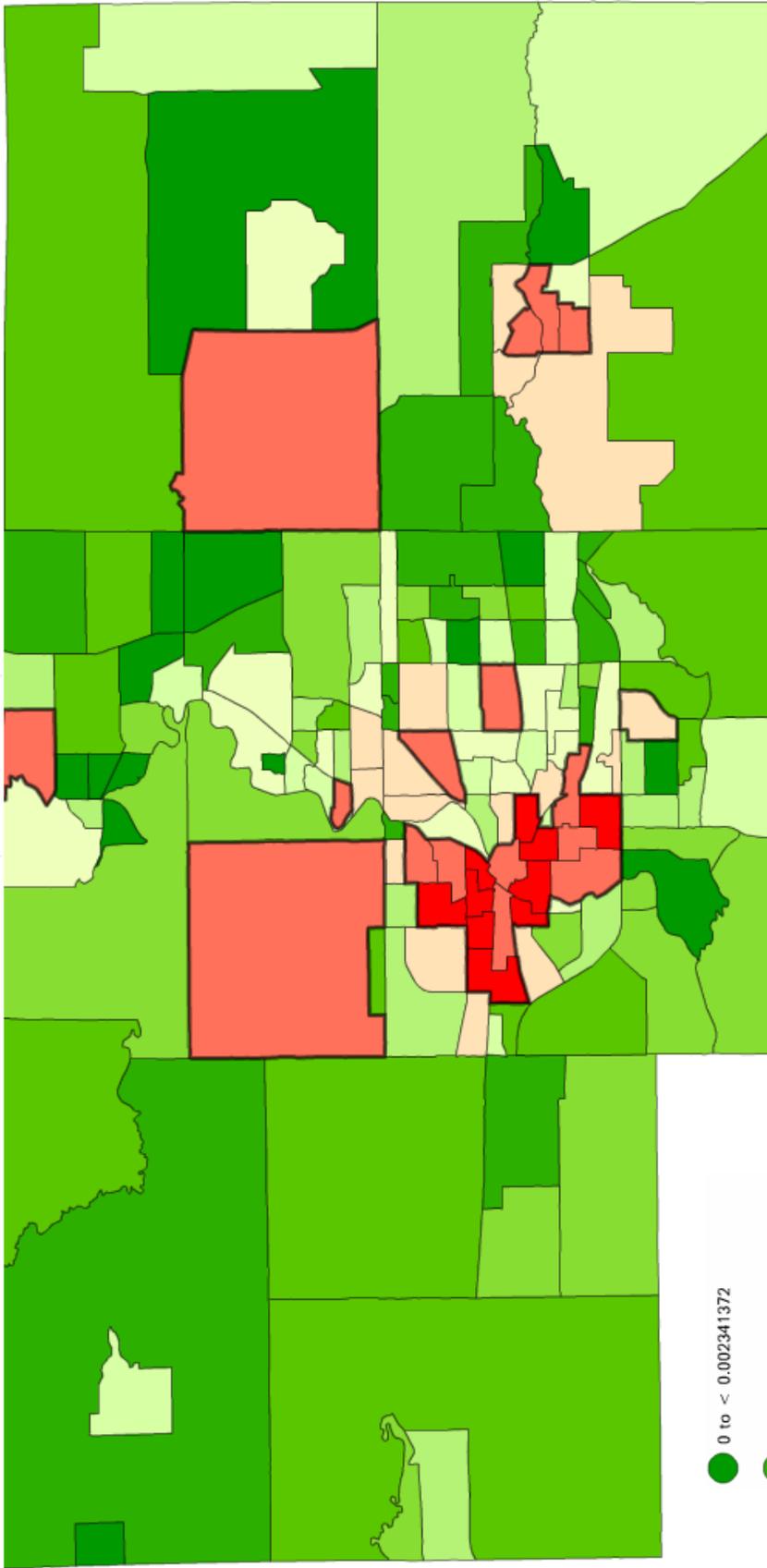
The social cost to building and expanding communities is notable. Reliance on cars and larger lots and a reduction in porches and alleys results in not knowing one’s neighborhoods as well. With less connections to neighbors there are less “eyes on the street” maintaining neighborhood safety. Americans have smaller social circles than they have had in past decades. And, with smaller social circles comes less connections to folks who can give advice and support when help is needed. Air conditions are worsening with pollutants, which in turn have causes asthma to double in some populations (among other ailments). When people are unhealthy they miss work and school.

ECONOMIC COSTS

The economic cost is high as well. The amount of energy consumed to maintain these artificial indoor environments has grown significantly. Transportation costs have gone up as well – both through direct user costs of driving as well as government subsidization of the road system in the country. Costs are higher to build and maintain more infrastructure in less compact development is burdened by the larger community. And, rarely are big box stores locally owned; as a consequence higher amounts of revenue dollars are leaving regions.

The efficiencies of personal choice is having unintended consequences on our communities.





Districts with Poverty Over 15%

*The districts enclosed with a thick black line in all maps contained within this report indicate districts with poverty above 15%.

Source: US Census Bureau
Date: 2010



CONTEXT OF THIS REPORT

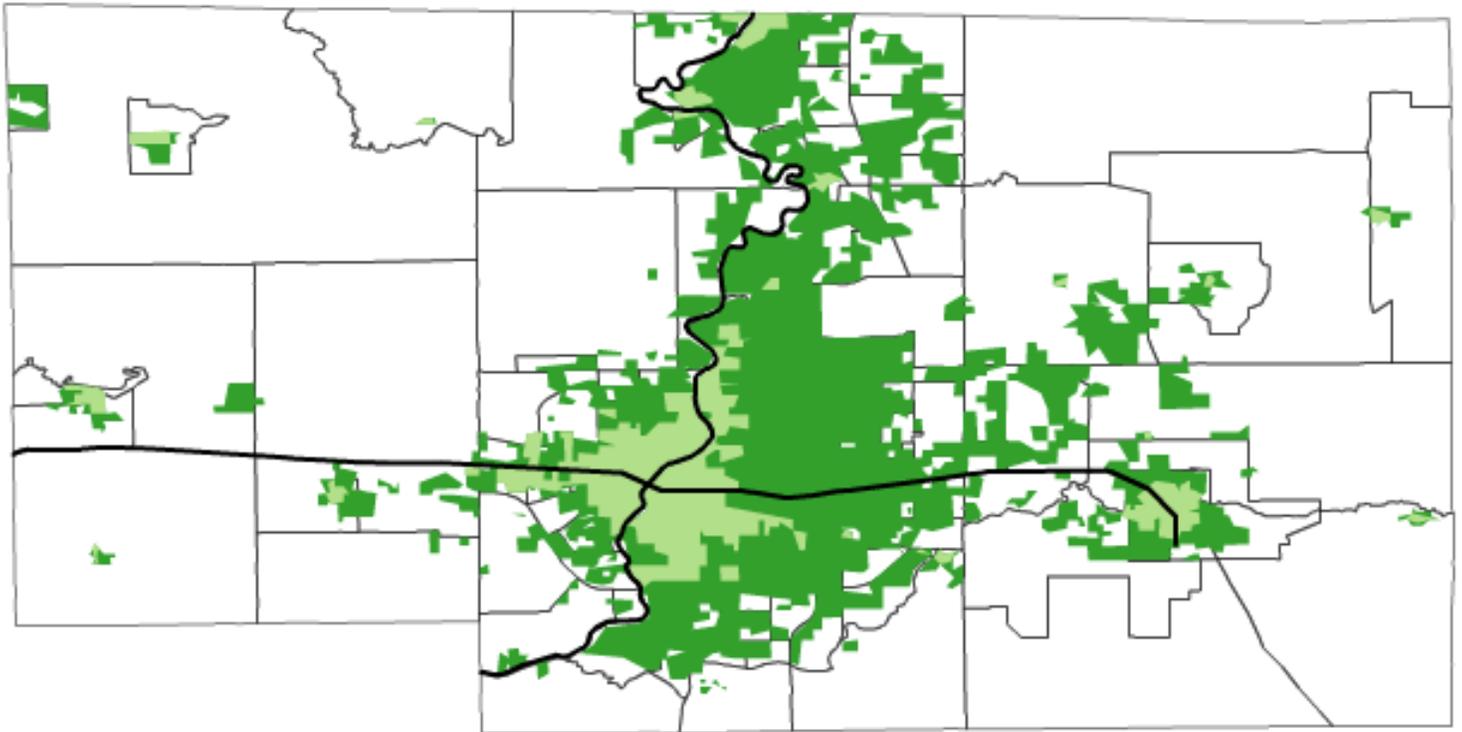
Environmental vitality is the foundation for a sustainable region. When the built and natural environment is healthy and maintained it supports the economic and social vitality of the region. This report, the State of Environmental Well-being of the Rockford Region, examines the current conditions of the natural and built environment and how the natural resources, land, and buildings, and infrastructure impacts the Region's social and economic well-being overall. This report is the final report in a series of three identifies relevant data as a baseline for measuring the success of efforts to improve the region's sustainability. The report is organized into two sections. The first part of the report explores current conditions of the natural environment in Boone and Winnebago Counties. The second part examines the state of the built environment and the impact it is having on the region. Through analyzing current environmental conditions in the region, community leaders have data that provides a benchmark for decision-making that fosters long term change and sustainability.

In a broader context, regional sustainability is a relatively new idea that many cities across the United States are striving to implement. Many cities struggle with how to combine or adapt their strategic plans to incorporate sustainability aspect while others have created new departmental entities tasked with specifically addressing sustainable aspects. Whatever the approach, the challenge still remains in translating plans into tangible actions and setting up indicators that reflect progress toward success while considering specific conditions and sociocultural environments of the city. A region's officials must reconcile how to gather and discern quantitative indicators, with qualitative measures of human well-being and civic engagement.

With the Rockford Region having the third worst healthy behavior and tenth worst emotional health in the nation, is not immune to the results of the way the region has been built during our generation. It is estimated the footprint of the built environment has nearly quintupled since 1940 while the population has only a little over doubled since then. While only 3% of the two counties were covered by the built environment in 1940 nearly 20% of the land is covered within the Metro now. These striking statistics are direct evidence a growing strain is occurring on the region's well-being.



Footprint of the Built Environment in 1940 and 2013



Source: IL Geospatial Clearinghouse & WINGIS
Date: 2013

 Built Environment, 2012

 Built Environment, 1940





Transportation



Energy



Built Environment



Housing



Biodiversity



Education



Waste



Civic Vitality



Health



Culture



Land



Water



Economic Development



Technology



Food



Safety



VITAL SIGNS DATA

The Vital Signs initiative established 16 areas of sustainability to study current conditions both now and over the course of the 20-year time frame, referred to as the Current Conditions Analysis. Within each of the 16 areas of sustainability the Vital Signs data analysis is using the “triple-bottom line” methodology of looking through a social lens, economic lens, and an environmental lens. For example the housing area of regional sustainability examines data on residents (social components), the financial aspects of housing (economic components), and the housing infrastructure (environmental). The data and analysis contained within this report highlight some of the main findings of the state of economic well-being for the region. Additional information on the region’s economic well-being as well as social and environmental can be found on the www.ourvitalsigns.com website.



NATURAL ENVIRONMENT



AIR QUALITY

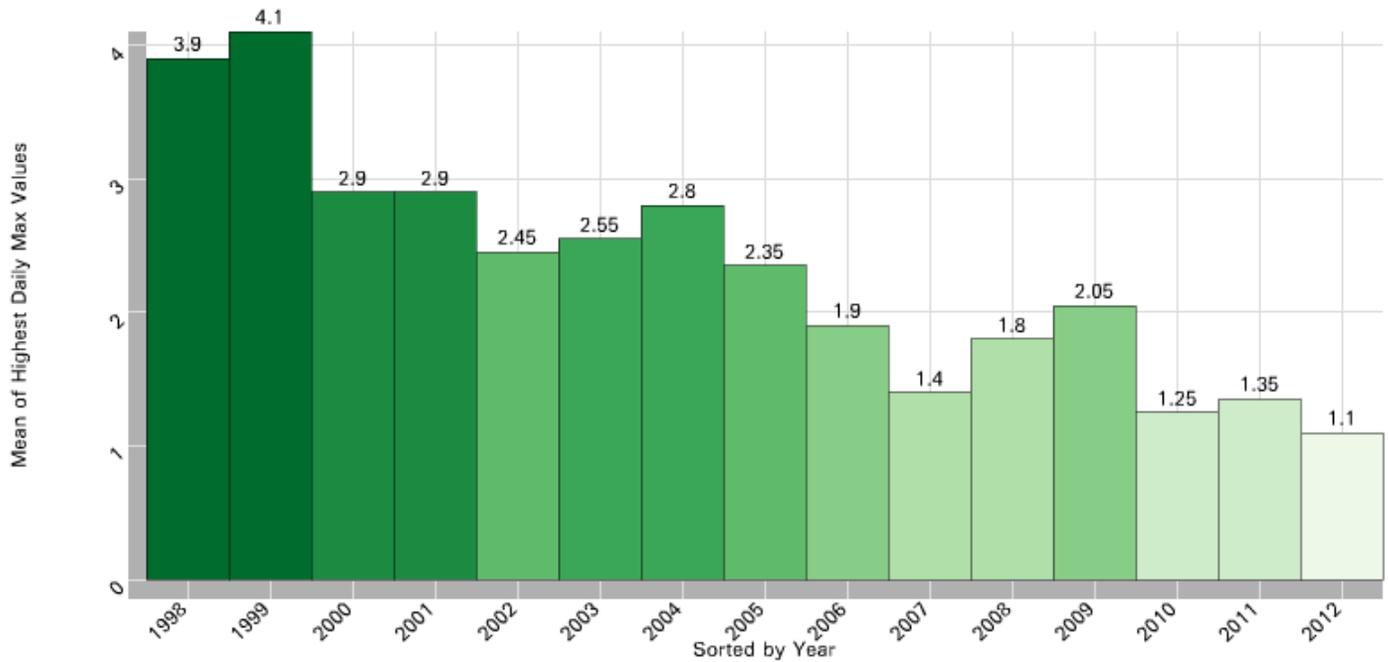
Air Quality impacts not only environmental niches, but regional sustainability as a whole, in large part because of the health impacts to humans and the effects of pollutants on the built and natural environments. Maintaining or improving air quality is therefore an initiative worth the time and cooperation of all regional partners, whether it be through awareness campaigns such as the No Idle Zone, investigation and adoption of new technologies like truck stop idle air, and pursuance of policy change to support healthy air quality in the Rockford Region. The Air Quality of the Rockford Region is measured by the Environmental Protection Agency (EPA) for three major pollutants. These are Ground-level ozone (Ozone), Carbon Monoxide (CO) and Particulate Matter smaller than 2.5 micrometers (PM2.5). This data on air pollution comes from the EPA ([www.epa.gov/air data](http://www.epa.gov/air-data)).

Ozone is created by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are major sources of NO_x and VOC. Breathing ozone, a primary component of smog, can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Ground-level ozone also damages vegetation and ecosystems. The EPA standard for Ozone is 0.075 parts per million (ppm). The Rockford Region's current value, based on the previous three years' averaged values, is 0.068 ppm, within the limits of the standard. While encouraging, this data has been on the rise in recent years, and with the uncharacteristically low values from 2010 about to cycle out of the three year rolling average, the Region must continue to find new and improved ways to combat the ozone pollution in the region to maintain healthy air quality.

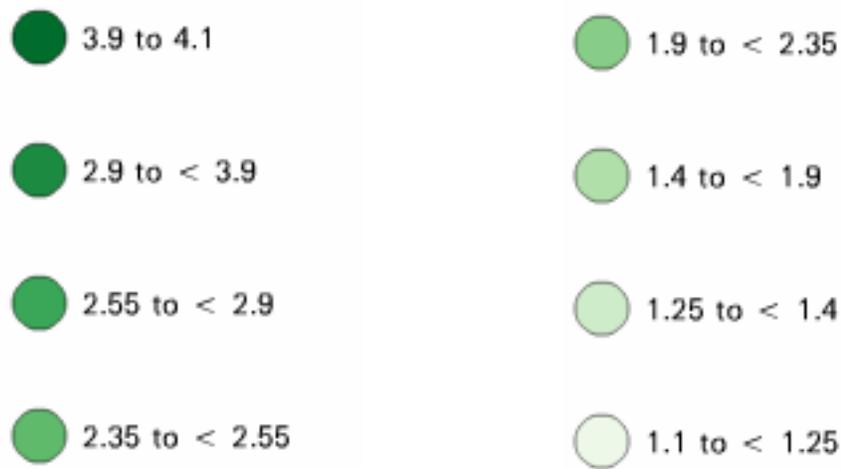
Carbon monoxide is emitted directly from vehicle tailpipes. In urban areas, the motor vehicle contribution to carbon monoxide pollution can exceed 90 percent. CO can cause harmful health effects by reducing oxygen delivery to the body's organs and tissues. At extremely high levels, CO can cause death. The EPA standard for CO is 9 ppm, and the Rockford Region's current value is 1.1, well below the maximum. Presently, there is little CO pollution in the Rockford Region, but continued cooperation to preserve air quality must be maintained.



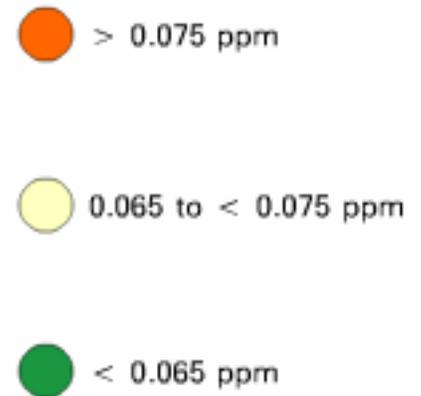
Carbon Monoxide 8 Hour Sample Results (parts per million) - Median of Highest Daily Values Annually



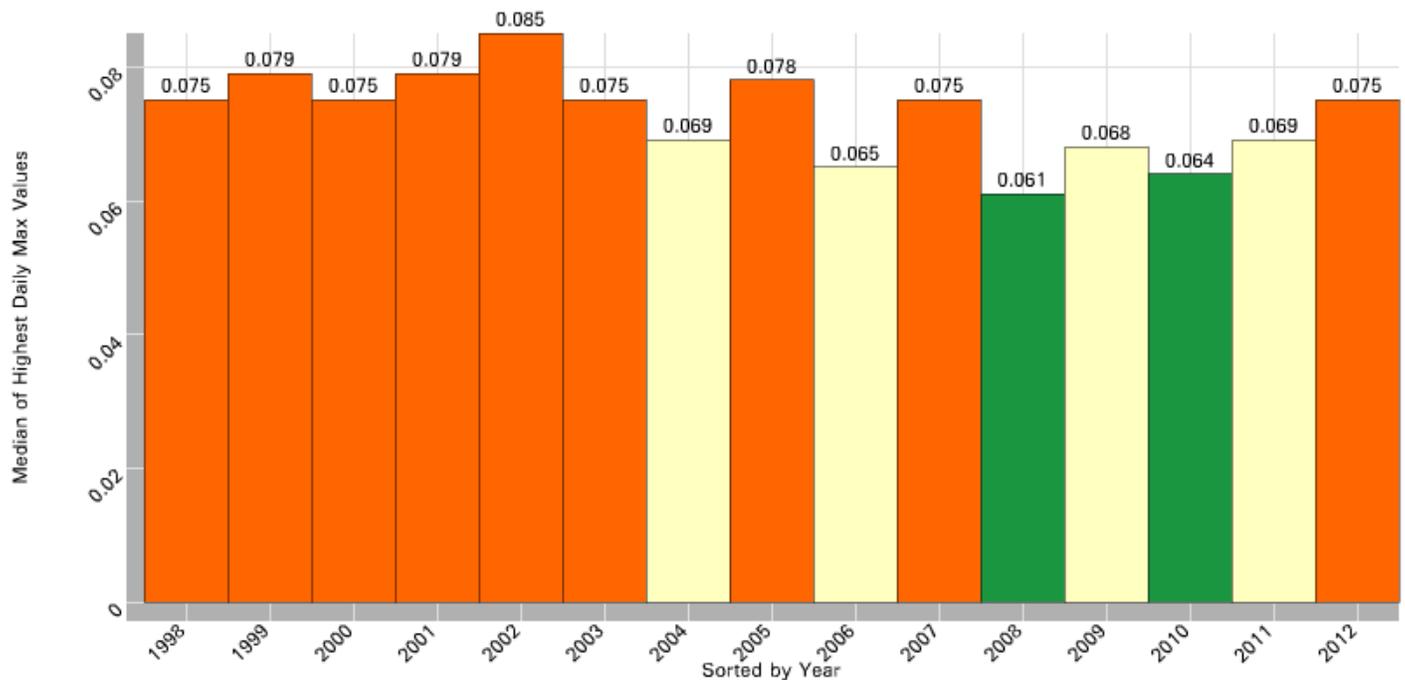
Source: RMAP
Dates: 1999-2012



Particle pollution contains microscopic solids or liquid droplets that can get deep into the lungs and cause serious health problems including premature death in people with heart or lung disease, heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. Fine particles (PM_{2.5}) are the main cause of reduced visibility, or haze, in parts of the United States. Particles can be carried by wind and then settle, which can make lakes and streams acidic, change the nutrient balance in coastal waters and large river basins, deplete the nutrients in soil, and damage sensitive forests and farm crops. The EPA standard for PM_{2.5} is 35 micrograms per cubic meter (ug/m³). The 98th percentile of values for a year may not exceed this level. Additionally, the annual average concentration may not rise above 15.0 ug/m³. The Rockford Region's 98th percentile value is currently 23.3 ug/m³ and the annual average is 9.83 ug/m³, both well below the maximums. PM_{2.5} has been declining in recent years, and the Region can benefit by continuing to introduce methods to control it and other air pollutants.



Ozone 8-Hour Sample Results (parts/Million) Median of Highest Daily Value



Source: RMAP
Dates: 1999-2012



ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANT

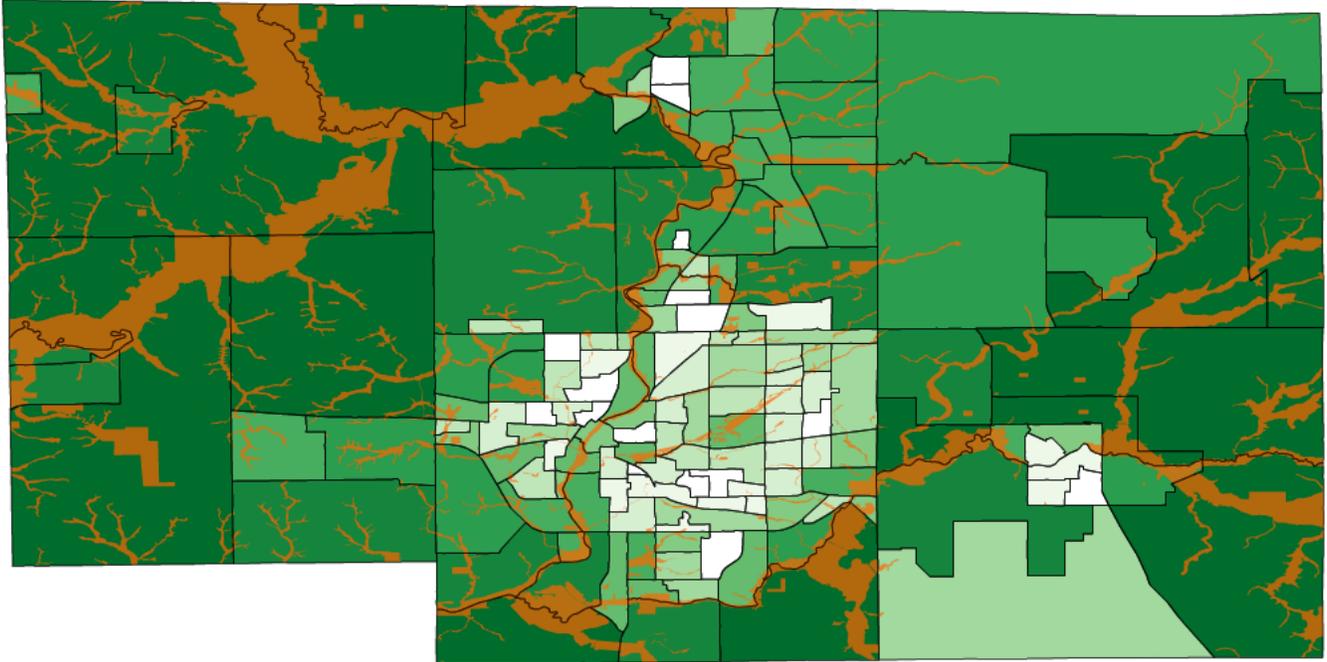
The Energy Efficiency and Conservation Block Grant (EECBG) program is split in the Rockford Region between those with directly allocated funds and those who were a part of a competitive application process. This section describes the competitive application aspect of the EECBG program, which was administered by RMAP. Of the \$101,250 allocated to the Region, two final projects were selected for implementation. The Village of Machesney Park was awarded \$29,250 to replace the HVAC system in their Village Hall, and the Harlem School District in partnership with the City of Loves Park was awarded \$72,000 to renovate the lighting system in Windsor Elementary School.

The Village of Machesney Park used the EECBG monies to replace its outdated Village Hall HVAC system with a newer, energy efficient one. By upgrading the system, the projected energy savings are a reduction in kilowatt usage of 16.1 kWh, 0.17 million Btu or .02 metric tons of CO₂, which is also a \$3,220 annual savings. In addition, the new system replaces one using refrigerant 22, which the EPA has deemed harmful to the environment. The Village of Machesney Park installed the new HVAC system and it has been in use since December 20, 2011, saving the Village money and reducing the impact of its HVAC system on the Region. Because of the favorable market conditions, the Village was able to install the system under budget and was able to return \$4,181 to the program.

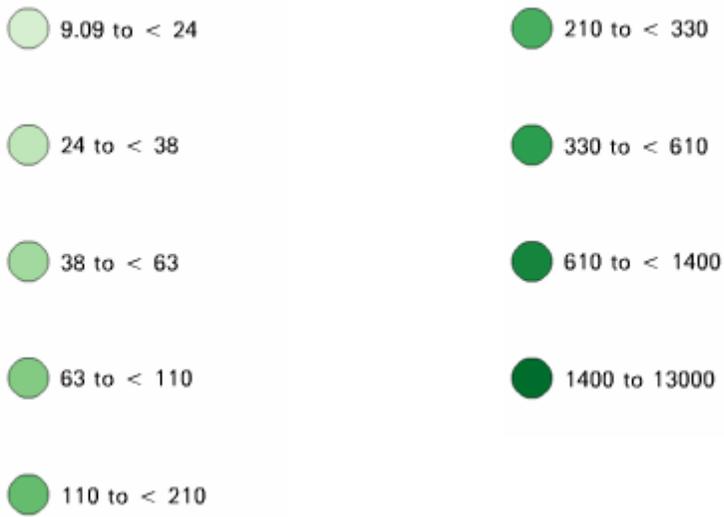
The Harlem School District, in conjunction with the City of Loves Park, used its awarded EECBG monies to renovate the building lighting of Windsor Elementary School, making the building more energy efficient and increasing the foot-candles in the learning environments to current standards. This project benefited from an earlier-performed energy audit, which showed that Windsor School has the lowest rating, 17 out of a possible 100, out of all audited schools in the district. The renovations save 13.71 percent of energy costs, amounting to an annual savings of \$4,113, which equates to 40 kWh, 0.4136 million Btu, or .03 metric tons of CO₂.



Map of Environmentally Sensitive Areas



Source: RMAP
Dates: 2013



ENVIRONMENTALLY SENSITIVE AREAS

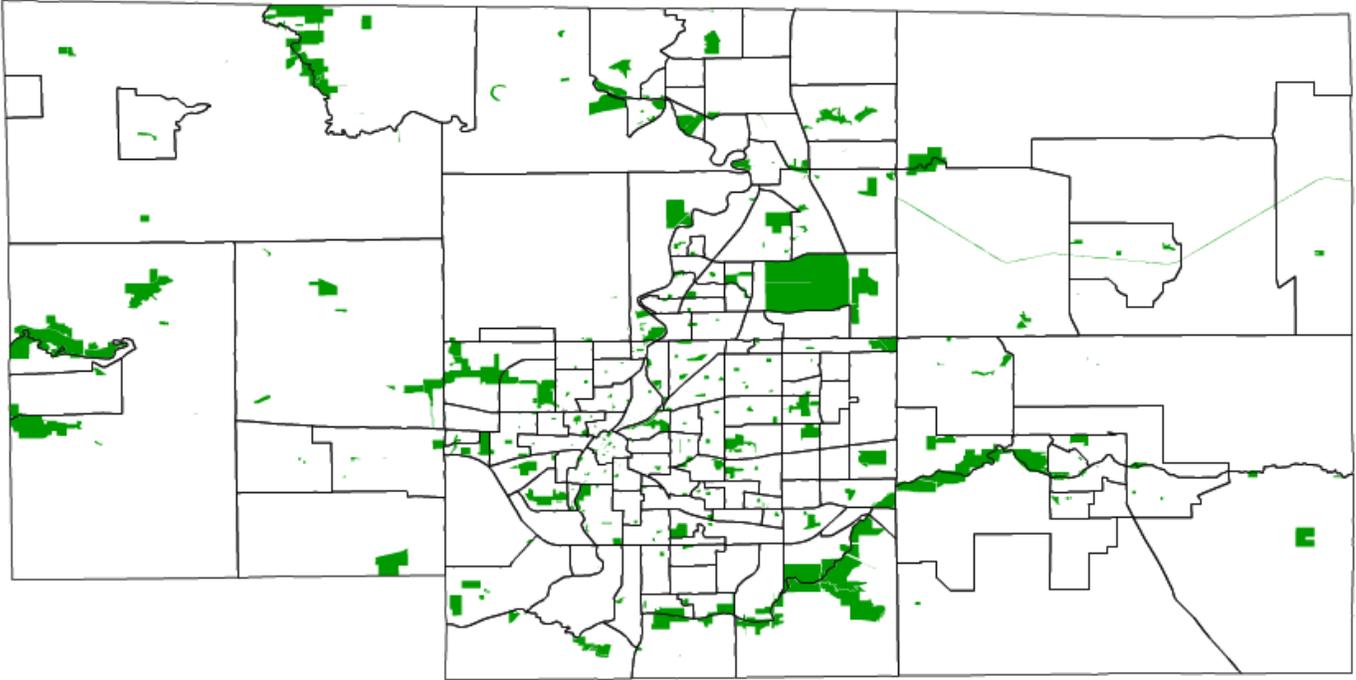
Environmentally Sensitive Areas are places that have special or unique environmental attributes which make them worthy of different attention or care. These areas are critical to the maintenance of the regions diverse plant and wildlife populations so as to ensure a healthy and productive environment. Environmentally sensitive areas can enhance the quality of life where people live, work and play while even helping to raise property values.

Examples include rare ecosystems (old growth forests), habitats for species at risk (natural prairie and grasslands), and areas that are significantly impacted by human activity (floodplains and steep slopes). Some of these environmentally sensitive areas are home to species which are nationally protected such as the bald eagle, others are more important at the local level such as river otters. These areas can range greatly in size from very small patches of ground or a single nest to vast landscapes and geographical formations, most of which will contain rare and common habitats, plants or animals. All aquatic and riparian ecosystems such as lakes, rivers, streams and wetlands are also considered to be environmentally sensitive areas. As shown on the map to the left, 83% of these areas are located in Rural Districts, 14% are found in Suburban Districts and 3% within Urban Districts

Environmentally sensitive areas need to be protected from development. In order to do this local governments and natural resource protection agencies first need to identify all sensitive and critical land areas within the community, and this has been done for the Rockford Region. One can protect these areas by directing development away from them by providing buffers and wildlife corridors combined with protection measures including the management of recreation areas and design and building standards such as setbacks, easements and floodplain protection zones. Once identified and categorized local governments should address these areas within their official regional planning document so as to give developers the knowledge and tools to manage these concerns and incorporate best management practices into their development projects before, during and after construction.



Greenways and Open Space



Source: RMAP
Date: 2013



GREENWAYS AND OPEN SPACE

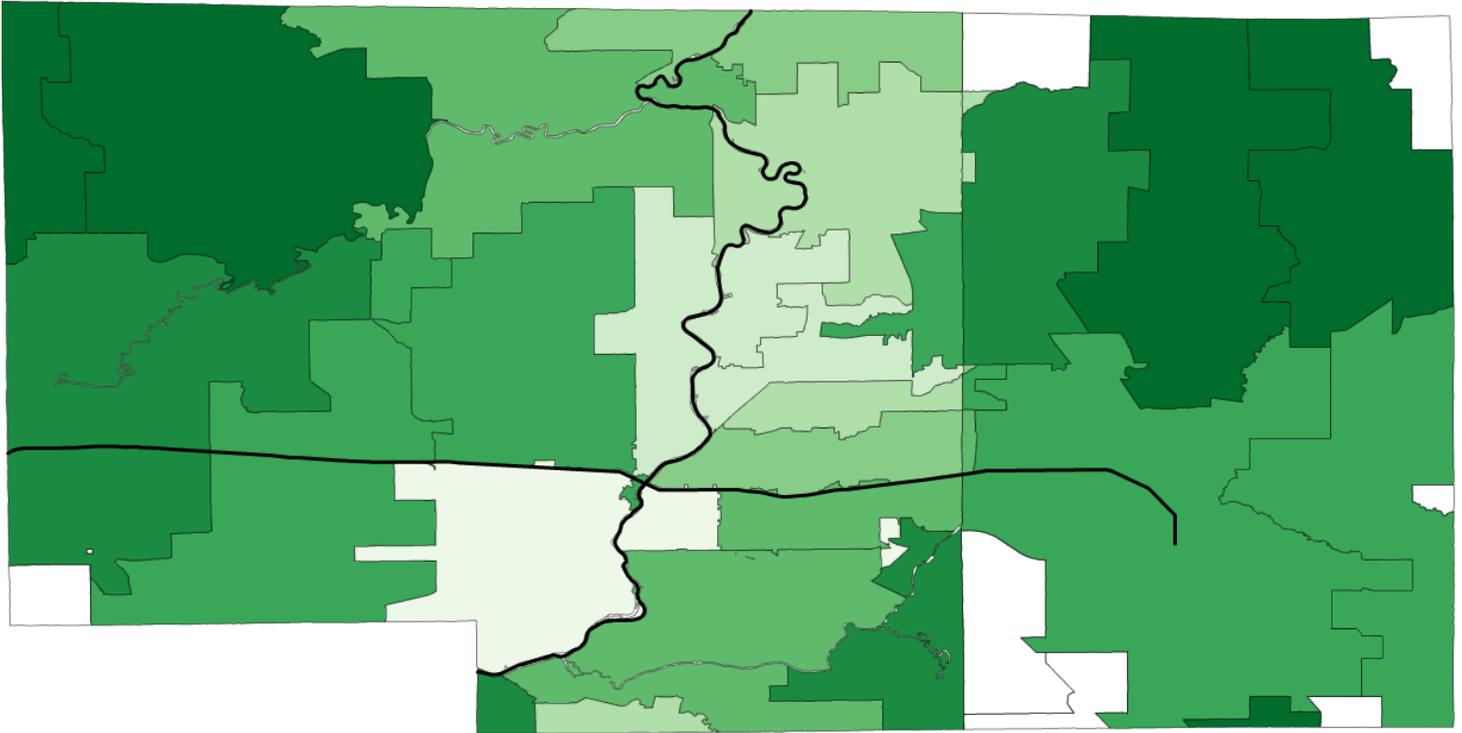
Greenways and open space refer to conservation land, forest preserves and parks, prairies, sports fields, school playgrounds, green buffers along roadways, bike paths, and undeveloped open areas that are owned by an agency or organization dedicated to safeguarding conservation or recreation interests. A greenway is a specific type of open space that has a linear form and is often used for the transportation of bicyclists and pedestrians; they also frequently connect other existing open spaces and act as a natural buffer. Some open space use may be for more relaxing or passive activities such as walking, hiking and nature study while other more active recreational uses would include soccer, baseball or trail running. It was decided for the purposes of this study to exclude farmland from these calculations.

Planning for the protection of the region's greenways and open space has direct economic benefits to the region. Having dedicated protected open space usually raises the taxable value of adjacent properties and is much less costly to maintain than the infrastructure and services that are required to support residential development. The green infrastructure of a region helps to maintain the balance between the human built environment and the natural world around us. Greenways and open space will help the region save money through the benefits associated with these areas. They clean harmful chemicals from rainwater runoff before they enter streams and rivers and end up in drinking water, they de-contaminate and purify the air of particulates and other pollutants, and they provide high quality wildlife habitats for local species as well as for migratory birds.

Greenways and open space help to preserve, protect, and enhance both the natural and built environments for future generations to enjoy. As shown on the map to the left the regions greenways and open spaces are mostly located in the rural districts (67%), followed by suburban districts (25%), and lastly urban districts (8%). It is pertinent that we protect these natural areas from conversion and fragmentation when new developments are built in an area. When homes are dispersed on large acre lots they require extensive water, sewer and power line construction. Fragmentation disrupts contiguous natural areas and affects the quality of wildlife habitat which encourages the spread of invasive species.



Average Radon Levels by Zip Code



2.5 to < 3.3

5 to < 5.4

3.3 to < 4

5.4 to < 6

4 to < 4.4

6 to < 7.7

4.4 to < 5

7.7 to 11.7

Source: IEMA
Date: 2013



RADON AND THE BUILT ENVIRONMENT

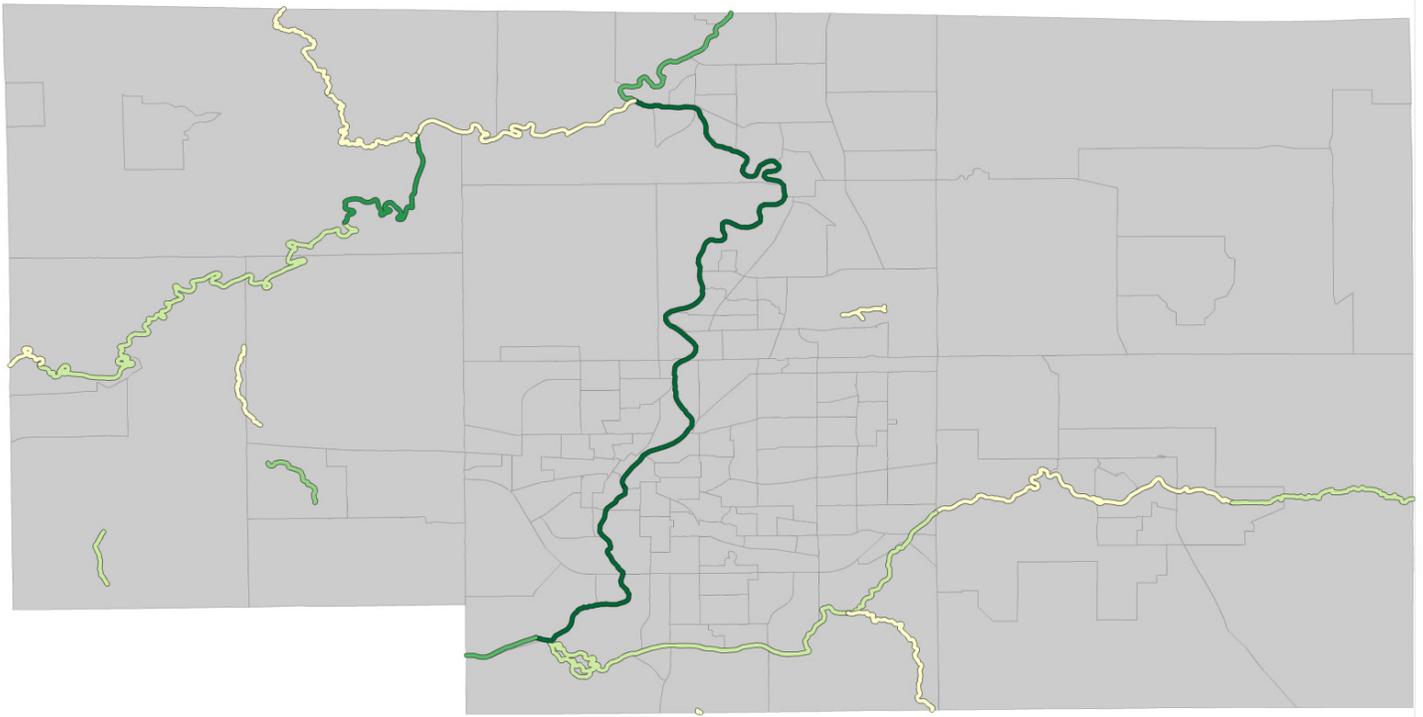
Radon gas is a naturally occurring radioactive element caused by the breakdown of uranium in the soil. Radon gas is typically present in soils containing granite or shale, and sometimes even limestone. Due to ancient glacial activities, much of Illinois and the rest of the Midwest have a high radon potential. In open air radon gas is naturally diffused presenting little health risk, however radon can become concentrated inside buildings, which can be a significant health hazard. Exposure to concentrated radon can lead to lung disease, and is the second leading cause of lung disease in the United States, and is the leading cause of lung disease for non-smokers. The EPA and Surgeon General recommend a maximum indoor radon level of 4 pCi/L (PicoCuries per Liter), and stress the lower the better. The average indoor radon level in the U.S. 1.3 pCi/L, while on average .4 pCi/L is found in the outside ambient air. Radon gas produced by the underlying soil can seep indoors through cracks in foundations, floors, walls and pipes.

IEMA- DIVISION OF NUCLEAR SAFETY RADON LEVELS

Average radon levels in Illinois are reported by zip code by the Illinois Emergency Management Agency- Division of Nuclear Safety. As evidenced by the facing map Boone and Winnebago Counties have a high incidence of hazardous indoor radon levels. Levels as high as 11.7 have been found in Boone County and 11.5 in Winnebago County. To reduce the risk of health hazards, residents of the region are encouraged to get their homes tested. Testing for radon is relatively simple and in the event of elevated levels mitigation efforts are typically low cost. It is important to keep in mind that this data does not indicate that every building has hazardous levels of radon, rather it emphasizes that depending on building quality, materials, and subsurface conditions there is a heightened risk of concentrated radon levels.



Water Impairments by Stream



Source: EPA
Dates: 2013

Key: Number of
mpairments Per Stream



1



4



2



5



3



6



RIVER AND STREAM QUALITY

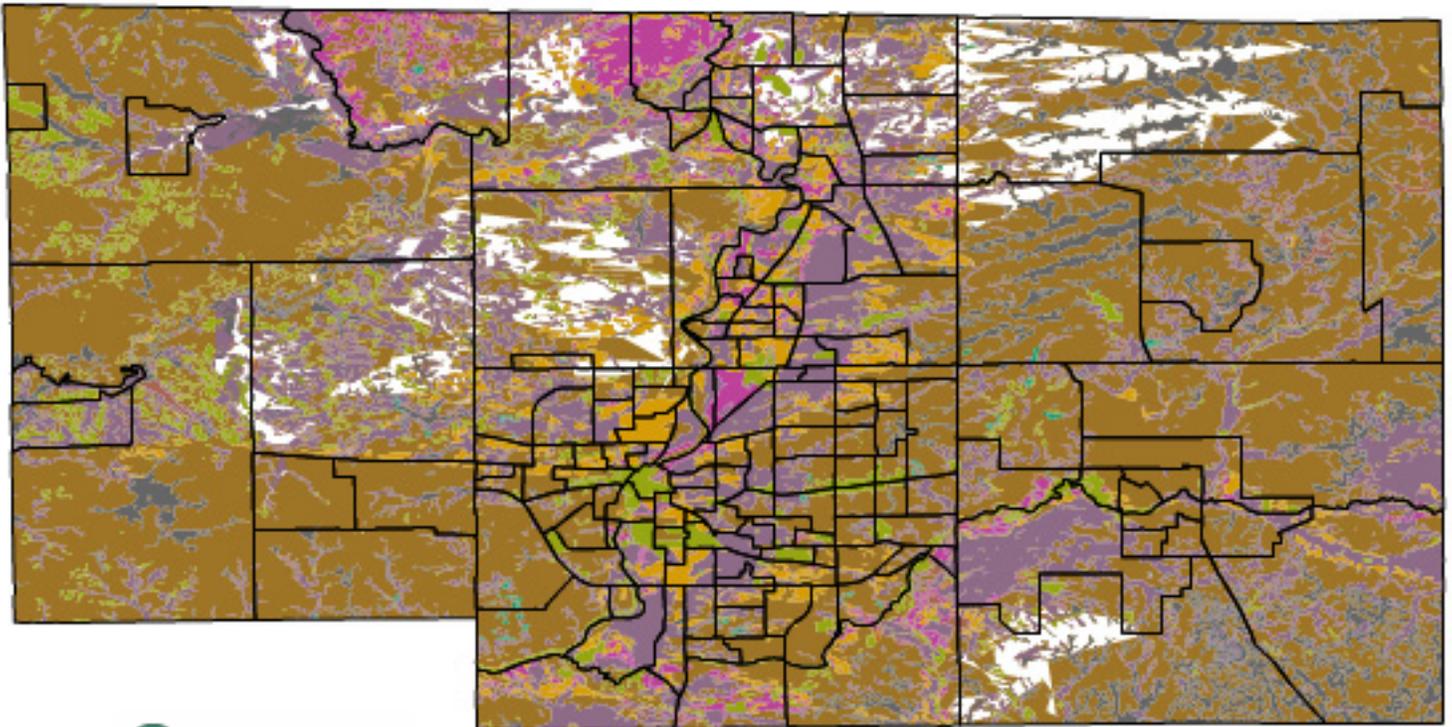
The Rockford Region is home to the Rock, Kishwaukee, Pecatonica and Sugar Rivers. These four rivers provide scenic enjoyment, plentiful outdoor recreation opportunities, including boating and fishing, and rich plant and animal habitat. The Rock River borders Loves Park, Machesney Park, Roscoe, Rockton, and South Beloit and bisects Rockford. Its riverbanks offer a largely untapped economic development asset. Beaver Creek, a tributary of the Kishwaukee River, is prized as a Biologically Significant Class “A” Stream, meaning it has the highest order of biodiversity. Unfortunately, these rivers were not always treated as the treasures that they are. Decades of pollution from industrial, agricultural and even residential uses threaten these water resources.

IEPA 303(D) IMPAIRMENT LIST

Section 303(d) of the Federal Clean Water Act requires states to submit a list of all waterways that are threatened or impaired, meaning existing regulations and pollution controls are not stringent enough to meet established water quality standards. The two county region has 178 miles of impaired waterways, in addition to 162 acres of Pierce Lake. All four rivers, plus Mill Creek and Coolidge Creek have at least one impairment (pollutant); sections of these waterways have as many as six different impairments. The most common impairment is PCBs, which were used as coolants and lubricants. PCBs have been banned since the 1970s due to their carcinogenic nature, however the toxins still linger in river sediment and fish tissue. Mercury is found in the Rock River, which can make consumption of fish from these waters a health hazard, particularly for children and pregnant women. Pathogens, caused by fecal coliform, are the second leading cause of impairment. Fish contaminated by pathogens, as well as swimming in contaminated waters, can lead to illness. Other pollutants found in these waters include nitrogen, dissolved oxygen and sedimentation. These impairments can cause fish kills and threaten the overall biodiversity of the system. The Clean Water Act requires states to prioritize impaired waterways based upon severity of pollution and establish TMDLs (total maximum daily load); currently no TMDLs have been established in the Region.



Types of Soils



- Clay Loam
- Gravelly Loam
- Other
- Loam
- Sandy Loam
- Loamy Sand
- Silt Loam
- Muck
- Silty Clay Loam

Source: USDA
Date: 2013.



SOILS

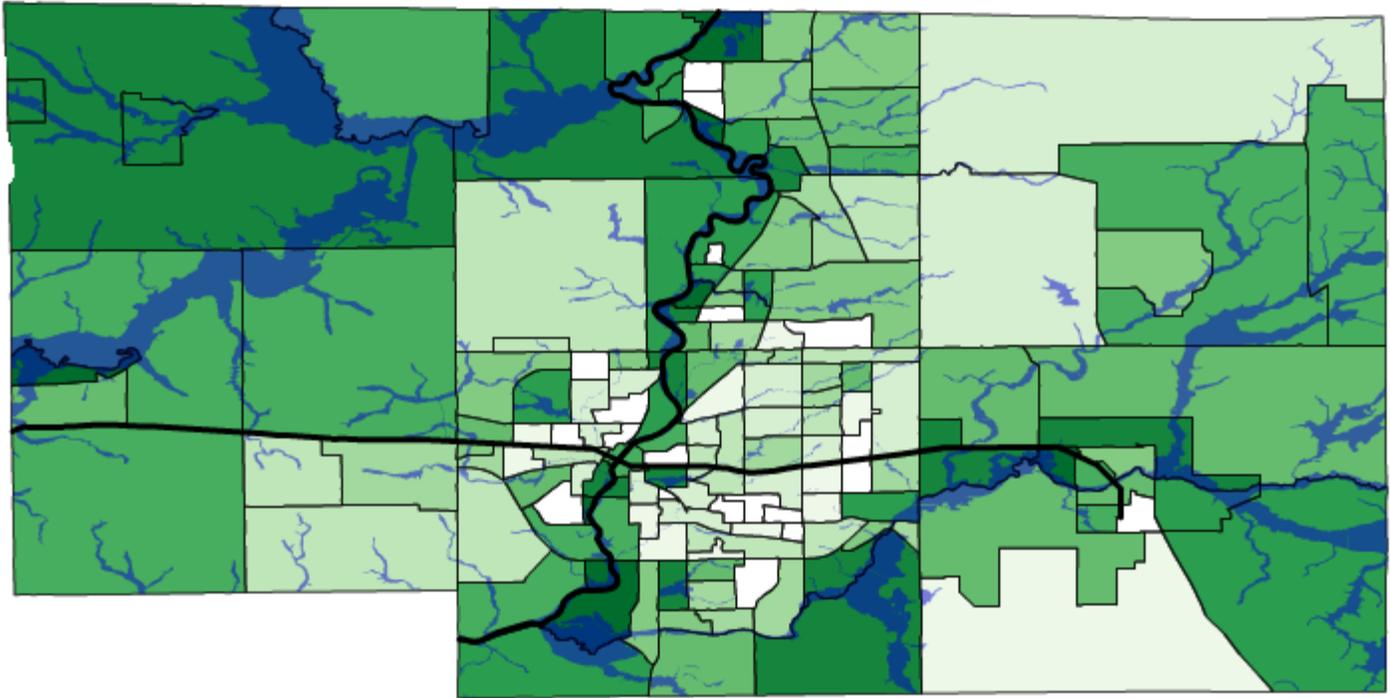
Soil is an essential element to support plant life and serve as a base upon which to build on. The USDA completes soil surveys for every county in the nation. Boone and Winnebago Counties are home to some of the richest agricultural soils in the Midwest. The Vital Signs Region is made up of loamy soils. Loam typically contains a high amount of nutrients and organic materials which makes them ideal for farming. Loam is comprised of a combination of sand, silt and clay. Loams can vary in composition of these elements, resulting in different types of loam soils- within the Region Silt Loam is the dominant soil type, followed by Loam. Sandy Loam and Loamy Sand can also be found along the river corridors. These different combinations impact water permeability, suitability for septic systems, and the probability for erosion. Sandier soils allow for the fastest drainage of water. Silty soils tend to be finer and more highly susceptible to erosion. Clays are very dense and do not allow for water drainage, making them poor for agricultural use. Soils impact more than just agriculture- soil properties such as wetness, permeability, depth to rock, slope, and stability impact where and how buildings and roads are constructed.

LAND ENROLLED IN CONSERVATION PROGRAMS FROM THE USDA

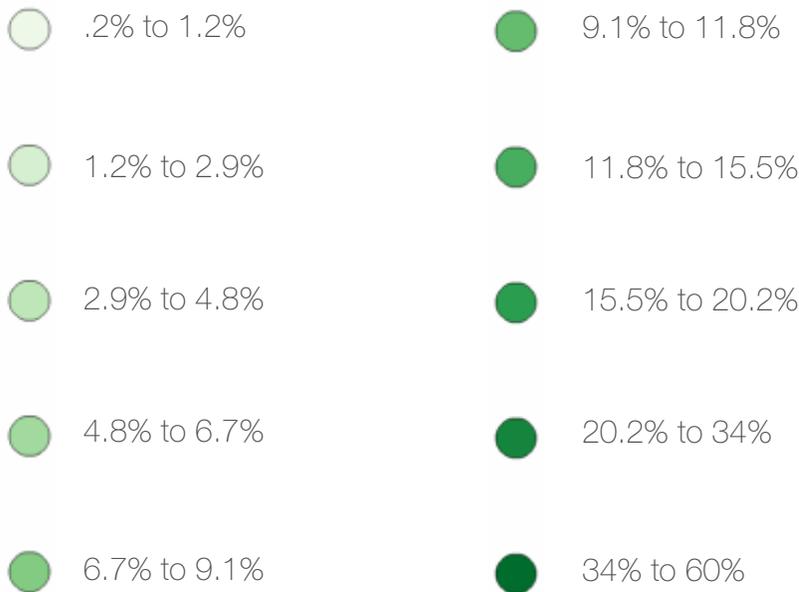
The rich Loam soil found in the Region is an important resource which is vital to conserve. According to the Winnebago County Soil and Water Conservation District (SWCD) of the 179,200 acres of active cropland, approximately 100,000 of these acres are considered Highly Erodible Land. Advances in soil conservation practices such as no-till farming and planting cover crops has greatly reduced the amount of soil lost to blowing and water runoff. The USDA offers many programs such as the Conservation Reserve Program (CRP) and Conservation Practices Program (CPP) to landowners to help implement practices to conserve and protect the soil. The Winnebago County SWCD has estimated that over 1,000 tons of soil has been saved annually over the past five years by these efforts.



Flood Plain Coverage by District



Source: FEMA
Date: 2013.



STORMWATER

Any water accumulated during precipitation is considered stormwater. Stormwater either soaks directly into the ground or becomes runoff. Runoff can flow directly into surface water, such as lakes and rivers, or become channelized into storm sewers. The amount of stormwater runoff increases as impervious surface increases. Impervious surface is any type of impenetrable material such as asphalt, concrete and rooftops which do not allow water to soak into the ground. Runoff creates two problems: flooding and water pollution. Stormwater that is not immediately soaked up by the ground or conveyed away by storm sewer can cause localized flooding. This flooding is typically not long lasting, but can still cause severe property damage. Second, as stormwater flows across the ground surface it picks up pollutants and deposits them in the surface water. In rural areas runoff can carry agricultural pollutants and contaminants such as pesticides, fertilizers, and animal waste into lakes and streams. In more urban areas it can carry contaminants such as road salts, gasoline, motor oil and lawn fertilizers into the surface waters.

Green infrastructure solutions are beginning to gain popularity for addressing stormwater issues. The Soil and Water Conservation Districts for Boone and Winnebago Counties offer low cost rain barrels to residents, as well as promoting conservation practices such as grass waterways in farm fields and rain gardens in urban areas to help protect water quality and reduce runoff volume. Both counties have adopted county-wide stormwater management ordinances to address stormwater detention, floodplain regulation, and erosion control.

FLOOD RISK

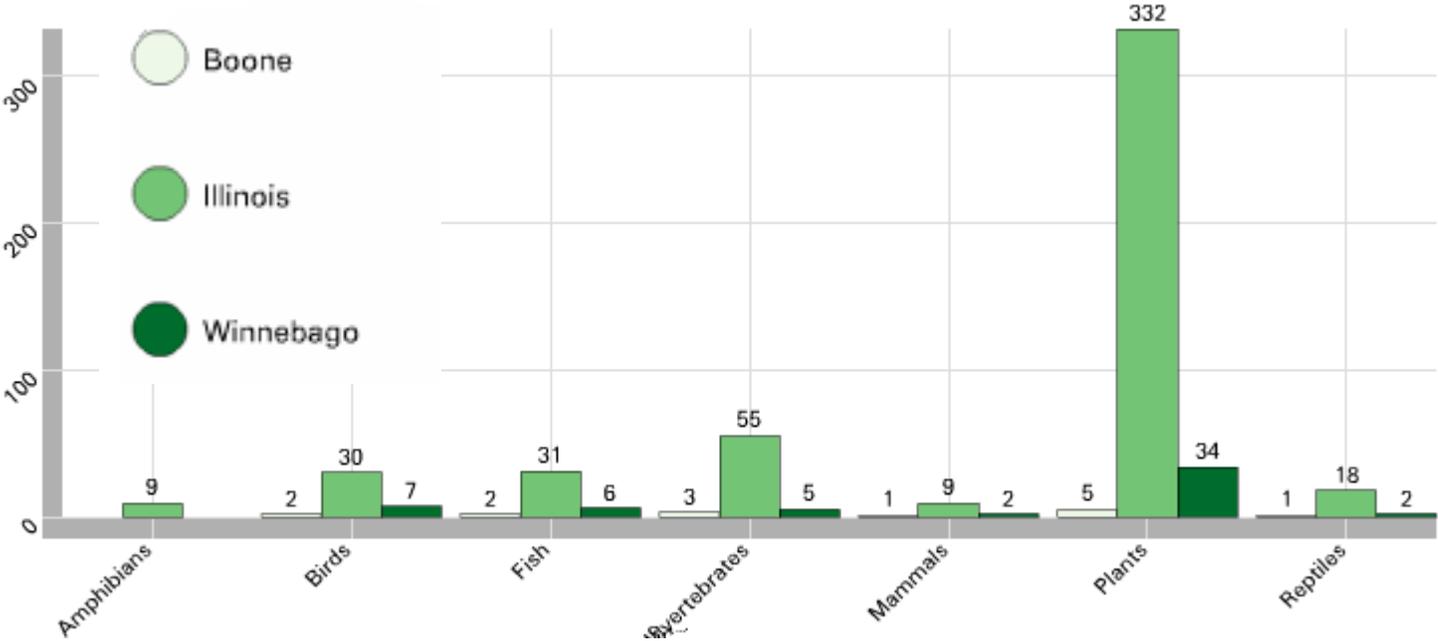
The abundant streams and rivers that flow through the Vital Signs Region offers residents many recreational and aesthetic benefits, however they also bring the risk of flooding. The Federal Emergency Management Agency (FEMA) maps floodplains to identify areas at risk of flooding. These areas may experience anywhere from occasional to frequent flooding. If structures such as houses are built within these floodplains landowners may experience costly damage to their property. FEMA estimates that for a typical 1,000 sqft home one inch of floodwater within the home averages around \$10,600 in



damages. FEMA updates these maps on a regular basis to account for changes in natural conditions such as new development including buildings and parking lots which can alter the natural drainage patterns and exacerbate local flood risks. Mortgaged properties at high-risk of flooding are federally required to carry flood insurance. Flood insurance is not mandated for moderate-to-low risk areas, however it is greatly encouraged.

The percentage of floodplain coverage by district varies greatly across the region. A few small urban districts do not have any floodplain, while one district contains as much as 60% floodplain. Districts which contain segments of the Sugar, Pecatonica and Kishwaukee Rivers contain greater percentages of floodplain. These districts tend to be more rural in nature. Flooding in these areas may not impact as many homes, however may result in damage to agricultural crops. Due to urbanization the Rock River has a much narrower floodplain, but with increased building densities may pose a more serious financial hardship to a greater number of property owners.

Number of Endangered or Threatened Species



Source: IL DNR
Date: 2013



THREATENED AND ENDANGERED SPECIES

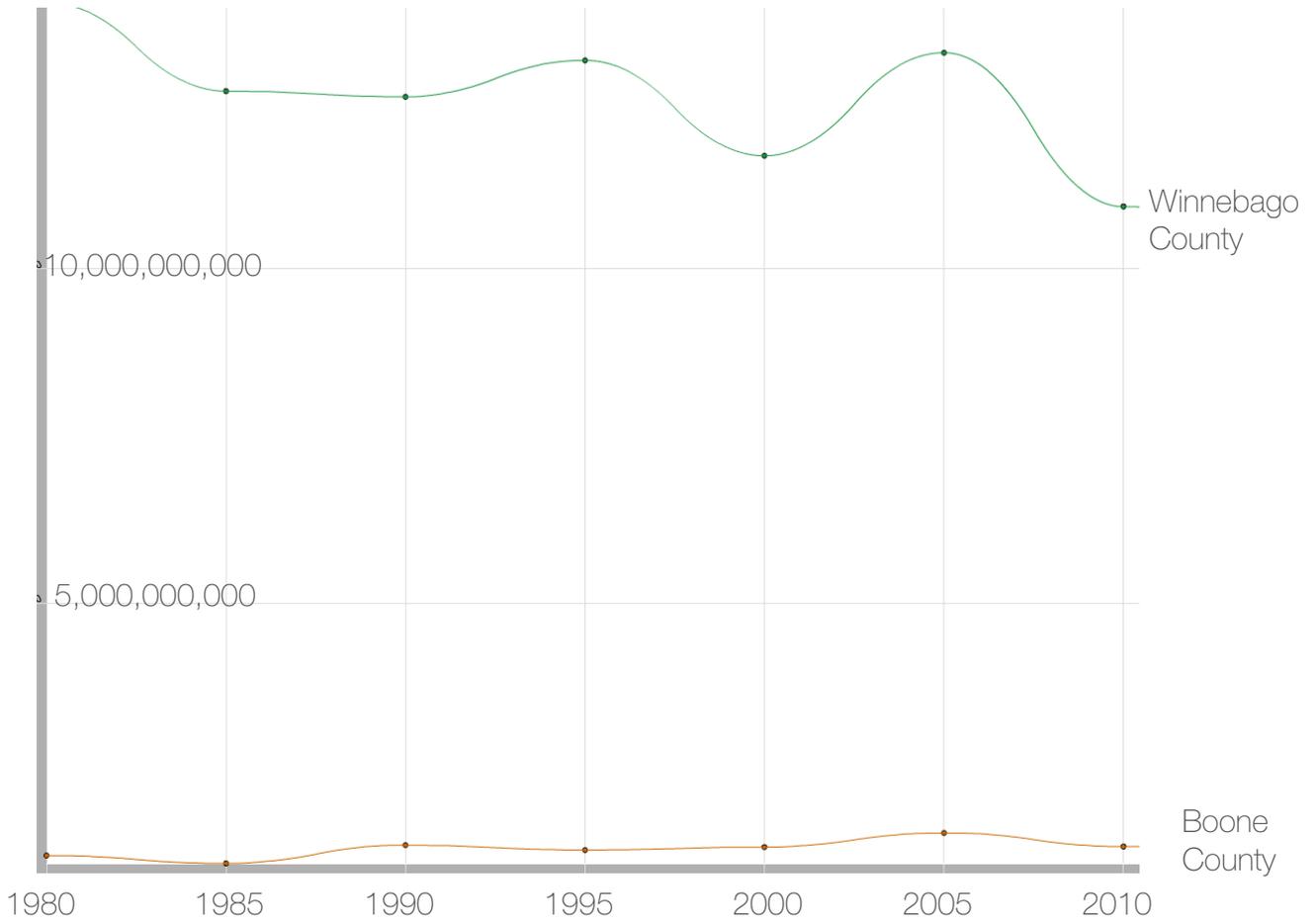
Sustainable ecosystems are home to a diverse range of plant and animals. Each plant or animal species plays a role in the stability of that system. Given the highly interdependent nature of ecosystem ecology the Illinois Department of Natural Resources uses a house of cards analogy- the removal or elimination of any one species has the potential to negatively impact many other species. Unfortunately, due to problems such as over hunting, loss of critical habitat and the introduction of non-native species, many of the plants and animals once found readily in the region are now at risk of vanishing from the landscape.

Under the Illinois Endangered Species Protection Act of 1972 the Department of Natural Resources is required to monitor and update a listing of Threatened and Endangered Species for each county in the State. Endangered Species are defined as any species which is in danger of extinction in Illinois; threatened refers to any species which is likely to become endangered within the foreseeable future. Winnebago County has 56 Threatened or Endangered Species, the majority of which are plants, followed by birds and fish. Boone County has 14 listed species, again the majority being plants, followed by invertebrates, fish and birds.

The Illinois Endangered Species Protection Act requires State and local agencies purposing any projects which may impact these listed species to conduct a special environmental consultation process in order to prevent or mitigate any adverse impacts. Protection is not extended to privately initiated projects on privately owned land. As presented in the bar chart to the left, the majority of listed species are plants or insects which perhaps are not readily apparent and identifiable by local landowners. This presents a prime opportunity for landowner outreach and education to aid in the protection of these important species.



Historic Water Pumpage By County in Gallons



Source for both: IL EPA
Date: 2013



WATER SUPPLY SYSTEMS

Groundwater is perhaps one of the most vital natural resources. It is the source of close to 50% of the Nation's drinking water, and supplies the entirety of the Region's domestic water supply. Groundwater is drawn from underground water-bearing rock formations called aquifers. Water from the Earth's surface moves downward to the aquifer through a process called groundwater recharge. If water is pumped out of an aquifer at a faster rate than the aquifer can recharge the aquifer runs the risk of being depleted. For a sustainable water system it is crucial that the region does not withdraw water at a rate faster than it can be replenished.

ILLINOIS STATE WATER SURVEY-WATER INVENTORY SURVEY

The State of Illinois requires that all public water supply systems which pump their water from wells must annually report the amount of groundwater withdrawn. When looking at the Region as a whole there appears to be a consistent downward trend of water usage between 1980 and 2011. The region is consuming nearly three billion gallons of groundwater on an annual basis less than it was thirty years ago. The City of Rockford is by a wide margin the leading water consumer in the Region, however its demand has steadily decreased over time, nearly 35% less in 2011 than it was in 1980. Rockford experienced peak water demand in the mid 1970's; as manufacturing and industry have declined across the city, so has the demand for water. During this same time water-saving efficiencies such as enhanced leakage detection, low flow toilets and high efficiency washing machines have also helped to reduce water consumption. It is important to note that when excluding Rockford from the data water consumption across the region is actually increasing over time. It will be important to continue monitoring the water consumption trends for communities as they continue to develop and expand. The Water Inventory Survey only tracks water usage for public water supply systems- it does not provide data for water pumped from High Capacity Industrial wells or private wells, which would significantly raise the water use figures for the Region.

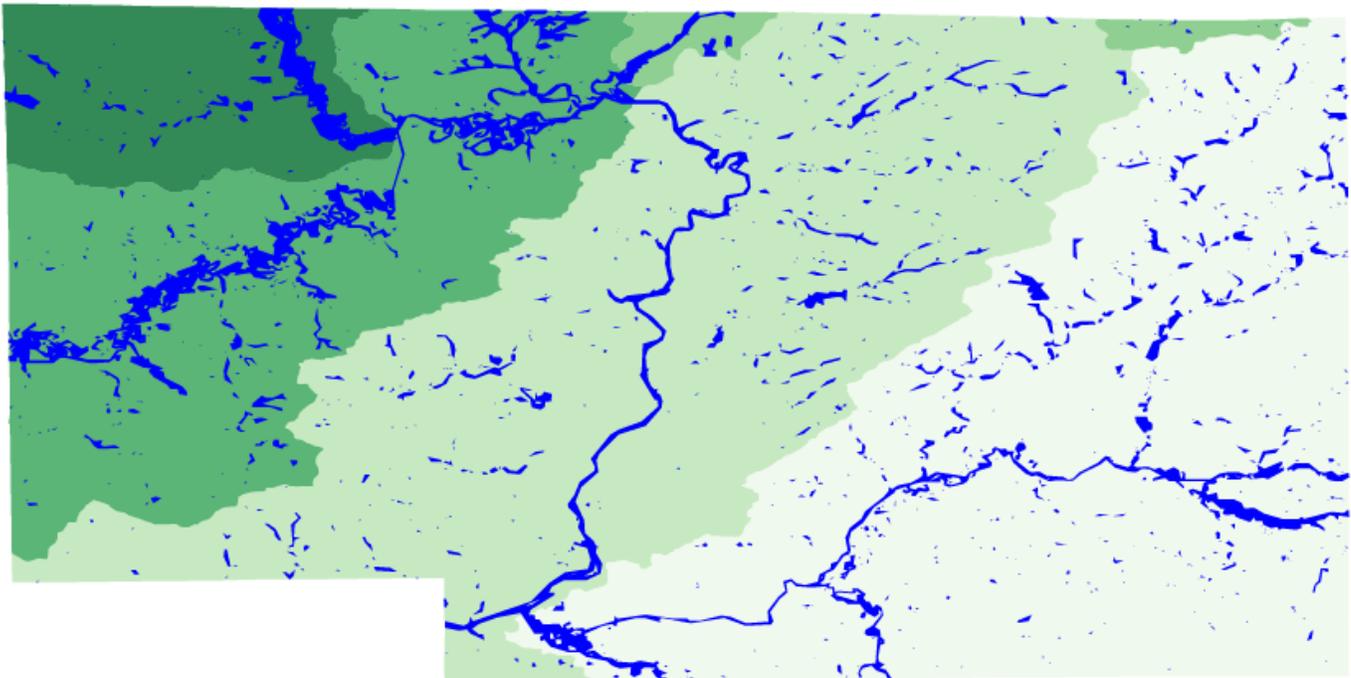


AVERAGE HOUSEHOLD EXPENDITURES ON WATER AND OTHER PUBLIC SERVICES

Water is a basic necessity vital for drinking, personal hygiene and sanitation. Beyond these basic uses water is also consumed in more of a discretionary manner for tasks such as watering lawns and washing vehicles. Average annual expenditures on water and related services range from a low of \$190 in downtown Rockford to a high of just over \$1,600 in eastern Winnebago County. Overall it appears that the central regions of the urban area with higher levels of poverty spend far less on water service than the more affluent areas of the Region. Correspondingly the more affluent districts tend to be built at lower density with large expanses of lawn.

Wetlands and Watersheds

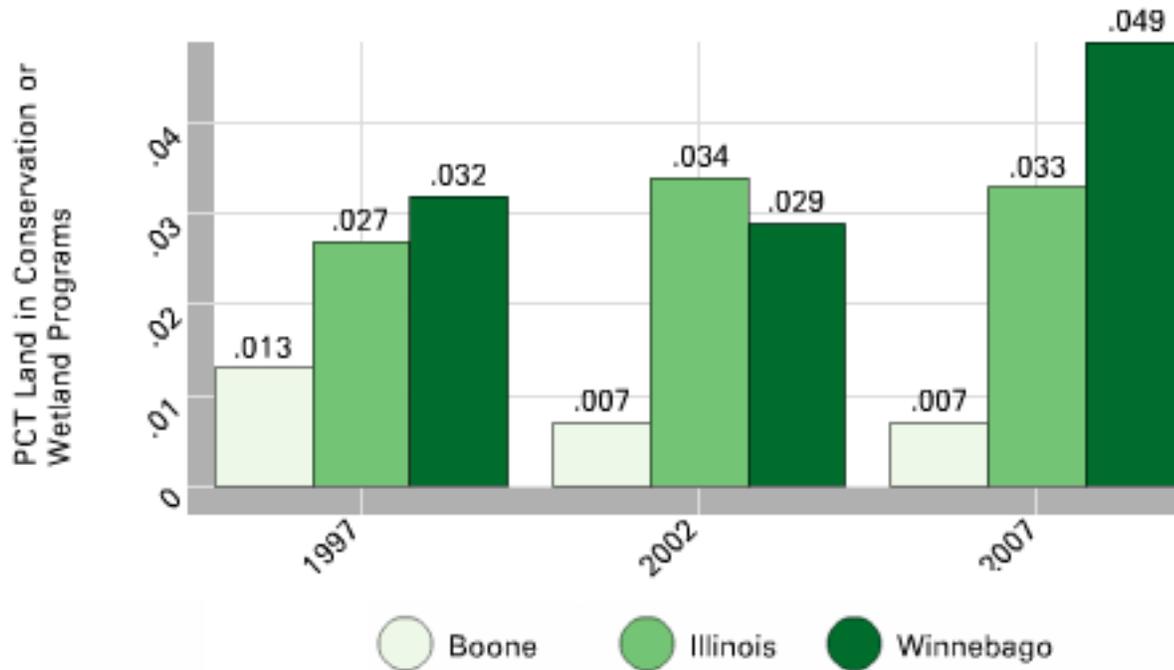
Source: IL DNR
Date: 2013



- Sugar
- Pecatonica
- Middle Rock
- Lower Rock
- Kishwaukee



Percent Land in Conservation or Wetland Programs



Source: RMAP
Dates: 1997-2007

WETLANDS

Wetlands are defined as areas where water covers or is at or near the surface of the soil throughout the year. They play an unrivaled role in the ecosystem. With their highly saturated soils and diverse plant species, wetlands act like a sponge, trapping pollutants and sediments before they can harm the rest of the system. According to the Illinois DNR 46 of 59 native mammals and as many as 274 bird species are dependent upon wetland habitats at some point during their lifecycle. In northern Illinois wetlands are key surface water recharge areas. Beyond their important role in the natural environment, wetlands can provide both active and passive outdoor recreation, allowing places to hunt, fish, boat, birdwatch, or simply enjoy a beautiful landscape.



PERCENTAGE OF WETLANDS BY WATERSHED

Wetlands also play an important role in floodwater storage. According to a study conducted by the Illinois DNR for the northern part of the state, for every 1% of a watershed covered by wetland, peak stream flow for normal storm events is reduced by 3.7%. It is reduced 1.4% for flood flow. Stream flow is actually increased by 7.9% during low flow by releasing water, in such as times of drought. Keeping in mind that watersheds follow natural landforms which may extend beyond the regions boundaries, the map at the left depicts the percentage of wetlands contained within the regions boundaries.

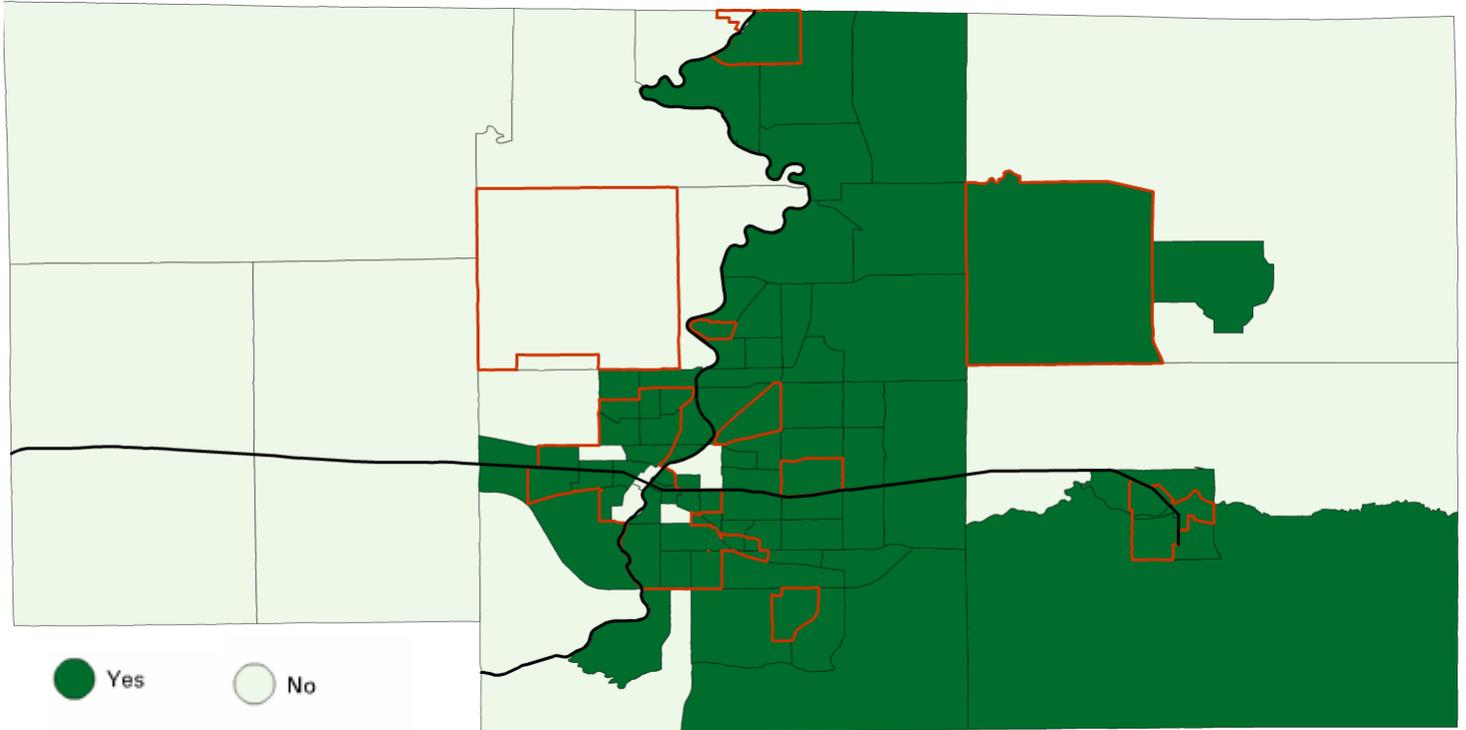
The Fish and Wildlife Agency maps wetlands across the Nation through the National Wetlands Inventory. The two county region contains 21,745 acres of wetlands, the majority of which are located along the four rivers. While wetlands now benefit from increased Federal protection, in the past wetlands were seen as a waste of land, frequently drained and filled for farm fields and development purposes. To ensure the sustainability of the regional ecosystem, it is imperative to preserve the existing wetlands and look for opportunities to restore prior wetland habitats.



BUILT ENVIRONMENT



Tracts with Low Access to Healthy Food (1/2 mi Urban/1 mi for Rural)



Source: USDA
Date: 2013



ACCESS TO FOOD

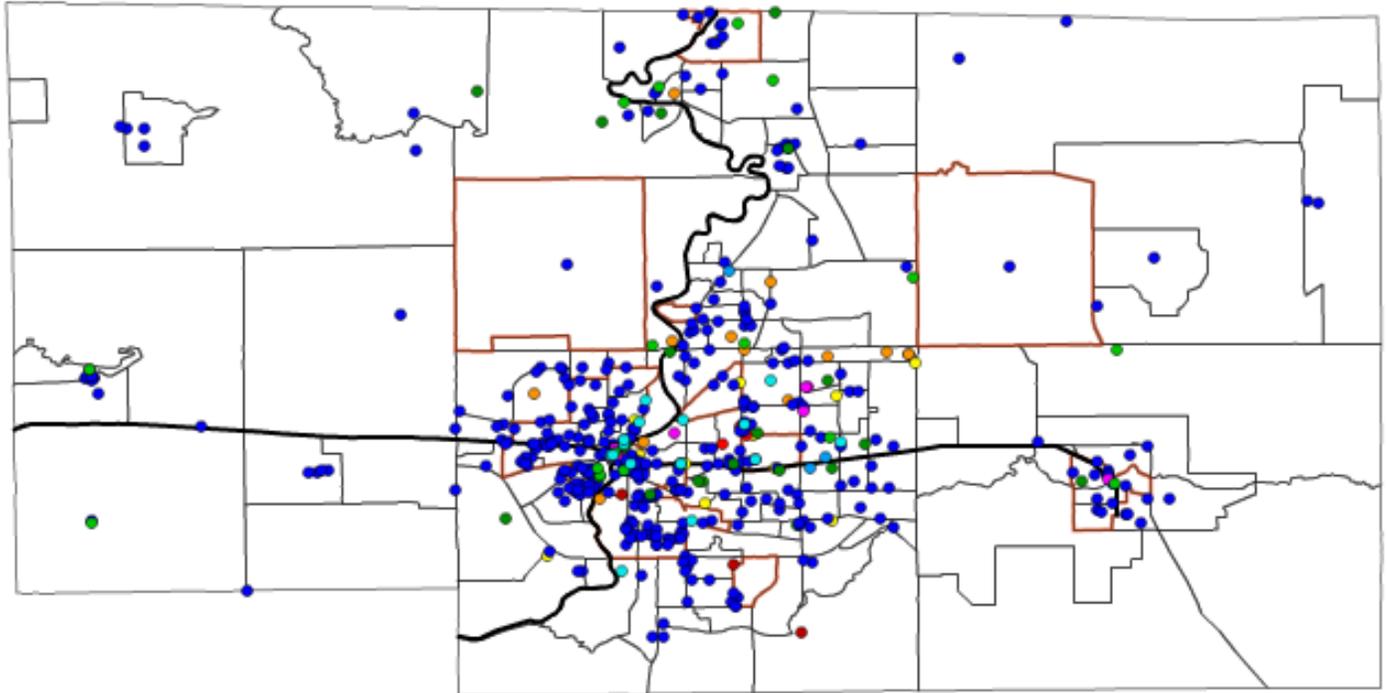
Consumer choices about expenditures on food are not always based on what they need and want but rather sometimes what is actually available to them. Consumers are directly influenced by the accessibility and affordability of local retailers, availability of healthy options, food prices and most importantly feasible travel distances. Some people and geographical locations, especially those areas with lower incomes, will generally face more barriers to access healthy and affordable food retailers. This in turn negatively affects diet, health, and the general well-being of populations in these locations. Often without cars or even convenient public transportation options, low-income residents in these areas must fulfill their food shopping requirements with expensive, fatty, processed foods sold at corners stores and even gas stations.

Without access to reasonable healthy food options, individuals cannot make positive changes in their life in order to change their diets and become healthier. If certain dietary behaviors are required to reduce chronic disease and promote healthier living styles certain communities will continue to have disparities in serious health issues and general well-being unless we can find a way to increase access to healthy food options.

As outlined in the map to the left it is very evident that Census Tracts containing proportionally larger concentrations of low income families, those in poverty and rural tracts have the least access to healthy food options. This is very troubling because these are usually the locations where people are suffering the most from poor diets while simultaneously having less income available to spend on food to begin with. Learning to prepare meals at home can save time and money. A great way to help fight low access to healthy food options in neighborhoods is to start a community or personal garden wherever land available to do so. If finding readily available properties within a community is a challenge there are also ways to grow large quantities of fruits and vegetables from containers that are very inexpensive and easy to construct.



Cultural Places of Interest



Source: NETS Database
Date: 2010.

- | | |
|--|--|
|  Art Gallery |  Music Studio |
|  Art Supply Store |  Sports Venue |
|  Church |  Synagogue |
|  Mosque |  Temple |
|  Museum |  Theater |
|  Music Stores |  Venue |



ACCESS TO CULTURAL AMENITIES

Cultural facilities and their accessibility is vital to help making a community more thriving and sustainable in the long run. The proximity of cultural facilities has a direct impact on residents' ability to use them and creates a greater overall sense of community within a neighborhood by creating more social connections and positive social environments.

The further away cultural facilities and community events are for residents the less likely individuals will be willing to attend. It is important therefore to have community and cultural facilities dispersed to the greatest extent evenly throughout the region. If cultural facilities are walkable it has shown there is increased participation by community members. For example, having cultural facilities located in close proximity to neighborhoods generally attracts more children, elderly, and those without access to a vehicle (generally low-income residents in the region) because they are not able to travel long distances.

Currently in the Rockford Region there is a lack of cultural facilities, with the exception of churches, in areas where there is high poverty (+15% of individuals in the area living below the poverty line). Residents lack easy access to theaters, music stores, and art galleries; these facilities are generally located outside of the urban core. There is a lack of a wide dispersion of these facilities where residents living in poverty can get easily get access. Individuals in high poverty could potentially be less mobile than other members in the community therefor making cultural centers more inaccessible.

Many portions of the region lack local cultural amenities that individuals on the East side of the City of Rockford have access to. These local amenities include music stores, music studios, and art supply stores. Regional cultural amenities are typically located in urban cores; the eastern part of the City of Rockford and the suburban communities (also including Belvidere) are lacking walkable access to many cultural venues that only the downtown area of Rockford has. These areas have limited access to museums, art supply stores, and some types of sports venues. While residents in these areas may have greater means of travel to cultural facilities their neighborhoods lack, because of the distance they still might be less inclined to travel to them.



Brownfield Sites by Ranking

Source: RMAP
Date: 2012



RISK LEVEL	Severe (4)	Elevated (3)	Moderate (2)	Low (1)	Total
WINNEBAGO COUNTY					
Burritt Township	0	1	1	0	2
Cherry Valley	1	7	5	0	13
Durand	0	7	2	0	9
Loves Park	8	52	12	0	72
Machesney Park	2	22	5	8	37
New Milford	0	3	3	0	6
Pecatonica	0	11	3	0	14
Rockford	144	555	221	49	969
Rockton	7	15	3	0	25
Roscoe	2	10	3	0	15
Seward	0	7	1	0	8
Shirland	0	3	0	0	3
South Beloit	20	69	15	0	104
Winnebago	0	11	3	0	14
<i>Subtotal</i>	<i>184</i>	<i>773</i>	<i>277</i>	<i>57</i>	<i>1291</i>
BOONE COUNTY					
Belvidere	18	54	9	12	93
Caledonia	1	4	2	1	8
Capron	0	6	5	1	12
Cherry Valley	0	0	2	5	7
Garden Prairie	0	3	3	0	6
Irene	0	1	0	0	1
Kingston	0	1	2	0	3
Poplar Grove	4	4	1	1	10
<i>Subtotal</i>	<i>23</i>	<i>73</i>	<i>24</i>	<i>20</i>	<i>140</i>
Total	207	846	301	77	1431



BROWNFIELDS

The Vital Signs project has afforded an opportunity to research and document an inventory of environmental risk at the parcel level for the entire two-county region. A total of 1,431 parcels were identified in the effort and they were ranked on a scale of 1-4. The risk ranking system is defined as:

- 1. Negligible/Low Risk of Negative Environmental Impact:** Low risk properties may include undeveloped lots, certain agricultural and pasture lands, historically residential properties, rurally located parcels, parking lots in primarily residential areas, former roadways and streets.
- 2. Moderate Risk of Negative Environmental Impact:** Moderate risk properties may include commercial/retail based properties, open/parking lots, storefronts, offices, railroad lines and sidings, and other properties located in urbanized areas where no direct environmental conditions are apparent.
- 3. Elevated Risk of Environmental Impact:** Elevated risk properties may include fillings stations, automotive and mechanical repair shops, light industrial uses, small machine shops, smaller bulk petroleum operations, quarries, small salvage yards, printing facilities, above ground and underground storage tank sites, farmsteads, and railroad related properties.
- 4. Severe Risk of Environmental Impact:** Severe risk properties may include dry cleaners, heavy industrial uses, chemical manufacturing facilities, large machine shops, electroplating shops, large bulk petroleum operations, landfills, large salvage yards, orchards, and CERCLA (Superfund) related sites.

Note – A property's location may also influence a ranking. Example: A typical low risk property located in close proximity to a severe risk property may be classified at a higher risk ranking.

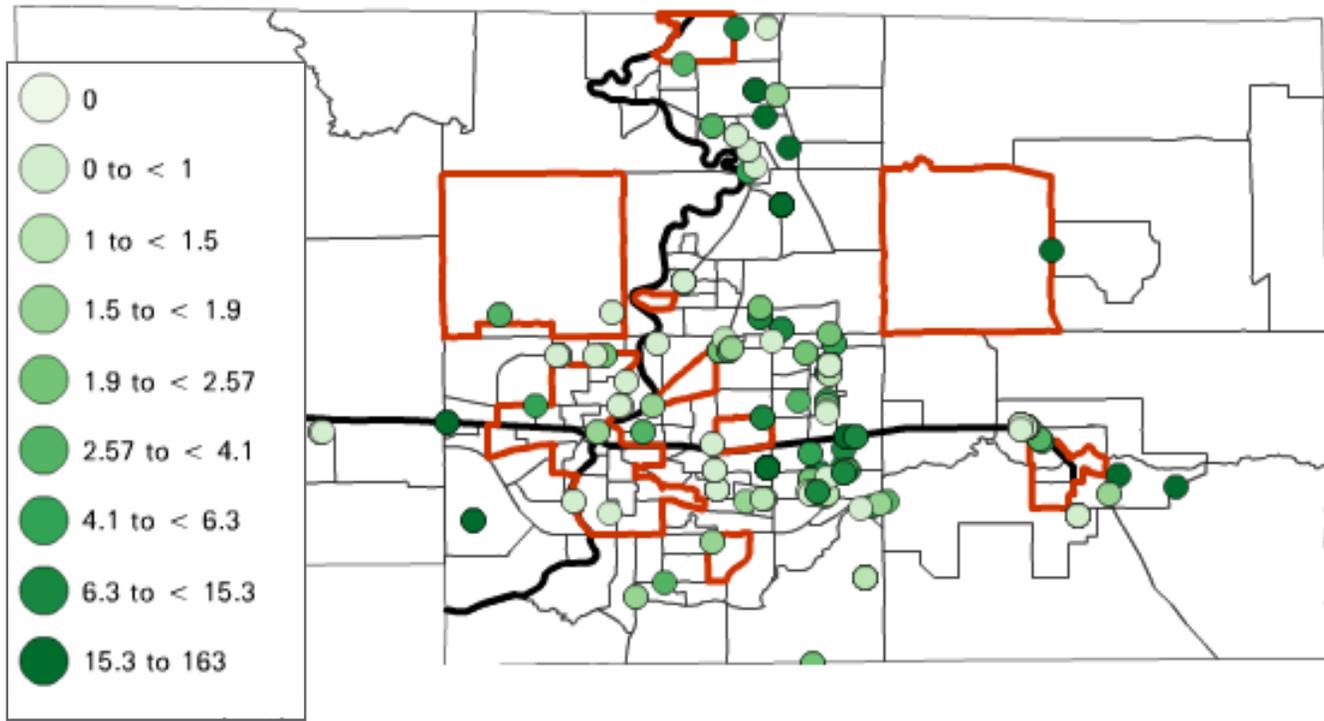
The City of Rockford contains roughly 2/3 of the total risk-assessed parcels as well as the parcels identified as Severe Risk. The map to the left shows the concentration of potential brownfield sites in the urban core of Rockford, South Beloit, Belvidere and Loves Park, many of which are located in the vicinity of the Rock and Kishwaukee Rivers.

Before consideration is given to applying for a grant, such as the Brownfields program, the property should be documented to have a severe or elevated risk classification and be considered underutilized. The sustainability partners in the region can use the Vital Signs tools to help make the initial determination. As long as the property was not in a Superfund site, it could then be submitted for specific eligibility to a grant program. Careful consideration of parcel submission will be a key to long-term infill development success, which is a prime goal of the Vital Signs regional plan.



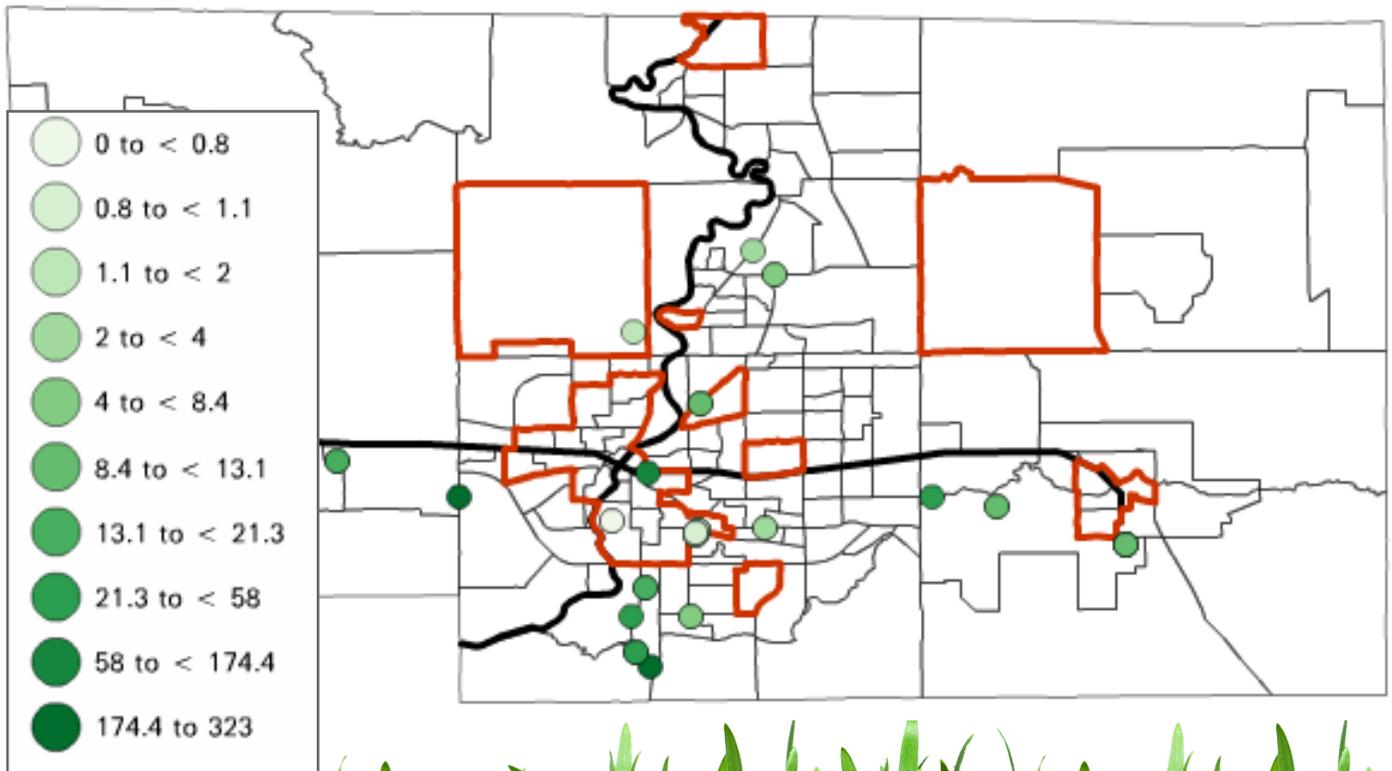
Available Commerical Properties from LOIS (in acres)

Source: LOIS
Date: 2013



Available Industrial Properties from LOIS (in acres)

Source: LOIS
Date: 2013



BUSINESS-READY PROPERTIES

The availability of commercial and industrial sites is important to a sustainable region. Site availability allows existing businesses to expand either into larger buildings or to establish operations at additional locations in the region. It is also important for a region's ability to attract new businesses. If sites exist, it minimizes the time necessary for new business creation or business expansion. The information below is based on the Location One Information System (LOIS) that is maintained by the Illinois Department of Commerce and Economic Opportunity. LOIS sites have listing for only properties listed with the MLS system and do have a complete inventory of what properties are available. It includes both sites that have buildings on them and sites that are available for development.

COMMERCIAL SITES

In the Vital Signs region there are 247 available commercial properties (includes sites zoned commercial, retail, office and business park). These sites are distributed throughout the region and do not appear to be concentrated in any one area. Of the 247 sites the majority are zoned commercial (185). However, 31 sites are zoned retail, 28 zoned office and 3 are zoned planned business park. One important factor in the attraction of large commercial development is the availability of large sites (properties without building). Of the 142 commercial zoned sites, with size included, listed on LOIS, 115 (80%) are less than 10 acres. There are only 16 that are greater than 20 acres and one greater than 100 acres. There are 30 commercial sites listed in Boone County. Of these sites only six have the site size listed, five being less than 5 acres and one being 35 acres.

INDUSTRIAL SITES

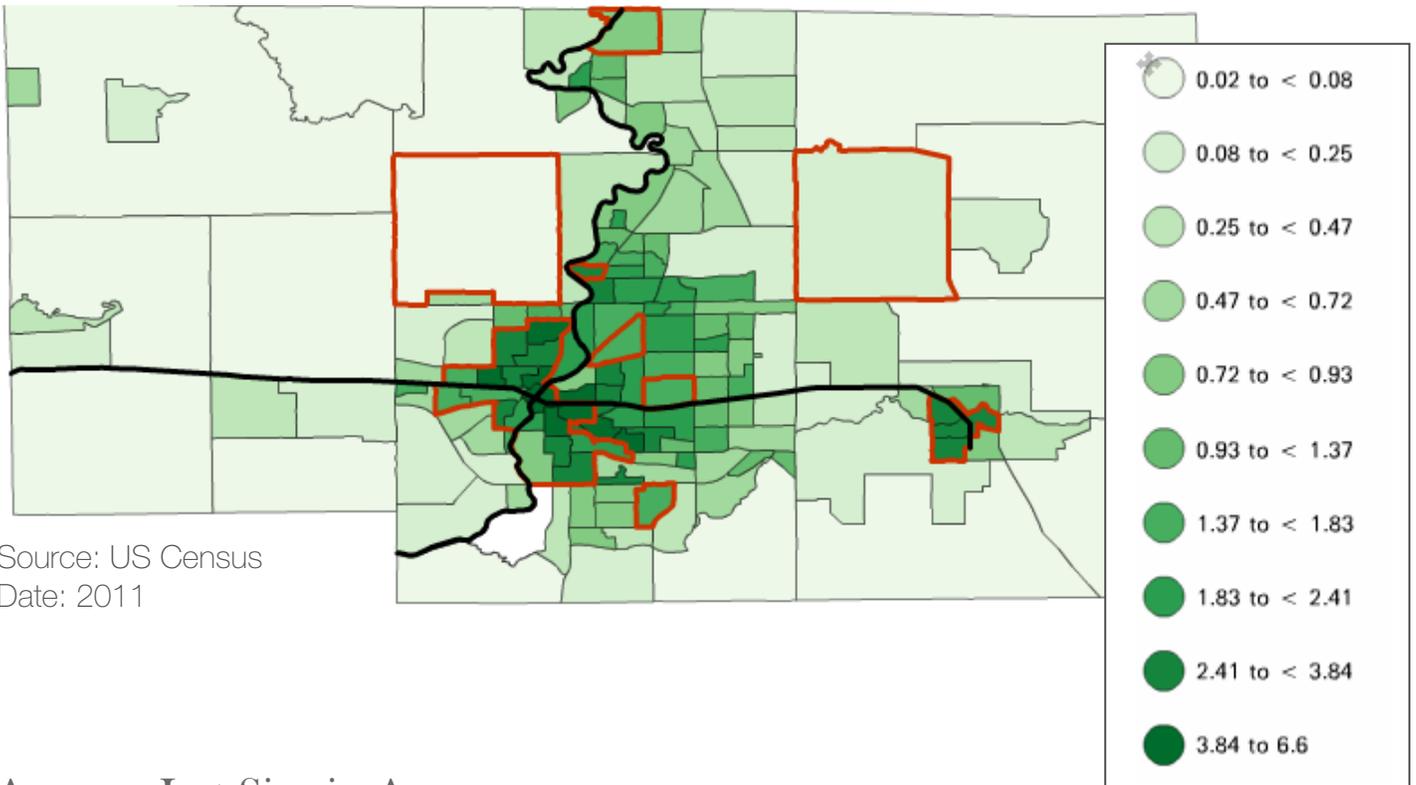
Availability of industrial sites is important to manufacturing firms. In general manufacturing requires industrial zoning. There are 37 industrial sites listed in the LOIS database. Most of these sites are in areas of the region where current manufacturing is located. Of the 37 industrial sites listed, five are in Boone County. One important element for industrial sites is the size of the property. Of the 35 sites that have size listed, 25 are less than 20 acres and four are over 100 acres. Of the large sites one is in Boone County and the other three are in Winnebago.

SUMMARY

Availability of sites for commercial and industrial development are important for a sustainable region because they allow for business expansion and aid in attracting new business to the region. Ongoing monitoring of site availability to make sure a mix of sites of appropriate size and zoning is important. The RAEDC is working on developing a site-readiness rating (qualified sites index) to help aid and expedite the business attraction and retention process.

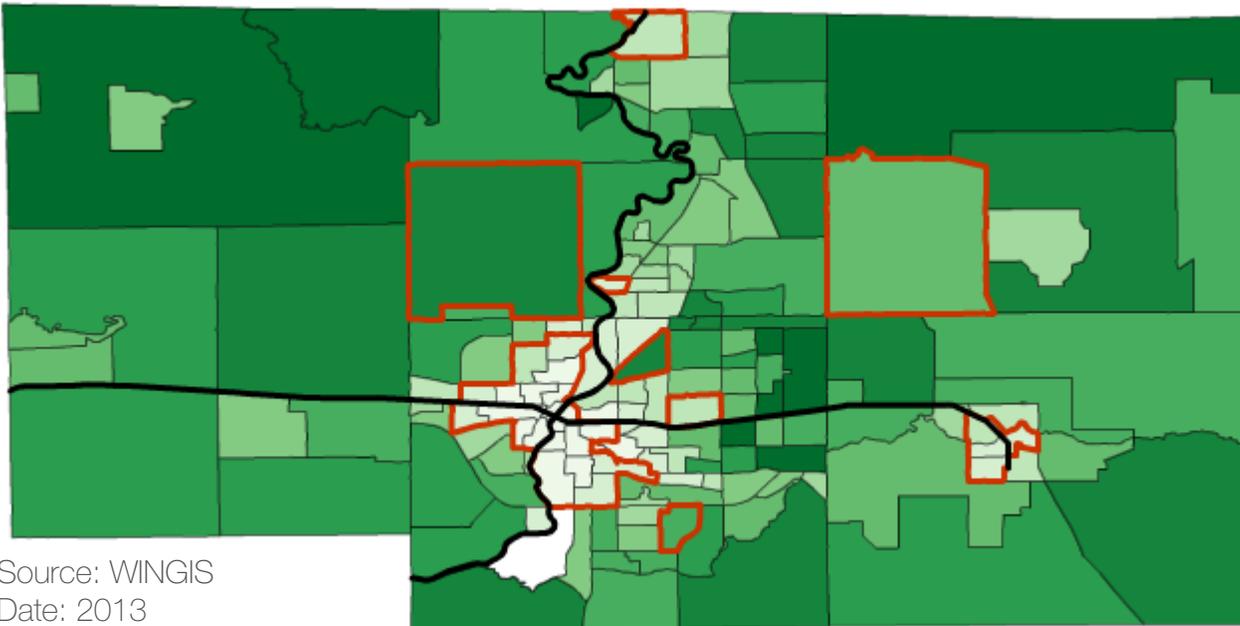


Dwellings Per Acre



Source: US Census
Date: 2011

Average Lot Size in Acres



Source: WINGIS
Date: 2013

Key is located on right side of page 53.



DENSITY

Density is of primary concern when discussing how to build and expand a region's built environment. It can take the form of density of people or of buildings. Proponents of dense development tout low-cost of per-capita resource use, reduction in greenhouse gases, and lower vehicle per miles traveled. Density also promotes increased interaction with neighbors and an increased likelihood of proximity to locally-owned stores (which tend to be located in smaller store footprints).

Less dense neighborhoods make walkability and transit less feasible and make it challenging for those without cars (youth, poor, and the elderly) to get around to needed services. Opponents to density cite a correlation between perceived loss of privacy, parking, and quality of life. Others cite increased crime with an increase in density; yet most often higher crime rates in denser neighborhoods is a result of these areas being older and less well-maintained. Yet, in order to build densely the numbers have to add up; sales and rents must be high enough in dense areas to fund a project.

The number of housing units (or dwellings) per acre is one of the most commonly used indicators of density within a region. Within the Rockford Region there is a large concentration of density within neighborhoods with 15% poverty or higher (indicated on the map to the left with districts outlined in red). Top districts range from 5-7 dwellings per acre in downtown Rockford to the least dense districts in the rural areas with .02 dwellings per acre (1 dwelling unit per five acres).

There appears to be a strong relationship in the Rockford metro with low median household incomes and high density. Affordable housing in older neighborhoods within the region while large lot single-family housing is dispersed throughout the newer, less walkable neighborhoods. While there is a higher propensity for low-income households to be without a car, a significant portion of jobs in the area for low-income individuals are outside of the dense core areas. This can make it challenging to access needed services and support especially without public transit. In addition, this lack of housing choice makes it challenging for young professionals and elderly to find housing that supports lifestyles of their choice – walkable, diverse neighborhoods with a high number of amenities.

KEY: Average Lot Size in Acres

 0.144 to < 0.203

 0.203 to < 0.239

 0.239 to < 0.356

 0.356 to < 0.482

 0.482 to < 0.564

 0.564 to < 0.741

 0.741 to < 1.075

 1.075 to < 1.659

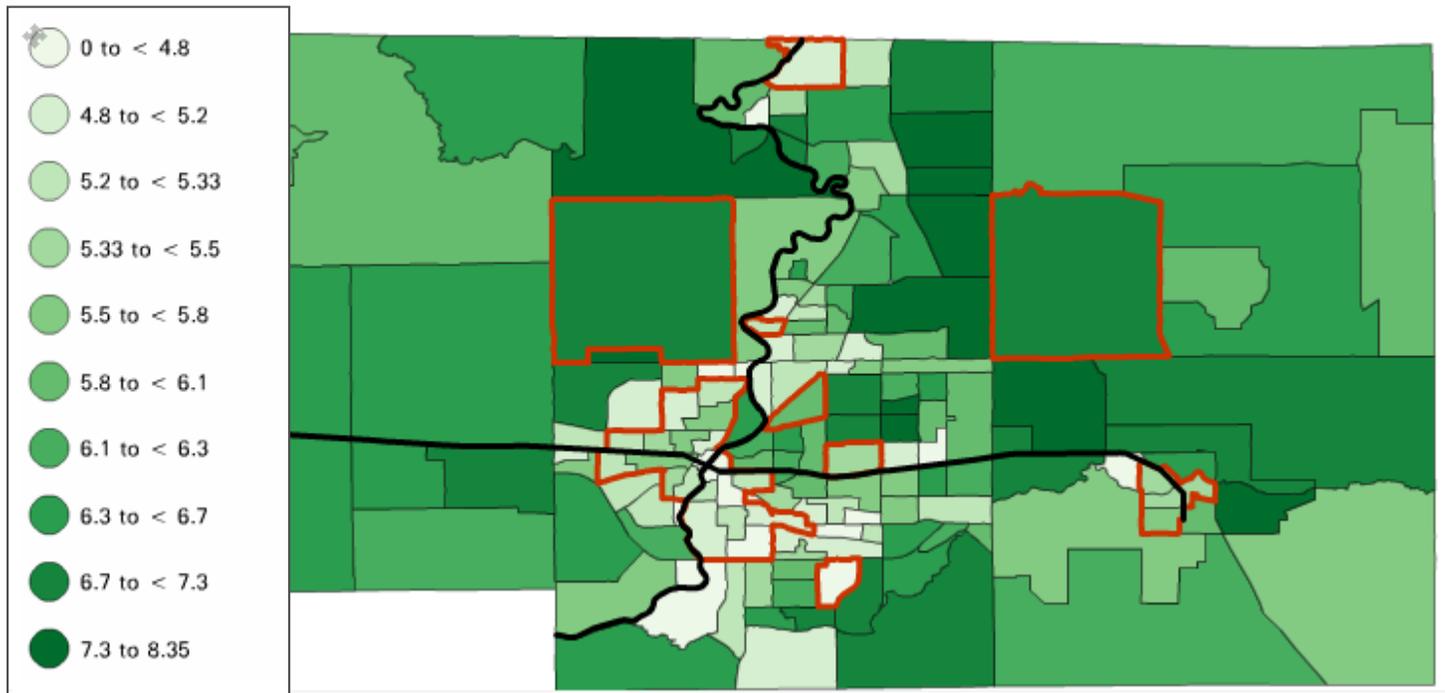
 1.659 to < 3.173

 3.173 to 9.725

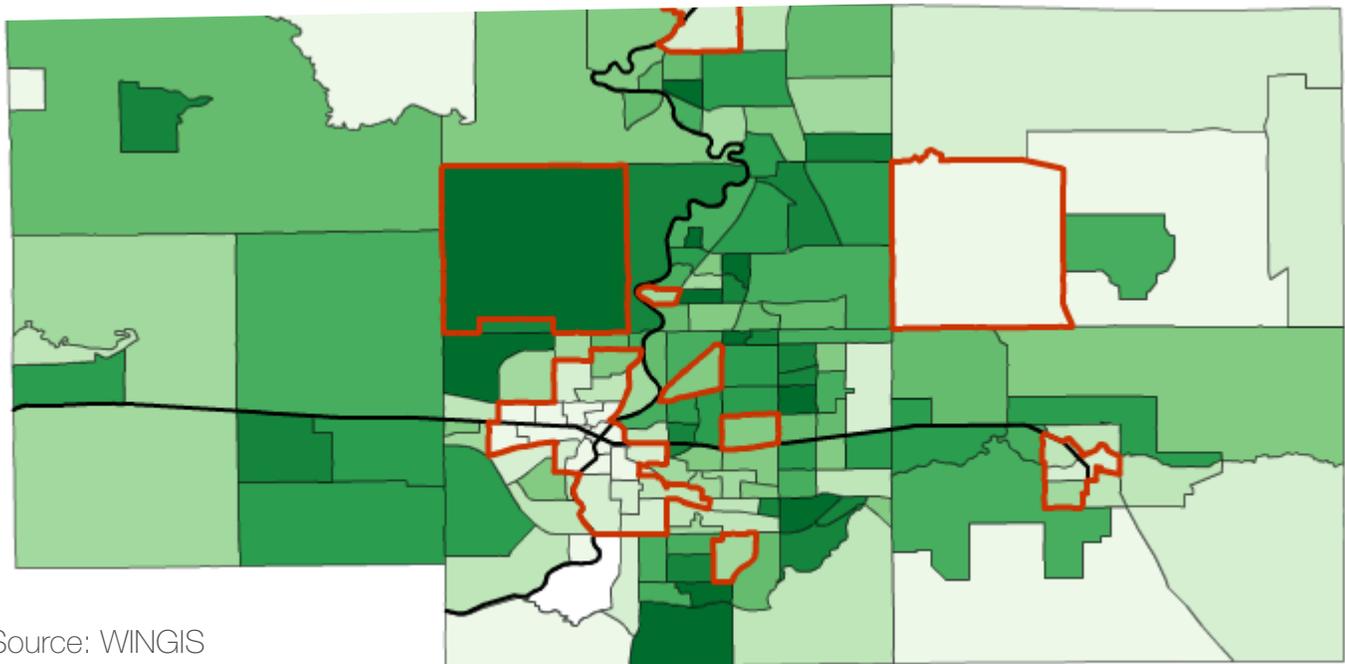


Median Number of Rooms Per Unit

Source: US Census
Date: 2011



Percent Residential Properties with Owners in the Metro



Source: WINGIS
Date: 2013

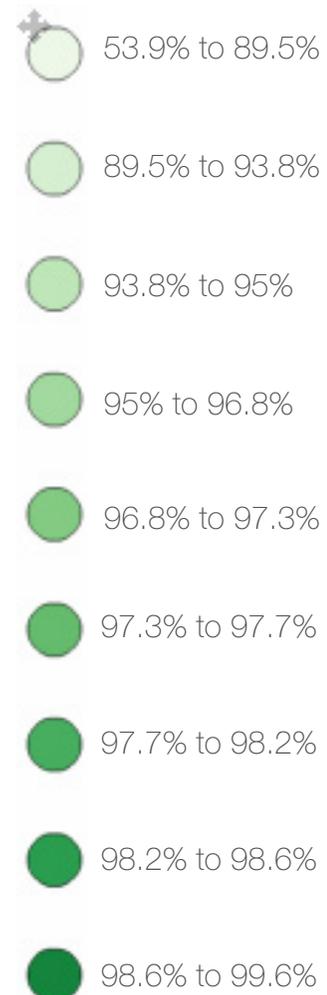


The average size of lots (as seen on page 52) clearly supports the finding where lots exponentially increase outside of a communities' core. More details can be found on the www.ourvitalsigns.com website showing the relationship between average fair market value of residential parcels and average lot size.

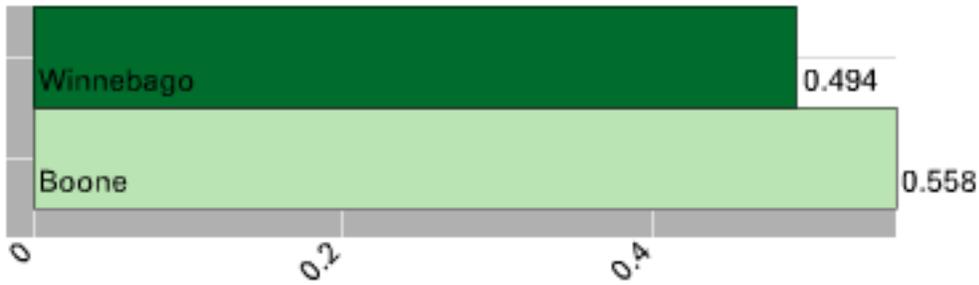
A third way to measure density is examining the median number of rooms per unit. Over the course of the last half century Americans have not only grown the size of dwellings but also diversified how residents use common space within housing. Streamlined construction processes in suburban subdivisions have made it possible to afford building family rooms, studies, guest bedrooms, tv rooms, play rooms, and sun rooms. And, as a result, it is much more common for households to spend free time at home as opposed to public spaces. Within the Rockford Region there is a concentration of housing units with 1-3 rooms within the communities' older cores while the suburban neighborhoods have anywhere from 5-9 median number of rooms.

A fourth component to examining density of dwellings within a region is looking at absentee owner rates. When owners live locally it is, by nature, easier for maintenance of properties. And, with the majority of low-income households living in more dense neighborhoods maintenance is a critical challenge for the region. As seen in the map to the left, there is a strong relationship between a higher prevalence of absentee owners (owners living outside of the region) and neighborhoods with 15% poverty or higher. Absentee owner rates range from 47% to 7% in these areas. Along the West State Street corridor in West Rockford districts have anywhere from 3% to 17% ownership of owners outside the state of Illinois. In areas outside of the core areas of the communities local ownership ranges from 6% to nearly 100%.

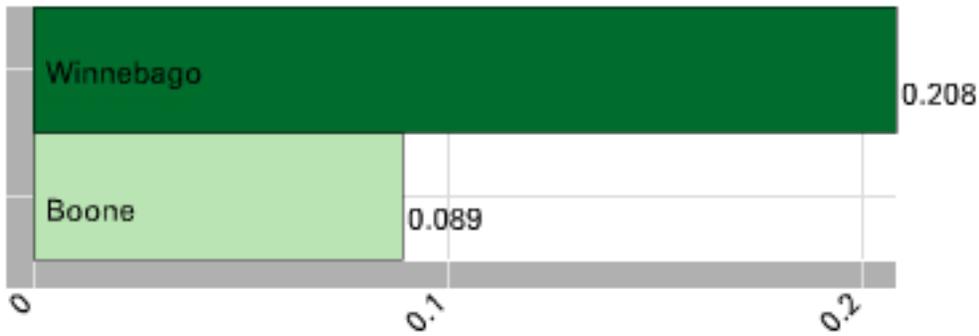
Key: Percent Residential Properties with Owners in Metro



Percent Acres of Prime Farmland

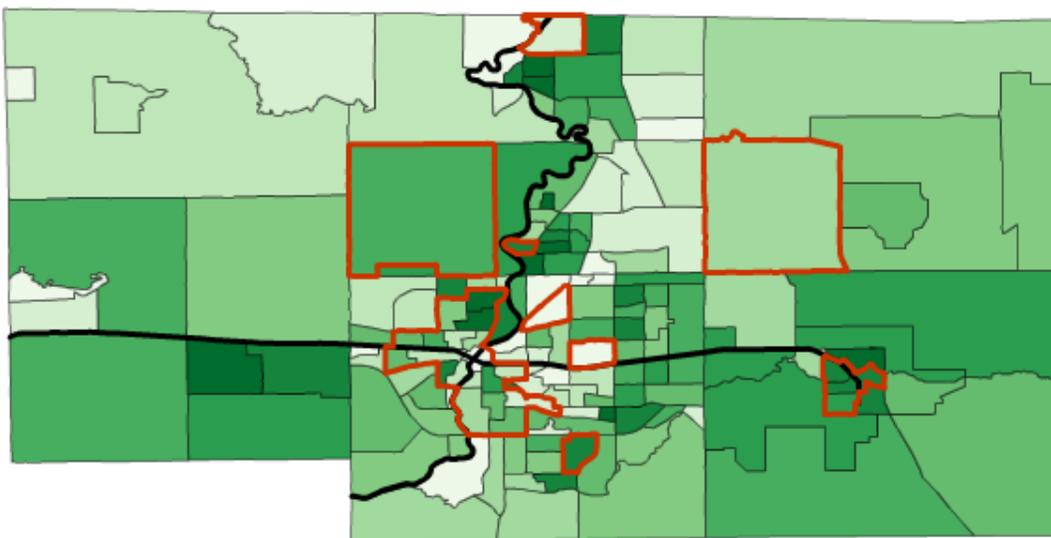


Percent Acres of Prime Farmland of State Importance



Source: USDA
Date: 2011

Percent Acres of Prime Farmland



Source: USDA
Date: 2011



FARMLAND

While the majority of the region's population resides in urban areas, the majority of the region's land is in agricultural use. Perhaps most obviously, farmland is imperative for food production. However farmland provides addition benefits, such as wildlife habitat, protection against flooding, and can improve air and water quality. Farmland demands little in public services, helping to keep taxes low. For many, farmland represents more than just food and fiber production; it represents a way of life and is integral to our cultural heritage.

Illinois has some of the most productive soils in the World. By USDA definition prime farmland has the best combination of physical and chemical characteristics for producing food, fee, forage, fiber and oilseed. Only 20% of soils nationwide rank as prime; in Boone County 65% of the soils are classified as prime or important, and the figure increases to 70% in Winnebago County.

The United States Department of Agriculture (USDA) conducts a Census of Agriculture every five years. The Census collects land use, operations, economic and demographic data for all farm operators. This data is used to measure agricultural trends over time and to identify new and emerging practices.

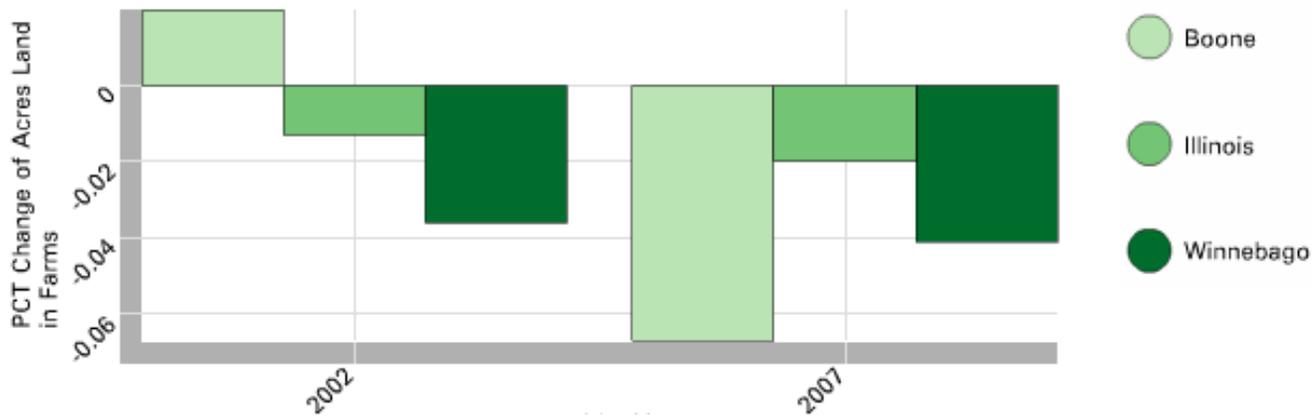
LAND IN FARMS

Between 1982 and 2007 Illinois lost 663,900 acres of farmland to development, equal to an area larger than the land mass of Boone and Winnebago Counties combined. The pattern of vanishing farmland holds true in the Region as well. Between 2002 and 2007 there was a 7% decrease in farmed lands within Boone County and 4% decrease in Winnebago County. Farmland is a finite resource; once developed it doesn't come back. Increased rural development and interaction with non-farm uses makes it much more difficult for farmers to sustain their traditional farm practices. Due in part to the poor housing market and increased profits in cash crops the conversion of farmland during the past six years has largely halted. This provides the region the opportunity to reevaluate its development priorities and move to conserve this important resource.

Key: Percent Acres of Prime Farmland

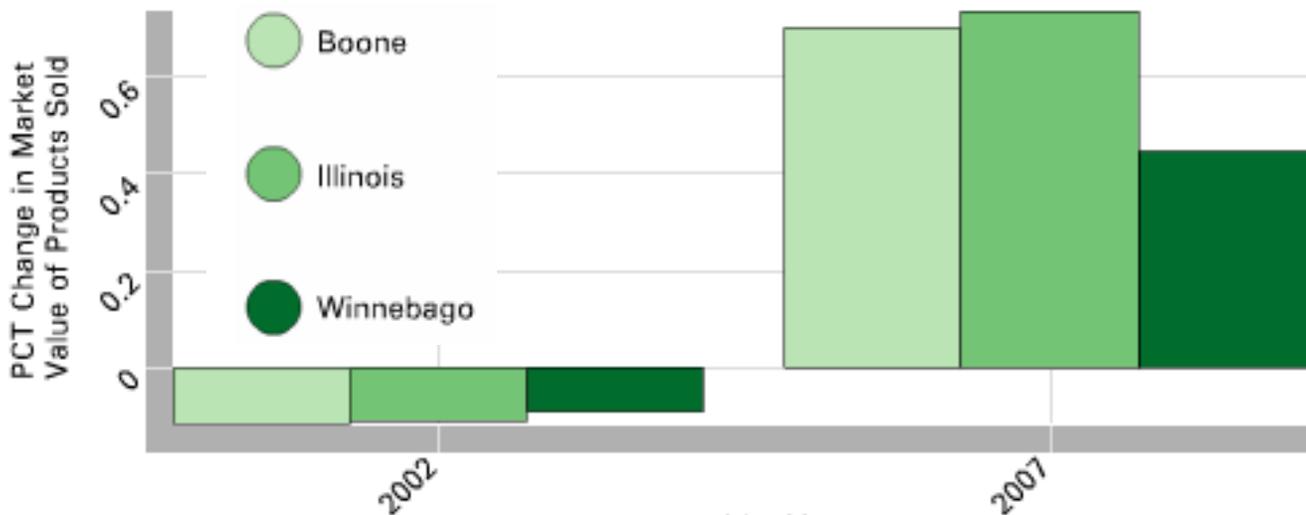


Percent Change of Acres Land in Farms



Source: USDA
Date: 2007

Percent Change in Market Value of Products Sold



Source: USDA
Date: 2007



FARM ECONOMICS

Keeping prime agricultural lands intact and in production is greatly reliant on strong agricultural markets. Farming is a capital and labor intensive industry, typically yielding low profit margins. Agricultural markets have a history of being extremely volatile. During the 1980s and 1990s the low market value of many agricultural commodities made farming largely unprofitable, corresponding with a period of rapid conversion of agricultural lands to other uses. Recently farm markets have taken a dramatic upswing. Due increasing crop yields and profitable grain markets, producers have seen a marked increase in value during the past decade. Between 2002 and 2007 the region saw market value increase by over 70%.

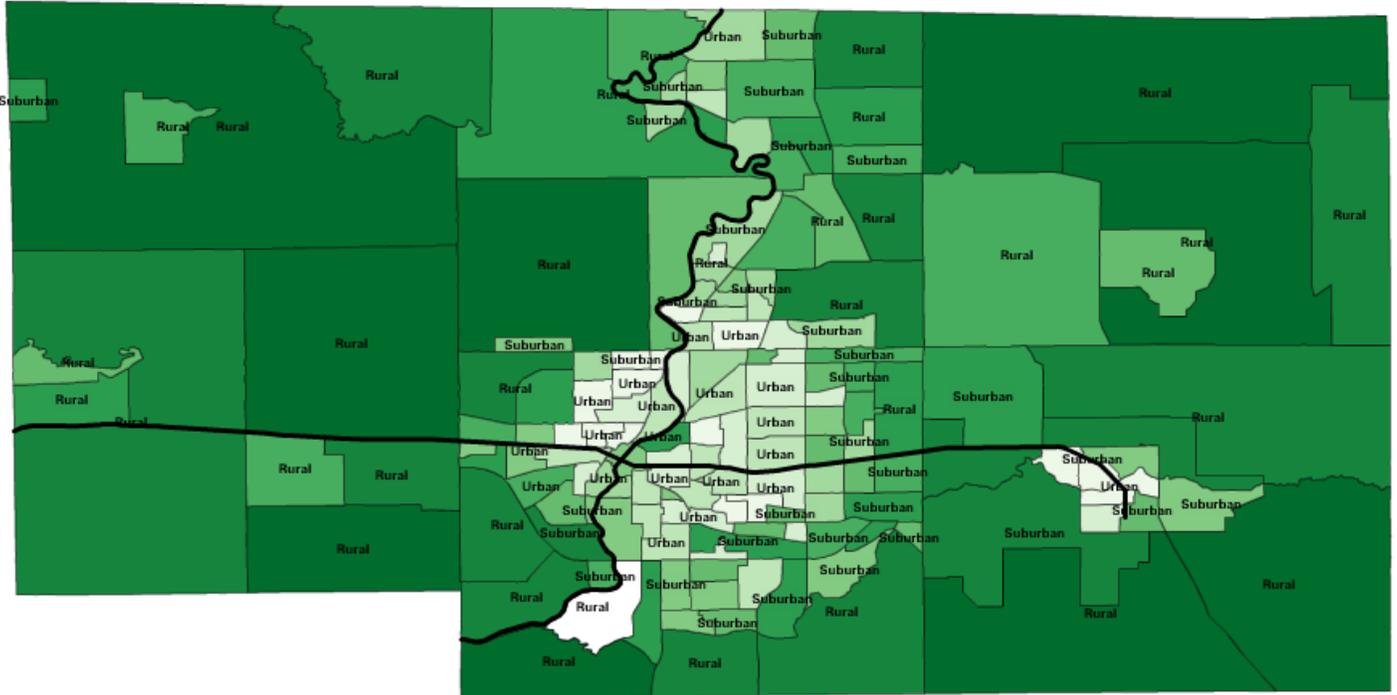
TOP CROP ITEMS

Corn is the leading crop grown in the region, with soybeans coming in second. The region's agriculture base has historically relied on cash crops, which has benefited them well with the currently strong grain markets. As of the most recently surveyed year, corn and soybeans comprise 90% of all acres planted in each county. Winnebago County ranks amongst the top 10% of corn producing counties nationwide.

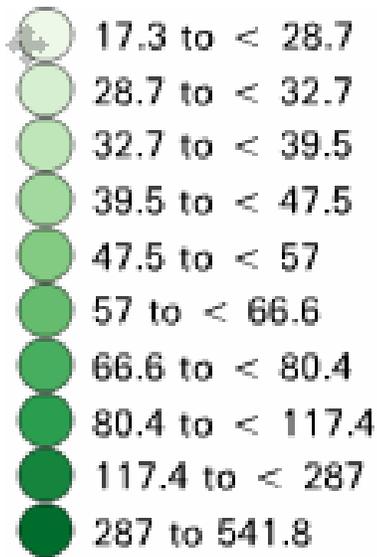
Diversification is an important aspect of farming operations, helping to insulate operators from risk and respond to changing market trends. While cash crops dominate the region's agricultural economy, the region is host to important niche markets as well. Winnebago County ranks 4th in the state for Christmas tree production, and Boone County ranks 6th in the state for fruit and berry production and 4th for nursery stock. These niche markets are important for the stimulation of agritourism and local foods production in the area. In addition to traditional field crops, livestock production and sales account for just over 15% of the market value of all agricultural products in the region.



Linear Feet of Roads Per Capita



Source: RMAP and US Census
Date: 2013



INFRASTRUCTURE

PER CAPITA

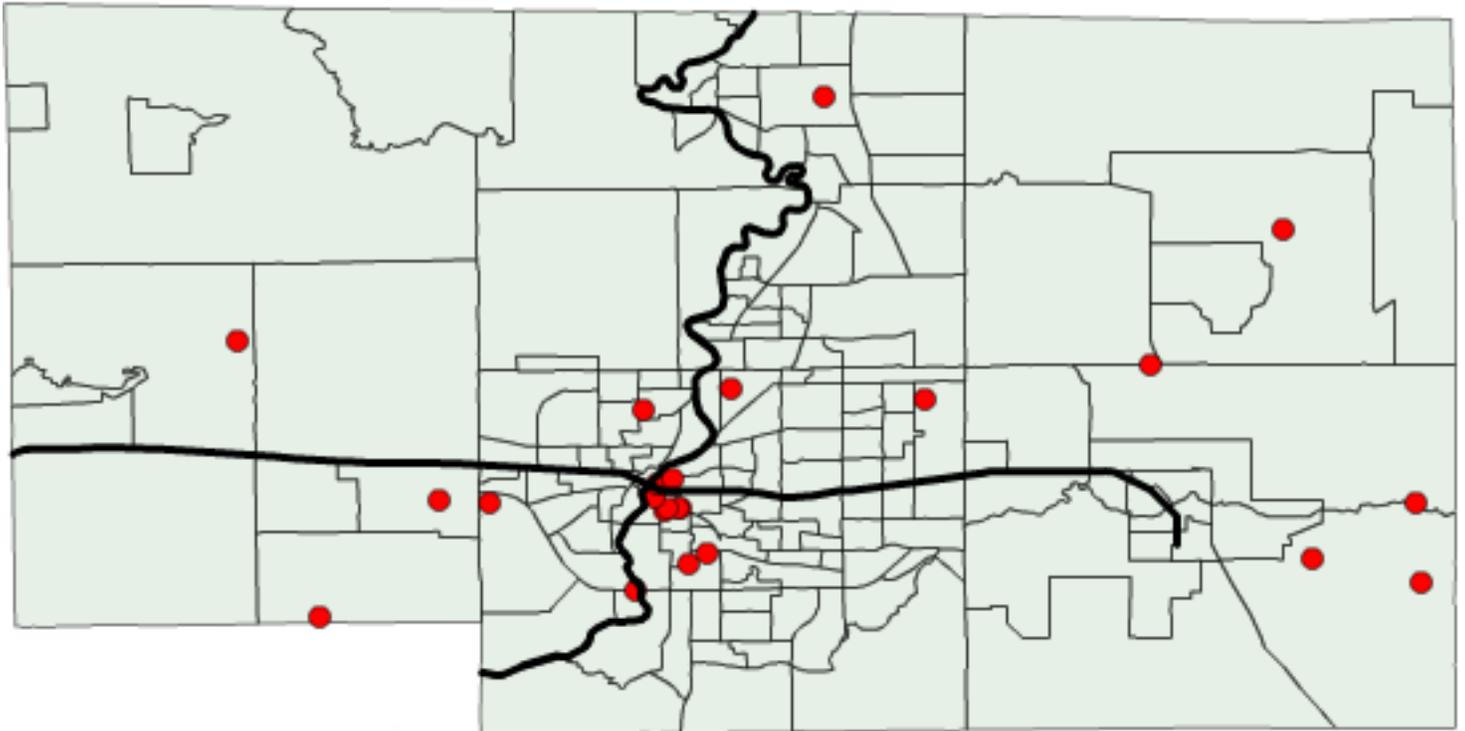
With the built environment growing from only 3% of the land in the two counties in 1940 to nearly 20% in 2012, the choices made about development patterns is critical to understand for the region. One way to measure the impact of the built environment on the region is examining the lineal feet of infrastructure built per capita within each district. Simply put, more infrastructure costs more to build and maintain. And, public safety response times can be lengthy in districts with low densities.

In the Rockford Region, with the exception of the South Main Street corridor there is a much lower rate of roads per capita in the older areas of the communities (ranging from 17 to 40 feet per capita. This may be explained by the largely industrial properties in this area requiring additional roadway. Suburban and rural districts have anywhere from 57 to 541 feet per capita.

On the website www.ourvitalsigns.com there are additional visualizations examining the relationship between feet of infrastructure built per capita.



Structurally Deficient Bridges



SufficiencyRating

● 0 to < 50

● 50 to 100

Source: FHWA
Date: 2011



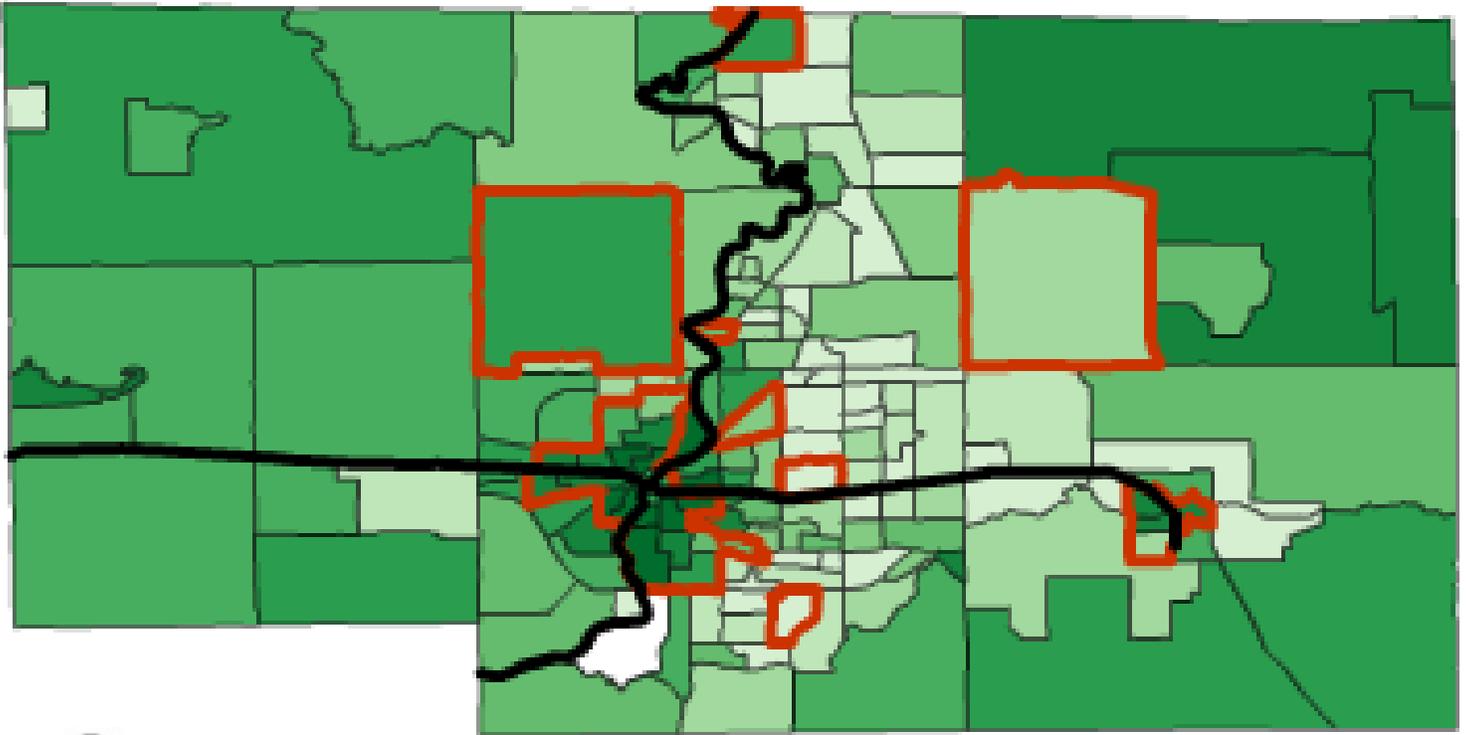
DETERIORATION OF THE REGIONS BRIDGES

The FHWA Annually updates the National Bridge Inventory (NBI) database of the bridges longer than 20ft (6.1m) on public traffic roads based on mandatory biennial inspection reports submitted by all state departments of transportation and local agencies. The FHWA uses the NBI data to submit a biennial report on the condition of the nation's bridges to Congress and identify bridges to rehabilitate or replace with federal aid under the Highway Bridge Replacement and Rehabilitation Program. While the NBI database contains individual bridge condition data for more than 30 years, it is not designed to assess bridge performance over time nor does it contain specific bridge deterioration information. The program resulting from the NBI is intended to detect structural and functional deficiencies to minimize the probability of structural failure and to improve bridge traffic safety. The Illinois Department of Transportation, IDOT, maintains the regions computerized bridge inventory system designated as the Illinois Structure Information System (ISIS). The ISIS provides the base data to determine Illinois funding allocation from the Federal Highway Bridge Replacement and Rehabilitation Program (HBRRP).

The deterioration of bridges and other vital infrastructure necessary for travel within the region is a pressing issue. It is one that is currently being felt around the nation and is not a unique occurrence to Rockford and the surrounding areas. While this issue effects everyone it is felt the hardest within the nation's trucking companies, industrial plants, shipping and receiving hubs and the nation's dependence on just-in-time transportation systems, JIT. Another vital service that is overlooked is that of large emergency vehicles. When a bridge has deteriorated past a certain point it is deemed unsafe for fire trucks, tow trucks and other large emergency response vehicles but will still be open for normal traffic operations. In these cases emergency vehicles will have to take an alternate route to get to the destination waiting important time that could mean the life or death of someone at an accident or fire scene.



Percent Homes with Lead Paint Risk (Built Before 1950)



- 0%
- 0% to 2%
- 2% to 2.7%
- 3.7% to 7.5%
- 7.5% to 12.7%
- 12.7% to 23.1%
- 23.1% to 31.5%
- 31.5% to 41.5%
- 41.5% to 61.9%
- 61.9% to 79.3%

Source: EPA
Date: 2011



LEAD PAINT RISK

More than 80% of all homes built in the U.S. before 1978 contain lead-based paint according to the U.S. Environmental Protection Agency (EPA). Housing built before 1950 poses greater risk for children because the paint might contain higher concentrations of lead. Lead-based paint may deteriorate as visible paint chips but is more commonly found as fine dust, which looks like ordinary house dust. Lead-painted windows can be especially problematic due to dust settling on floors and window wells, even when new paint covers the old. Remodeling old homes can create large quantities of lead dust that may be accidentally breathed or eaten, especially by children according to the Centers for Disease Control and Prevention (CDC).

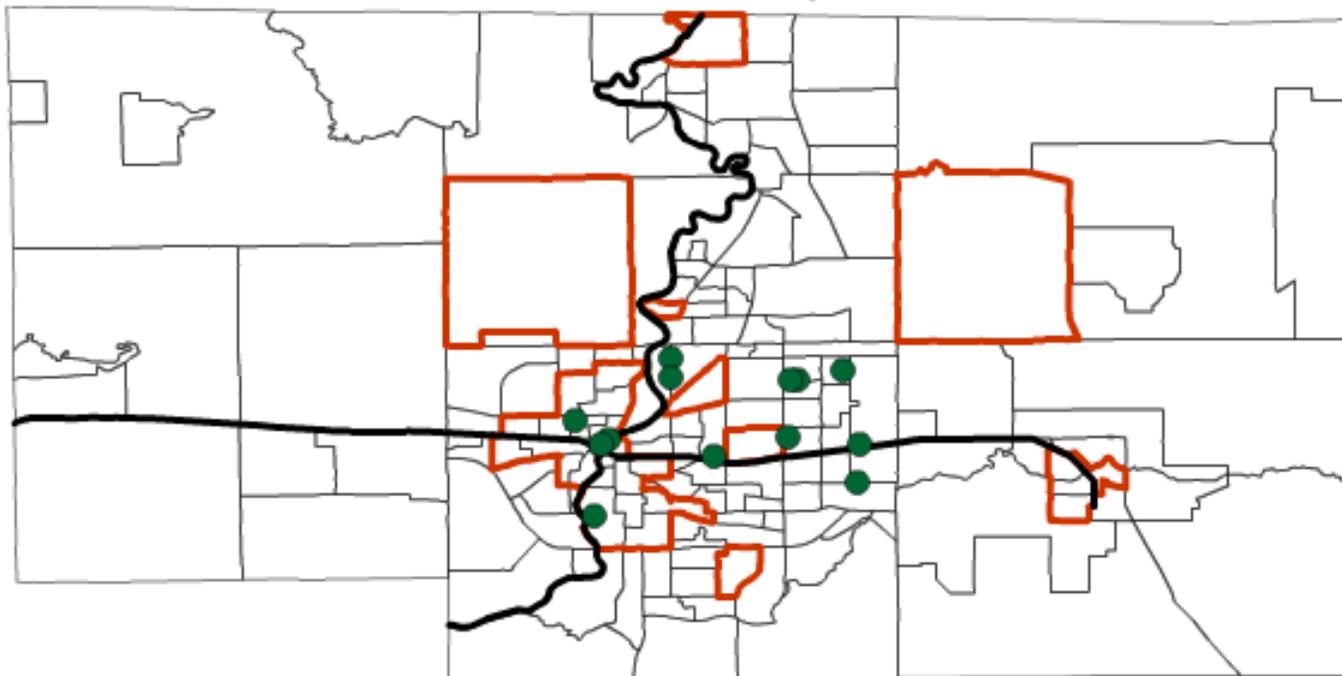
As seen in the map to the left, 25 districts (largely within neighborhoods with poverty rates of 15% poverty or higher) have 40% to 80% of the homes having high risk of lead paint. This is 15% of all districts within the region. An additional 25 districts have medium risk of lead paint and are located in east Rockford and along the Rock River northward.



LEED Certified Buildings

Source: USGBC

Date: 2013



LEED CERTIFIED BUILDINGS

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)

LEED certified buildings are intended to use resources more efficiently when compared to conventional buildings simply built to code. LEED certified buildings often provide healthier work and living environments, which contributes to higher productivity and improved employee health and comfort. The US Green Building Council states that higher initial costs of construction can be effectively mitigated by the savings incurred over time due to the lower-than-industry-standard operational costs typical of a LEED certified building. This life-cycle costing is a method for assessing the total cost of ownership, taking into account all costs of acquiring, owning and operating, and the eventual disposal of a building. Additional economic payback may come in the form of employee productivity gains incurred as a result of working in a healthier environment. Studies have suggested that an initial up-front investment of 2% extra will yield over ten times the initial investment over the life-cycle of the building. As shown in the graphic above there has been a handful of LEED designed and constructed buildings in the region, and some have received LEED certification.



PROFESSIONAL LEED ACCREDITATION

The Green Building Certification Institute describes Professional Accreditation as follows: “LEED Professional Credentials demonstrate current knowledge of green building technologies, best practices, and the rapidly evolving LEED Rating Systems. They show differentiation in a growing and competitive industry, and they allow for varied levels of specialization. A LEED Professional Credential provides employers, policymakers, and other stakeholders with assurances of an individual’s level of competence and is the mark of the most qualified, educated, and influential green building professionals in the marketplace.” Credentials include the LEED Green Associate (GA) and the various types of specialized LEED Accredited Professionals (AP). As more local government incorporate LEED principles into their local codes, the higher the demand for certification of industry professionals.

LEED FOR NEIGHBORHOOD DEVELOPMENT (LEED-ND)

LEED for Neighborhood Development integrates the principles of smart growth, urbanism and green building into the first national system for neighborhood design. Whole neighborhoods, portions of neighborhoods, multiple neighborhoods—there is no minimum or maximum size for a LEED for Neighborhood Development project. The character of a neighborhood, including its streets, homes, workplaces, shops and public spaces, affects quality of life and can encourage open space and access to parks.

Thoughtful neighborhood planning can limit the need for automobiles and greenhouse gas emissions. Mixed-use development and pedestrian-friendly streets encourage walking, bicycling and public transportation. Green buildings and infrastructure also lessen negative consequences for water resources, air quality and natural resource consumption.

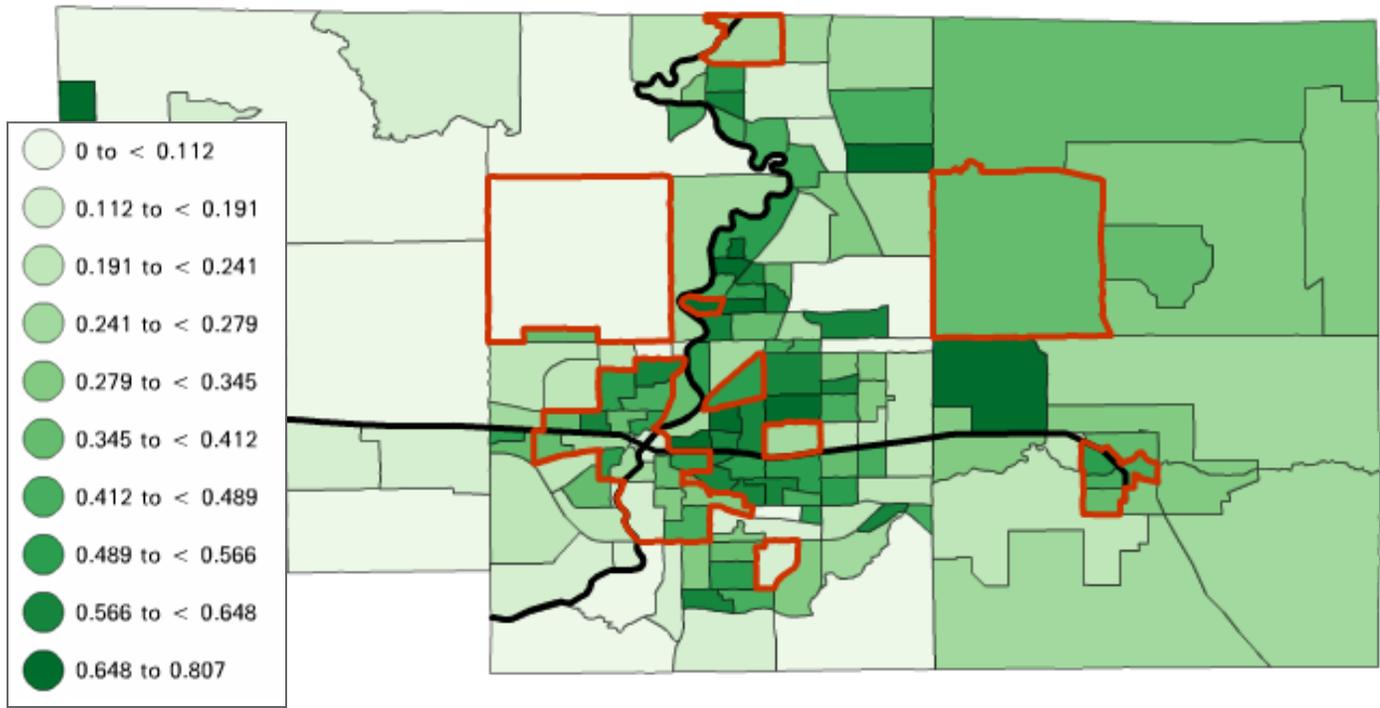
LEED FOR HOMES

LEED for Homes promotes the design and construction of high-performance homes – energy efficient, resource efficient, and healthy for occupants. A home that achieves LEED certification has been designed to maximize fresh air indoors, minimizing exposure to airborne toxins and pollutants. It also has the potential to use 20-30% less energy—and some up to 60% less—than a home built to code, resulting in lower utility bills every month.



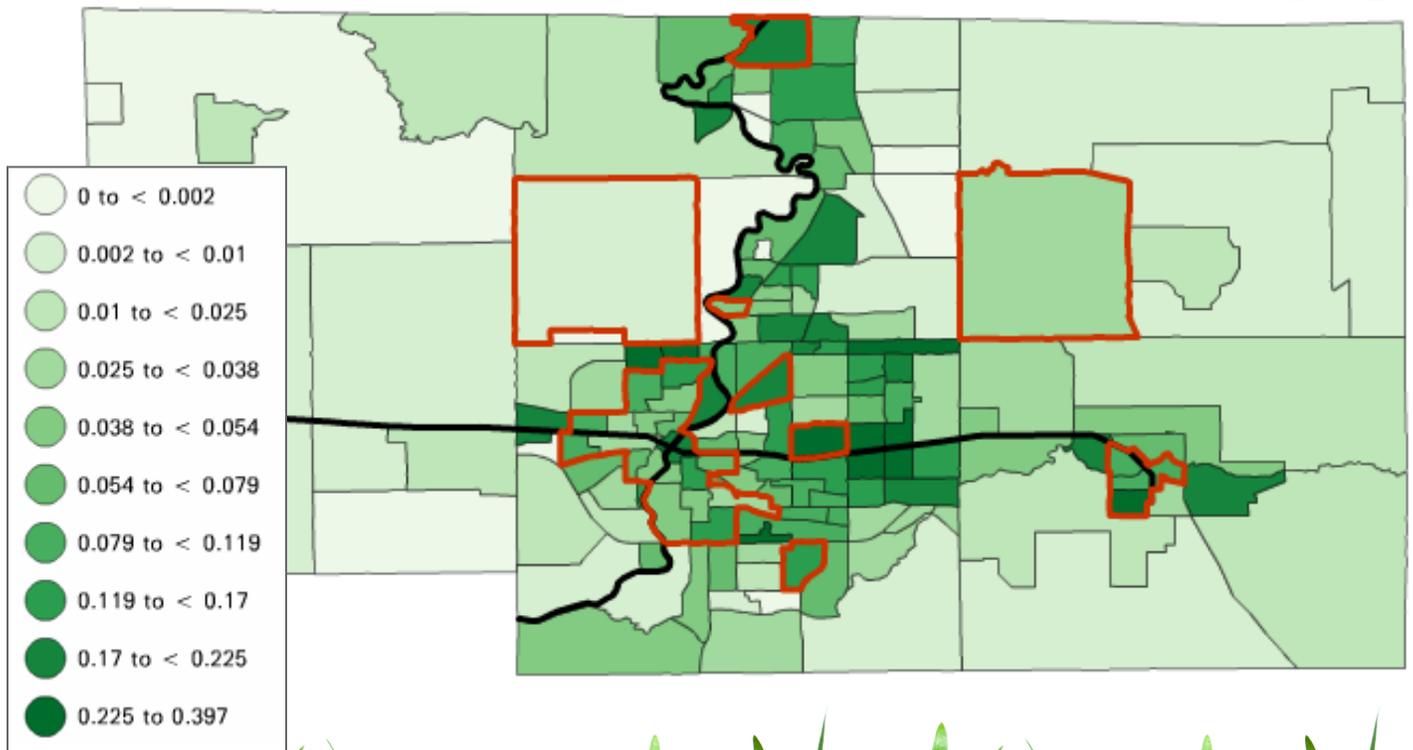
Percent Land Residential Acentage

Source: WINGIS
Date: 2013



Percent Land Commercial Acentage

Source: WINGIS
Date: 2013



REGIONAL LAND USE

Sustainable regions typically have a broad mix of land usage. For property tax purposes, properties that are zoned residential, commercial, industrial and farm are included in the calculation of property taxes. In addition to these classifications there is property that is tax-exempt. Property can be tax-exempt for a number of reasons. Property owned and used by government entities like cities, counties and park districts are typically tax-exempt. Additionally, properties owned by not-for-profit organizations are usually exempt. This would include property owned by hospitals and churches that are used to carry out not-for-profit activities. In general properties that are tax-exempt are used by organizations that serve the public good.

CURRENT LAND USE

For the Rockford Vital Signs region as a whole the vast majority of the land is classified as farm land (61%). Residential use makes up the next largest component (21%) with 2.6% commercial and 1.8% industrial. For the region as a whole 6% of the land is classified as tax exempt.

As would be expected, farm land is located on the outer fringe of the urban area in western Winnebago and most of Boone County outside of Belvidere. The percent of acreage classified as farm ranges from zero to a high of 91% within each district.

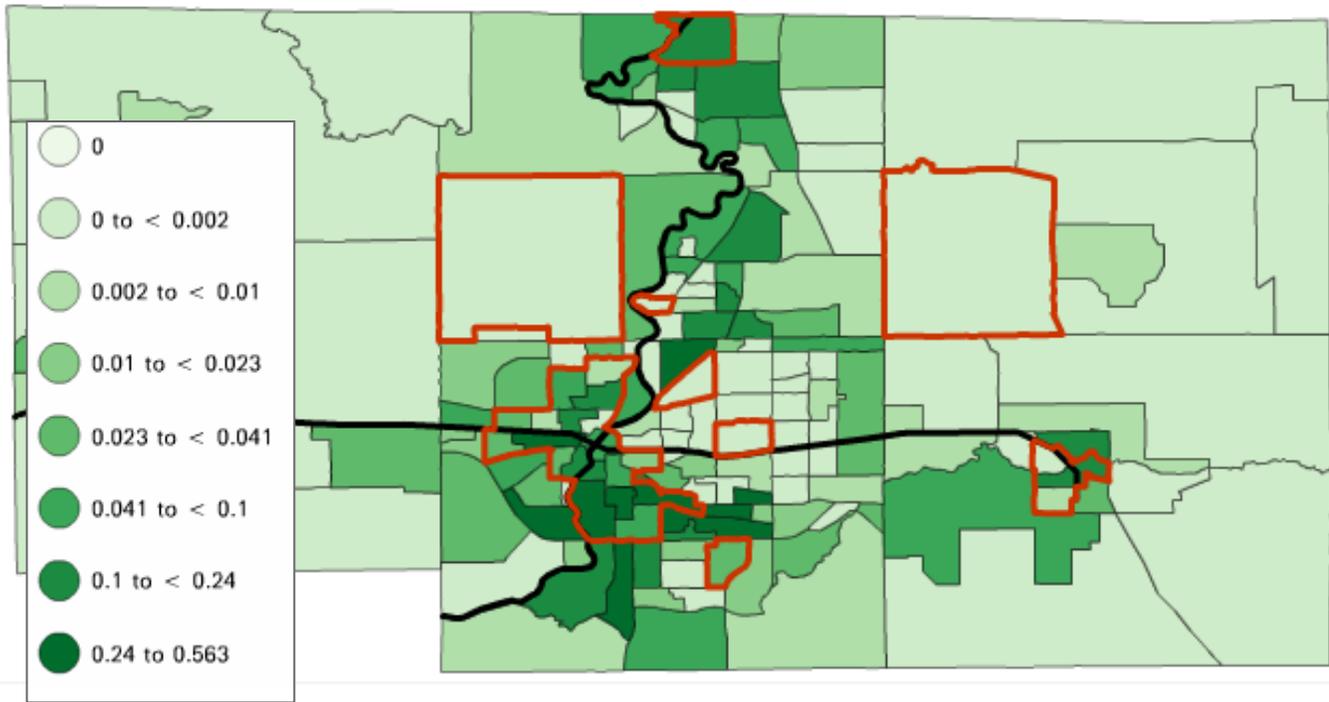
The concentration of residential land is the mirror image of farm land. Districts with a high percent of residential property are within the municipalities' in the region. The percent of land classified as residential ranges from a low of zero (one district) to a high of 81%. Of note is that even districts that have a large percent of land classified as farm also have some residential property indicating the presence of rural subdivisions.

Commercial property is distributed across the region with the largest concentration being 40% of the land in the areas along commercial corridors on East State Street and Riverside. Other commercial land is distributed throughout the region in a loose relationship to residential property. As for industrial property the high concentration area is on the south side of Rockford with districts being as much as 56% industrial land.



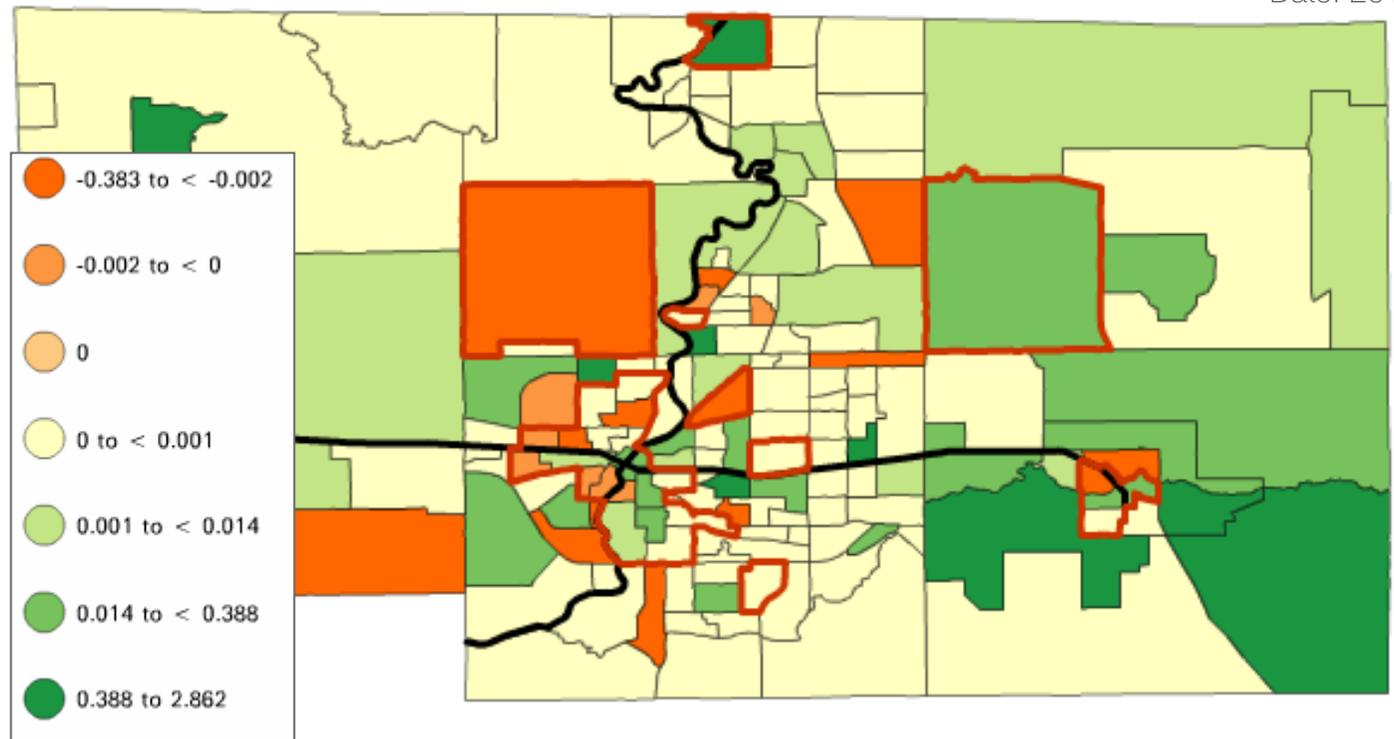
Percent Land Industrial Acentage

Source: WINGIS
Date: 2013



Percent Land Tax Exempt Acentage

Source: WINGIS
Date: 2013



CHANGES IN LAND USE

Over the 2010-2012 period there were some changes in land use classifications. The percent of land classified as:

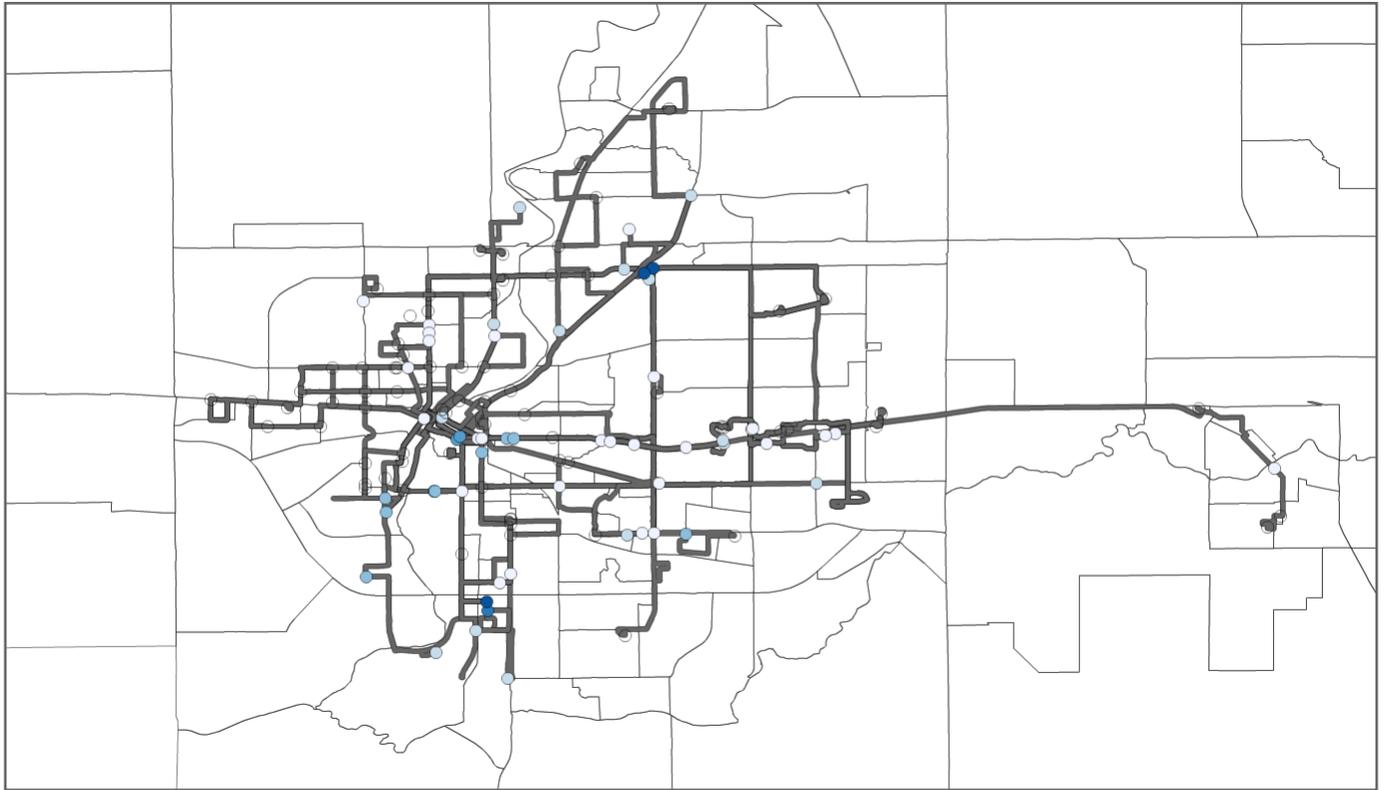
- Commercial increased from 2.57% to 2.61%
- Farm increased 60.5% to 61.2%
- Industrial stayed the same
- Residential reduced from 21.4% to 20.9% and
- Tax exempt increased from 5.7 to 6%

While the changes in land classification were relatively small, the one that could provide the greatest challenge to sustainability is the change in the amount of land that is tax exempt. Twenty-six of the 153 districts experienced an increase in tax exempt property between 1.4% and 2.9%. The majority of the districts with the largest increase in tax exempt property were the rural areas in southern Boone County and western Winnebago County. However, there were a number of districts in the central city of Rockford that experienced an increase in tax exempt property of between 1.5% and 3.4%.

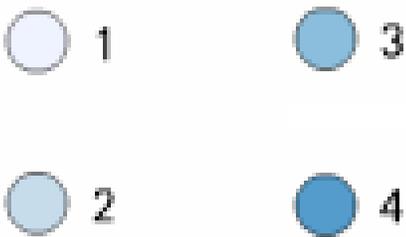
There were also districts in the region that experienced a decline in tax exempt property. Notable is a district along Riverside on the east edge of Winnebago County that experienced a decline in tax exempt property of 38%. Overall, 21 districts experienced a decline and 43 districts experienced an increase in tax exempt property.



RMTD Routes Near Major Employer Sites



Source: WINGIS, NETS Database, RMTD
Date: 2013



ROCKFORD MASS TRANSIT DISTRICT

The Rockford Mass Transit District is dedicated to providing safe, efficient, affordable, dependable and accessible transportation to the residents of Rockford and the surrounding area. For nearly four decades, the RMTD has provided federally-subsidized, coordinated, fixed-route transit services for the Rockford Urbanized Area. The bulk of this service area is comprised within the City of Rockford, as well as service to the City of Loves Park and Village of Machesney Park in Winnebago County on a contractual basis. More recently, fixed route service to the City of Belvidere in Boone County has been provided through Job Access and Reverse Commute funding. RMTD also provides origin to destination Paratransit service for persons with disabilities such that their disability limits their ability to ride the fixed route.

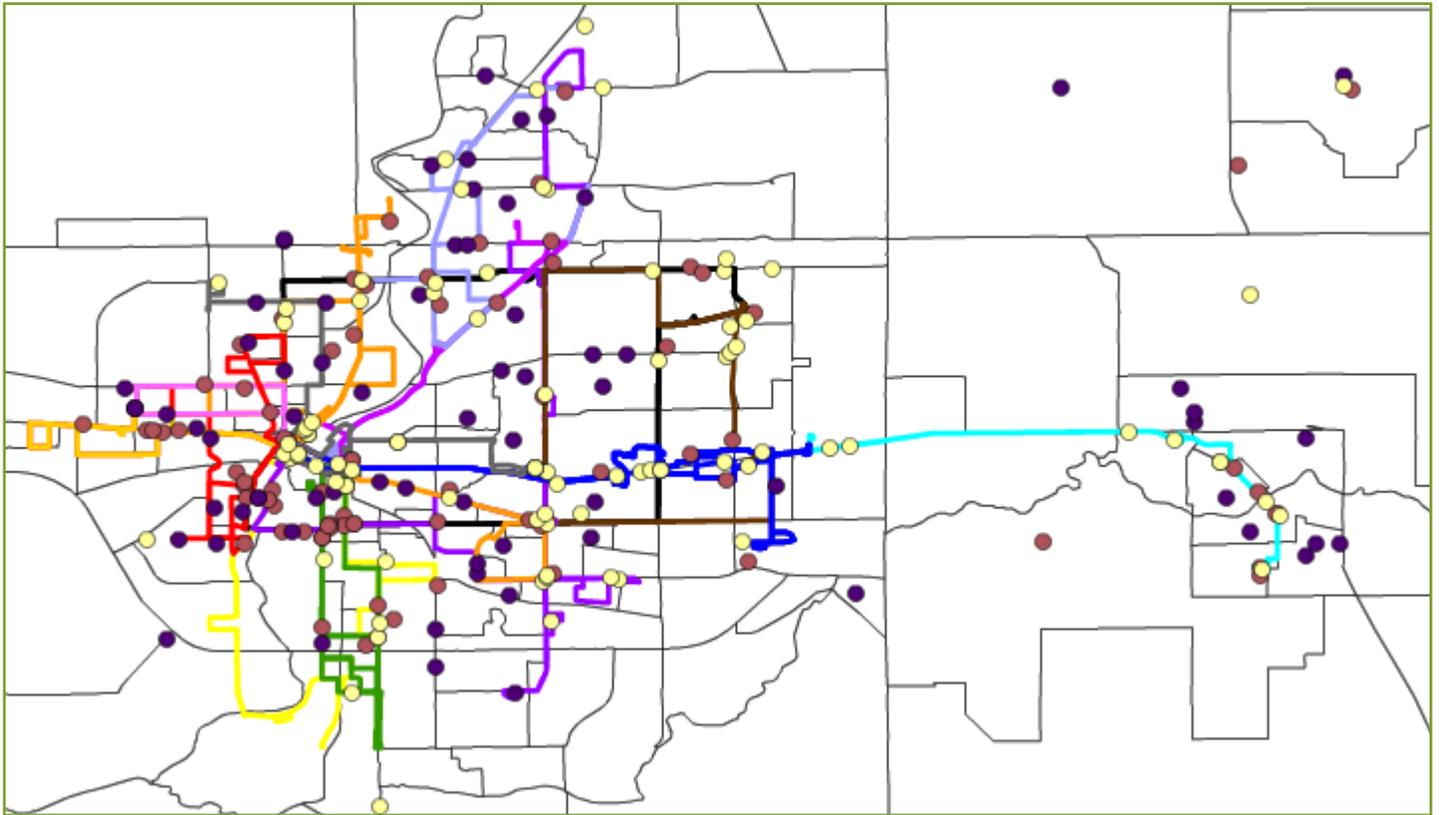
The RMTD fixed route service area encompasses roughly 155 square miles, with a potential service population of just over 260,000 people as based upon the 2010 Decennial Census. Given the long distances to bus routes in the more remote parts of the service area, the actual service population effectively served by fixed-route buses is considerable smaller. In 2011 RMTD began fixed route service to the City of Belvidere in Boone County. The urbanized population of the City of Belvidere/Boone County RMTD service area is 32,000 persons.

RMTD operates buses on 17 fixed routes on normal weekdays and Saturdays. Most of these routes have 30-minute headways between buses with a few having 45-minute or 60-minute headways. The service begins between 5:00 and 6:00 am and extends to roughly 11:00 pm. Night and Sunday fixed routes are abbreviated versions of the weekday routes with buses running under 6-minute headways. Night and Sunday service is not provided to Loves Park or Machesney Park, however regular service is extended until 10:00 pm in Machesney Park.

RMTD currently maintains a fleet of 41 full-sized buses. At peak hours, an average of 29 buses are in service. RMTD also operates a "trolley-bus" during the summer months. All RMTD vehicles are accessible to persons with disabilities.



RMTD Routes Near Amenities



Source: WINGIS, NETS Database, RMTD
Date: 2013

-  Banks
-  Grocery Store
-  School



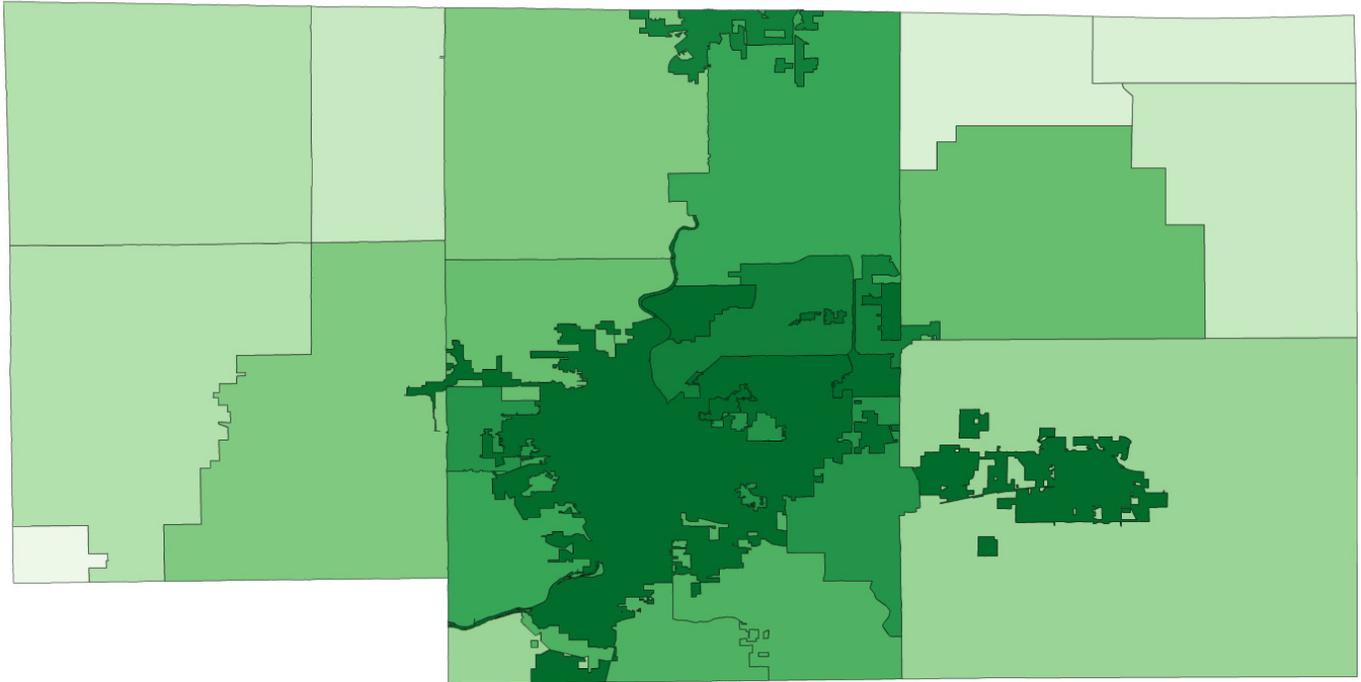
In addition to the fixed-route transit services provided by RMTD, extensive paratransit service is also provided in accordance with all aspects of the American's with Disabilities Act. The RMTD paratransit service is a curb-to-curb origin-destination service operated generally on a demand/ response, first-come/ first serve basis. Paratransit service operates during normal fixed route operating hours. Paratransit service is provided throughout the required service areas, including all of Rockford, Loves Park and Machesney Park, the urbanized portions of Boone County and all areas within .75 miles of RMTD's fixed routes. RMTD maintains and operates a fleet of 33 lift-equipped paratransit vehicles.

Various factors must be taken into consideration to enhance the functionality and accessibility of public transit options in the RMAP planning area. Planning decisions within the region must take public transit into thought when carrying out their respective objectives. For example, land use and economic development decisions should recognize the location of available public transit routes, and as best as possible, align development/infill objectives as to fully utilize this existing resource. This coordination is beneficial for a multitude of reasons which include; furthering access to transit services for those individuals who may not own a personal use vehicle; reducing the number of single occupancy vehicles on roadways (which would subsequently assist in relieving congestion and reduce vehicle emissions) increasing ridership and promoting green initiatives. This would assist in the efficiency of the available transit fixed route system and built environment by keeping development near existing routes and would alleviate pressure of restructuring routes to service areas or sites which may be far from the established routes. This would provide accessible transportation for transit riders.

Local municipalities which are provided service through the Rockford Mass Transit District should continue to consult RMTD when conducting work or studies which may impact transit service. Through this cooperative measure, improvements to the infrastructure will be more comprehensive due to the consideration of transit elements within the planning process.



Household Density of Fire Districts



Source: WINGIS, US Census
Date: 2013



SAFETY AND INFRASTRUCTURE

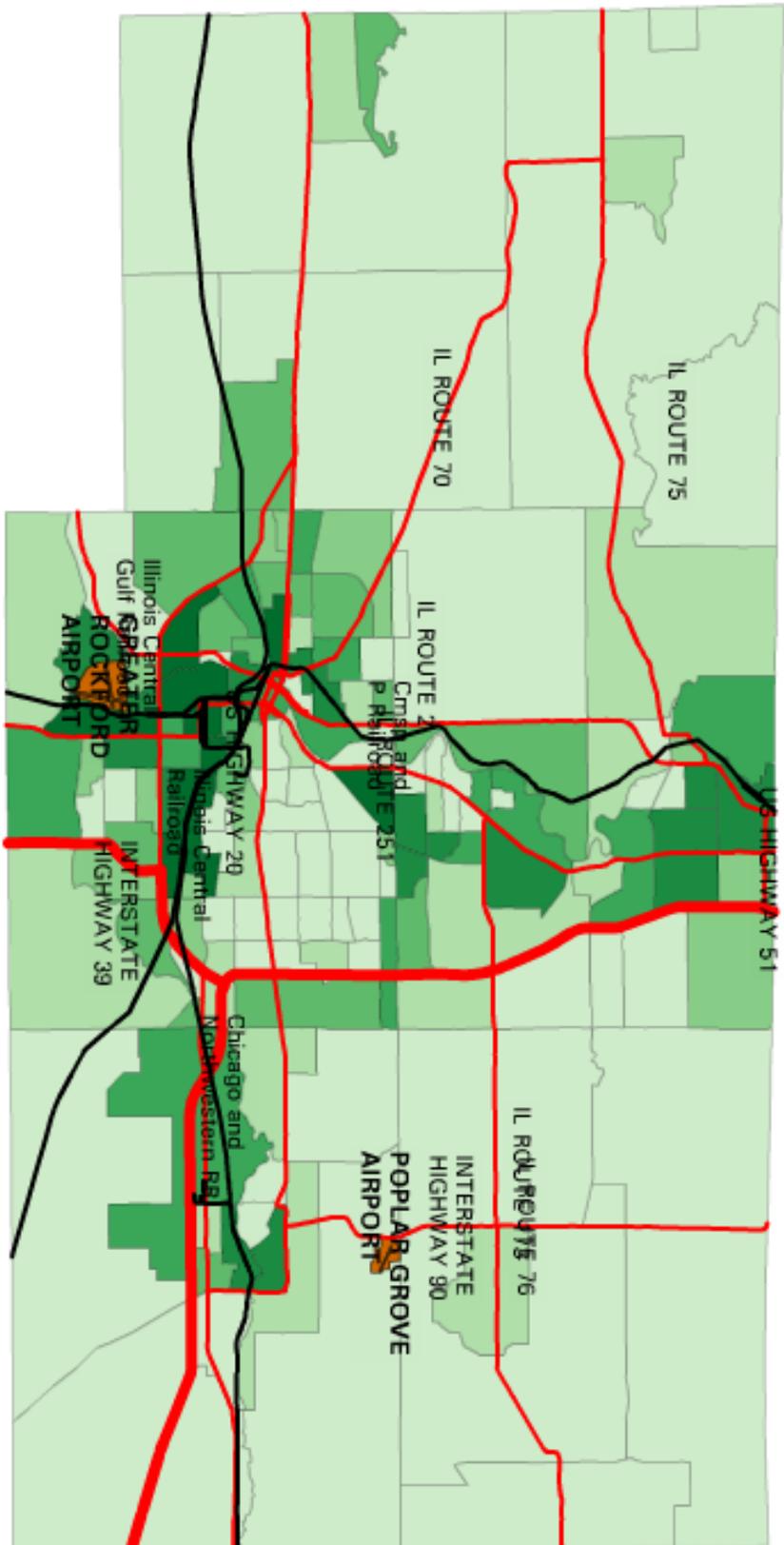
The proximity of safety services (fire, police, and emergency) within the Region to households as well as the number of households each serves is another component to examine the impact of development patterns within a region. The less households and the farther a safety service needs to travel to reach its destination can be directly related to the efficiency of a service for a region.

Generally, fire departments are part of a city or county government, funded through the city or county's general fund budget, derived from sales, property, and other taxes. However, within the region special taxing fire districts have been created to provide for fire protection, suppression and rescue services. It is very common for a Fire District to have a property tax and a special tax assessment on properties within its district.

Fire Departments and Fire Districts are the first responders to natural and unplanned disasters. There are high associated costs with preserving the readiness of such a quick response. As seen to the map on the left, there is a much higher density of households within the Rockford and Belvidere Fire Districts, the two districts with much older housing stock within the two counties. In the future Vital Signs is looking to develop maps showing household density for additional services within the region.



Percent Industrial Acreage Near Major Transportation Routes



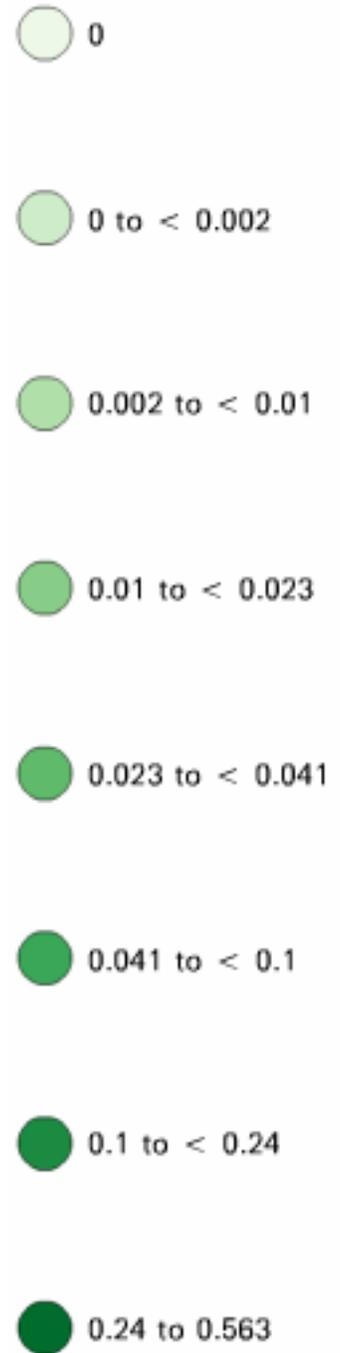
Source: WINGIS, US Census
Date: 2013



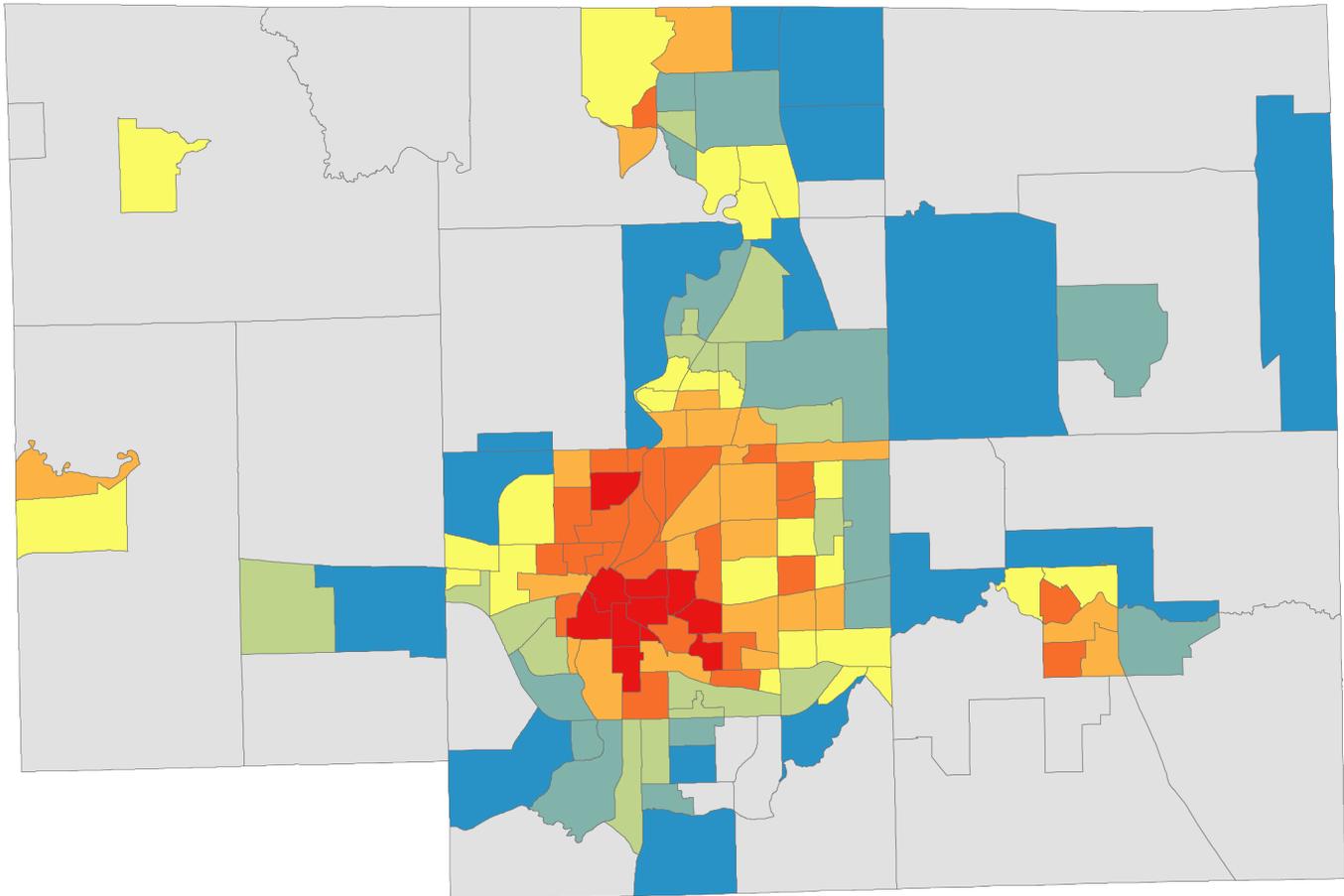
TRANSPORTATION AND LAND USE

The coordination of transportation planning issues and land use decisions is commonly considered today as one of the facets of smart growth and sustainable development practices. Regional planning efforts require planning and transportation professionals to understand how transportation investments can be consistent with the principles and practices of land use planning and development. The coordination of land use and transportation initiatives requires that those concerned with the well-being of a community or region assess and evaluate how land use decisions effect the transportation system and can increase viable options for people to access opportunities, goods, services and other resources to improve the quality of their lives. This multifaceted approach to planning tends to foster a balance of mixed uses (including housing, education, employment, recreational and retail) which recognize the importance of spatial or geographic proximity and the interdependence on an efficient transportation network for all users of the system.

The Rockford region is heavily dependent on industrial land uses, just-in-time transportation (JIT) and air freight at the Chicago Rockford International Airport. The possibility of a future rail station in Rockford would provide tremendous opportunity for the region to have a significant impact on local, regional and statewide transportation related infrastructure quality, safety, congestion, access, affordability, greenhouse gas emissions reduction and air quality. Regional planning for passenger rail includes inter-city passenger rail, commuter rail, high speed rail and urban circulators. The high speed rail efforts are led by the State of Illinois (IDOT), Midwest High Speed Rail Association (MWHSR) and the Midwest Regional Rail Initiative (MWRRI).

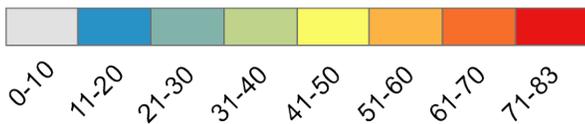


RMAP WalkScore for Metro Area



Legend

Final Score (Out of 100)



Source: WINGIS, RMAP, NETS Database
Date: 2013

RMAP WALKSCORE METHODOLOGY

1. Access to amenities within a half mile (same as national walk score)
2. Total feet of sidewalk per district
3. Total non-pedestrian-friendly intersections (penalty)
4. Average lot size of commercial parcel in district (lower size is better)



WALKABILITY

Walk Score is a national index that was developed to help assess how walkable a place is to live or work in. Measuring walkability for a region is extremely important as not everyone has access or desires to have a car. Many prefer a quality of life without one. In addition, walking is a critical component of health -- according to the 2012 Gallup-Healthways Index of Well-being the Rockford Region ranks among the bottom of healthy behaviors in the nation.

The national Walk Score is a number between 0 and 100 and measures the walkability of any address. However, because very few communities have a digital map of sidewalks or parcels, this national index can be flawed at times.

As a result, the Rockford Metropolitan Agency for Planning partnered with the Winnebago County GIS Department to develop a more accurate "home-grown" Walk Score for the Rockford Region. The goal of this walkability analysis was to come up with a way to score the Vital Signs "Districts" within Winnebago and Boone counties on how easy or difficult it is to walk to amenities. There were 9 amenities taken into consideration: grocery stores, restaurants, shopping, coffee shops, banks, parks, schools, book stores, and entertainment.

Step 1 was to calculate the distance between each parcel and each of these amenities. Steps 2 through 4 included an analysis of the amount of sidewalk within each district, number of major road intersections per district, and finally average size of the commercial parcels within a district. Sidewalks were a major factor taken into consideration; this factor affected the final score more than any other because for walking purposes it is the most critical. Major intersections can inhibit the walkability of an area. Each district was either unchanged or given a penalty depending on the number of pedestrian non-friendly intersections. The last factor was the size of the commercial parcels within the district. The size of the parcel could discourage walking if the parcel requires long walks to traverse its boundaries.

As seen on the final Rockford Region Walk Score to the left, There is a high concentration of walkable neighborhoods in South Central and North Central Rockford. Several other districts in Belvidere, Loves Park and East Rockford also score fairly high.



WASTE AND RECYCLING

NON-HAZARDOUS SOLID WASTE

The Illinois Environmental Protection Agency places the Illinois counties of Bureau, Carroll, DeKalb, JoDaviess, LaSalle, Lee, Ogle, Putnam, Stephenson, Whiteside and Winnebago in Region One: Northwestern Illinois. At the end of 2011 the following information was documented by the IEPA.

LANDFILLS

All seven landfills in the Northwestern Illinois Region remained open throughout 2011. Four landfills in Region One were in the top ten rankings of all the state's landfills in terms of waste receipts in 2011. Winnebago Landfill, Rockford ranked first in the state by accepting almost 5.7 million gate cubic yards. Veolia ES Orchard Hills Landfill Inc., Davis Junction was second accepting almost 5.1 million gate cubic yards; Prairie Hill RDF, Morrison was seventh, receiving more than 2.1 million gate cubic yards; and Lee County Landfill Inc., Dixon, was tenth with more than 1.5 million gate cubic yards of municipal solid waste accepted for disposal.

Region One's seven active facilities received more than 15 million gate cubic yards of municipal waste in 2011. The waste receipts for 2011 showed that more than 1.2 million less gate cubic yards waste was received than the year before. The waste receipts declined year to year by 7.3 percent. Even so, these landfill operators managed 33.3 percent of the waste accepted for disposal in the State of Illinois, more than any other region.

OUT-OF-STATE WASTE ACCEPTED FROM IOWA AND WISCONSIN

Prairie Hill RDF reported accepting waste from the State of Iowa. Veolia ES Orchard Hills Landfill Inc. accepted waste from Iowa and Wisconsin. All together this total of 265,805 gate cubic yards amounted to 1.7 percent of the total waste accepted in the Region's landfills.

The immediate region of Winnebago, Boone, Stephenson, Ogle and DeKalb counties has the following historical solid waste disposal data:

	1995 Amount Deposited (cubic yards)	1995 Available Capacity (cubic yards)	2000 Amount Deposited (cubic yards)	2000 Available Capacity (cubic yards)	2005 Amount Deposited (cubic yards)	2005 Available Capacity (cubic yards)	2010 Amount Deposited (cubic yards)	2010 Available Capacity (cubic yards)
Winnebago County	375,524	10,326,918	1,098,657	7,641,000	1,358,524	6,912,000	5,173,144	51,073,000
Ogle County	224,741	3,554,400	2,888,000	48,990,000	5,421,255	101,513,000	6,796,963	111,598,000
DeKalb	288,143	4,477,735	245,694	5,041,000	320,943	3,067,000	321,515	2,472,000
Region 1-NW Illinois	1,894,308	71,727,406	8,550,620	159,606,000	12,960,037	186,215,000	16,500,000	228,600,000



CAPACITY INCREASE OF 6.6 PERCENT REPORTED AS OF JAN. 1, 2012

Capacity available for waste disposal in the region increased by 6.6 percent from 2011 to 2012, by a total of more than 15.0 million gate cubic yards. The reported remaining available capacity in the region was almost 244 million gate cubic yards. This region was one of three in the state reporting increasing capacity. This region is second in the state in remaining capacity, with a 23.3 percent capacity share. Veolia ES Orchard Hills Landfill reported almost 91.2 million gate cubic yards of space available as of Jan. 1, 2012, making it third in the state in capacity rankings on that date. Lee County Landfill Inc. reported the fifth largest capacity, at more than 58.2 million gate cubic yards. Prairie Hill RDF reported more than 42.1 million gate cubic yards of capacity available and ranks eighth.

The Region's seven active landfills may provide 16 more years of waste disposal capacity for the region, compared to 23 years of landfill life for the entire state. A permit application (Log No. 2009-445) that was submitted by the owners and operators of Rochelle Municipal Landfill, Rochelle, for a horizontal expansion was approved on July 17, 2011. The design airspace is 9.2 million cubic yards.

The Winnebago Landfill, Rockford, has submitted a permit application (Log No. 2010-133) for a lateral expansion to the West consisting of 8.0 million cubic yards. Agency action was pending as of Dec. 31, 2011. On March 7, 2013 the Illinois Pollution Control Board upheld Winnebago County's approval of the Winnebago Landfill expansion plan. The IEPA permits needed before expansion can begin are anticipated to be filed by late summer of 2013, but may take 3-4 years for final approval. This expansion will provide for local solid waste needs for the next 25-35 years according to testimony by the landfill owners, extending the useful life until 2045.

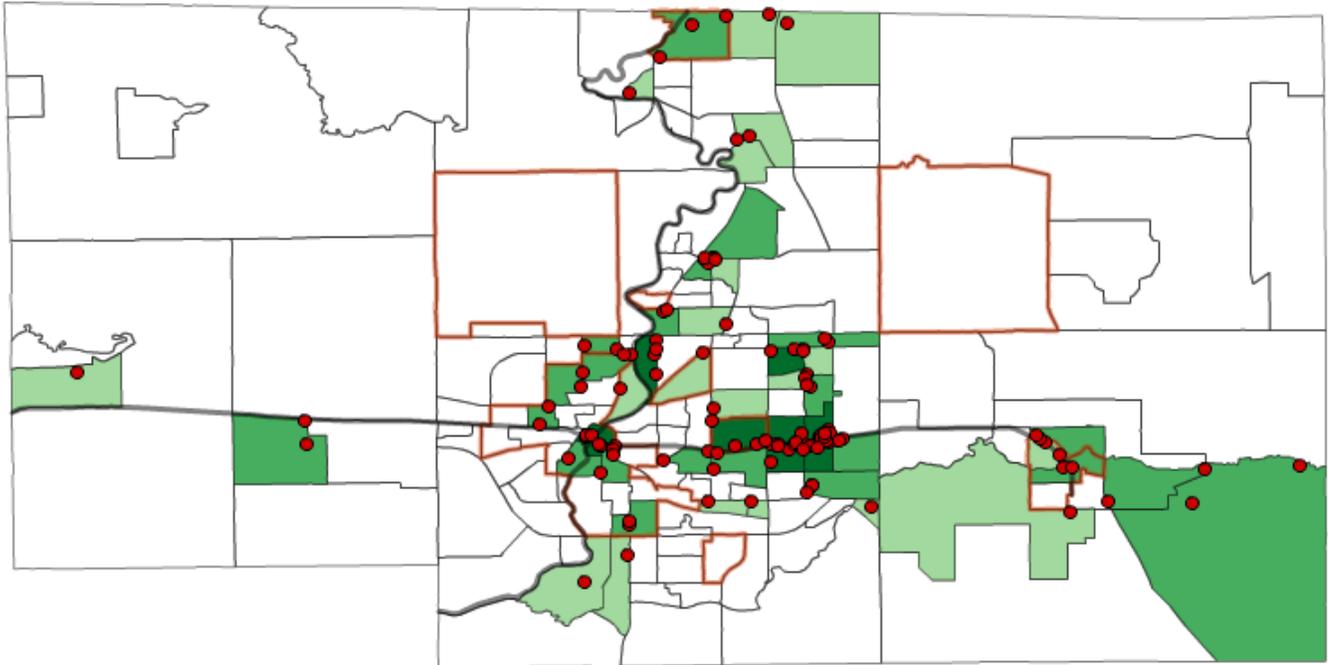
RECYCLING

The immediate region of Winnebago, Boone, Stephenson, Ogle and DeKalb counties has the following historical recycling data:

	1995 Amount Recycled (tons)	1995 Percent Recycled of Waste Stream	2000 Amount Recycled (tons)	2000 Percent Recycled of Waste Stream	2005 Amount Recycled (tons)	2005 Percent Recycled of Waste Stream	2010 Amount Recycled (tons)	2010 Percent Recycled of Waste Stream
Winnebago County	62,586	20%	67,100	21%	63,600	19%	70,518	21%
Boone County	5,207	22%	8,802	28%	8,946	24%	8,946	24%
Ogle County	5,857	15%	8,297	21%	14,162	34%	13,948	33%
DeKalb	35,591	38%	101,825	68%	69,599	55%	41,857	44%
Stephenson	4,888	16%	1,244	3%	2,190	5%	2,190	8%
Region 1-NW Illinois	170,228	21%	245,786	30%	224,315	25%	189,075	22%



Wifi Locations



Source: RMAP
Date: 2013



1



2 to < 4



1 to < 2



4 to 11



WIFI ACCESS

Wireless Internet access being provided to the public free of charge is a valuable tool to entice consumers to remain in and around the confines of a business area. With the proliferation of smartphones, tablet computers, laptop computers and other mobile devices, many people prefer to never be away from their digital devices.

The Rockford Region has 120 wireless access hotspots spread across the Region. A large quantity of these are contained along the State Street/Business 20 corridor, both in the eastern portion of the region as well as on the west side near the Rock River in downtown Rockford. Other areas that have high densities of wireless hotspots are spread around the Region in other areas of strong or growing economic activity, particularly areas of retail sales and areas with high quantities of restaurants.

The Rockford Region's wireless access points are quite numerous, but the Region could benefit from not only the addition of more, but the diversification of location of those access points. There are many districts with no free wireless access throughout them. Expanding wifi access to these areas could be an important economic development tool for the Rockford Region. While large portions of the US Business 20 corridor are covered by existing nodes, there is a large gap between the eastern business district and the downtown near the Rock River. Growing more wireless access points available free of charge to the public could help eliminate technology deserts. Other areas that could benefit from further access to wireless internet include the area near the Chicago-Rockford International Airport and the shopping corridors in Machesney Park and Loves Park, as well as Cherry Vale Mall in Cherry Valley.



CONCLUSIONS

Environmental well-being is most frequently associated with regional sustainability, and the new emphasis on sustainable communities was borne from the environmental movement in the United States. The Rockford region is fortunate to have many local environmental initiatives including the US Conference of Mayors Cool Cities program, the Energy Efficiency and Conservation Block Grant (EECBG) program, the Greater RMAP Environmental Education Network (GREEN), the Winnebago County Green Business Network, the Boone County Farmland Preservation Commission, the Four Rivers Environmental Coalition (FREC), the Kishwaukee River Ecosystem Partnership (KREP), The Boone County Stormwater Management Committee, WINAQUA and the HUD-DOT-EPA Sustainable Communities Partnership. The continuation and integration of these environmental efforts, and others, into the Regional Plan for Sustainable Development is a high priority and the allocation of staff resources within the local Consortium is recommended.

While the region is blessed to have a very high-level of environmental well-being there are some potential long-term problems that will need to be addressed in the immediate future. Among these are:

- Stormwater Master Management Plan
- Long Range Groundwater Plan (Drinking Water)
- Air Quality Levels for Ozone
- Accelerated Rates of Farmland Conversion
- River and Stream Water Quality
- Conservation of Wetlands and Other Natural Areas
- Brownfield Remediation
- Bridge Structural Condition
- Lead Paint Abatement
- Food and Technology Deserts



In contrast the indicators discussed in this report also point to many positive and forward-thinking environmental programs and asset management techniques. In particular the following should be recognized for helping to create the positive environmental well-being:

- Low Levels of Carbon Monoxide and Particulate Matter
- Mapping and Inventory of Environmentally Sensitive Areas
- Nationally Recognized Parks, Greenways and Open Space
- Commitment to Bikeways, Paths and Trails
- Commitment to Inventory and Remediation of Infill Redevelopment Properties
- Commitment to Ag and Farmland Preservation
- Initiation of LEED Programs and Professional Certification
- Focus on Transit-Oriented Development
- Commitment to Walkability and Walkable Landscapes
- Long Range Commitment to Waste Management





APPENDIX: ADDITIONAL ENVIRONMENTAL VISUALIZATIONS

The following is a list of additional Environmental visualizations available at www.ourvitalsigns.com. These provide a deeper insight in to the State of Environmental Well-being for the Rockford Region.

BIODIVERSITY

- Farm Practices from USDA
- Agricultural Land Treated from USDA
- Cropland Harvested by Crop Type from the USDA
- Types of Agricultural Land from the USDA
- Land Enrolled in Crop Insurance and Conservation Programs from the USDA
- Total Cropland from USDA
- Woodland and Pastureland from the USDA
- USDA County Profiles
- Environmentally Sensitive Areas
- Wetlands
- Environmentally Sensitive Areas in Detail from USDA
- Endangered Species from the EPA

BUILT ENVIRONMENT

- LEED Certified Buildings and Professionals
- Brownfields Sites Map
- Built Environment Bridges
- Bridges from IDOT
- Brownfields from RMAP
- Costs of Infrastructure per Capita by District from RMAP



- Structurally Deficient Bridges
- Built Environment Footprint
- EPA Regulated Facilities
- EPA Regulated Facilities
- EPA Regulated Facilities Map

CIVIC VITALITY

- Child Care and Elderly Facilities from the NETS Database
- Civic Organizations and Non-Profits from the NETS Database

CULTURE

- Distribution of Cultural Institutions from NETS
- Map of Cultural Places of Interest

ECONOMIC DEVELOPMENT

- Local Multiplier Effect from RMAP
- USDA Animal and Animal Products Sales from the USDA
- Farm Asset Values from USDA
- Farm Production Expenses from USDA
- Vacant Commercial Sites from LOIS
- Vacant Industrial Sites from LOIS

EDUCATION

- Elementary School Districts Locale Codes
- Secondary School Districts Locale Codes
- Illinois School Maintenance Project Grant Recipients
- Before and After School Programs
- School Construction Grants
- School Building Conditions

ENERGY

- Energy Star Labeled Buildings

FOOD

- Healthy Food Locations from RMAP
- Food Insecurity and Food Cost from the USDA
- USDA Population with Low Access to Healthy Food
- USDA Children with Low Access to Healthy Food
- USDA Seniors with Low Access to Healthy Food



- Food Access Tract Information
- Child Food Insecurity and Food Cost
- Locations of Food Pantries and Households in Poverty from NETS and Census
- Estimated Tons of Food Consumed
- Estimated Tons of Food Production Needed
- Major Food Production Needed and Consumed

HEALTH

- Radon Levels by Zipcode from the Illinois Emergency Management Agency
- Lead Paint Risk from US Census Bureau
- Air Quality for Carbon Monoxide from the EPA
- Air Quality for Particulate Matter from the EPA
- Air Quality for Ozone from the EPA
- Lead Poisoning in Children Six and Younger from the Illinois Department of Public Health
- Lead Poisoning for Children Under Three from the Illinois Department of Public Health

HOUSING

- Housing Built Before 1980 with Property Crime and Income from the US Census Bureau and the ESRI Crime Index
- Vacancies Vs Occupancies from the US Census Bureau
- City of Rockford Percent Vacant Residential Addresses from RMAP
- Housing Units Per Acre from the US Census Bureau
- Average Lot Size
- Rooms per Unit from the US Census Bureau
- Bedrooms per Unit from the US Census Bureau
- Locally Owned Residential Properties

LAND

- District Classifications
- Land Use in Acres by District from RMAP
- Change in Land Use from 2010-2012 from RMAP
- Soil Types by District
- Soils Map
- Acres of Greenways and Open Space
- Prime Farmland by County
- Prime Farmland





Transportation



Energy



Built Environment



Housing



Biodiversity



Education



Waste



Civic Vitality

ourmap

Rockford Metropolitan Agency For Planning



Health



Culture



Land



Water



Economic Development



Technology



Food



Safety

