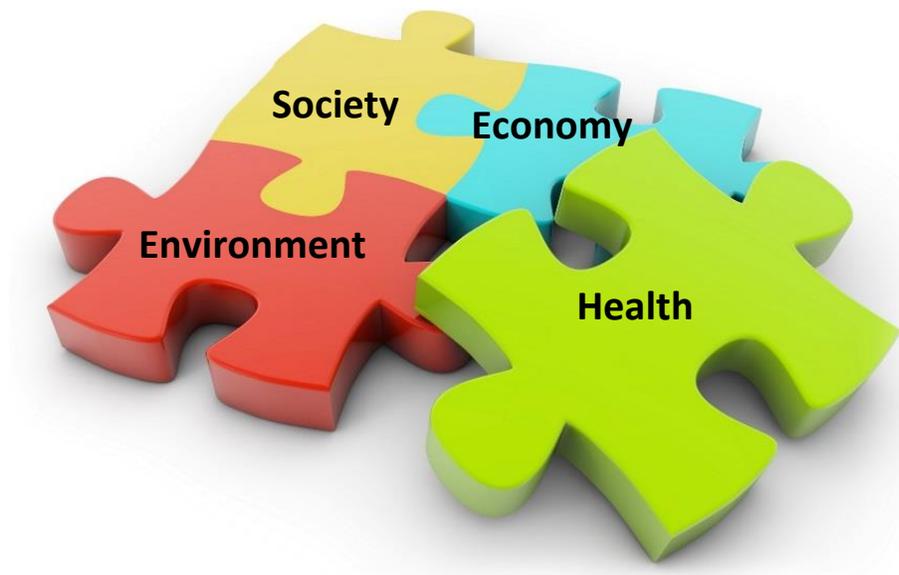


Southwest Rockford Revitalization Rapid Health Impact Assessment Rockford, IL



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Rockford, IL

U.S. Environmental Protection Agency
Office of Research and Development
Center for Public Health and Environmental Assessment

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Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
ACE	After Common Era (similar to AD)
ACS	American Community Survey
ADA	American Disabilities Act
ADD	Attention Deficit Disorder
ADHD	Attention Deficit Hyperactivity Disorder
APA	American Psychological Association
ATSDR	Agency for Toxic Substances and Disease Registry
BRFSS	Behavioral Risk Factor Surveillance System
CDBG	Community Development Block Grant Programs
CDC	U.S. Centers for Disease Control and Prevention
CFNIL	Community Foundation of Northern Illinois
CPTED	Crime Prevention Through Environmental Design
EDGE	Economic Development for a Growing Economy
EPA	U.S. Environmental Protection Agency
ESG	Emergency Solutions Grant
ESL	English as a Second Language
EWDJT	Environmental Workforce Development and Job Training
EZ	Enterprise Zone
FDI	Focused Deterrence Intervention
FHEO	Fair Housing and Equal Opportunity
FMR	Fair Market Rent
FSS	Family Self Sufficiency
GED	General Educational Development (Alternative to a High School Diploma)
GIS	Geographic Information Systems
HIA	Health Impact Assessment
HOLC	Home Owners' Loan Corporation
HOME	Housing Opportunities Made Equal
IDPH	Illinois Department of Public Health

IL DOT	Illinois Department of Transportation
LGBTQ+	Lesbian, Gay, Bisexual, Transgender, Queer, and more
LIHTC	Low-Income Housing Tax Credit
MSA	Metropolitan Statistical Area
NRSA	Neighborhood Revitalization Strategy Area
NHSTA	National Highway Traffic Safety Administration
NPR	National Public Radio
NSLP	National School Lunch Program
OBLR	Office of Brownfields and Land Revitalization
ORD	Office of Research and Development
PCB	Polychlorinated Biphenyl
PTSD	Post-Traumatic Stress Disorder
R1PC	Region 1 Planning Council
ROSS	Resident Opportunities Self Sufficiency Program
RVC	Rock Valley College
RWJF	Robert Wood Johnson Foundation
SBA	Small Business Administration
SNAP	Supplemental Nutrition Assistance Program
SSI	Supplemental Security Income
SVI	Social Vulnerability Index
SWIFTT	Southwest Ideas for Today and Tomorrow
TIF	Tax Increment Financing
TRI	Toxic Release Inventory
USDA	U.S. Department of Agriculture
VA	U.S. Veterans Affairs Department
WHO	World Health Organization
WIC	Women, Infants, and Children

Disclaimer

The Southwest Rockford Revitalization Rapid Health Impact Assessment (HIA) was supported by U.S. Environmental Protection Agency (EPA) staff and contractors. EPA’s Sustainable and Healthy Communities research program and existing contracts within its Office of Research and Development (ORD) partially funded and collaborated in the research described here. Members of the City of Rockford government and contractors implementing an EPA Office of Brownfields and Land Revitalization (OBLR) Technical Assistance Contract also provided input for the HIA Report.

This report followed the EPA Quality Assurance Project Plan (QAPP) L-PHESD-0030898-QP-1-3, *Health Impact Assessment Case Studies for the conduct of the HIA*, and the Standard Operating Procedure (SOP), L-PHESD-SOP-2051, *Quality Assurance in Technical Writing and Editing* for technical writing and editing. The views expressed in this report are those of the author(s) and do not necessarily represent the views or the policies of the U.S. Environmental Protection Agency.

Suggested Citation:

U.S. EPA. Southwest Rockford Revitalization Rapid Health Impact Assessment: Rockford, IL. EPA/600/R-22/081. U.S. Environmental Protection Agency, Office of Research, Washington, D.C., 2022.

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Acknowledgements

The authors would like to thank Jim Van der Kloot and Keary Cragan of EPA's Region 5 Chicago Office for their assistance in aligning this health impact assessment with ongoing land revitalization and brownfield project work in Rockford, Illinois and Barb Chidley and Robert Wilhelmi of the City of Rockford for agreeing to host an HIA. The authors would also like to thank Kathleen Williams of EPA's Office of Research and Development, City of Rockford staff, and the Land Revitalization Technical Assistance Contractor for their input on this HIA. And thank you to the peer reviewers for their thoughtful reviews of the HIA Report.

Executive Summary

The City of Rockford is looking to implement neighborhood revitalization efforts in several areas throughout the city, including the area surrounding the South Main Corridor in southwest Rockford. As part of this effort, the City of Rockford received direct technical assistance from the U.S. Environmental Protection Agency (EPA) Office of Brownfields and Land Revitalization (OBLR) to design a Neighborhood Revitalization Strategy for the South Main Corridor Area. In combination with the technical assistance contract, city officials agreed to a Health Impact Assessment (HIA), which would assess the health-relevant social, environmental, and economic conditions in the South Main Corridor Area and identify how neighborhood revitalization could potentially impact health.

HIAs are a systematic process to assess the potential positive and negative impacts of a program, policy, or decision, and provides strategies to maximize benefits and minimize burdens. A rapid HIA, an abbreviated form of HIA, was undertaken by the EPA Office of Research and Development (ORD) in partnership with EPA OBLR, with input from EPA Region 5, the City of Rockford, and the Land Revitalization Technical Assistance Contractor. EPA contractors conducted the HIA, which utilized a mixed methods approach, including qualitative and quantitative data analysis, geographic information system (GIS) mapping, scientific literature review, and analysis of stakeholder input from multiple efforts that have taken place in the area, to evaluate the potential health impacts of proposed neighborhood revitalization in the South Main Corridor Area.

This report documents the HIA conducted to inform the neighborhood revitalization of the South Main Corridor Area in Rockford, Illinois. The HIA did not assess a specific revitalization strategy, program, policy, or decision, as one was not available at the time of the HIA, but rather examined evidence and examples of revitalization concepts being proposed for the South Main Corridor Area and their associations with public health impacts, positive and negative, with a particular emphasis on mental health and social determinants of health. The report is organized by six health-relevant elements or determinants of health: Housing, Neighborhood and Built Environment, Parks and Greenspace, Crime and Safety, Employment and Economy, and Social and Cultural Wellbeing. The assessment identified the existing conditions in the study area related to these determinants of health, took into account community concerns and desires expressed in the City's public meetings and interviews conducted as part of the Land Revitalization Technical Assistance Contract, and identified strategies that could be addressed through the neighborhood revitalization to protect and promote public health.

This HIA provides over 80 strategies across six health determinants related to neighborhood revitalization. Strategies are intended to maximize benefits and minimize burdens and reflect two overarching themes including, 1) involving and engaging the community in the planning, implementation, and monitoring of neighborhood revitalization in the study area; and 2) addressing the community's needs and advancing equity through revitalization. Strategies vary and could be led or adopted by various stakeholders, such as local agencies, public actions, or business development.

About the Health Impact Assessment (HIA)

Introduction

The City of Rockford, Illinois is seeking to revitalize the area around South Main Street in southwest Rockford (hereafter referred to as the South Main Corridor Area), along with other areas of the city, as part of its 2020-2024 Neighborhood Revitalization Area Strategy. The City received technical assistance from the EPA Office of Brownfields and Land Revitalization (OBLR) to design a Neighborhood Revitalization Strategy for the South Main Corridor Area. South Main Street is the major north-south state route running along the Rock River, which divides West and East Rockford. This area aligns with the target area of a \$300,000 EPA Brownfield Assessment Grant that was awarded to the City in 2019. "The Strategy will serve as a platform to revitalize the residential areas parallel to brownfield and other redevelopment efforts. It will also engage area stakeholders and promote the use and growth of valuable assets, such as Klehm Arboretum, Tinker Swiss Cottage, Graham-Ginestra House, Ethnic Heritage Museum and Rockford Park District facilities," according to a statement released by the City of Rockford (2020a).



In combination with the technical assistance contract, city officials agreed to a Health Impact Assessment (HIA), which would assess the health-relevant social, environmental, and economic conditions in the South Main Corridor Area and identify how neighborhood revitalization could potentially impact health. Other goals are to provide evidence-based recommendations to maximize benefits and minimize burdens of neighborhood revitalization, and to assess the utility of HIAs for Brownfields projects. A rapid HIA, an abbreviated form of HIA, was undertaken by the EPA Office of Research and Development (ORD) in partnership with EPA Office of Brownfields and Land Revitalization (OBLR), with input from EPA Region 5, the City of Rockford, and the Land Revitalization Technical Assistance Contractor.

Due to timing and logistical constraints, the HIA was not able to evaluate the actual Neighborhood Revitalization Strategy being prepared for the City by the Technical Assistance Contractor, but instead considered generally how revitalization of the neighborhood could potentially impact health both positively and negatively, without drawing specific conclusions about any particular aspect or decision. Community and stakeholder input gathered through the Land Revitalization Technical Assistance Contract and previous planning efforts was used to identify community concerns and desired outcomes of the revitalization efforts and to focus the assessment of potential neighborhood revitalization strategies and impacts to health. Ultimately, the City of Rockford is the main decision-maker for any neighborhood revitalization strategies considered in this HIA.

What is neighborhood revitalization?

Community or neighborhood revitalization is the "implementation of intentional efforts that are likely to lead to measurable increases in access to employment, living wage jobs, healthcare, supportive services, community

amenities, transportation, quality and affordable housing stock” (Illinois Housing Development Authority, 2019a).

Neighborhood revitalization is typically conducted with local stakeholder support and includes a number of interconnected efforts to improve or enhance particular aspects of the neighborhood. Economic redevelopment is often the main focus of neighborhood revitalization efforts, but can extend beyond increased development, property values, and employment. Economic development “utilizes physical, human, financial, and social assets to generate improved and broadly shared economic well-being and quality of life for a community or region” (Seidman, 2005). When applied in a neighborhood revitalization context, these economic development efforts are aimed at improving the quality of life and well-being of the residents in the neighborhood.

Neighborhood revitalization efforts often rely on property development projects to attract investment and catalyze other improvements and opportunities, but this approach to neighborhood revitalization has mixed success in whether residents of the neighborhood actually benefit from the redevelopment (Shambaugh & Nunn, 2018; Shroyer, Shilling, & Poethig, 2019). A neighborhood revitalization model of growing interest seeks to address both physical revitalization and efforts to build civic infrastructure and social capital (Shroyer, Shilling, & Poethig, 2019). Civic infrastructure is “made up of places, policies, programs and practices that enable us to connect with one another, to address our shared concerns, to build community and to solve public problems” (Blair & Kopell, 2015). Neighborhood revitalization can meet a range of needs. In areas of disinvestment, which are often the target of revitalization, this may include development of health, housing and infrastructure, community services and neighborhood amenities, safety, transportation, education and literacy, job training, economic opportunities, environmental sustainability, social inclusion, beautification, and other initiatives and efforts and should involve local citizens, neighborhood boards and groups, and other stakeholders, including government agencies, businesses, service providers, non-profits, and educational institutions (Illinois Housing Development Authority, 2019b).

What is an HIA?

A Health Impact Assessment, or HIA, is “a systematic process that uses an array of data sources and analytical methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on health of a population and the distribution of those impacts within the population. HIA provides recommendations on monitoring and managing those effects” (National Research Council, 2011).

Five core values are integral to the HIA: democracy, equity, sustainable development, ethical use of evidence, and a comprehensive approach to health (Quigley, et al., 2006). An HIA consists of six steps: *Screening*; *Scoping*; *Assessment*; *Recommendations*; *Reporting*; and *Monitoring and Evaluation* (Table 1).

Table 1. Steps of the Health Impact Assessment Process

HIA Step	Description
Screening	Determine whether an HIA is feasible, timely, and useful to the decision-making process.
Scoping	Create a plan for conducting the HIA, including identification of timeline, participant roles, and potential health risks and benefits.
Assessment	Describe baseline health of affected communities and assess the potential health impacts of the decision.
Recommendations	Develop practical strategies for promoting positive health impacts and/or mitigating adverse health impacts.
Reporting	Communicate progress and findings to decision-makers, affected communities, and other stakeholders.
Monitoring and Evaluation	Evaluate the HIA process and its impacts on decision-making. Monitor changes in health in affected communities.

There are four main types of HIAs – desktop, rapid, intermediate, and comprehensive – aptly named to reflect the depth of analysis, extent of effort, and duration of the process (Figure 1). Whether it is appropriate to carry out a desktop, rapid, intermediate, or comprehensive HIA is determined by:

- likelihood and magnitude of expected health impacts;
- expected footprint of the project (e.g., area/people affected, complexity, timescale, etc.);
- social sensitivity of the project; and
- time and resources available to complete the HIA (Figure 2).

DESKTOP	RAPID	INTERMEDIATE	COMPREHENSIVE
2-6 weeks for one person full time.	6 to 12 weeks for one person full time.	12 weeks to 6 months for one person full time.	6 to 12 months for one person full time.
Involves an 'off the shelf' exercise analyzing existing, accessible data.	Involves collecting and analyzing existing data with limited input from stakeholders.	Involves collecting and analyzing existing and new data, including input from stakeholders	Involves collecting and analyzing existing and new data, including input from stakeholders
Provides a broad overview of potential health impacts.	Provides a more detailed overview of potential health impacts.	Provides a more thorough assessment of potential health impacts, and more detail on specific predicted impacts.	Provides a comprehensive and detailed assessment of potential health impacts.
Applied when time and resources are limited.	Applied when time and resources are limited.	Requires moderate time and resources.	Requires significant time and resources.
LESS IMPACTS →			← MORE IMPACTS
<p>Note: The time required will vary depending on the number of people actively involved in undertaking HIA tasks. For example, a comprehensive assessment may take a team of four people three months to complete.</p>			

Figure 1. Types of HIA. Modified from: (Harris, Harris-Roxas, Harris, & Kemp, 2007)

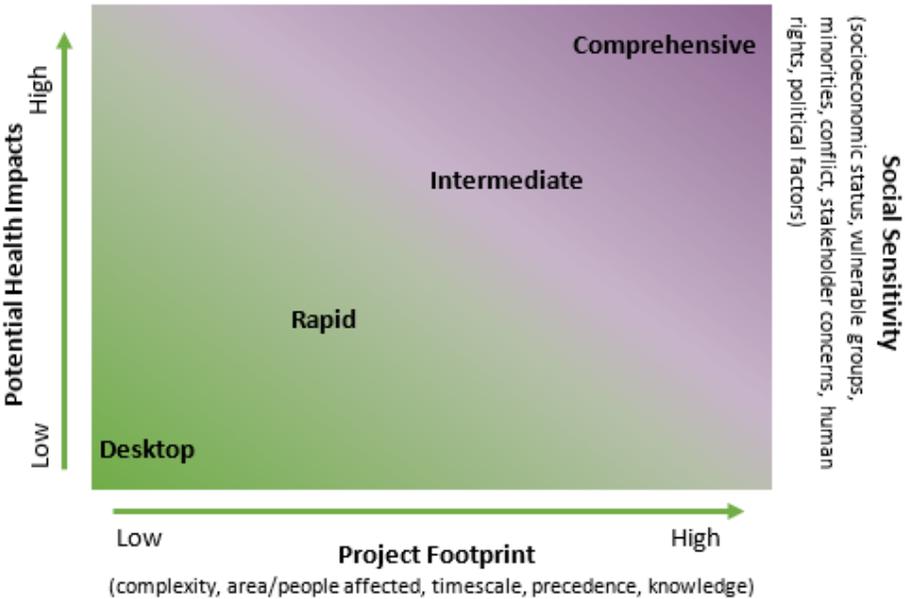


Figure 2. Considerations that go into making the decision of what type of HIA to conduct. Adapted from (IFC, 2009).

Due to time and resource constraints, this assessment was a rapid HIA, based primarily on existing information and data, but did take into account some new analyses and community and stakeholder input as a result of the Land Revitalization Technical Assistance Grant. It provides an overview of health impacts typically associated with this type of neighborhood revitalization, with limited data collection and stakeholder engagement; it is intended to inform future strategies and revitalization options.

Why was an HIA performed?

EPA has identified Health Impact Assessment (HIA) as one of many decision-support tools that can be used to provide science-based resources and information for community-driven initiatives and to promote sustainable and healthy communities. The first step of the HIA, *Screening*, was conducted by EPA OBLR, ORD, and Region 5, who identified the City of Rockford as a potential partner based on past collaborations and determined the targeted neighborhood revitalization strategy being initiated as part of the Technical Assistance Grant would be a good candidate for an HIA. An important factor in deciding to conduct the HIA was the consideration of public health during the neighborhood revitalization effort, especially on populations of low socio-economic status.

The EPA Region 5 Chicago Office has a long-standing relationship with the City of Rockford, as the City has received a number of brownfield grants in the past that have resulted in the successful assessment and cleanup of brownfields in the area. EPA OBLR and ORD, in collaboration with the EPA Region 5 Chicago Office and City of Rockford, sought to explore how a health impact assessment process could align with and potentially inform grant-funded brownfield and land revitalization activities and technical assistance projects, increasing discussion of ways to maximize health benefits as part of proposed South Main Corridor revitalization to improve health, consider vulnerable populations, and minimize conditions associated with adverse health conditions. The City of Rockford agreed to an HIA, as it would help broaden the health discussion and highlight how existing neighborhood conditions and potential revitalization efforts are connected to public health. Given the general nature of this HIA, the overarching assessment question would be: “How do we perform neighborhood revitalization in a way that will maximize health benefits?” Additional goals included:

1. Conduct a rapid HIA that examines health considerations for neighborhood revitalization
2. Consider, discuss, and address health in new ways for brownfields and land revitalization
3. Bring evidence-based information to help inform the City of Rockford’s neighborhood revitalization project
4. Investigate the utility of HIA as a decision-support tool for brownfields and land revitalization

Who performed this HIA?

Health Impact Assessment (HIA) practitioners from Pegasus Technical Services, an EPA contractor, conducted the HIA with guidance from EPA ORD and EPA OBLR, as part of the HIA Leadership Team and input from EPA Region 5, the City of Rockford, and the Technical Assistance Contractor.

What methods were used in this HIA?

Following the Minimum Elements and Practice Standards for Health Impact Assessments (HIAs), this HIA followed the established, six-step process – *Screening, Scoping, Assessment, Recommendations, Reporting, and Monitoring and Evaluation* (National Research Council, 2011; Bhatia R. , 2011; Human Impact Partners, 2011; Bhatia, et al., 2014; Human Impact Partners, 2014).

The rapid HIA utilized a variety of methods to inform the assessment of health impacts, including the methods listed below. Sources and methods are described in more detail in the sections in which they were used; for example, mapping tools, use of datasets, and statistical analyses.

- ✓ Pre-existing and publicly-available data
 - Access data from a variety of sources
 - Data were collected and analyzed directly from sources or downloaded for subsequent simple graphing and analysis
- ✓ Systematic literature review
 - Review literature describing health determinants and public health impacts
 - Review examples of neighborhood revitalization as reference
- ✓ Mapping and spatial analyses
 - Most tools allowed mapping and spatial analysis directly through the user interface
 - Information collected for relevant study area and population
- ✓ Community and stakeholder engagement from efforts external to the HIA
 - Access records of previous community engagement efforts to gather information
 - Where possible during the HIA (with limitations due to covid) garner input from community and stakeholder representatives
- ✓ Relative (qualitative) characterization of impacts
 - Assess characteristics of likelihood and severity of health determinants
 - Consider possibilities of impacts and potential approaches to mitigate them

What was the scope of this HIA?

This Health Impact Assessment (HIA) did not assess a specific revitalization strategy, program, policy, or decision, as one was not available at the time of the HIA, but rather examined evidence and examples of the revitalization concepts being proposed for South Main Corridor Area and their associations with public health impacts, positive and negative, with a particular emphasis on mental health and other social determinants of health. This provides the City of Rockford with general examples that could then be referenced as they develop their own specific plans for the future. Given the general nature of this HIA, an analysis of the severity of impacts (e.g., magnitude, direction) was not conducted. Decision-makers could assess these conditions should they pursue a given strategy or approach. This HIA for use by the City of Rockford will inform and reinforce continuing planning, community engagement and revitalization efforts over the coming decades and future long-term health impacts as revitalization progress.

Scope of Impact Assessment

Health is “a state of complete physical, mental, and social well-being; not merely the absence of disease and infirmity” (WHO, 1948) and is influenced directly or indirectly by a spectrum of factors known as social determinants of health (CDC, 2020a). Some of these health determinants have been shown to have a particular impact on an individual’s mental health (Figure 3), which was a priority for the HIA partners. Lack or absence of the social determinants of health shown in Figure 3 can lead to poor mental health, risk of mental illness, and other associated adverse health impacts, whereas, their presence can contribute to wellness.

Health determinants were selected based on feedback from Rockford partners. They expressed interest in a number of health determinants, many related to housing and neighborhood conditions. The HIA focused on six health determinants based on their relevance for neighborhood revitalization, utility for Rockford redevelopment plans, and the determinants’ impacts on public health. Scoping included a variety of readily available tools, data, and information across a range of sources.



Mental health is “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community” (WHO, 2014).

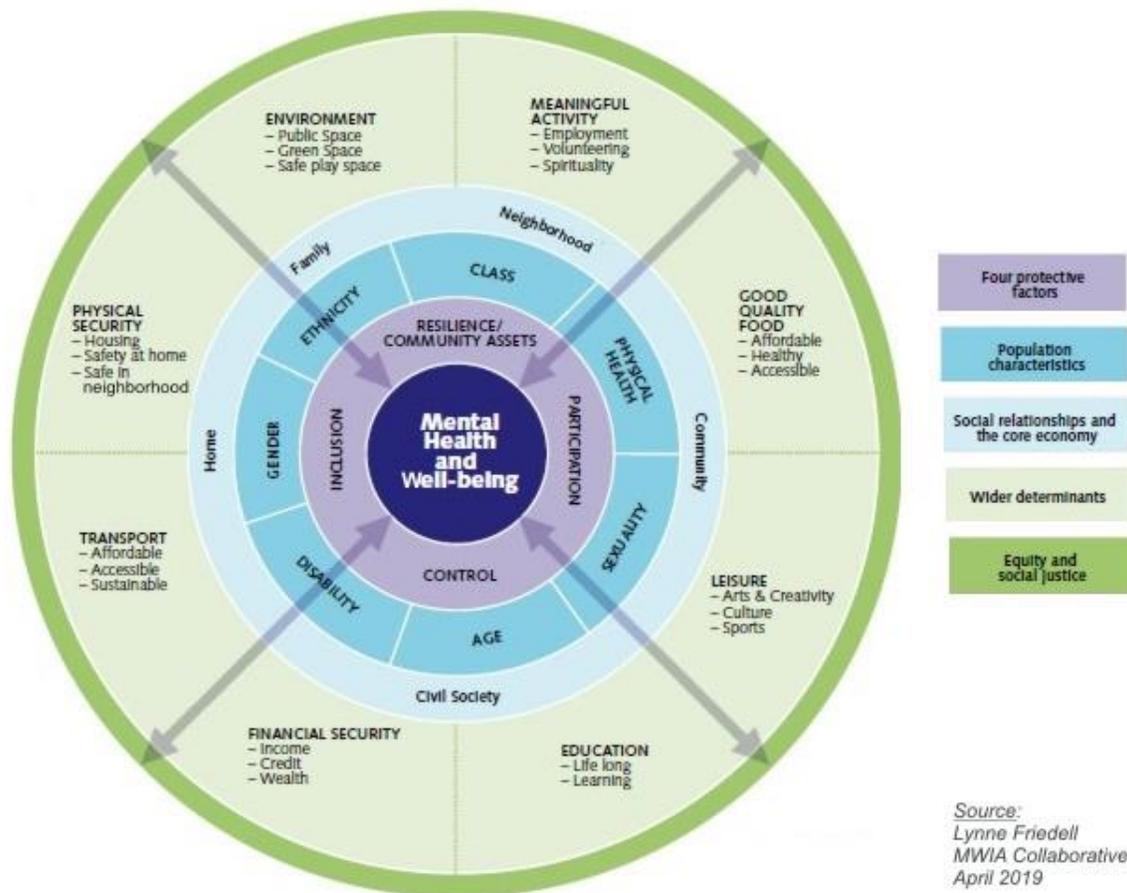


Figure 3. Social determinants of mental health and well-being. Source: (Cooke, et al., 2011).

City of Rockford partners, based on their ongoing priorities and conversations with local residents, helped to inform the priorities of this HIA. Further, based on the determinants of health known to impact mental and physical health and well-being, input from the decision maker and stakeholders, and knowledge of health determinants potentially impacted by neighborhood revitalization activities, the HIA practitioners identified six determinants of health for assessment in this HIA:

- Housing
- Neighborhood and Built Environment
- Parks and Greenspace
- Crime and Safety
- Employment and Economy
- Social and Cultural Wellbeing

The HIA broadly assessed each of these health determinants by addressing the following questions:

- What are the connections between identified health determinants and public health?
- What are the current conditions of the study area and population?
- How could neighborhood revitalization impact current conditions and health determinants?
- What are potential strategies to promote health?

As stated previously, this HIA did not assess health impacts of a specific revitalization decision in the South Main Corridor, but rather provided examples of how revitalization strategies similar to those being considered have been shown to affect public health.

Study Area

The South Main Corridor study area used in the HIA was delineated as part of the Technical Assistance contract (Figure 4). The approximately 922-acre study area is located in Southwest Rockford (Winnebago County, IL). The study area is primarily residential, with a commercial strip and heavily-trafficked main corridor (S. Main Street) through a historic area of the City. It is situated around S. Main Street, bordered on the east by the Rock River and the north by Kent Creek, extending west to South Central Avenue and south to the Klehm Arboretum. Three Census Tracts intersect the study area (Census Tracts 22, 27 and 28).

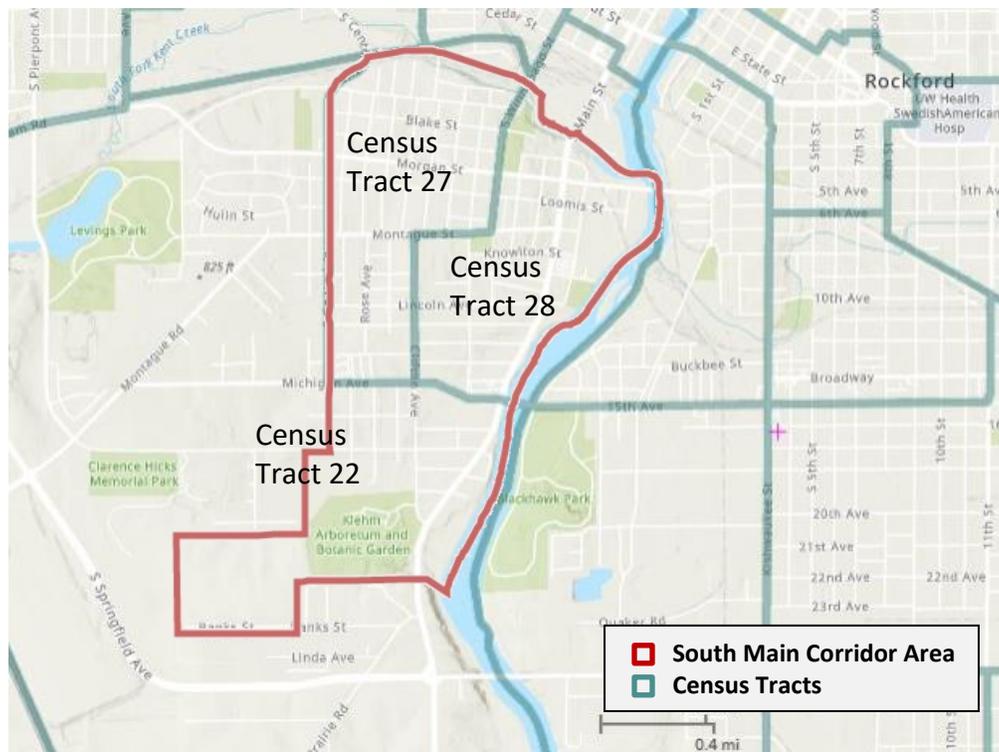


Figure 4. South Main Corridor study area.

What were the main findings of the HIA?

Baseline Conditions of the Community

A combination of national, state, and local data sources was used to establish baseline demographic, socioeconomic, and health status conditions of the population in the study area. Data was collected for the Census Tracts that intersect the study area, with exception of the far southwestern Census tract (Tract 22). This tract was excluded from the analysis because most of this large tract is outside the study area (i.e., not part of the neighborhood to be revitalized). Only including Census Tracts 27 and 28 does exclude a number of households south of Michigan Avenue, but examination of Block Group-level data revealed these households were of similar demographics and socio-economic status as households in Census Tracts 27 and 28 and so should be adequately represented in the analysis of the population impacted.

Unless otherwise noted, the population size, household, demographic, and socioeconomic data for Census Tracts 27 and 28 were obtained through the 2018 U.S. Centers for Disease Control and Prevention (CDC) Agency for Toxic Substances and Disease Registry (ATSDR) Social Vulnerability Index (SVI)¹ Database

¹ The SVI indicates for each U.S. Census tract “the degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households [that] may affect that community’s ability to prevent human suffering and financial loss in the event of a disaster” (i.e., the social vulnerability of the community) and ranks the Census tracts based on those factors.

(<https://svi.cdc.gov/SVIDataToolsDownload.html>; accessed July 7, 2020), which primarily utilizes U.S. Census American Fact Finder or American Community Survey (ACS) data.

The health status data were obtained primarily through the 2019 CDC National Center for Chronic Disease Prevention and Health Promotion 500 Cities Project Data² (<https://www.cdc.gov/500cities>; accessed July 15, 2020), because these data were available at both the tract and city levels. These health data were augmented with health data available for the Rockford region and/or county from the Rockford Regional Health Council’s 2020 Community Health Survey (Region 1 Planning Council, 2020; Ernst, 2020) and Community Health Needs Assessments performed by several hospitals (SwedishAmerican Hospital, 2019; OSF Saint Anthony Medical Center, 2019). These surveys are not necessarily representative samples of the population. More details can be found at their respective source materials.

Population, Demographics, and Socioeconomic Status

Table 2 provides a profile of the South Main Corridor Area community (Census Tract 22 excluded), including population, households, and demographic and socioeconomic measures known to be associated with social vulnerability and poor health-related outcomes (Figure 5). Comparisons to city, county, and state data are provided, when available. Census Tracts 27 and 28 have a Social Vulnerability Index within the State of 0.90 and 0.95 out of 1, respectively; where an index of 1 indicates high social vulnerability and an index of 0 indicates low social vulnerability (Enterprise Community Partners, 2020).

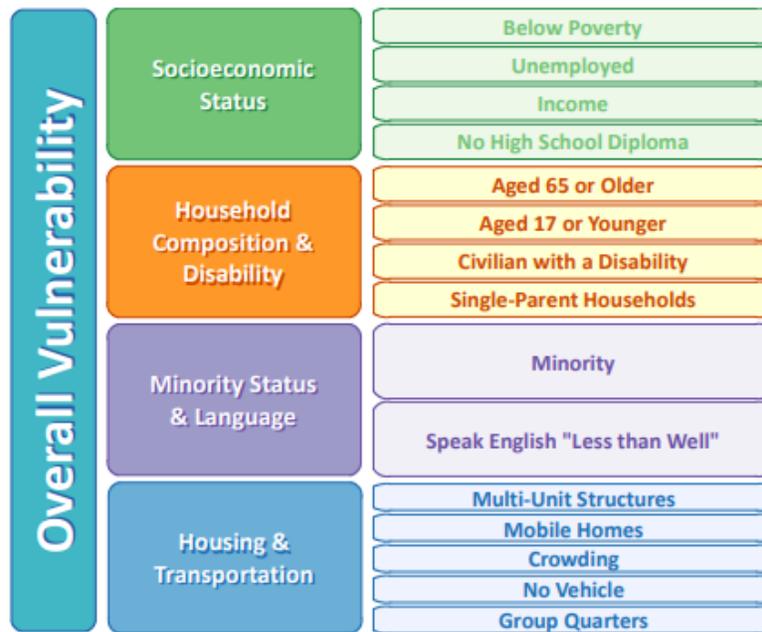


Figure 5. Demographic and socioeconomic measures examined that are known to be related to social vulnerability and health-related outcomes.(CDC, 2017)

² The 500 Cities project (a collaboration between CDC, the Robert Wood Johnson Foundation, and the CDC Foundation) provides city- and census tract-level health data for the largest 500 cities in the United States.

Table 2. South Main Corridor Area Community^{a,b}

Measure	Census Tract 27	Census Tract 28	City of Rockford	Winnebago County ^c	State of Illinois ^c
Total population	3197 ± 491	1461 ± 233	147881 ± 232	286174 ± *****	12821497 ± *****
Estimated daytime population, LandScan 2018 ^d	1468	2063	N/A	N/A	N/A
Number of housing units	1230 ± 72	615 ± 51	66668 ± 603	125772 ± 181	5347268 ± 727
Number of households	1049 ± 118	466 ± 71	59403 ± 655	114608 ± 798	4830038 ± 9750
Percentage of persons below poverty ^e	30.7 ± 9.5	33.9 ± 16.9	22.6 ± 1.3	15.6 ± 0.7	13.1 ± 0.1
Percentage of civilian population (16+) unemployed	17.0 ± 6.9	9.7 ± 7.6	11.9 ± 0.9	9.1 ± 0.6	6.6 ± 0.1
Per capita income ^f	\$24,175 ± \$16,776	\$12,783 ± \$2,599	\$24,713 ± \$740	\$28,250 ± \$543	\$34,463 ± \$135
Percentage of persons (age 25+) with no high school diploma	38.9 ± 6.8	44.8 ± 11.4	16.1 ± 0.8	12.3 ± 0.5	11.1 ± 0.1
Percentage of persons aged 65 and older	8.2 ± 2.2	4.7 ± 3.1	16.5 ± 0.4	16.6 ± 0.1	14.8 ± 0.1
Percentage of persons aged 17 and younger ^g	35.9 ± 5.0	33.1 ± 7.7	24.9 ± 0.5	23.6 ± 0.1	22.8 ± 0.1
Percentage civilian noninstitutionalized population with a disability	13.5 ± 4.4	14.0 ± 5.8	15.6 ± 0.6	14.0 ± 0.4	10.9 ± 0.1
Percentage single parent household with children under 18 ^g	32.2 ± 8.8	7.9 ± 5.1	14.5 ± 0.9	11.7 ± 0.6	8.6 ± 0.1
Percentage minority (all persons except white, non-Hispanic) ^g	90.3 ± 9.0	90.0 ± 9.2	46.1 ± 0.6	38.4 ± *****	30.4 ± *****
Percentage of persons (age 5+) who speak English "less than well" ^g	12.5 ± 4.9	15.3 ± 7.6	3.4 ± 0.4	2.2 ± 0.2	4.3 ± 0.1
Percentage of housing in structures with 10 or more units ^g	0.0 ± 1.3	0.0 ± 2.5	11.8 ± 0.7	7.8 ± 0.4	14.4 ± 0.1
Percentage mobile homes	0.0 ± 2.2	1.1 ± 1.5	0.5 ± 0.2	1.6 ± 0.2	2.5 ± 0.1
Percentage of occupied housing units with more people than rooms ^g	4.6 ± 3.6	12.2 ± 11.1	3.0 ± 0.5	2.1 ± 0.3	2.5 ± 0.1
Percentage of households with no vehicle available	10.3 ± 6.2	10.3 ± 6.1	12.7 ± 0.7	8.5 ± 0.5	10.8 ± 0.1
Percentage of persons in institutionalized group quarters ^g	0.3 ± 0.2	0.3 ± 0.8	2.6 ± 0.2	1.5 ± *****	2.3 ± *****

Measure	Census Tract 27	Census Tract 28	City of Rockford	Winnebago County ^c	State of Illinois ^c
Percentage uninsured in the total civilian noninstitutionalized population	14.1 ± 4.8	35.5 ± 12.5	7.7 ± 0.6	6.6 ± 0.5	7.3 ± 0.1

^a Data (estimate ± margin of error) from the American Community Survey (ACS) 2014-2018 5-year estimates (U.S. Census Bureau, 2019), unless otherwise noted.

^b Bolded values indicate that the tract is in the top 10% of all tracts in Illinois (i.e., at the 90th percentile of values) for that variable, indicating high vulnerability related to that variable per the Social Vulnerability Index.

^c An "±*****" entry for the margin of error indicates that the estimate or one of the estimates used in the calculation is controlled. A statistical test for sampling variability is not appropriate.

^d The Social Vulnerability Index (SVI) derived this variable from LandScan 2018 (<http://web.ornl.gov/sci/landscan/index.shtml>), following the instructions provided for processing in ArcGIS.

^e Percentage of population below poverty is percentage of population whose income in the last 12 months is below the poverty level

^f Per capita income is the average income per person. It estimates the earning power of an individual and is used to describe the standard of living. Unlike the other variables for which a high percentage indicates potentially higher social vulnerability, a higher per capita income is associated with lower social vulnerability.

^g Calculated using ACS 2014-2018 5-year estimate data and formulas contained in the CDC SVI 2018 Documentation (https://svi.cdc.gov/Documents/Data/2018_SVI_Data/SVI2018Documentation-508.pdf).

Of special note regarding the South Main Corridor Area community:

- The estimated population of Census Tract 27 is more than twice that of Census Tract 28, despite both tracts being of similar size (i.e., 0.53 mi² and 0.57 mi² in area, respectively); in addition, the number of individuals estimated to be in Census Tract 28 during daytime hours is nearly 1.5 times the estimated population of that tract. This indicates that Census Tract 27 is primarily residential, while Census Tract 28 contains a mix of residential and other uses
- Approximately one-third of the population in the study area are children under the age of 17 and one-third of households in Census Tract 27 are single-parent households with children under 18
- Based on the SVI scores, the population in Census Tract 27 exhibits high social vulnerability for 26.6% of the demographic and socioeconomic measures examined in the Index and Census Tract 28 for 40% of the measures
- Approximately one-third of the population in Census Tracts 27 and 28 live below the poverty level and of those, 42-46% are children under the age of 18 (ACS 2014-2018; Census Tract 27 - 41.7 ±16.8%, Tract 28 - 45.8 ±27.8%)
- Approximately 90% of the population is minority, with 60-68% of the population Hispanic, and over a quarter of the study area is foreign born (Tract 27 - 25.2%, Tract 28 - 35.7%)
- Between 12-15% of persons age 5+ in the study area speak English less than well and almost 100% of those individuals speak Spanish (ACS 2014-2018 5-year estimates)
- Spanish is spoken at home in over half of the homes in the study area (Tract 27 - 52.4%, Tract 28 - 65.3%), compared to less than 15% of homes in the City of Rockford as a whole (ACS 2014-2018 5-year estimates)
- Approximately 40% of residents in the study area age 25+ have no high school diploma

Overall Health Status

The final step of creating the population profile was to examine the health status of the population in the South Main Corridor Area. Examination of the overall health status included a review of health outcomes, unhealthy behaviors, and health prevention activities within the population.

The Health Impact Assessment (HIA) practitioners were fortunate that the City of Rockford is one of the 500 largest cities in the United States, so health outcome, unhealthy behavior, and health prevention data were available at the Census tract and City level from the 500 Cities Project (<https://www.cdc.gov/500cities>). Table 3 shows the crude prevalence of health outcomes, unhealthy behavior measures, and health prevention activities deemed relevant to the HIA (i.e., the proportion of the population with the specific health outcomes and behaviors, not adjusted for age).

It should be noted that the crude prevalence of many of the health measures and unhealthy behaviors are higher in the two Census tracts located in the study area as compared to the crude prevalence in the City of Rockford as a whole and at the national level. The 2020 Rockford Regional Health Council Community Health Survey found that lower levels of education were associated with higher levels of disease and adverse health outcomes in respondents in the Rockford Region; this is of importance, given that 40% of adults age 25 and older in the study area have less than a high school diploma (Region 1 Planning Council, 2020). The 2020 Community Health Survey also showed that single parents reported their health status as less than OK more often than married, unmarried, and single persons; this is of importance, especially in Census tract 27, where 1/3 of households are single parent households with children under 18 years of age.

Table 3. Crude Prevalence of Health Outcomes, Unhealthy Behaviors, and Health Prevention Activities (Source: 500 Cities)

Category	Measure ^a	Tract 27 % (95% CI)	Tract 28 % (95% CI)	Rockford % (95% CI)	U.S. % (95% CI)
Health Outcomes	Arthritis among adults aged >=18 Years	23.9 (23.1-24.7)	25.9 (25.1-26.7)	26.3 (26.1-26.4)	14.5 (14.1-14.9)
	Cancer (excluding skin cancer) among adults aged >=18 Years	4.9 (4.6-5)	4.5 (4.4-4.7)	6.8 (6.8-6.9)	6.8 (6.7-7)
	Chronic kidney disease among adults aged >=18 Years	4.3 (4-4.5)	5 (4.8-5.3)	3.5 (3.5-3.6)	3.2 (3-3.3)
	Chronic obstructive pulmonary disease among adults aged >=18 Years	8.5 (7.7-9.4)	11.6 (10.7-12.5)	8.7 (8.6-8.9)	6.6 (6.4-6.7)
	Coronary heart disease among adults aged >=18 Years	7.2 (6.7-7.6)	9.1 (8.6-9.6)	7.2 (7.1-7.3)	6.4 (6.2-6.5)
	Current asthma among adults aged >=18 Years	11.4 (10.7-12.1)	11.9 (11.2-12.6)	10.4 (10.3-10.4)	9 (8.8-9.2)
	Diagnosed diabetes among adults aged >=18 Years	16.2 (15.5-17)	19.8 (19-20.5)	12.2 (12.1-12.3)	10.8 (10.6-11)
	High blood pressure among adults aged >=18 Years	38.5 (37.7-39.4)	42.7 (41.8-43.5)	36.5 (36.3-36.7)	32.4 (32.1-32.7)
	High cholesterol among adults aged >=18 Years who have been screened in the past 5 Years	33.7 (32.9-34.6)	36.9 (36.1-37.8)	35.7 (35.5-35.8)	34.1 (33.8-34.4)
	Mental health not good for >=14 days among adults aged >=18 Years	17.6 (16.3-18.9)	21.3 (20.1-22.7)	15 (14.8-15.1)	12.4 (12.2-12.6)
	Physical health not good for >=14 days among adults aged >=18 Years	17.9 (16.5-19.3)	23 (21.6-24.5)	15.2 (15-15.4)	12.3 (12.1-12.5)
	Stroke among adults aged >=18 Years	4.7 (4.3-5.1)	6 (5.5-6.4)	3.9 (3.8-3.9)	3.2 (3.1-3.3)
Unhealthy Behaviors	Binge drinking among adults aged >=18 Years	16.2 (15.4-16.9)	14.7 (14.1-15.4)	18.3 (18.2-18.4)	17 (16.7-17.3)
	Current smoking among adults aged >=18 Years	24.4 (22.2-26.7)	32.3 (30.2-34.3)	22.2 (21.9-22.6)	16.4 (16.1-16.6)
	No leisure-time physical activity among adults aged >=18 Years	37.9 (35.6-40.1)	46.2 (44.2-47.9)	30.3 (29.9-30.7)	26.6 (26.3-26.9)
	Obesity among adults aged >=18 Years	43 (41.8-44.1)	48.4 (47.5-49.5)	35.2 (35.1-35.4)	30.1 (29.8-30.4)
	Sleeping less than 7 hours among adults aged >=18 Years ^b	43.7 (42.6-45)	45.9 (44.8-47)	38.8 (38.6-39)	34.6 (34.3-34.9)

Category	Measure ^a	Tract 27 % (95% CI)	Tract 28 % (95% CI)	Rockford % (95% CI)	U.S. % (95% CI)
Health Prevention Activities	Current lack of health insurance among adults aged 18–64 Years	28.3 (24.8-32)	35.3 (32-38.2)	16.6 (16.3-16.9)	14.7 (14.4-15)
	Mammography use among women aged 50–74 Years ^b	75.3 (72.4-78.2)	74.2 (71-76.9)	72.4 (71.8-73)	75.2 (74.7-75.6)
	Older adult men aged >=65 Years who are up to date on a core set of clinical preventive services: Flu shot past Year, PPV shot ever, Colorectal cancer screening ^b	21.8 (17.9-25.7)	17.3 (13.6-21.7)	32.1 (31-33.3)	34.7 (33.9-35.5)
	Older adult women aged >=65 Years who are up to date on a core set of clinical preventive services: Flu shot past Year, PPV shot ever, Colorectal cancer screening, and Mammogram past 2 Years ^b	18.3 (15.2-21.4)	15.4 (12.7-18.4)	26.7 (25.8-27.5)	31.7 (31-32.3)
	Pap smear use among adult women aged 21–65 Years ^b	83.4 (81.5-85.1)	82.6 (80.9-84.3)	82.5 (82.1-82.8)	79.5 (79-80.1)
	Taking medicine for high blood pressure control among adults aged >=18 Years with high blood pressure	72.7 (71.8-73.5)	73 (72.1-73.9)	74.2 (74.2-74.4)	75.8 (75.3-76.3)
	Visits to dentist or dental clinic among adults aged >=18 Years ^b	42.3 (39-45.8)	32.5 (29.6-35.6)	56.3 (55.8-56.8)	65.7 (65.4-66)
	Visits to doctor for routine checkup within the past Year among adults	68.5 (67.5-69.5)	66.5 (65.5-67.5)	68.8 (68.7-68.9)	70.6 (70.3-70.9)

^a Data from 2017 Behavioral Risk Factor Surveillance System (BRFSS) reported, unless otherwise noted.

^b Data reported from 2016 BRFSS

Mental Health Status

The CDC 500 Cities data showed that 21.3% of adults age 18 or older in Census tract 28 and 17.6% of adults age 18 or older in Census tract 27 report their mental health not being good for 14 or more days in the last 30 days. These rates and the prevalence of mental illness and conditions reported in the Region 1 Planning Council (2020) Community Health Survey (i.e., anxiety, depression, post-traumatic stress disorder [PTSD], attention-deficit disorder [ADD]/attention-deficit hyperactivity disorder [ADHD], and bipolar disorder) for adults are comparable to State and National rates. This suggests that the South Main Corridor Area is at least as affected by mental health conditions as other areas, and since mental health is a particular concern of the residents, it is a high priority for this community.

There were several trends uncovered in the Region 1 Planning Council (2020) Community Health Survey that are attributed to disparities in the social determinants of health shown in Figure 3, including trends by age, gender, race/ethnicity, and educational attainment. This suggests that it may be important for mental health care services to target particular portions of the population, recognizing potential differences in the willingness of individuals to acknowledge mental health issues and access care.

Age

The Region 1 Planning Council (2020) Community Health Survey broke down the prevalence of mental illness in the Rockford region by age and found that as age increases, rates of mental illness generally decrease. The rates among adults for almost all disorders are highest in the 18-44 year old age group.

Gender

The Community Health Survey found that mental illness and conditions were 2-3 times higher in women compared to men; this was attributed to differences in pay among men and women, with women earning a quarter less than men annually; women experiencing poverty at a higher rate than men; and women being victims of domestic violence more often than men.

Race/Ethnicity

For many of the mental illnesses in the Community Health Survey, including anxiety and depression, minorities had similar or lower rates than their white counterparts; however, research shows that depression may be more persistent in minorities and foreign-born individuals (which are both prevalent in the study area) due to discrimination (Budhwani, Hearld, & Chavez-Yenter, 2015). Consistent with national trends, blacks experience addiction, suicidal thoughts, and schizophrenia at greater rates than whites.

The Community Health Survey also identified cultural barriers to mental health diagnosis for minorities, including language barriers and the stigma of mental illness among minority groups, as well as cultural barriers to treatment, including lack of insurance, the stigma of mental illness, lack of diversity or cultural competence in medical providers, distrust in the health care system, and not receiving appropriate information about services (Region 1 Planning Council, 2020).

Educational Attainment

According to the Community Health Survey, individuals with lower levels of education had higher rates of substance abuse, with individuals with less than a high school diploma or GED (a population common in the study area) having higher than expected rates of cocaine, crack, and amphetamine use.

Vulnerable Populations

Vulnerable populations are subgroups within the community that may be more sensitive to or more affected by the changes in the physical and natural environment, social environment, and/or economic environment as a result of the proposed neighborhood revitalization, including:

- low-income households,
- minority households,
- those with low educational attainment,
- children,
- older (over 65 years of age) and adults with physical disabilities,
- victims of domestic violence.

The impacts to these vulnerable populations are discussed throughout the report, including the disproportionate rate at which some of these populations experience adverse health impacts.

Neighborhood Revitalization and Public Health

The HIA demonstrated that neighborhood revitalization could have both positive and negative effects on health through a number of health determinants. Figure 6 provides a summary of potential health impacts of neighborhood revitalization on the six determinants of health included in the HIA scope: 1) Housing, 2) Neighborhood and Built Environment, 3) Parks and Greenspace, 4) Crime and Safety, 5) Employment and Economy, and 6) Social and Cultural Wellbeing.

 **Housing.** Neighborhood revitalization can **benefit health** through efforts to provide stable, healthy housing, homes that people can afford, and equitable access to affordable, healthy rentals and homeownership opportunities. Revitalization can **deduct from health** if efforts are not made to address improvements to housing access and stability, housing affordability, and housing quality, or if the strategy is not aimed at benefiting the current community members and ensuring neighborhood residents are not displaced due to gentrification.

 **Neighborhood and Built Environment.** Neighborhood revitalization can **benefit health** through increases in health-supportive goods and services in the area and improved access to these assets via public transit (e.g., improving air quality and access) and active transportation (i.e., walkability and bikeability) options. Revitalization has the potential to create a “complete neighborhood” with a community center; a variety of land uses to bring people closer to the places where they live, work, worship, and play; and safe access to the goods and services residents need to live healthy lives. Revitalization efforts can also **benefit health** by reducing blight and cleaning up contaminated properties and pollution in the area. Neighborhood revitalization has the potential to **deduct from health**, however, if the strategy is not aimed at benefiting the current community members and ensuring long-time neighborhood residents and businesses are not displaced due to gentrification. Displacement can result in physical and mental stress, loss of social networks, relocation, and increased risk for substandard housing and neighborhood conditions. If current residents are not displaced, gentrification can actually **benefit health** by improving economic and racial diversity, spurring economic revitalization and investment in the neighborhood, reducing poverty rates, and exposing residents to new opportunity.

 **Social and Cultural Wellbeing.** Neighborhood revitalization can **benefit health** by improving the physical environment in which the community lives, creating a sense of place and community identity, providing space for gathering and socialization, and offering opportunities for the community to come together for a common goal, develop social connections, and engage in cultural experiences important to its residents. Revitalization efforts that can provide these spaces and opportunities for the community can include improvements to walkability and bikeability; reductions in crime; development of parks and greenspace, community centers, business districts, and mixed-use developments; and recreational, cultural, spiritual, and social programming and events. Engaging the community in revitalization planning and other decisions that affect their lives can also **benefit health**; it ensures community needs are considered, builds social capital, and helps to build the buy-in necessary to keep a neighborhood flourishing post revitalization.


Summary of Potential Health Impacts
 Neighborhood revitalization has the potential to affect mental health, rates of chronic disease, risk of infectious disease, nutrition, and overall health and well-being.

 **Parks and Greenspace.** Neighborhood revitalization can **benefit health** by improving access to healthful greenspaces and parks and providing opportunities to engage in physical activity, recreate, socialize, and connect with nature. Implementing the mayor’s vision that everyone has a park or open space within a 10-minute walk of their home would help ensure equal access to parks for all residents. Revitalization can improve parks and greenspace through development of tree-lined streets or pedestrian-zoned thoroughfares, greening of vacant lots, upgrades to existing assets, and creation of new parks or redevelopment of vacant, remediated properties into parks and greenspace. Parks and greenspace must have a clear plan for maintenance and upkeep, however; parks and greenspace that are not well maintained have the potential to **deduct from health**.

 **Crime and Safety.** Neighborhood revitalization can **benefit health** through initiatives to reduce crime, physical improvements to reduce blight, and improvements to traffic, pedestrian, and bicyclist safety. Reductions in blight and physical improvements that allow residents to safely navigate the community can reduce fear; improve perceptions of safety; lead to increased physical activity; and encourage social capital, neighborhood attachment, and personal interactions within the community. Reductions in blight and increased social capital and neighborhood attachment have been shown to lead to decreases in crime and violence. Reductions in crime are critical not only for the health of neighborhood residents, but for neighborhood revitalization, as crime has been shown to be a significant barrier to neighborhood investment. Without reductions in crime, revitalization may be hampered and crime could continue to **deduct from health**.

 **Employment and Economy.** Neighborhood revitalization can **benefit health** through the creation of jobs making a living wage, workforce development and entrepreneurship programs, the transformation of underused sites into community assets, opportunities for investment and small business creation, and increased revenues to boost the local economy. New construction and development, Brownfield remediation and redevelopment, demolition and deconstruction of derelict structures, and housing rehabilitation all provide opportunities for employment, and depending on the end use of the properties, could continue to provide employment opportunities. Revitalization can also include efforts to improve access to employment through improved transportation options and programs to improve the employability of local community members and enable them to fill the jobs created through neighborhood revitalization efforts and the workforce demands of the greater Rockford region at large (e.g., adult education and GED programs, job training, etc.).

Figure 6. The six determinants of health considered for the proposed neighborhood revitalization of the South Main Corridor Area and its associated health impacts.

Managing Public Health Impacts

Evidence-based strategies that have been shown to maximize positive health impacts and mitigate or avoid negative health impacts were consolidated into several overarching approaches for the South Main Corridor Area and are presented below. Given the predominance of the Spanish-speaking population, further community engagement would benefit from intentional Spanish-speaking and cultural outreach efforts.

Equity in community outreach and engagement helps strategies be more successful by including the people who are impacted by the decision. Stakeholder engagement shouldn't be treated as a checkbox exercise, which could do more harm than good. Relationship building should be a regular practice that allows plans to be altered to maximize benefits to public health. For example, practices could include: 1) invite participation wherein concerns are genuinely considered in decision-making; 2) plan early and proactively to maximize inclusion and equity; 3) engage diverse members of the community who may be impacted by the decision; and 4) dedicate time and resources to relationship building, including both physical considerations (e.g., meeting location, meeting times) and cultural or social aspects (e.g., language translation, childcare).

- Leverage existing community assets, institutions, networks, and capital
- Engage local residents and stakeholders in revitalization planning, visioning, and placemaking
- Promote equity and inclusion
- Improve housing safety and quality, housing access and stability, and housing affordability
- Improve the physical environment, addressing blight, aging infrastructure, and Brownfields
- Improve access to health-supportive goods and services
- Improve walking, biking, and mass transit options
- Increase access to quality, well-maintained parks, greenspace, and other spaces for recreation, socialization, and cultural activities
- Encourage business development and other efforts that increase employment opportunities for local residents and spur economic revitalization
- Reduce crime and violence and improve neighborhood safety
- Provide opportunities to build trust and relationships and strengthen social networks and community ties
- Take advantage of federal, state and local programs and incentives such as taxes, fees and subsidies

Additional strategies for managing health impacts are presented in more detail for each of the health determinants examined in the HIA in the *Assessment of the Determinants of Health* section. A comprehensive list of strategies and approaches is provided in the *Recommendations* section of this HIA report, titled *Strategies for Promoting Health in the South Main Corridor Area Neighborhood Revitalization*. Strategies were collected from the literature review, the PEW database of HIA examples, and corresponding public-health related information sources.

Strategies were not ranked in terms of their potential effects or feasibility. As decision-makers and community residents further establish their priorities moving forward, they can determine which strategies are most feasible and important under those decision-making circumstances.

Communicating HIA Findings and Strategies for Promoting Health

The findings and recommendations of the HIA were presented to the City of Rockford in March 2021 and are documented via this final report. This HIA Report, an Executive Summary, and Fact Sheet will be made available to the public on EPA's HIA Case Studies web page: <https://www.epa.gov/healthresearch/epa-health-impact-assessment-case-studies>. The City also seeks to use the findings of this report to inform ongoing outreach and redevelopment decisions in the target corridor and adjacent areas.

Assessment of the Determinants of Health

The following pages summarize how the potential neighborhood revitalization strategy for the South Main Corridor Area is related to public health, both directly and indirectly, through changes in the six health determinants as determined by the Health Impact Assessment (HIA).

According to the World Health Organization (WHO, 1948), health is “a state of complete physical, mental, and social well-being; not merely the absence of disease and infirmity.” The physical, social, and economic environments in which people are born, live, work, learn, and play have an impact on their health. Social structures and conditions in these environments that can directly and indirectly affect health – such as housing; transportation; education; air, soil, and water quality; parks; access to goods and services; inequality; poverty; and employment – are called determinants of health.

Each health determinant section includes a review of the literature-based evidence showing how the determinant is related to health, a description of existing conditions for the South Main Corridor Area, an outline of how neighborhood revitalization could potentially impact health, and examples of strategies for managing those impacts. A complete list of strategies and approaches for managing public health impacts can be found in the *Recommendations* section of the document.

Housing and Health

A review of available literature suggests that housing is an important social determinant of overall health and well-being (Nabihah, 2014). Housing organizations and health advocates focused on housing consider four main aspects of housing that can affect public health (Figure 7). These interconnected aspects of housing include housing access and stability, housing quality, housing affordability, and the neighborhood in which the housing is located (Braveman, Dekker, Egarter, Sadegh-Nobari, & Pollack, 2011; Taylor, 2018).



Figure 7. Connections between housing and health. Modified from: (Human Impact Partners and Community Advocates Public Policy Institute, 2020)

Housing Access and Stability

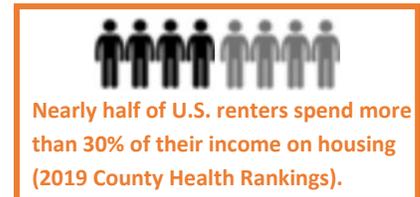
Housing instability (e.g., being homeless, foreclosure, falling behind on rent, evictions, moving frequently, etc.) can cause stress, poor mental health, anxiety, depression, increased alcohol and substance abuse, and more frequent emergency department and hospital visits. The chronically homeless experience increased rates of chronic disease and death. Housing instability can potentially lead to disruptions to employment, social networks, education, and receipt of social services and medical care, leading to both mental and physical health impacts.

Housing instability is more likely to be experienced by low-income households and people of color. Children in families that move frequently are at increased risk of behavioral and mental health issues, poor school performance, and substance abuse. Homelessness is especially harmful on the health of young children. Homeless children are more likely to be hospitalized, less likely to receive primary care services, more likely to experience hunger, more likely to repeat a grade, and more likely to need special education than children who are in stable housing conditions.

Housing Affordability

When there is a shortage of affordable housing, individuals may be forced to choose substandard housing, live in overcrowded conditions and unsafe neighborhoods, move frequently, spend more time traveling to and from work, and face serious financial hardship, eviction or foreclosure, stress, and even homelessness.

The proportion of a household's income remaining after meeting housing costs can determine the ability to afford essential health-related goods and services such as food, clothing, healthcare, transportation, and childcare. Households facing high housing costs are often forced to cut back on these essentials (Joint Center for Housing Studies of Harvard University, 2015). These kinds of cutbacks are strongly linked to poor health outcomes.



Generally, a household is considered cost burdened when total housing costs (mortgage, rent, insurance, utilities, taxes, etc.) exceed 30% of the household income (Coleman-Jensen, Gregory, & Rabbitt, 2016). A home spending 30–49.9% of household income on housing is considered moderately burdened, and 50% or more of household income spent on housing is considered severely burdened (Schwartz & Wilson, 2008; The Pew Charitable Trusts, 2016). According to the 2017 American Community Survey, 37.8 million American families were cost-burdened (i.e., spent greater than 30% of its income on housing) and of those, 18.2 million were extremely cost-burdened (i.e., spent more than 50% of their income on housing). Cost-burdened and extremely cost-burdened households may have difficulty meeting these other basic needs, leading to malnutrition, diabetes, mental health issues, and poor physical health.

The U.S. Bureau of Labor Statistics' 2011 consumer expenditure survey suggests, in general, that some cost-burdened households spend one-fifth the amount that non-burdened households spend on healthcare (Joint Center for Housing Studies of Harvard University, 2015). For example, adults in cost-burdened households are more likely not to fill a prescription or not follow through with medical treatment due to cost (Nabihah, 2014).

Research indicates that as overall housing costs (including heating and cooling) increase, food insecurity increases (Fletcher, Andreyeva, & Busch, 2009; Cook, et al., 2010; Moses, 2008; Pannell & Yeakey, 2011). Food

insecurity is a state in which a household reports reduced quality of diet and/or disrupted eating patterns and reduced food intake (Coleman-Jensen, Gregory, & Rabbitt, 2016). Food insecurity has been shown to increase the risk of a multitude of physical and mental health issues for both children and adults. Food insecurity is a serious issue for expecting parents as it is associated with preterm births and low birth weights (Olson, 1999; Bhattacharya, DeLeire, Haider, & Currie, 2003; Bhattacharya, Currie, & Haider, 2004; Whitaker, Phillips, & Orzol, 2006). During childhood, food insecurity can hinder important development in the child's life and can lead to delays in the development of mental and cognitive health (RTI International, 2014).

While renters and homeowners can both face unaffordable housing, renters are more likely to be cost-burdened. In general, there are some instances where individuals may choose to spend substantial amounts on housing (that make them cost-burdened) in order to live in neighborhoods with good school systems, parks, etc.

Housing Safety and Quality

On average, Americans spend approximately 70 percent their time in a residence indoors (Klepeis, Tsang, & Behar, 1996; Sekar, Williams, & Chen, 2018), making housing safety and quality a significant contributor to human well-being. According to the American Housing Survey, about 6 million homes in the U.S. are considered substandard (NCHH, 2020).

Substandard housing is not housing that is outdated or unattractive, but housing that poses a public health and safety hazard – it is unsafe, improperly maintained, and plagued with substandard conditions, such as asbestos, deteriorating paint and pipes that contain lead, structural defects, slipping and tripping hazards, poor indoor air quality, mold, extreme temperatures, inadequate ventilation, dirty carpets, pest infestations, overcrowding, and more. Substandard housing can contribute to poor health outcomes, such as injury, brain and nervous system damage in children, respiratory disease, asthma, fear and stress, poor mental health, heart disease, infectious disease, cancer, and even death.



People of color and low-income populations are more likely to live in substandard housing (2017 American Housing Survey).

Individuals that live in older homes, built in or before the 1970s, may be at increased risk of exposure to asbestos and lead. Homes built before 1970 may contain roofing, insulation, siding, flooring, textured ceiling, and other components made of asbestos, a known cancer-causing agent. Older homes likely contain lead-based paint as well, which wasn't banned until 1978. Lead poisoning in the home can happen as a result of exposure to lead-based paint, lead water pipes, lead-contaminated house dust, lead-contaminated soil, and toys containing lead, although lead-based paint is the leading cause of exposure. Based on results from the 2001 National Survey of Lead and Allergens in Housing, approximately 40% of housing units in the U.S. contain lead-based paint and of those, 24 million housing units have significant lead-based paint hazards (Jacobs, et al., 2002). Lead poisoning is especially harmful to children and is known to cause growth and developmental delays, brain and nervous system damage, learning and behavioral problems, hearing and speech problems, and death. Lead poisoning is also harmful for pregnant women and is known to cause miscarriage, still birth, premature birth, and low birth rate.



Progress has been made in addressing lead as a public health threat in the home since the Residential Lead-Based Paint Hazards Reduction Act of 1992, which provides federal funds to state and local health departments to assess lead-based paint exposures, screen and test child blood lead levels, and target interventions and lead removal.

Overcrowding in the home is also considered a substandard condition. Overcrowding, defined as having more people than rooms, has a negative impact on the health of occupants, including respiratory disease, cardiovascular disease, spread of infectious disease, and stress and mental health impacts. Overcrowding has also been shown to negatively impact child health, cognitive functioning, and mental health.

Housing Neighborhood

The location of housing and the conditions of the neighborhood in which it is located can impact health. Physical conditions – such as walking and biking infrastructure; a clean environment; and easy access to public transportation, healthy foods, parks and recreation, quality schools, employment, and health care services – have all been shown to improve overall health and reduce chronic disease, injury, and mental health issues (Cubbin, Pedregon, Egerter, & Braveman, 2008; Jacobs, Wilson, Dixon, Smith, & Evens, 2009; de Leon & Schilling, 2017; Taylor, 2018). Neighborhoods in which people have developed strong ties and trusting relationships improves mental health and provides a social safety net for residents (Health Impact Project, 2016).

In this section of the Assessment, we address Housing Access and Stability, Housing Quality, and Housing Affordability. Housing Neighborhood (i.e., the location of housing and the conditions of the neighborhood in which it is located) is addressed in the *Neighborhood and Built Environment* section.

Existing Conditions

According to the ACS 2014-2018 5-year estimates for Rockford, Census Tracts 27 and 28 had a total of 1,230 housing units and 615 housing units, respectively. Of these housing units, approximately 67% were single-family houses (either not attached to any other structure or attached to one or more structures, such as a townhouse or row house) and approximately 30% were located in multi-unit structures or buildings containing two or more apartments, although multi-unit structures over 10 units were not common in either tract. Census Tract 28 also had a very small number of mobile homes (n=9), mostly located in a mobile park community in the southwest portion of the study area. There hasn't been any significant new home construction in the area since the 1990s and the majority of homes were built in 1939 or earlier (Figure 8).

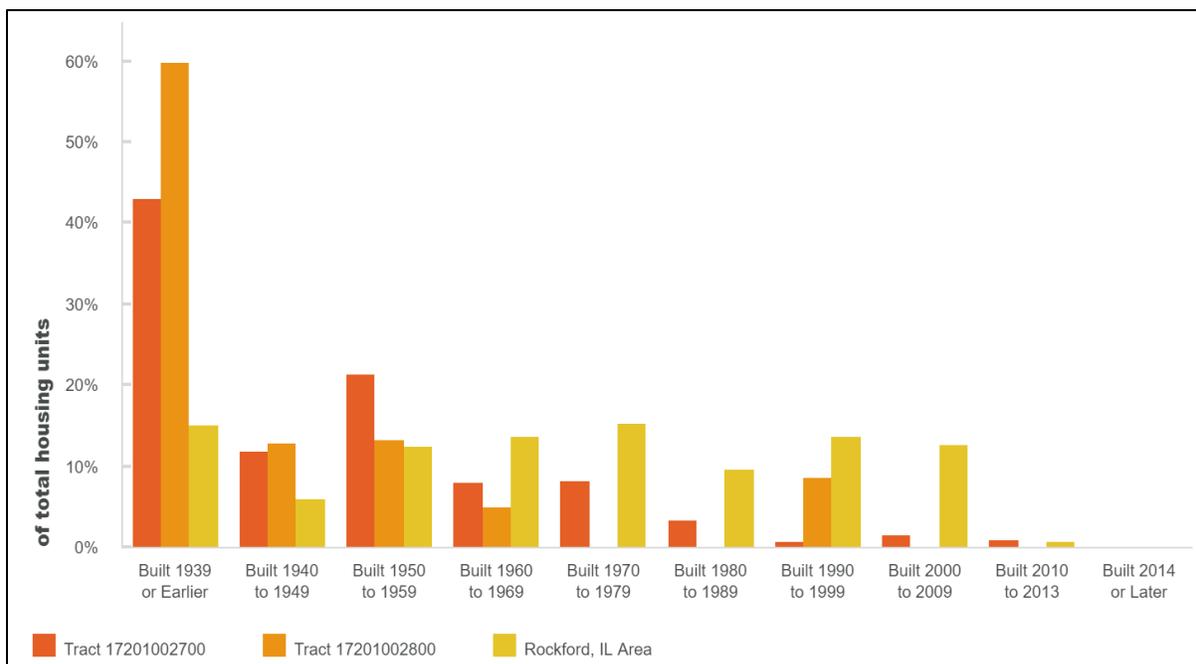


Figure 8. New home construction in the study area. Source: (Enterprise Community Partners, 2020), data from ACS 2014-2018 5-year estimates

Housing Access and Stability

Housing Access

According to the ACS 2014-2018 5-year estimates, 85.3% of the housing units in Census Tract 27 and 75.8% of the units in Census Tract 28 were occupied. Of these occupied housing units, 42.9% and 61.6%, respectively, were owner-occupied; this reflects the home ownership rate in the area. Home ownership is an important way for individuals to build wealth and financial security and provides the opportunity for stable, long-term housing. However, results for the study area suggest that homeownership is a challenge for minorities and low-income households. Table 4 shows the race or ethnicity of homeowners of owner-occupied housing in Census Tracts 27 and 28 compared to that of the City of Rockford as a whole. Of interest, is that 60% of the population in these Census tracts is Hispanic/Latino, yet only 20% of owner-occupied houses are owned by individuals of this ethnicity; whites are homeowners of 17-30% of owner-occupied housing in the Census tracts, yet only make up 10% of the total population in the area.

Table 4. Race/Ethnicity of Owner-Occupied Housing Homeowners^a

Homeowner Race/Ethnicity	Census Tract 27 (% Owner-Occupied Housing)	Census Tract 28 (% Owner-Occupied Housing)	City of Rockford (% Owner-Occupied Housing)
Hispanic or Latino	20.2	27.3	4.8
White	16.7	30.1	56.1
Black	12	14.3	3

^a Reported for select races/ethnicities; Source: ACS 2014-2018 5-yr estimates.

Many historical and current factors can contribute to disparities in homeownership, including lending practices, such as mortgage originations, which were examined for the study area and organized by race (Figure 9). Additional factors can include inability of minorities in the area to afford homeownership or the lack of traditional mortgage financing due to the age and/or condition of the housing stock. Redlining is a discriminatory practice that started in the 1930s in which banks denied mortgages to people of color, preventing them from buying homes or getting a loan to renovate their homes. The South Main Corridor Area was designated “hazardous” by the Home Owners’ Loan Corporation (HOLC) in 1938 due to its primarily Italian-immigrant population at that time. Lenders were recommended to refuse loans to individuals in the area. Although redlining was outlawed 50 years ago, there is evidence that black and Latino homebuyers in some cities still seem to have a harder time getting a mortgage (Glantz & Martinez, 2018). Home Mortgage Disclosure Act data from the U.S. Census Bureau indicates that in 2016, Latino applicants in Rockford, IL were two times more likely to be denied a conventional home mortgage than white applicants, even when controlling for factors such as income, loan amount, and neighborhood (Reveal, 2018). Lending inequalities may still exist in historically redlined areas, and research has shown that historically redlined neighborhoods continue to experience chronic disinvestment, and individuals in these neighborhoods experience an increased prevalence of poor mental health and lower life expectancy at birth (Mitchell & Franco, 2018; Richardson, Mitchell, Edlebi, Meier, & Lynch, 2020). Whether or not these practices still impact the South Main Corridor Area is beyond the scope of this HIA, but given its history, is an important consideration for housing access.

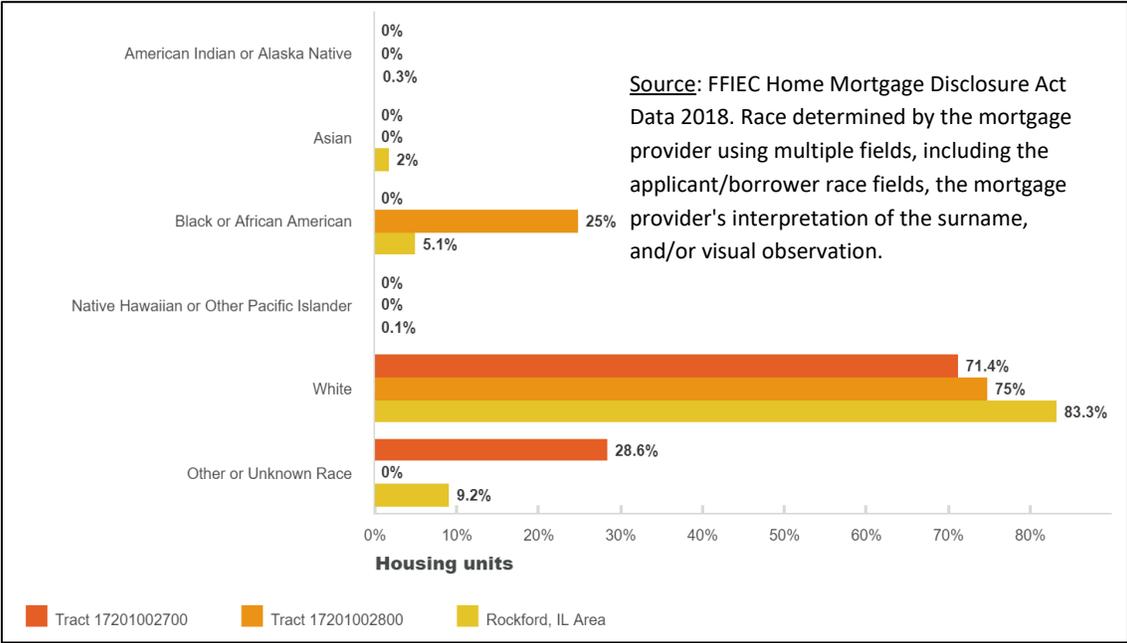


Figure 9. Mortgage origination by race. Source: (Enterprise Community Partners, 2020)

In addition to low levels of homeownership for a portion of the population, there is also a limited supply of affordable and subsidized housing for low-income households, of supportive and accessible housing for seniors and people with disabilities, and of units for large and/or extended family households in the study area (Urban Design Ventures, 2019). Table 5 shows the limited availability of public housing in the study area compared to the entire City of Rockford. The lack of affordable housing is discussed further in the *Housing Affordability* section.

Table 5. Subsidized and Assisted Housing ^a

Index Measure	Census Tracts 27 & 28	Rockford, IL
Multifamily Properties - Assisted (Affordable Elderly and Special Needs Housing)	0	5
Low Income Housing Tax Credit (LIHTC) Properties ^b	0	8
Public Housing Development	0	12
Public Housing Buildings (Scattered Sites) ^c	20	218
Housing Choice Vouchers	48	1806 ^d

^a Source, unless otherwise noted: HUD Resource Locator

^b Both Census Tracts 27 and 28 are LIHTC eligible tracts, but no LIHTC properties are present.

^c Single family and duplexes scattered throughout Rockford; according to the July 2020 Rockford Housing Authority in Focus Newsletter, there are actually a total of 292 scattered sites in the city.

^d Source: (City of Rockford, 2020b)

In addition to challenges in mortgage lending, individuals may also face hardship when renting or buying a house or seeking housing assistance. Individuals can file complaints regarding fair housing violations by contacting the HUD Office of Fair Housing and Equal Opportunity (FHEO) or the Rockford Housing Authority. From January 1, 2009 to June 26, 2019, FHEO received 37 complaints of fair housing violations, most related to rentals or refusal to rent. (Urban Design Ventures, 2019) Disability (27.0%) and Race (36.4%) were the most common basis for the alleged violations. Of those claims, 15 were closed for no cause, 4 were withdrawn, and 1 was settled (Urban Design Ventures, 2019); remaining complaints were either in-process or decisions were unavailable. Studies in other areas have shown that individuals, especially people with incomes at or below the poverty level, racial and ethnic groups, and people with disabilities, could be apprehensive about filing complaints for fear of retaliation, so these numbers may not represent actual conditions.



The Fair Housing Act is a federal law that prohibits “discrimination in housing because of race, color, national origin religion, sex, familial status, and disability” (HUD, 2020b). The City of Rockford also has a fair housing ordinance that prohibits discrimination and provides protection for individuals within the city limits.

Housing Stability

Census Tracts 27 and 28 rank in the lower 25% of Census tracts nationwide for housing stability according to Enterprise Community Partners (2020). The Housing Stability National Index developed by Enterprise Community Partners (2020) is based on six measures of affordability and stability that reflect the ability of individuals to afford their homes and live in uncrowded conditions (Table 6). A third of the measures are related to housing assistance, which provide stability for households that could not otherwise afford housing and frees up income for other necessities.

Table 6. Housing Stability Index Measures

Index Measure	Measures Impact on Housing Stability Index Score	Census Tract 27	Census Tract 28	City of Rockford
Homeownership Rate (% homes owner-occupied)	A high rate has a positive effect on index score.	42.9	61.6	67.7
Percent of Renter Households Receiving Project-Based Housing Assistance (2018) ^{a,b}	A high rate has a positive effect on index score.	2.84	0.56	9.19
Percent of Renter Households Receiving Housing Choice Vouchers (2018) ^b	A high rate has a positive effect on index score.	5.01	6.7	4.57
Percent of All Low-Income Households that are Severely Cost-Burdened ^c	A high rate has a negative effect on index score.	17.76	14.71	12.3
Percent of Households that have Multiple Families or Unrelated Individuals ^d	A high rate has a negative effect on index score.	16.8	10.7	10.9
Percent of Occupied Units that are Crowded or Over-crowded ^{d,e}	A high rate has a negative effect on index score.	4.6	12.2	2.3

^a Project-based housing assistance is a form of Section 8 housing subsidy

^b Source: HUD Picture Subsidized Households 2018

^c Households at or below 80% of the area median income that spend more than 50% of their income on monthly housing costs, including utilities; Source: HUD CHAS 2012-2016

^d ACS 2014-2018 5-year estimates

^e Overcrowding is defined as more than 1.5 persons per every room in the home

Other measures used to indicate housing stability include foreclosures, evictions, frequent moves, and homelessness. According to ATTOM Data Solutions (2019), Rockford had one of the highest foreclosure rates in the U.S. housing market (ranked #8) in the third quarter of 2019 – 1 in every 366 housing units in the City of Rockford had a foreclosure filing (default notice, scheduled auction or bank repossession).

From 2000-2016, the eviction rate in Rockford was higher than the eviction rate in the State of Illinois and the nation (Figure 10). In 2016, Rockford was ranked #51 out of the top 100 evicting large cities in the U.S., and the #1 evicting large city in Illinois, with an eviction rate of 4.55%, indicating that approximately 4 out of every 100 renter homes faced eviction during 2016 (Eviction Lab at Princeton University, 2018). There were 1,630 eviction filings in Rockford in 2016 and a total of 1,189 evictions, equating to 3.25 evictions per day that year. This could be a particular concern for the study area given the large number of

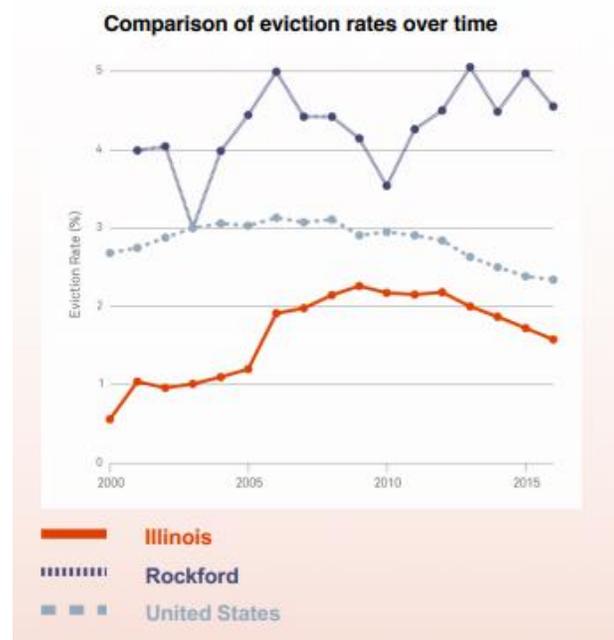


Figure 10. Eviction rates in Rockford over time as compared to the state and national eviction rates. Source: (Eviction Lab at Princeton University, 2018)

renters in the area: 57.1% of occupied housing units in Census Tract 27 and 38.4% in Census Tract 28 were occupied by renters.

According to the ACS 2014-2018 5-year estimates, 14.7% of the housing units in Census Tract 27 and 24.7% of the units in Census Tract 28 were vacant (i.e., did not have people living in them). This equated to a total of 330 vacant housing units in the two tracts (181 in Census Tract 27 and 149 in Census Tract 28). Due to the large number of renter-occupied housing in the area, it is not surprising that a portion of the vacant units in the Census tracts (n=89) were rentals that were not occupied. However, the Census tracts also had a high number of “Other vacant” (n=158), which are vacant units that don’t fall under any of the other categories, including housing units in need of repair, unfit for habitation, abandoned (see *Housing Safety and Quality* section that follows for more discussion) and in foreclosure.

It does not appear that frequent moves are a common result of housing instability in the study area, as 85% or more of residents 1 year or older in both Census tracts were living in the same residence one year earlier, according to the ACS 2014-2018 5-year estimates.

The most extreme measure of housing instability is homelessness. Lack of affordable housing affects the homeless and those threatened with housing loss, including victims of foreclosure, eviction, job loss, and domestic violence. The Rock River Homeless Coalition is one of 22 Continuum of Care regions in Illinois and serves Boone, Dekalb, and Winnebago Counties. The Coalition is a member of a national movement to end homelessness. The City of Rockford became the first community to end both chronic and veteran homelessness in the nation in 2017 and is aiming to end homelessness for the remaining populations, including children, families, and single adults by 2021 (Community Solutions, 2020).

Rockford reached “functional zero” for homeless veterans in 2015 and the chronically homeless in 2016, meaning that they were able to achieve and maintain eight or less homeless veterans and 3 or less chronically homeless in the city for more than 90 days and rehouse newly homeless veterans and chronically homeless within 30 days (Community Solutions, 2020).

The HUD Point in Time Homeless Count (HUD, 2020c) is conducted in January of each year throughout the entire City, including the streets, homeless shelters, transitional housing, and tent cities (one of which is located just north of the study area). But this only provides a single-night snapshot of those experiencing homelessness. The Community Action Agency in Rockford and supporting social service agencies established a unified regional approach to personalize the fight against homelessness, using a real-time, person-specific data management system to learn the individuals by name and their needs, so that resources (such as food, clothing, shelter, housing, rental assistance, transitional housing, job training, domestic violence protection, etc.) could be targeted to best help the individuals. Using this personalized approach, the City identified some of the primary populations facing homelessness, including veterans; those evicted from housing; victims of domestic violence and abuse; those with a disabling condition, mental illness, or substance abuse disorder; and children (Community Solutions, 2020). The City’s strategy was to focus on finding permanent housing for these populations, whether it was supportive housing, subsidized housing, or at market housing, and address the drivers of homelessness (e.g., strengthening the City’s Eviction Prevention Program).



The chronically homeless are “people who have experienced homelessness for at least a year— or repeatedly— while struggling with a disabling condition such as a serious mental illness, substance use disorder, or physical disability” (Community Solutions, 2020).

Housing Affordability

When rent or mortgage costs are high relative to household income, residents may be at risk of housing instability, including foreclosure, eviction, overcrowding, frequent moves, and homelessness; be forced to live in unsafe, unhealthy living conditions; and be unable to afford other necessities, such as food, clothing, health care, and transportation. Table 7 shows monthly housing costs in the study area Census tracts and the City as a whole, along with the percentage of homeowners and renters who are cost-burdened (i.e., spend more than 30% of their income on housing) or extremely cost-burdened (i.e., spend more than 50% of their income on housing).

Table 7. Housing Costs and Cost Burden

Housing Affordability Variable ^a	Census Tract 27	Census Tract 28	City of Rockford
Median value of owner-occupied housing units	\$47,100	\$51,000	\$89,700
Homeowners with a mortgage – Median monthly housing cost for (per month)	\$872	\$866	\$1,113
Homeowners with a mortgage – Cost-burdened	15.5%	31.1%	27.1%
Homeowners with a mortgage – Extremely Cost-burdened	0%	6%	10.4%
Homeowners without a mortgage – Median monthly housing cost for (per month)	\$321	\$378	\$894
Homeowners without a mortgage – Cost-burdened	10.6%	36.5%	13.2%
Homeowners without a mortgage – Extremely Cost-burdened	0%	6.7%	4.4%
Renters – Median gross rent (per month)	\$668	\$672	\$752
Renters – Cost-burdened	62.3%	33.0%	51.5%
Renters – Extremely Cost-burdened	27.2%	20.1%	28.4%

^a Cost-burdened = more than 30% of income spent on housing; Extremely cost-burdened = more than 50% of income spent on housing

^b Gross rent includes the monthly contract rent and any monthly payments made for electricity, gas, water and sewer, and any other fuels to heat the house.

In their 2020 Out of Reach Report, the National Low Income Housing Coalition (2020) detailed fair market rent and the income and employment needed to afford 1-, 2-, 3-, and 4-bedroom housing in the Rockford metropolitan area (MSA; Table 8), revealing that affordable housing is out of reach for a large portion of the population.

Table 8. Income and Employment Needed to Afford FY20 Fair Market Rent (FMR) in Rockford MSA^{a,b,c}

Number of Bedrooms	FMR	Hourly Wage Necessary to Afford FMR	Annual Income Needed to Afford FMR	Employment Needed per Week at Minimum Wage to Afford FMR	Employment Needed per Week at Mean Renter Wage to Afford FMR
1	\$629	\$12.10	\$25,160	48 hours or 1.2 FT jobs	35 hours or 0.9 FT jobs
2	\$828	\$15.92	\$33,120	64 hours or 1.6 FT jobs	47 hours or 1.2 FT jobs
3	\$1,122	\$21.58	\$44,880	86 hours or 2.2 FT jobs	63 hours or 1.6 FT jobs
4	\$1,222	\$23.50	\$48,880	94 hours or 2.4 FT jobs	69 hours or 1.1 FT jobs

^a Fair market rent = an estimate of what a renter can expect to pay for a modestly priced rental home in a given area; Afford = spend less than 30% of income on housing costs

^b Rockford MSA includes the entire Rockford metropolitan area (beyond just the study area)

^c IL Minimum wage = \$10/hour; Mean renter wage in Rockford MSA = \$13.68/hour

It is important to recognize that those on low or fixed incomes (e.g., the older adults, people with disabilities, and populations with poverty-level incomes) are especially vulnerable to the housing costs in the study area (Figure 11).

Affordable Rent for Low Income Households

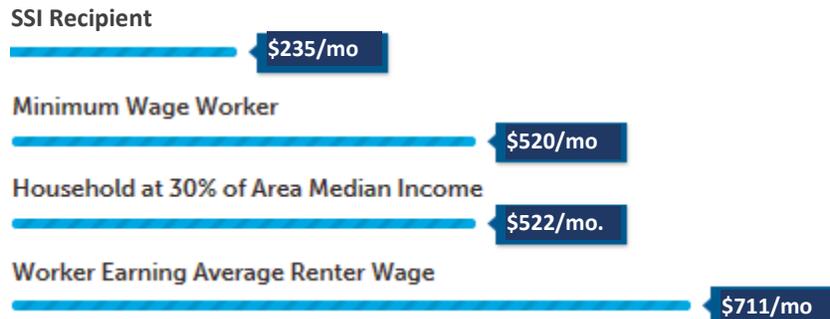


Figure 11. Monthly rent affordable to low income households in the Rockford MSA. Supplemental Security Income (SSI) is a Federal income supplement program funded by general tax revenues to help aged, blind, and people with disabilities, who have little or no income, meet basic needs for food, clothing, and shelter.

A few things to note from the National Low Income Housing Coalition analysis as it relates to the study area: 1) fair market rents are somewhat lower in the study area than in the Rockford MSA as a whole [i.e., 1-, 2-, 3-, and 4-bedroom FMR in zip code 61102 are \$580, \$770, \$1040, and \$1,140, respectively (HUD, 2020a); Figure 12]; 2) because the majority of the population in Census Tracts 27 and 28 age 25 and older have a high school diploma or less (Tract 27 – 67.0%, Tract 28 - 80.7%), it is likely that the mean renter wage in the study area is lower than in the Rockford MSA; and 3) a large portion of the housing units in both Census Tracts are 3 bedroom or more (Tract 27 – 61.5%, Tract 28 - \$40.5%).

It should also be noted that Illinois has the second highest property tax burden in the country (Illinois Policy, 2020). However, in 2020, a property owner in tax code 001 – the City of Rockford and Rockford Public School District – will see the lowest property taxes since 2012, paying \$13.39 for every \$100 of the property’s taxable value (Haas, 2020).

Housing Safety and Quality

Over 40% of the housing inventory in both Census tracts was built in 1939 or earlier (Census Tract 27 – 43.2%, Census Tract 28 – 60. 0%), which puts the housing at a greater likelihood for the presence of lead paint (which was not outlawed for residential use until 1978), and lead pipes, asbestos, and structural issues and substandard conditions. The City of Rockford maintains an [interactive lead pipe service map](#) showing the presence of lead pipes on the public and homeowner side, if known, with a number of homes in the study area having the presence of lead pipes. Based on the age of housing stock, 45.2% of housing in Census Tract 27 and 52.8% of housing in Census Tract 28 have a potential elevated lead risk, compared to 28.6% of housing stock citywide. Both Census tracts had an overall lead exposure risk score of 10 on a scale of 1 (low) to 10 (high), indicating the poverty-adjusted risk of housing-based lead exposure is high for populations living in this area (Washington State Department of Health, Vox Media, PolicyMap, 2019).

Two measures of housing quality that are collected nationally in the American Community Survey and used by HUD to identify “worst case housing needs” are incomplete plumbing and kitchen facilities. Table 9 shows a higher percentage of housing units without complete plumbing and kitchen facilities in Census Tracts 27 and 28 as compared to the Rockford, IL area as a whole.

Table 9. Housing Without Complete Plumbing or Kitchen Facilities (ACS 2014-2018 5-year estimates)

Housing Quality Measure	Census Tract 27	Census Tract 28	City of Rockford
Housing units without complete plumbing (% of total housing units)	5.9	8	1.6
Housing units without complete kitchen facilities (% of total housing units)	5.9	12.7	2.5

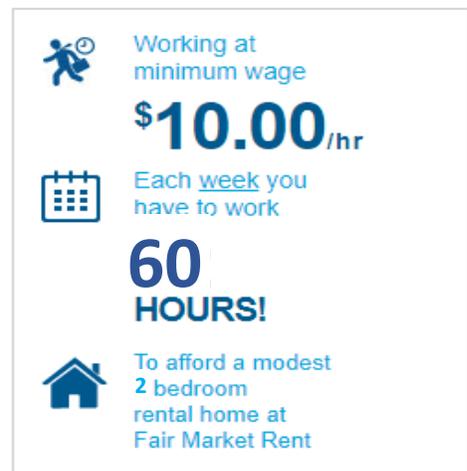


Figure 12. Hours needed to work each week at minimum wage to afford a 2-bedroom rental in the study area.

Poor housing conditions and disinvestment, abandoned structures, and unmaintained properties (Figure 13) were identified as some of the biggest challenges facing this neighborhood during stakeholder interviews conducted as part of the Land Revitalization Technical Assistance Grant (Vita Nuova, 2020). As part of the larger neighborhood revitalization strategy developed for the City by the National Resource Network (2019), the South Main Corridor Area was categorized as an emerging neighborhood, characterized as having considerably higher levels of distress than other parts of the city, including more properties with code violations. As part of the larger neighborhood revitalization strategy, a hot spot analysis was conducted to help identify areas where interventions and strategies could best be applied to revitalize the neighborhood, including demolition and deconstruction of vacant and derelict structures and home repairs and enhancements. The National Resource Network (2019) identified a number of vacant structure hotspots, particularly in Census tract 27 and code violation hotspots throughout the entire study area.

The City of Rockford developed a Neighborhood Revitalization Strategy Area FY2020-2024 Plan (City of Rockford, 2019a) as part of their Five Year Consolidated Plan for FY 2020-2024. The South Main Corridor Area is included in the HUD Neighborhood Revitalization Strategy Area (NRSA). The structural conditions analysis included in the Plan shows the majority of structures in Census Tracts 27 and 28 are in need of minor rehabilitation (including deferred maintenance; Figure 13) or major rehabilitation to bring the building up to code. A smaller portion of the structures in the study area are in sound condition and require only maintenance (Figure 14). An even smaller portion of the structures are economically infeasible to rehabilitate because the cost of rehabilitation would exceed the market value of the home; these are homes that should be demolished or deconstructed. Absentee landlords have been blamed, in part, for the housing neglect in the study area, not maintaining their property to code, creating unsafe living conditions for tenants (Vita Nuova, 2020).

In addition to the physical quality of the building, overcrowding can also lead to unsafe living conditions. The percentage of occupied housing units with more people than rooms (a measure of overcrowding) was 2 to 5 times greater in the study area compared to Winnebago County and the State of Illinois (4.6% in Census Tract 27 and 12.2% in Census Tract 28). This may be due to economic stress among residents and tenants.



Figure 13. Condemned home in Rockford.



Figure 14. Home in study area with deferred maintenance (peeling paint; top) and sound, maintained home (bottom). (Photos by Katie Williams, EPA)

Neighborhood Revitalization, Housing, and Health

Housing and Revitalization

Neighborhood revitalization can **benefit health** through efforts to provide stable, healthy housing, homes that people can afford, and equitable access to affordable, healthy rentals and homeownership opportunities.

A livable wage, rental and foreclosure assistance, housing the homeless, creation of affordable healthy housing, housing and rental subsidies, and supportive housing increase access to stable housing for those who may face instability, such as low-income individuals, people of color, those with mental health or special needs, seniors, and veterans. Providing access to stable housing, including supportive housing (affordable housing that includes coordinated health services for the chronically homeless and those with special needs or chronic behavioral, physical, or mental health conditions), can improve physical and mental health and reduce the use of publicly-funded services, such as hospitals and shelters (Krieger & Higgins, 2002; National Center for Healthy Housing, 2009; Braveman, Dekker, Egerter, Sadegh-Nobari, & Pollack, 2011; WHO, 2018; Taylor, 2018).

Home improvement and maintenance; housing code enforcement; demolition, deconstruction, and/or renovation of existing unhealthy, unsafe housing stock; as well as the addition of new, healthy, affordable housing stock, including supportive housing, can increase the availability of safe, healthy, accessible housing. Incentives can also be provided to landlords to improve properties. Housing that is safe, properly maintained, and free of substandard conditions can improve overall health and reduce poor health outcomes, such as injury, brain and nervous system damage in children, respiratory illness and asthma, poor mental health, heart disease, infectious disease, and cancer. It should be noted that renovation of unhealthy, unsafe housing does pose human health risks to workers, as they are exposed to the conditions making the housing unsafe, such as deteriorating lead paint, mold, asbestos, etc.



Deconstruction is a more sustainable alternative to demolition and an approach that can also be used in building rehabilitation. Deconstruction involves dismantling buildings in order to increase the potential reuse of its components and reduce the amount of building materials sent to the landfill. [EPA's Deconstruction Rapid Assessment Tool](#) can help prioritize structures for deconstruction through assessment of the building's condition and salvageable material inventory.

Rental assistance vouchers, housing subsidies and vouchers, and low-income housing tax credits can increase access to safe and healthy housing for low-income populations and people of color, who are disproportionately exposed to substandard housing (Krieger & Higgins, 2002; CDC and HUD, 2006; WHO, 2006; Jacobs, Wilson, Dixon, Smith, & Evens, 2009; NCHH and APHA, 2018; WHO, 2018; Taylor, 2018).

Access to affordable housing allows people to have shelter; pay for other basic necessities, such as food, clothing, medical care, and transportation; and provides economic security (Krieger & Higgins, 2002; Braveman, Dekker, Egerter, Sadegh-Nobari, & Pollack, 2011; National Center for Healthy Housing, 2016). Affordable housing has been shown to improve overall health and reduce chronic disease and mental health issues (Jacobs, Wilson, Dixon, Smith, & Evens, 2009; National Center for Healthy Housing, 2009; Taylor, 2018). Families in affordable housing experience less stress and children in affordable housing have better health and education outcomes. Renovation of existing housing; development of brownfields into housing (see Brownfields to Housing Successes

spotlighted in Figure 15); affordable and mixed-income housing development; and healthy and sustainable community development can create affordable housing stock. Rental assistance vouchers, rent control ordinances, housing subsidies and vouchers, and low-income housing tax credits can increase access to affordable housing for low- and fixed-income populations and people of color, who are disproportionately impacted by high housing prices. Weatherization, energy efficient housing, and home energy assistance programs can also help to decrease utility costs, as well as improve indoor air and associated health issues.



Figure 15. Brownfield to housing successes See more at [EPA’s Brownfield and Land Revitalization Activities Near You webpage](#)

Equal opportunity for affordable rentals and homeownership can be created through down payment assistance; affordable homeownership programs; housing mobility programs, moving families from high- to low-poverty neighborhoods; bank and loan lending and fairness standards; jobs making a livable wage; and housing subsidies and vouchers. Homeownership is the primary method for building wealth, which can allow individuals and their families to live in healthier homes and neighborhoods; secure quality childcare services, transportation, nutritious food and other health supportive amenities and services; afford educational opportunities for them and their children; and improve their quality of life.

In addition to the direct health benefits of safe and healthy housing for the individuals who occupy them, the construction, renovation, demolition, and deconstruction of housing also has the potential to impact health through employment, increased tax revenue, and impacts to the economy. Local job training and hiring practices for construction, building renovation, and demolition/deconstruction can maximize the health benefits for local residents by improving local contractor and building trade skills with emerging housing materials and methods and providing employment opportunities. Housing renovations and new construction in Cleveland, Ohio have also been found to improve the property values of surrounding homes within 150 feet by \$2,000-\$4,500 (Ding, Simons, & Esmail, 2000) and demolition of distressed housing found to decrease mortgage-foreclosure rates of surrounding properties (Griswold, Calnin, Schramm, Anselin, & Boehnlein, 2014). For a fuller discussion of how jobs and the economy have an impact on health, see the *Employment and Economy* section.

Neighborhood revitalization can **detract from health** if efforts are not made to address improvements to housing access and stability, housing affordability, and housing quality in the study area. There is also the potential for neighborhood revitalization to **detract from health** if the neighborhood revitalization strategy is not aimed at benefiting the current community members and ensuring neighborhood residents are not displaced due to gentrification, especially given its proximity to downtown (i.e., an influx of higher-income residents and businesses that displace existing long-time residents and businesses). Property taxes are already high and, unless controlled or managed, improvements to housing and other properties will drive the taxable value of properties up, resulting in higher property tax bills for households and businesses that may already be struggling. Gentrification can result in physical and mental stress, loss of social networks, relocation, and increased risk for substandard housing and neighborhood conditions for displaced residents (CDC, 2009).

In addition to low-income housing rehabilitation, middle income housing rehabilitation would require support and funding. There are several programs in place at the local, state, and national level that could be leveraged in neighborhood revitalization to assist with housing related issues, including access and stability housing affordability, and housing safety and quality (see *Appendix A*).

Potential Strategies for Promoting Health

Main Finding

Stable, accessible, healthy housing can help support low- and fixed-income populations; minorities; those with special needs or chronic behavioral, physical, or mental health conditions.

- Provide language-appropriate assistance for low- and middle-income populations and those on fixed incomes to become homeowners and help build wealth through programs such as down payment assistance, homeownership programs, and closing cost assistance.
- Provide language-appropriate assistance for home rehabilitation and retrofits that make housing safe and accessible for seniors and those with disabilities.
- Through new construction and rehabilitation of existing housing, develop accessible and supportive housing for older adults, the people with disabilities, and those with special needs.
- Work to acquire funding aimed at reducing the mortgage default rates and foreclosure rates for low- and middle-income homeowners.
- Develop an inventory of single-family housing for purchase and rent-to-own that is affordable to the lower income population through new construction, infill development, and rehabilitation, leveraging City or publicly-owned properties, abandoned properties, and tax-delinquent properties.
- Provide training and outreach to raise awareness of fair housing rights and promote fair housing choices for residents with low incomes, racial and ethnic groups, immigrants, older adults, and people with disabilities. Campaigns and materials should be multilingual and culturally relevant, so that all members of the population can be reached.

Main Finding

Revitalization strategies can help support the availability of affordable housing.

- Increase the inventory of affordable, safe, healthy housing through rehabilitation of existing homes and properties, new construction, and infill housing.
- Promote mixed-income housing development in the area to stabilize the housing market.
- Consider rent control ordinances and other efforts, such as subsidies and vouchers, to make existing housing affordable to area residents.
- Partner with local community colleges, workforce development boards, and labor unions to train unemployed and underemployed individuals in construction and building trades to fill the workforce needs of renovation and rehabilitation efforts.

Main Finding

Safe, healthy housing that is properly maintained and free of lead and substandard conditions helps promote public health.

- Provide financial assistance to low- and middle-income homeowners and quality landlords to rehabilitate and maintain their housing, make home energy improvements, make improvements to the exterior façade and land parcel, and improve ADA accessibility.
- Provide programs and facilitate partnerships that assist homeowners and landlords with maintaining and improving their properties (e.g., community fix-up or clean-up campaigns, corporate outreach programs, Youth Build, bank loan programs, Habitat for Humanity).
- Continue to address housing code violations, through a mixture of code enforcement and incentive programs, to maintain a safe and healthy housing inventory in the area.
- Deconstruct or demolish derelict housing that is economically infeasible to rehabilitate; incentivize deconstruction as a sustainable alternative to demolition via expedited deconstruction permits or other means.
- Encourage negligent or absentee landlords to sell their properties to the City for rehabilitation, demolition, or deconstruction.
- Provide incentives for private developers and non-profit housing providers to construct housing and mixed-use developments in the community.
- Acquire abandoned or tax delinquent properties for re-use or infill housing development.



Neighborhood and Built Environment

Neighborhood, Built Environment, and Health

The location of housing and the conditions of the neighborhood in which it is located can impact health, including physical conditions, such as access to goods and services (public transportation, healthy foods, parks and recreation, quality schools, employment, and health care services), walkability and bikeability (i.e., how friendly the area is to walking and biking), and a clean environment, as well as social conditions, such as a sense of place, inclusion, social networks, and civic participation (Cubbin, Pedregon, Egerter, & Braveman, 2008; Jacobs, Wilson, Dixon, Smith, & Evens, 2009; de Leon & Schilling, 2017; Taylor, 2018). For more on social conditions, see the *Social and Cultural Wellbeing* section.



PLACE MATTERS TO HEALTH

Your zip code is a better predictor of health than your genetic code. Where you live can impact the length and quality of life you live (RWJF, 2020).

High poverty neighborhoods are often associated with reduced public spending; poor environmental conditions, educational outcomes, and employment prospects; increased crime (see *Crime and Safety* section); and lack of access to health-supportive neighborhood resources (Cubbin, Pedregon, Egerter, & Braveman, 2008). Lack of access to health-supportive facilities and services such as supermarkets, parks, educational facilities, employment, health care services, and public transportation has been shown to have a negative effect on overall health and quality of life; increase the rate of mortality, chronic diseases, respiratory diseases, and injury; and lead to mental health issues (Jacobs, Wilson, Dixon, Smith, & Evens, 2009; Taylor, 2018). Low income individuals and people of color are more likely to live in neighborhoods without access to these health supportive services (Cubbin, Pedregon, Egerter, & Braveman, 2008; National Center for Healthy Housing, 2009).

Access to Goods and Services

A “complete neighborhood” provides a variety of uses that give residents safe access to the goods and services they need to live, work, learn, and play on a daily basis, including a variety of housing options, grocery stores, retail services, quality public schools, parks and greenspace, public transit and active transportation (i.e., walkability and bikeability) options, employment opportunities, and public services and amenities (Human Impact Partners, 2011; Placemakers, Inc., 2012). Complete neighborhoods have a center, often defined by civic spaces where residents can gather and socialize (e.g., libraries, community centers, churches, plazas, greenspaces, and parks); a middle area typically characterized by residential properties; and area(s) of commercial goods and services, often more on the edge of a neighborhood or on more heavily-traveled roads where they are easily accessible by multiple neighborhoods (Placemakers, Inc., 2012).

A common measure of neighborhood completeness is that residents are within 1/2 mile of a full service grocery store with fresh produce; a 30 minute transit or walking commute to a healthcare facility; and within 1/2 mile of an area with 75% of common public and private services, including retail food market (including supermarket, produce market, farmer’s market, and convenience store), childcare center/provider, transit service stop(s), eating establishments (restaurants and cafes), bank/credit union, pharmacy, post office, churches,

gym/recreation center, library, community parks or playgrounds, auto repair, dry cleaner, hardware store, laundromat, and civic spaces (Human Impact Partners, 2011).

Some critical health-supportive goods and services include access to healthy foods, healthcare services, quality education, and parks and greenspace (the latter of which is addressed in the *Parks and Greenspace* section). Limited or uncertain access to adequate food (i.e., food insecurity) can occur when money to buy food is limited (e.g., for low income households, cost-burdened households where housing costs are more than 30% or more of household income, or the unemployed) or there is limited access to affordable and healthy food (e.g., in a food desert - a neighborhood with limited access to full-service supermarkets or grocery stores) (U.S. Department of Health and Human Services, 2020a).



In 2018, 14.3 million households faced food insecurity in the U.S. Households with children were more likely to experience limited or uncertain access to food (Feeding America - Hunger in America, 2020).

Food insecurity can lead to hunger and malnutrition, overnutrition (i.e., overconsumption of food) and obesity because of the lack of healthy foods, and mental health issues in children and adolescents (Burke, Martini, Çayır, Hartline-Grafton, & Meade, 2016; U.S. Department of Health and Human Services, 2020a). Children, pregnant women, low income and cost-burdened households, and people of color are more vulnerable to the impacts of food insecurity. Programs like the U.S. Department of Agriculture (USDA) National School Lunch Program (NSLP); Women, Infants, and Children (WIC) program; and Supplemental Nutrition Assistance Program (SNAP) can help alleviate food insecurity, as can improved access to affordable healthy foods such as full-service supermarkets, community gardens, and farmers markets, public transportation to supermarkets, and efforts to alleviate cost burden, such as the Housing Choice Voucher Program (Section 8) and other programs that reduce costs, allowing families to meet other needs (U.S. Department of Health and Human Services, 2020a).

Access to basic health services in the community or within a reasonable travel distance is essential for health. Access to healthcare has a positive impact on health by reducing the risks of chronic disease, infectious disease, injury, illness, and ER/hospital visits (U.S. Department of Health and Human Services, 2020b). When there are shortages in the supply of health care providers, particularly those that are culturally-competent and with whom individuals can communicate and build trust, patients may delay receiving preventative care, obtaining medication and services, and treating chronic health conditions (U.S. Department of Health and Human Services, 2020b).

Access to quality early childhood and higher education is a pathway to opportunity and a key factor in an individual's economic security over their lifetime. While not all learning is acquired in a formal school setting, access to quality public education has been shown to improve health outcomes and promote health equity (Hahn & Truman, 2015; Enterprise Community Partners, 2020). Even a high school diploma opens up job opportunities and the potential for better pay, but higher education, which is the minimum educational requirement for some industries, leads to greater income potential, opportunity for career advancement, and economic self-sufficiency. Educational opportunity is possible when students have access to quality education and are engaged and present during the school day.

Transportation Options

The ability of residents to access goods and services is also determined by the transportation options available to travel to these destinations. Neighborhoods that are connected, with active transportation infrastructure (i.e., walkable and bikeable) and dependable public transit, improve access to goods and services and employment opportunities (Center for Transit Oriented Development, 2014).

Transportation, including vehicle costs, fuel, maintenance, and public transit fares, is often the second highest household expenditure behind housing. Offering alternate modes of transportation and regular transit can enable access to employment, key goods and services, and amenities, especially for low-income households and those without car transportation (Center for Transit Oriented Development, 2014). A “Complete Streets” approach provides the infrastructure to balance different modes of transportation (walking, biking, transit, and car) and support safe transportation options for people of all ages and abilities (U.S. DOT, 2015a; Smart Growth America, 2020). Infrastructure can include well-maintained contiguous sidewalks, clearly marked and frequent crosswalks, street lights, traffic calming, protected bike lanes, accessible public transit stops, curb extensions, medians, streetscapes, etc. (U.S. DOT, 2015a; Smart Growth America, 2020; Active Living Research, 2020). The disrepair of sidewalks and lack of maintained bicycle lanes and other safety features pose risks to pedestrian and bicyclist safety and can provide a psychological barrier to active transportation, impeding its use. Active transportation not only allows access to goods and services, but greater mobility, opportunity for social interaction, and physical activity, all of which have been shown to benefit health (Active Living Research, 2020). Active transportation does bring with it an increased risk of injury to pedestrians and cyclists from exposure to motor vehicles and an increased risk of respiratory illness from exposure to vehicular emissions, although the health benefits of active transportation have been shown to outweigh the potential risks (Mueller, et al., 2015). Access to public transportation has also been shown to increase levels of physical activity, through people walking or biking to and from destinations and transit stops, and can increase access to parks, community centers, and other places to be physically active (Besser & Dannenberg, 2005). Public transportation and bicycle and pedestrian infrastructure creates opportunities for people to exercise as they carry out their daily routines, which is especially important for reducing obesity and other chronic conditions such as diabetes and cardiovascular disease (U.S. DOT, 2015b; Active Living Research, 2020). Access to public transportation tends to facilitate the use of public transit and reduce car usage, which can reduce traffic accidents and air pollution from motor vehicles.



The average cost of owning your own vehicle is \$6,000-\$12,000 a year, an expense that is out of reach for many low-income households (HUD USER).



People living in walkable neighborhoods average 35-45 more minutes of moderate physical activity per week than people in neighborhoods with low walkability (Sallis, et al., 2009). And, almost one third of transit users are able to meet the minimum daily exercise recommendations through daily transit travels (Besser & Dannenberg, 2005).

Other Physical Neighborhood Conditions

In addition to the availability of goods and services and transportation choices in a neighborhood, there are other physical aspects of a neighborhood’s built and natural environment that can also have an effect on health. Physical conditions, such as blight and environmental pollution and contamination can have an adverse impact on health, not only because of the risk of exposure to pollutants and contaminants, but because perceptions of poor environmental conditions can be a source of stress, raise questions about the safety of living conditions,

discourage residents from engaging outdoors (e.g., walking, biking, engaging with neighbors), and lead to isolation.

Blight includes substandard housing, dilapidated structures, abandoned homes, and vacant lots. Considered 'disamenities,' dilapidated built environments contribute to social disorder, crime, vandalism, drug abuse, traffic violations, littering and illegal dumping, and weakened social ties (Branas, et al., 2011). Vacant lots, particularly overgrown and neglected areas, can make residents fearful, fracture the space between neighbors, and overshadow positive aspects of the community. Blight may impact physical and mental health through violence, crime, actual or perceived safety, injury, higher rates of chronic illness, sexually-transmitted disease, premature mortality, homicide and suicide, stunted brain and physical development in children, lack of physical activity and time spent outdoors, buildup of trash, attraction of pests, isolation, breakdown of social networks and social capital, neighborhood-level financial strain, and anxiety, stress, fear and stigma (Cubbin, Pedregon, Egerter, & Braveman, 2008; de Leon & Schilling, 2017). Low income individuals and people of color are more likely to live in distressed neighborhoods with blight, and research has shown that living in a distressed neighborhood leads to racial disparities in health and health care (de Leon & Schilling, 2017).

In addition to blight, the presence of brownfields and facilities where hazardous substances or contamination are present can also pose direct and indirect health risks to residents. A brownfield is "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of hazardous substances, pollutants, contaminants, controlled substances, petroleum or petroleum products, or is mine-scarred land" (EPA, 2006). In addition to known, unknown or perceived environmental health threats from contaminants at a site, the community surrounding these types of facilities may experience other public health challenges, such as:

- Safety Risks: Abandoned and derelict structures, controlled substance sites, and proximity to flood zones or natural hazard areas
- Social and Economic Factors: Blight, crime, vacancy, and vagrancy, reducing the local tax base, availability of social services, and social capital (i.e., community connections)
- Environmental Health: Pollution from industry and commercial activity, dumped wastes, and natural hazards (EPA, 2006).

Sources of air pollution in a community can include mobile sources like cars, trucks, and trains and stationary sources such as factories, power plants and other emission sources. Exposure to air pollutants can impact an individual's willingness to spend time outdoors, cause respiratory disease and asthma, chronic disease such as cardiovascular disease, hypertension, stroke, and cancer, and premature death. Those with pre-existing respiratory conditions, children, and older adults are most sensitive to the effects of air pollutants. Across the country, low income individuals, people of color, and other socially disadvantaged populations are typically located disproportionately in near-road zones and in "fence-line communities" near industrial areas (Radavoi, 2015).

Impaired water quality can be due to a number of causes, including pollutant and wastewater discharges, spills from facilities that produce or store hazardous materials, illegal dumping, combined sewer overflows, surface water runoff from brownfield areas, and more. Impaired water quality can impact an individual's willingness to spend time outdoors, cause waterborne illness, chronic disease, and increased mortality. Children and those

engaged in water recreation, such as fishing and swimming, are most sensitive to the effects of water pollutants, and low income individuals, people of color, and other socially disadvantaged populations are typically exposed disproportionately to impaired water bodies.

Existing Conditions

The current study area does not meet the definition of an extreme poverty neighborhood (i.e., a neighborhood with 40% of residents living below the federal poverty level), but does experience several issues associated with neighborhoods of this type, including reduced public spending; blight; poor environmental conditions; lack of access to health-supportive neighborhood resources; educational outcomes, and employment prospects (the latter of which is discussed in the *Employment and Economy* section); and increased crime (discussed in detail in the *Crime and Safety* section).

Access to Goods and Services

The percentage of residents within 1/2 mile of a full service grocery store with fresh produce was able to be determined (see *Food Access* subsection); however, the analysis did not identify the percentage of residents within a 30 minute transit or walking commute to a healthcare facility or within a 1/2 mile of an area with 75% of common public and private services, including retail food market (including supermarket, produce market, farmer's market, and convenience store), childcare center/provider, transit service stop(s), eating establishments (restaurants and cafes), bank/credit union, pharmacy, post office, churches, gym/recreation center, library, community parks or playgrounds, auto repair, dry cleaner, hardware store, laundromat, and civic spaces (Human Impact Partners, 2011). Figure 16 shows the presence of some of the public and private services used as a measure of neighborhood completeness in the South Main Corridor Area.

It should be noted that the study area has limited availability of some key services, most notably a bank or credit union (although there is a money wire service) and post office, and only has one full-service grocery store with fresh produce. Until recently, they had also been without a gas station (2012), fire station (2015), and health care facility (2019). Childcare services are also limited. An internet search identified eight childcare providers in the study area, but no childcare centers, so the population with access to childcare services within the study area is limited. Seven in-home providers were found, with a combined capacity of 56 children, along with childcare services for preschool-aged children at the St. Elizabeth Catholic Community Center, which has a capacity of 20 children. This is noteworthy, given that one-third of the population in Census Tracts 27 and 28 are under the age of 17, including 300 children under the age of 5, and Census Tract 28 has a high percentage of single-parent households.

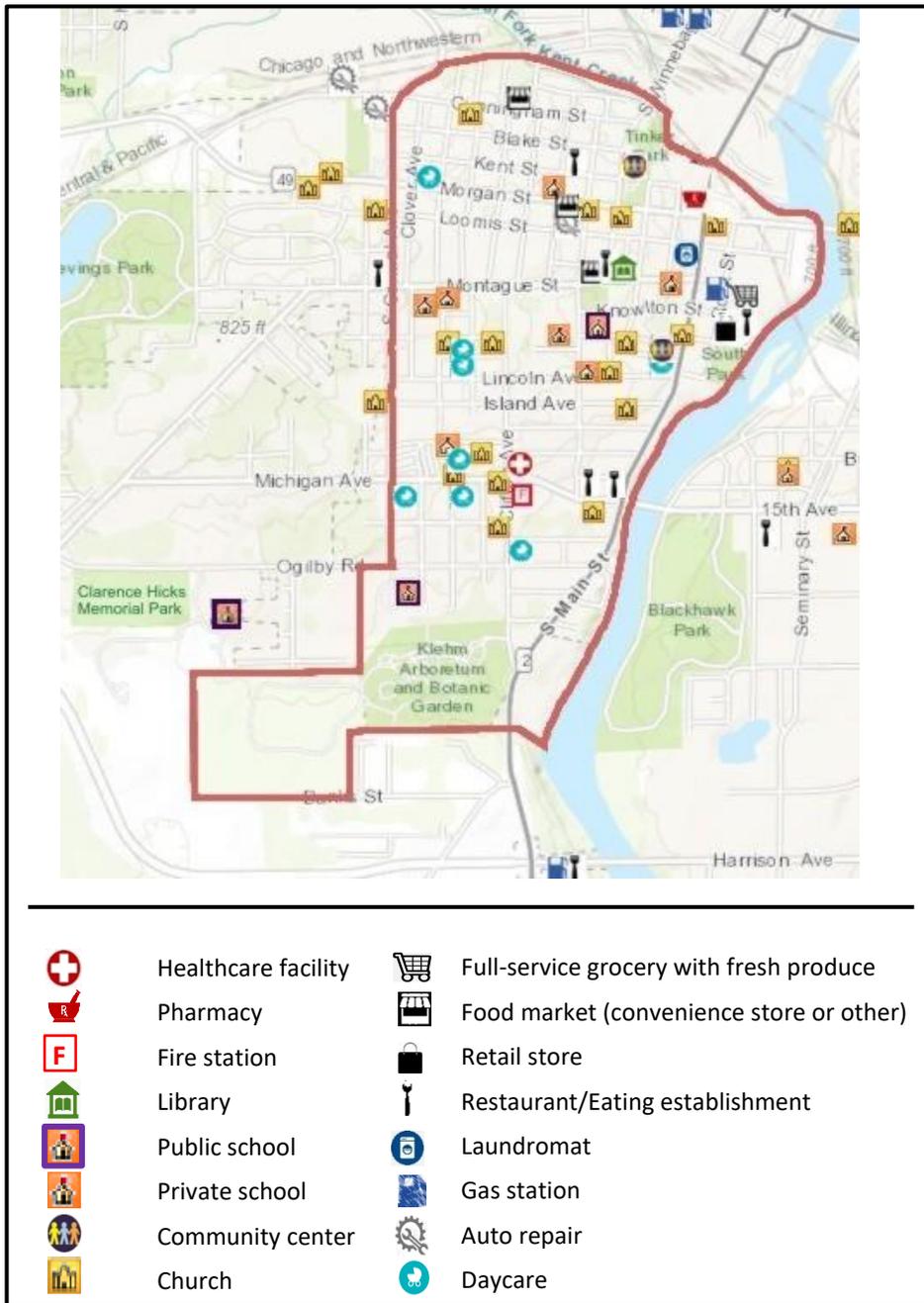


Figure 16. Map of public and private goods and services in the study area.

Food Access

As noted in Figure 16, there is one full-service grocery store with fresh produce in the study area and three additional markets, ranging from convenience stores to limited-inventory food markets. The study area is considered a food desert, with exception of Census Tract 28, where the full-service grocery (La Chaquita) is located (USDA ERS, 2020). A food desert is a “low-income census tract with a substantial number or share of residents with low levels of access to retail outlets selling healthy and affordable foods” (Ver Ploeg, Nulph, & Williams, 2011).

In Census Tract 27, 43.2% of residents have low access to healthy affordable foods (i.e., live more than 1/2 mile from the nearest supermarket or full-service grocery store), compared to 2.2% of the population in Census Tract 28. Of the population in Census Tract 27 with low access, 75% are low income (i.e., a poverty rate of 20% or more or a median family income at or below 80% of the statewide or metropolitan area median family income), 33.6% are children age 0-17, and 11.1% are seniors age 65+ (USDA ERS, 2020). In Census Tract 27, there are 60 households without vehicle access that live more than 1/2 mile from the nearest supermarket or full-service grocery store (USDA ERS, 2020), making access to healthy, affordable foods even more of an impediment.

According to the ACS 2014-2018 5-year estimates, 29-37% of households in Census Tract 27 and 28.5% of households in Census Tract 28 received SNAP (the Supplemental Nutrition Assistance Program, formerly known as the Food Stamp Program). Table 10 shows the breakdown of the households receiving SNAP in the two Census tracts.

Table 10. Characteristics of Households Receiving SNAP^a (Source: ACS 2014-2018 5-year estimates)

Household Characteristics	Census Tract 27	Census Tract 28
% of households receiving SNAP, with children under 18 (estimate)	78.0	48.1
% of households receiving SNAP, with one or more people 60 years and over (estimate)	8.3	19.5
% of households receiving SNAP, with a female householder and no husband present (estimate)	68.9	21.1

^a SNAP= Supplemental Nutrition Assistance Program

Healthcare Access

Both Census Tract 27 and 28 are Primary Care and Dental Health Professional Shortage Areas, as designated by the U.S. Health Resources and Services Administration, but are not considered Mental Health Professional Shortage Areas. Primary care providers are critical to receiving preventative care, health screenings, and managing chronic conditions, dentist are critical to maintaining good oral hygiene, and mental health providers are critical to treating mental illness and helping support residents' emotional, psychological, and social well-being.

The South Main Corridor Area has had limited access to healthcare services but in 2019, SwedishAmerican opened the Riverwest Clinic, which is within walking distance for many residents in the study area, on the bus route, managed by a native of southwest Rockford, and staffed by bilingual employees. In addition to providing healthcare services, the clinic participates in community engagement activities, such as health fairs, Trunk or Treat, and a backpack drive.

In addition to physical access to healthcare services, lack of health insurance can also be an impediment to receiving necessary medical care. According to the ACS 2014-2018 5-



“Being able to share with people that I have a bilingual staff — from the front desk, to the nursing staff, to my clinical staff — has made residents feel like they are at home when they come here because they can speak their language” – Angelica Aranda, Riverwest Clinic Manager

year estimates, 14.1% of the population in Census Tract 27 and 35.5% of the population in Census Tract 28 are uninsured.

Education Access

There are four public schools serving the students in the study area – two elementary schools (Julia Lathrop Elementary School and Washington Elementary School), one middle school (Rockford Environmental Science Academy), and one high school (Jefferson High School). All are located in the study area, with exception of the high school, which is over 8 miles (by car) outside the southern edge of the study area. All of the schools are designated as “Underperforming,” with exception of Julia Lathrop Elementary, which is designated as “Commendable” (Illinois Department of Education, 2019).

The Education Outcome Index by Enterprise Community Partners (2020) indicates that Census Tract 27 and 28 are ranked low in the nation for educational attainment achieved by residents, scoring in the 5th and 1st percentile, respectively. This score is based on three measures: percent of adults with a high school diploma or higher, percent of adults with some college or Bachelor's degree or higher, and percent of adults with a Master's degree or higher. The educational attainment scores for the Census tracts reflect the approximately 40% of the population without a high school diploma.

Between 69% and 83% of students enrolled in the four public schools serving the study area were low-income and 5-8% of enrolled students (n=205) were homeless for the 2018-2019 school year (Illinois Department of Education, 2019). In addition to these significant challenges, 30-40% of students were chronically absent (i.e., absent 10% or more of school days), which is associated with declines in student performance and risk of drop-out (Illinois Department of Education, 2019).

Transportation Options

The availability of public transit and active transportation options (walking and biking) help with access to health-supportive and health-promoting good and services and employment opportunities, and offer opportunities for physical activity and social interaction. The South Main Corridor Area is car-dependent (many errands require a car), yet ten percent (10%) of households in Census Tracts 27 and 28 are without a vehicle for personal use, making other transportation options (active transportation and mass transit) more crucial.

Walkability

[Walk Score](#)[®] is an index, developed by a private company of the same name, with values between 0 and 100 that measures the walkability of a neighborhood, taking into account distance to nearby amenities and pedestrian friendliness (a measure of population density, block length, and intersection density). Census Tract 27 has a Walk Score[®] of 58 and Census Tract 28 has a Walk Score[®] of 64.7. Walk Scores[®] of 50-69 indicate a neighborhood is *somewhat walkable* (i.e., some errands can be completed on foot).

EPA's [National Walkability Index](#) shows that there are some portions of the study area that are more walkable than others (Figure 17). The following indicators are examined at the block group level (a smaller unit than the Census tract) to derive the Index scores:

- mix of employment types and occupied housing – diverse employment types (such as office, retail, and service), plus a large quantity of occupied housing units correlate with more walk trips
- mix of employment types – diverse employment types (such as retail, office, and industrial) correlate with more walk trips
- street intersection density – higher intersection density correlates with more walk trips
- proximity to transit stops – shorter distance from population-weighted centroid of block group to nearest transit stop correlates with more walk trips

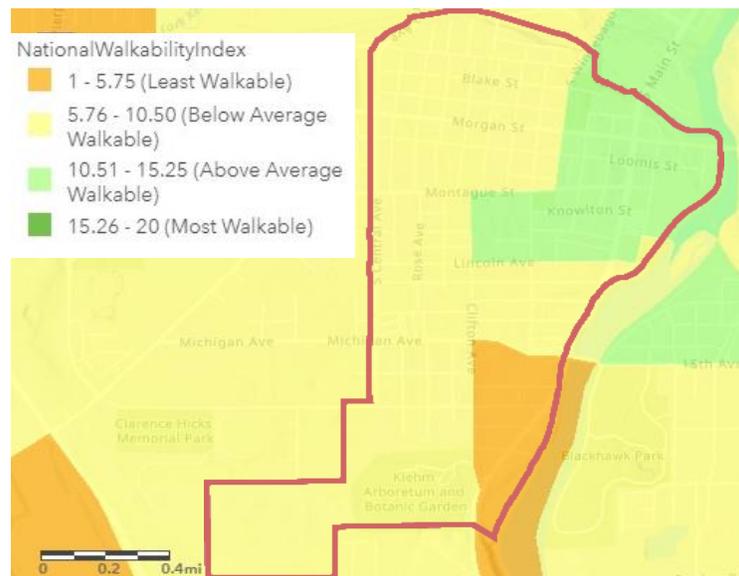


Figure 17. National Walkability Index scores for the South Main Corridor Area.

Block groups in the northeastern portion of the study area, which are characterized as above average for walkability, include a mix of employment types and residences, have high intersection density, and are in proximity to more transit stops (see Mass Transit discussion). As you go west or south in the study area, these block groups are primarily residential, with little employment opportunities, lower intersection densities, and less transit stops. In addition to these factors, walkability is also determined by the presence and condition of walkable infrastructure, including an attractive environment with a sidewalk network in good condition, without gaps and impediments (such as overgrown vegetation, vehicles and other items blocking the pedestrian right-of-way, and uncleared snow and ice in winter), and ample connectivity to enable navigation to destinations, as well as an individual’s sense of safety and security (the latter of which is discussed more in the *Crime and Safety* section). In interviews of stakeholders in the South Main Corridor Area by the Land Revitalization Technical Assistance Contractor, walkability and safe walking conditions, including no broken sidewalks, were identified as an important component of a healthy neighborhood (Vita Nuova, 2020).

Bikeability

Under the City of Rockford’s first 10-year bike plan, in place from 2010-2019, 45 miles of on-street facilities and 21 miles of off-street multi-use paths were created. In September 2020, the Rockford City Council approved a second 10-year plan to improve bicycling conditions for recreation and transportation, including an enhanced and expanded network of bikeways that serve key destinations and facilitate travel within the City (Ride Illinois, 2020b). In addition to the designation of a bikeway network (Figure 18), the City of Rockford Bikeway

Implementation Study establishes priorities for improvements, including bike lane striping, shared lane markings, the completion of trails and paths, installation of wayfinding signs, and improved crossings (Ride Illinois, 2020a). While the Bikeway Implementation Study does provide for an expanded and enhanced network of bikeways throughout the City, it should be noted that proposed improvements to the bikeway network in the South Main Corridor Area are not as expansive as in other parts of the City (Figure 18).

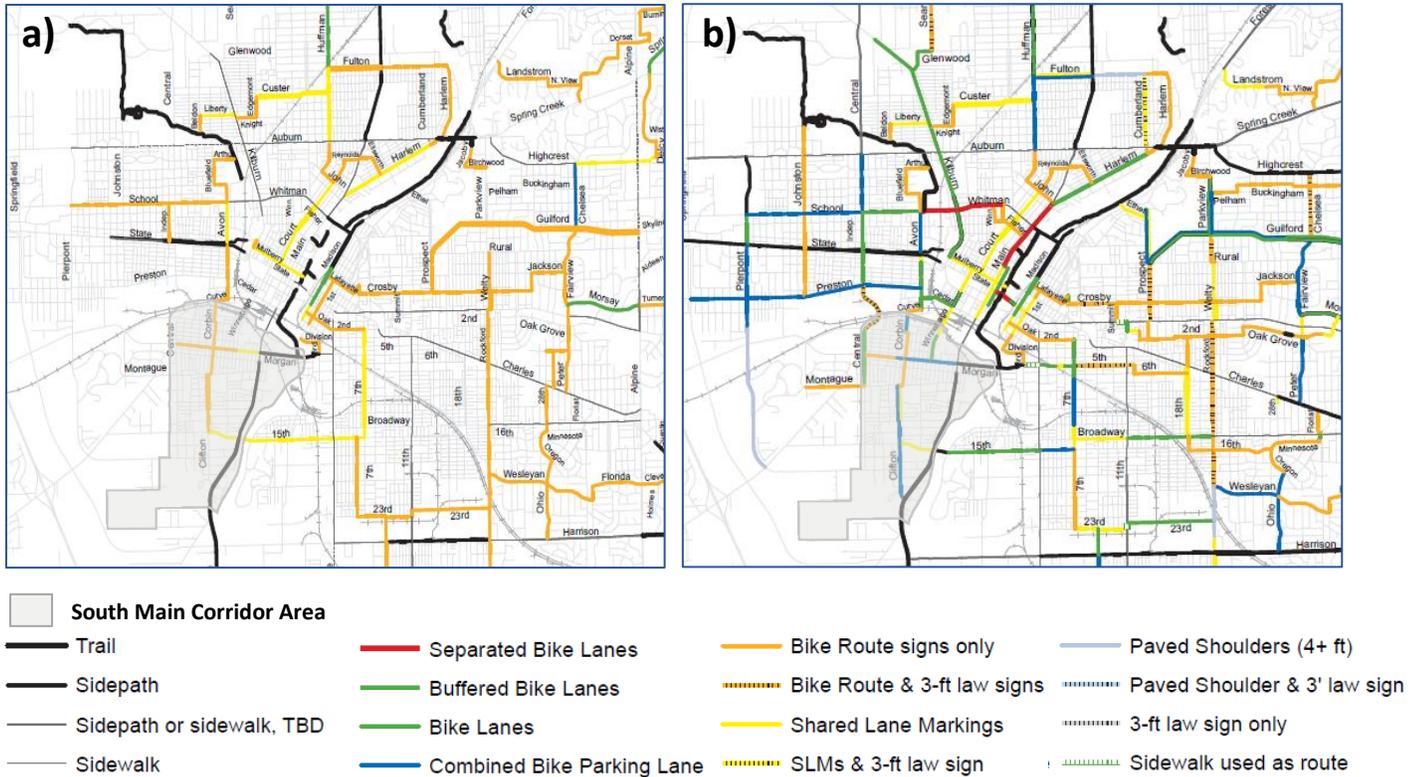


Figure 18. Current (a) and proposed (b) bikeway network in the City of Rockford.

Mass Transit

According to the Center for Neighborhood Technology (CNT, 2019a), all households in the South Main Corridor Area are within ½ mile of transit; however, none are near high-frequency transit. According to the Rockford Mass Transit District route schedules (RMTD, 2020), there is only one bus per hour and no service past 6:00 or 7:00 pm. Figure 19 shows the transit routes in and surrounding the study area, along with the transit stops within the South Main Corridor Area. The transit routes provide access to and from major employment centers and amenities (CNT, 2019a; RMTD, 2020); however, the frequency of trips, the lack of service to accommodate second and third shift workers, and the lack of direct routes to employment and social services are limitations of the network. Fares range from \$0.75 for children age 5-11, students age 20 and under, and riders with disabilities to \$1.50 for adults 12 years and older; rides are free for children under 5 years of age, older adults age 65 and older, and riders with disabilities enrolled in Illinois Benefit Access Program (RMTD, 2016a).

The AllTransit™ Performance Score is an overall transit score (from 0 to 10) that looks at connectivity, access to jobs, and frequency of service; the higher the score, the better the transit service (CNT, 2019b). Census Tracts 27 and 28 have an AllTransit™ Performance Score of 4.8 and 5.6, respectively (CNT, 2019a).

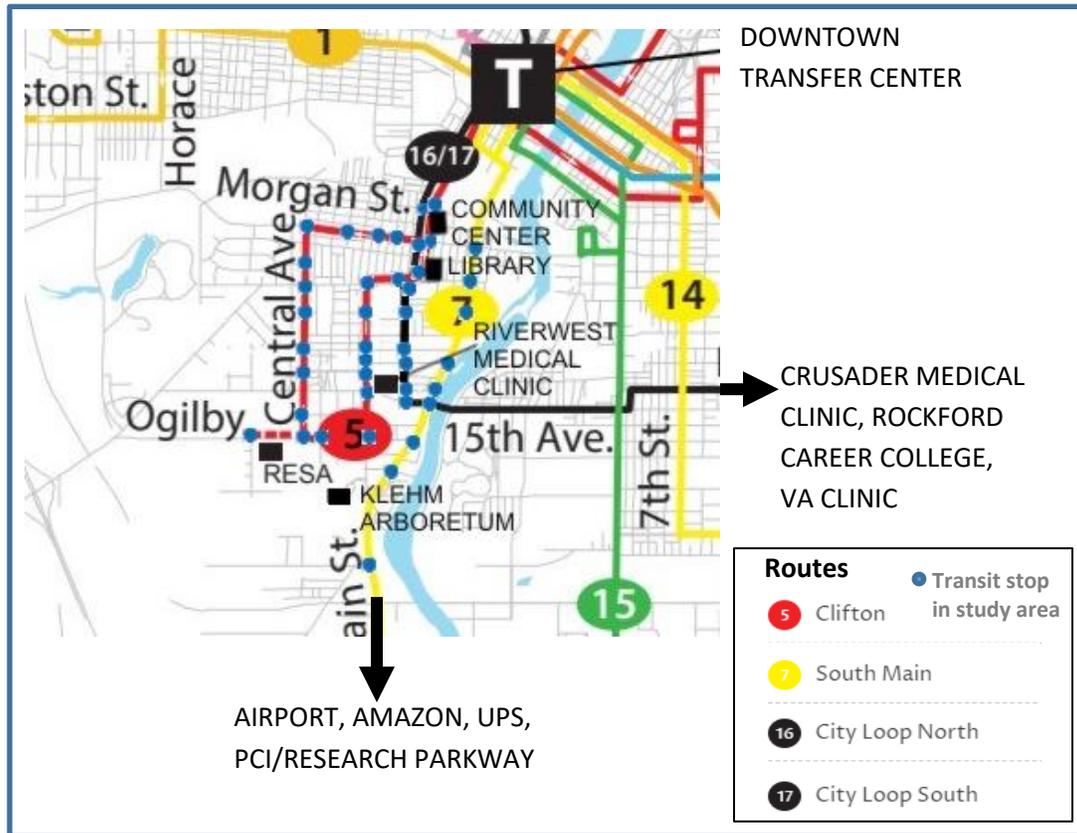
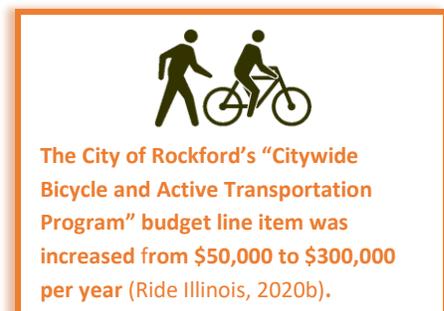


Figure 19. Mass transit routes and stops within the South Main Corridor Area. Source: (RMTD, 2020)

In addition to the fixed mass transit routes, the Rockford Mass Transit District also provides paratransit services at \$3 per ride for registered riders with a disability who are unable to utilize traditional mass transit, including origin to destination service and same day medical trips as outlined by U.S. Department of Transportation, under the American’s with Disability Act (RMTD, 2016b). Rockford Paratransit also provides Medicaid rides free of charge for those who hold a medical card and need transport to medical facilities; rides must be scheduled 24 hours in advance (RMTD, 2016c). Public transportation has benefits for air quality, access to goods and services, and community cohesion.

Complete Streets

In 2017, the City of Rockford adopted a Complete Streets Policy aimed at developing infrastructure to balance different modes of transportation (walking, biking, transit, and car) and support safe transportation options for people of all ages and abilities (City of Rockford, 2017a). Complete Streets may be achieved through transportation projects or through smaller improvements and



maintenance activities over time, and includes “approaching private development and re-development projects with a Complete Streets focus in mind” (City of Rockford, 2017a).

The City will measure the success of the Complete Streets policy annually using the following metrics:

- “Lineal feet of new or reconstructed sidewalk (publicly or privately built)
- Lineal feet of new or reconstructed multi-use paths (publicly or privately built)
- Miles of new or restriped bike routes
- Number of new or reconstructed curb ramps
- Number of new or restriped crosswalks
- Number of new or replaced pedestrian signals
- Number of new street trees planted
- Number of Walk to School Programs initiated
- Rate of children walking or bicycling to school Implementation” (City of Rockford, 2017a)

Physical Neighborhood Conditions

Blight (substandard housing, dilapidated structures, abandoned homes, and vacant lots) and disinvestment were identified as some of the biggest challenges facing the South Main Corridor Area during stakeholder interviews conducted as part of the Land Revitalization Technical Assistance Grant (Vita Nuova, 2020). This is mirrored in the larger neighborhood revitalization strategy developed for the City by the National Resource Network (2019), in which the South Main Corridor Area was characterized as having considerably higher levels of distress than other parts of the city, including more properties with code violations. As part of the larger neighborhood revitalization strategy, a hot spot analysis was conducted to help identify areas where interventions and strategies could best be applied to revitalize the neighborhood, including demolition of vacant and derelict structures. National Resource Network (2019) identified a number of vacant structure hotspots, particularly in Census Tract 27 and code violation hotspots throughout the entire study area.

According to [EJScreen](#) (accessed July 7, 2020), the South Main Corridor Area is characterized by high proximity to sites and facilities (some of them abandoned) where hazardous substances or contamination are present (measured as counts/km), ranking at the 86-97% percentile nationwide, meaning only 3-14% of the U.S. population has a higher proximity to sites of this nature. Figure 20 shows sites and facilities where hazardous substances or contamination are present or thought to be present (Hazardous Waste facilities and Brownfields) and sites that are tracked due to releases of chemicals that can be harmful to human health and the environment (TRI sites). Per EJScreen, there are 28 of these types of sites in the study area in total (symbols on the map with a white cross have more than one site at the location), although this may not reflect the most current cleanup activities in the area.

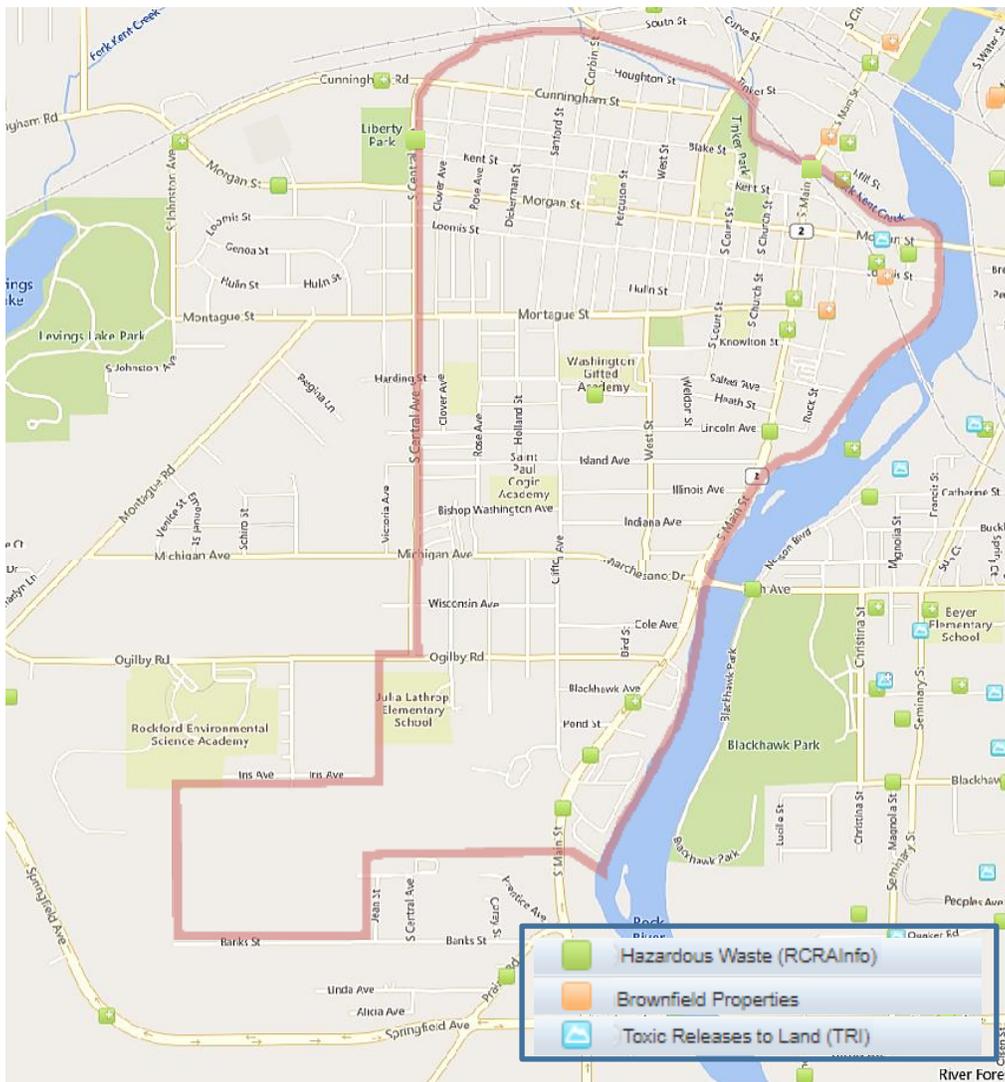


Figure 20. Hazardous waste sites, brownfield properties, and toxic released to land (TRI) sites in the South Main Corridor study area. Source: [My Environment](#).

There are a cluster of these sites in the northeast portion of the study area just south of downtown Rockford, including the Barber Colman complex, an expansive Brownfield site along the Rock River (Figure 21). Once one of Rockford’s largest manufacturers, the Barber Colman site was established in 1902 and flourished until 1980, when the company decided to move its headquarters (AmericanUrbanex, 2020). The Reed-Chatwood textile company purchased the property in 1984 and operated it until 1996, when the space once again changed hands and became a business incubator space; the Barber Colman site operated as a business incubator until it closed in 2000 (AmericanUrbanex, 2020). In 2002, the City of Rockford purchased the Barber Colman site and the 4-acre Montague Island in the Rock River for



Figure 21. One of multiple abandoned, dilapidated buildings amidst the historic Barber Colman Brownfield site. Photo by Katie Williams, EPA

\$775,000 (AmericanUrbanex, 2020). Since then, the City has removed dilapidated buildings and contamination; cleaned up pollutants, including asbestos; and has been pursuing redevelopment options for this 17-acre historic site and its almost 500,000 square feet of buildings; some groundwater contamination still exists at the site (City of Rockford, 2017b).

The City of Rockford has received a number of brownfield grants in the past totaling over \$4 million dollars. These have resulted in the successful assessment and cleanup of multiple brownfields in the area. In 1999, one of these grants targeted a 9.5-square mile area containing 227 acres of identified brownfields and 1 million square feet of industrial and commercial space, which was designated an Enterprise Zone (EZ) by the U.S. Department of Housing and Urban Development (EPA, 1999). Enterprise Zones are distressed areas for which financial and tax incentives are offered to stimulate business growth and neighborhood revitalization.

The main waterways that flank the South Main Corridor Area – the Rock River to the east and the South Fork of Kent Creek to the north – are both impaired. The Rock River is impaired for fishing due to polychlorinated biphenyls (PCBs) and mercury and the South Fork of Kent Creek is impaired for primary contact recreation due to fecal coliform contamination (Illinois Environmental Protection Agency, 2018; Illinois Department of Public Health, 2020). Air pollution is not a significant health challenge in the South Main Corridor Area ([EJScreen](#), accessed July 7, 2020).

Neighborhood Revitalization, Neighborhood, and Built Environment, and Health

Neighborhood, Built Environment, and Revitalization

Physical conditions such as a clean environment; walkability and bikeability; and easy access to public transportation, healthy foods, parks and recreation, quality schools, employment, and health care services have all been shown to improve overall health and reduce chronic disease, injury, and mental health issues. Neighborhood revitalization efforts have the opportunity for placemaking – to create or enhance public spaces and institutions, highlight assets in the community, integrate new amenities and features that meet community needs and vision, and establish public places that help people feel connected to their neighborhood and each other (Project for Public Spaces, Inc., 2016). The *Parks and Greenspace* and *Social and Cultural Wellbeing* sections touch on many of the existing assets of the South Main Corridor Area – both its places and people.

Neighborhood revitalization can **benefit health** through efforts to improve access to health-supportive goods and services, both through increases to public and private assets in the study area and options for accessing these destinations. Revitalization efforts can help achieve a more “complete neighborhood” in the South Main Corridor Area with built environment improvements and the addition of a community center; a variety of land uses to bring people closer to the places where they live, work, worship, and play; and safe access to the goods and services residents need to live healthy lives, including a variety of housing options, grocery stores, retail services, quality public schools, parks and greenspace, space for social gatherings, public transit and active transportation (i.e., walkability and bikeability) options, employment opportunities, and public services and amenities (Human Impact Partners, 2011; Placemakers, Inc., 2012; CDC, 2013). The [Smart Growth Network](#), a partnership of government, business, and civic organizations, identified the following development and conservation strategies to ensure smart growth and the development of complete neighborhoods, which could be considered for the South Main Corridor Area:

- “Mix land uses.
- Take advantage of compact building design.
- Create a range of housing opportunities and choices.
- Create walkable neighborhoods.
- Foster distinctive, attractive communities with a strong sense of place.
- Preserve open space, farmland, natural beauty, and critical environmental areas.
- Strengthen and direct development towards existing communities.
- Provide a variety of transportation choices.
- Make development decisions predictable, fair, and cost effective.
- Encourage community and stakeholder collaboration in development decisions” (EPA, 2019).

Mixed-use development that combines multiple uses within a shared building or development area (e.g., a combination of housing, retail and office space, healthcare services, parks and recreation, or commercial and industrial uses) allows the different measures of neighborhood completeness to be achieved more easily – that residents are within 1/2 mile of a full service grocery store with fresh produce, a 30 minute transit or walking commute to a healthcare facility, and within 1/2 mile of an area with 75% of common public and private services, including retail food market (including supermarket, produce market, farmer’s market, and convenience store), childcare center/provider, transit service stop(s), eating establishments (restaurants and cafes), bank/credit union, pharmacy, post office, churches, gym/recreation center, library, community parks or playgrounds, auto repair, dry cleaner, hardware store, laundromat, and civic spaces (Human Impact Partners, 2011). Mixed-use development can also bring about economic revitalization and provide employment opportunities for area residents.

Improved access to the goods and services in the neighborhood can be accomplished through improved walkability, bikeability, and public transit options. Improvements to pedestrian, bicyclist, and mass transit infrastructure consistent with the City’s Complete Streets Policy can help support safe and equitable transportation options for people of all ages and abilities, provide greater mobility, and provide opportunities for social interaction and physical activity, all of which have been shown to benefit health (Active Living Research, 2020). In addition to enhancement to infrastructure, improvements in public transit service (e.g., frequency and hours of operation) could also prove beneficial, providing reduced travel and wait times and increased transportation options for reaching destinations outside the study area, such as employment. In addition to facilitating access to the goods and services, access to public transportation has also been shown to increase levels of physical activity, through people walking or biking to and from destinations and transit stops, and can increase access to parks, community centers, and other places to be physically active.

Community-scale strategies that increase the proximity of residential areas to retail, employment, school, and recreation; improve continuity and connectivity of sidewalks and streets; and enhance the aesthetics and safety of the physical environment have been associated with a 161% median increase in physical activity in the community (Heath, et al., 2006). Even making smaller street-scale changes, such as traffic calming measures, improvements to street lighting and street crossings, and street scaping have been shown to increase rates of physical activity as much as 35% (Heath, et al., 2006). It should be noted, that while active transportation has many health benefits, it also has the potential to **deduct from health** because of the risk of increased injury to

pedestrians and cyclists from exposure to motor vehicles (addressed further in the *Crime and Safety* section) and increased risk of respiratory illness from exposure to vehicular emissions, especially when co-located with heavily-trafficked roads.

Neighborhood revitalization can bring about physical changes and development that **benefit health** over time as projects move forward. It can also be used as a vehicle to bring about public policy and initiatives that enhance public health and public services to meet the needs of the community and address any inequities that may hinder individuals from leading healthy lives. This could include healthy food initiatives, school reforms and education initiatives, youth programming, pre-school and afterschool care, and other health-supportive policies and programs.

In addition to increased access to good and services, neighborhood revitalization efforts can **benefit health** by reducing blight and cleaning up contaminated properties and pollution. These efforts help address some of the safety and environmental concerns in the community; provide an opportunity to create a safer, healthier, and more sustainable neighborhood; offer new employment opportunities for local residents; and improve neighborhood pride and sense of place. Physical improvements that reduce blight, including greening of vacant lots and demolition or deconstruction of derelict properties, have been shown to decrease fear and improve perceptions of safety, improve social capital and neighborhood attachment, increase property values, decrease crime, and improve physical and mental health outcomes. Recognizing sites that pose limited risks and remediation, reuse, and redevelopment of Brownfield properties and other sites where hazardous materials or contamination are present or perceived to be present also provide an opportunity for significant improvements to health and revitalization of the surrounding neighborhood. For instance, Brownfields are often located where infrastructure is already available, making them valuable properties for remediation, reuse, and redevelopment. A brownfield redevelopment process that focuses on improving public health, well-being, and equity can transform abandoned and underused sites into community assets, such as:

- parks and recreational spaces that encourage physical activity and engagement with nature;
- community gardens that increase access to healthy foods, reduce heat island effects and improve stormwater management;
- mixed-use development that provides services to meet community needs, such as accessible and affordable grocery stores, retail, and health care facilities, job opportunities, and a boost to the local economy;
- employment that meets local residents' skills and educational backgrounds; and
- safe and affordable housing.

As part of development and revitalization efforts, brownfield assessment, cleanup, redevelopment, and revitalization activities can further engage the community on environmental, public health, and local issues.

Due to its expansive size, location, and proximity to existing resources and assets, including Downtown Rockford and businesses along South Main Street, the historic Barber Colman Brownfield site serves as an example where reuse and/or redevelopment could help spur wider revitalization in the South Main Corridor Area. The Barber Colman site and the two vacant city blocks west of the site are City-owned; in this same area along South Main Street are several empty storefronts (Figure 22).

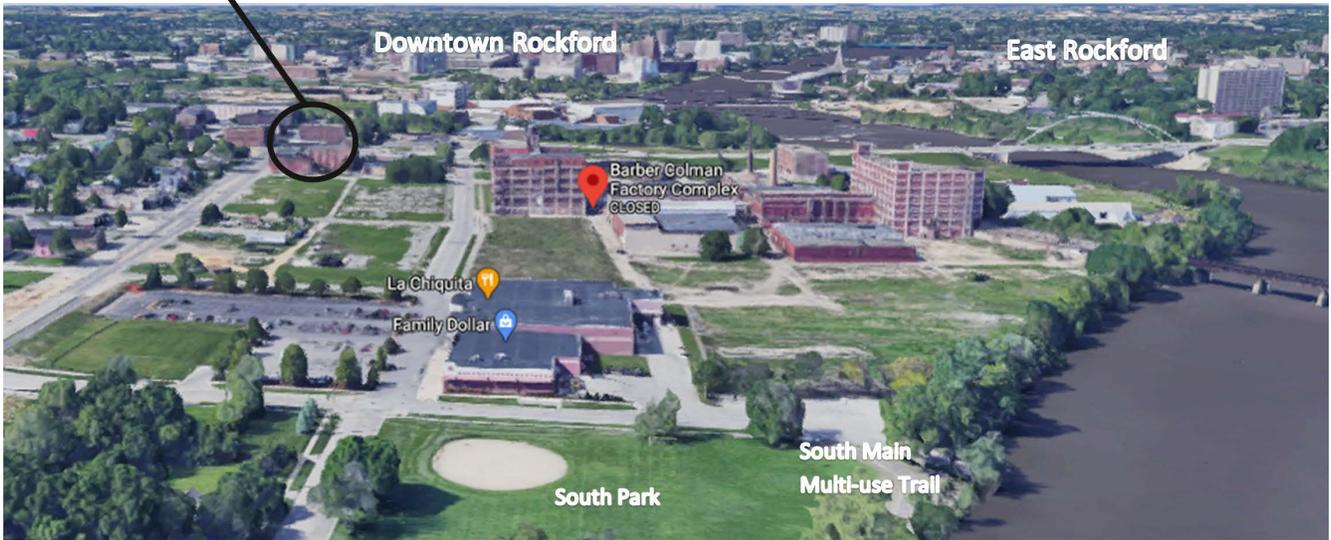


Figure 22. Barber Colman Brownfield site and the two city blocks to the west. Expanded area shows vacant, blighted storefronts just northwest of the Barber Colman site. Photo by Google, 2020.

Productive use of this blighted area could help improve the health and quality of life of local residents by improving the aesthetics and environment in the northeast portion of the study area; supporting mixed-use development that meets the needs of the community, such as safe and affordable housing, retail, employers, greenspace and trails, and other health-supportive goods and services; improving connectivity to surrounding areas of Rockford; and by developing amenities and features that create a sense of place for residents and provide space for social gatherings; and more.

Revitalization efforts that improve the infrastructure, services and amenities, health, and aesthetics of the neighborhood and built environment have the potential to change the character of a neighborhood and lead to gentrification (i.e., an influx of higher-income residents and businesses). Gentrification is often associated with displacement of current residents who can no longer afford to live in the neighborhood due to the higher cost of living that the neighborhood improvements bring. Neighborhood revitalization has the potential to **detract from health** if the strategy is not aimed at benefiting the current community members and ensuring long-time neighborhood residents and businesses are not displaced due to gentrification. Gentrification can result in physical and mental stress, loss of social networks, relocation, and increased risk for substandard housing and neighborhood conditions for displaced residents (CDC, 2009). If current residents are not displaced in the process of revitalization, gentrification can actually benefit health by improving economic and racial diversity,

spurring economic revitalization and investment in the neighborhood, reducing poverty rates, and exposing residents to opportunity (National Low Income Housing Coalition, 2019). Engagement of community members, businesses, emerging leaders, and community organizations, such as Southwest Ideas for Today and Tomorrow (SWIFTT, a non-profit economic and community development organization established in Southwest Rockford) in revitalization planning helps ensure that residents' concerns and vision for the area are acknowledged and helps to protect against displacement. Equitable community outreach and engagement helps ensure that all voices in a community are heard as part of inclusive decision-making. Approaches that promote equity leads to more innovative ideas, better decisions, and greater public support of outcomes. In addition to providing the physical means of participation – accessible location, transportation, time-of-day – equity considerations can include language translation services, childcare, and transparency of the extent to which community participation can influence decisions.

Potential Strategies for Promoting Health

Main Finding

Revitalization strategies can help support access to health-supportive goods and services

- Utilize [smart growth principles](#) to ensure neighborhood revitalization efforts support economic growth, strong communities, and environmental health.
- Increase the number of service- and retail-based businesses in the study area that are accessible by sidewalk, bicycle, and transit to provide employment opportunities for local residents and make for a more service-friendly community. In addition to improving access to good and services, this can also support residents aging in place.
- Consider mixed-use development that includes employment opportunities, residences, and essential services together to create a more “complete neighborhood” that aligns with the vision of current residents.
- Engage community members in creating a vision for the South Main Corridor Area to ensure that improvements to goods and services meet the needs of the community and benefit all residents. If possible, assist with the development of a Community Board to represent and empower residents

Main Finding

Improvements to walkability, bikeability, and mass transit in car-dependent areas have the potential to connect residents to goods and services and provide opportunity for physical activity

- Consider Complete Streets infrastructure improvements in the study area and Complete Streets features in any new development to improve pedestrian and bicyclist safety and mobility and promote active transportation. Features can include well-maintained contiguous sidewalks, clearly marked and frequent crosswalks, street lights, traffic calming, protected bike lanes, clear signage, accessible public transit stops, curb extensions, medians, streetscapes, and more.
- Consider improvements to public transportation infrastructure and services to increase mobility and access to goods and services for area residents.

Main Finding

Strategies exist to mitigate the effects of blight, aging infrastructure, and Brownfields.

- Carry out revitalization efforts in a way that protects long-term residents and businesses from displacement. This can include rent and housing subsidies, the inclusion of affordable housing, and more.
- Strategically renovate, restore, demolish, or deconstruct vacant dilapidated structures, acquire abandoned or tax delinquent properties, and remediate Brownfield properties and transfer these properties to productive re-use, improving aesthetics of the community, boosting the value of nearby land, providing revenue-earning potential, and increasing connectivity and access to goods and resources.
- Improve the appearance of existing historic, commercial, and public buildings in need of repair through facade improvements and renovations.
- Re-examine zoning practices and strategies to examine potential current and future exposures.



Parks and Greenspace

Parks, Greenspace, and Health

One of the most basic facets of human nature is our need to experience the outdoors and natural world. Whether it is the need for vitamin D from the sun, the fresh air that can fill our lungs and keep us moving, or the space we need to use our bodies and disconnect from the technological world, greenspace remains a high necessity in our lives. Covid-19 has made it more evident that public greenspace can be a great equalizer in cities – those without their own yard or the ability to drive to natural spaces can benefit from having parks and greenspace around their neighborhood. Access to public greenspace, such as parks, trails, and sports fields, can have beneficial effects on both mental and physical well-being (Bedimo-Rung, Mowen, & Cohen, 2005; Larson, Jennings, & Cloutier, 2016; Larson, et al., 2016). Public greenspace provides a place for physical activity or exercise (Brown, Schebella, & Weber, 2014; Cohen, et al., 2015), walking (Van Cauwenberg, et al., 2015), pet exercise (Lee & Shen, 2013), aesthetic appreciation (Buchel & Frantzeskaki, 2015) and social interactions (Buchel & Frantzeskaki, 2015; Larson, Jennings, & Cloutier, 2016; Larson, et al., 2016).

Parks and Greenspace Support Physical Activity

Only 25% of the adult population of the U.S. engage in adequate levels of physical activity (Gries, 2006). Studies have found; however, that having a park or greenspace within a half-mile or 10-minute walk (a common national standard for park access) is associated with higher levels of physical activity (Mowen, 2010; CDC, 2012; APA, 2015; Harnik & Martin, 2015; The Trust for Public Land, 2018). Parks also have a positive impact on physical activity in children, supporting play and brain development through exercise and socialization in these spaces (Gries, 2006).



Having a park or greenspace within a 10-minute walk is associated with higher levels of physical activity (The Trust for Public Land, 2018)

Physical activity is related to "reduced risk of premature death; reduced risk of coronary heart disease, hypertension, colon cancer, and non-insulin-dependent diabetes; improved maintenance of muscle strength, joint structure, and joint function; reduced body weight and favorable redistribution of body fat; improved physical functioning if they suffer from poor health; and healthier cardiovascular, respiratory, and endocrine systems" (Trust for the Public Land - U.S. Department of Health and Human Services, 1996). Physical activity is also associated with improved mental health, including a reduction in rates of stress, depression, and anxiety and improvements to mood and psychological well-being (Trust for the Public Land - U.S. Department of Health and Human Services, 1996; Sharma, Madaan, & Petty, 2006; Biddle, 2016).

Although proximity to parks has been shown to increase physical activity (Kaczynski & Henderson, 2007), factors like park size, personal safety, cleanliness and maintenance, park quality, aesthetics, amenity availability, and organized activities and programming are also important contributors to park and greenspace usage (Godbey, 2009; McCormack, Rock, Toohey, & Hignell, 2010; Cohen, et al., 2010; Brown, Schebella, & Weber, 2014).

Reflecting the importance of these factors, Cohen et al. (2015) found that recently renovated and improved parks can draw more than twice the number of visitors compared to unimproved parks.

Exposure to Nature Promotes Coping and Improved Mental Health

In addition to health benefits from increased physical activity, parks and aesthetically-pleasing greenspace can promote improved mental health through physical activity, engagement with nature, and both solitude and socialization activities. Engagement with nature and participation in outdoor recreation, including birding and nature study, fishing, hiking, biking, climbing, skiing, or boating, can positively impact well-being (Kim, Lee, & Kim, 2014; Korpela, Borodulin, Neuvonen, Paronen, & Tyrväinen, 2014; Kux & Haider, 2014), including:

- Improved cognitive functions and attention span (Hartig, Mang, & Evans, 1991; Cimprich & Ronis, 2003)
- Higher reported happiness and sense of rejuvenation (Hartig, Mang, & Evans, 1991; Abraham, Sommerhalder, & Abel, 2010)
- Reduced stress hormone production and more steady heart rate (Lee, et al., 2011)
- restoration from mental fatigue and recovery from stress (Abraham, Sommerhalder, & Abel, 2010).

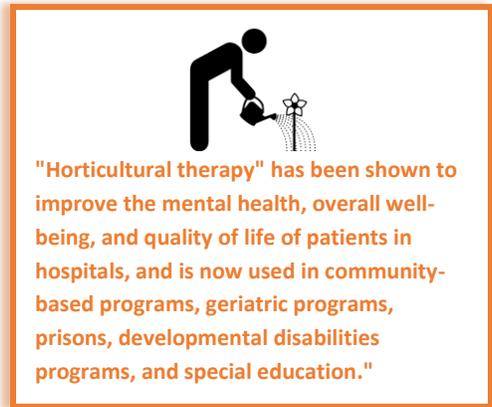
One in four Americans are impacted by stress, and some people are more susceptible to stress than others, including those in poor health, persons with disabilities or low incomes (<\$20,000), and the parents of teens (NPR, Robert Wood Johnson Foundation, and Harvard School of Public Health, 2014). Physical manifestations of stress may include reduced mental health, high blood pressure, heart disease, obesity, diabetes, and diminished immune response (NPR, Robert Wood Johnson Foundation, and Harvard School of Public Health, 2014). For individuals exposed to difficult family circumstances, poverty, discrimination based on gender, social class, or ethnicity, or other stresses, time in greenspace may improve mental and physical health through stress relief (Thoits, 2010).

Even views of nature helped, with people reporting less mental fatigue, improved mental alertness and cognitive performance, less procrastination in dealing with life issues, and more empowerment to address the problems in their life, compared to those without a view of nature; as little as a couple trees or a patch of grass has been shown to have these positive impacts (Gries, 2006). Theories that support this research suggests that human biology drives us towards the natural environment, which has historically provided the resources necessary for survival (Gries, 2006). Frances Kuo adds that natural landscapes are essential to our psychological and social health, influencing blood pressure, heart rate, emotional health, social behavior, cognitive functioning, and work performance (Gries, 2006).

Parks and Greenspace Promote Social Well-being

Parks and greenspace can bring the community together and provide opportunities for socialization (Buchel & Frantzeskaki, 2015; Larson, Jennings, & Cloutier, 2016; Larson, et al., 2016), which is particularly important for those who may face greater rates of social isolation, including older adults. Parks and greenspace have the power to build social cohesion, strengthen social bonds, and serve as a location for community events, organized activities, social gatherings, and cultural programming. Social connection helps build mental resiliency and community resiliency. This is discussed in more detail in the *Social and Cultural Wellbeing* section.

One use of greenspace that can really promote social cohesion is the creation of community gardens. Community gardens bring communities together through a shared passion for gardening and with the mutual benefit of working together and building relationships. Community gardens also provide an opportunity to engage with nature through garden and landscaping, activities which promote overall health and well-being, improved mental health, and the physical benefits of exertion, including improved strength and flexibility. And community gardens established in parks and greenspaces also provide access to nutritious fruits and vegetables that may otherwise be lacking in local shops, especially in areas designated as "food deserts" or for families facing food insecurity (Gries, 2006). Providing public transportation to parks and greenspace can help community access.



Other Healthy Benefits of Parks and Greenspace

Weaving parks, greenspace, and other green infrastructure features (e.g., rain gardens, bioswales, planter boxes and planting strips, urban tree canopies and tree-lined streets, wetlands, and permeable pavement) into the built environment, can impact health through the avenues already discussed and provide a number of additional environmental, social, and economic benefits (EPA, 2017)(Figure 23).



Figure 23. Healthy benefits of parks, greenspace, and green infrastructure in communities.

Existing Conditions

Access to Parks and Greenspace

The Rockford Park District was created in 1909 by voters and maintains nearly 5,000 acres of land, including 179 parks (Rockford Park District, 2019). The parks that fall inside the study area are as follows: Tinker Park, Booker T. Washington Park, Mandeville Park, South Park, Taylor Park, and the Klehm Arboretum and Botanical Garden. Right outside of the study area is Liberty Park and Levings Park, and across the river is Blackhawk Park and Marinelli Field. There are approximately 17 acres of publicly-accessible parks in the study area and another 227 acres of publicly-accessible parks just outside the study area (Table 11). The study area also includes the 155-acre Klehm Arboretum, which has paid admission (Figure 24).

Table 11. Publicly-Accessible Rockford Park District Parks in or Near the Study Area

Park and/or Facility (Size) ^a	Characteristics/Amenities
Tinker Park (3.50 acres)	Historic home and gardens, basketball court
Booker T. Washington Park (5.29 acres)	Playground, basketball court, tennis courts, picnic tables, the Booker T. Washington Community Center, and African American Resource Center
Mandeville Park (3.00 acres)	Playground, spray pad, baseball diamond, basketball court, soccer goal posts, drinking fountain, shelter, and Story Book Walk ^b
South Park (3.77 acres)	Playground, soccer goal posts, tennis courts, boat launch and pier, drinking fountain
Taylor Park (1.43 acres)	Greenspace
Liberty Park (10.02 acres)*	Baseball diamond, basketball court, tennis court, spray pad, shelter picnic area, restrooms, drinking fountain; playground was demolished in 2018, awaiting future development
Levings Park (120.40 acres)*	Playgrounds, lake, fishing, boating, West Rock Wake Park, tennis courts, basketball court, baseball field, volleyball court, 1.3-miled paved trail, bathhouse/restrooms, reservable shelter, Story Book Walk ^b , Music in the Park/Tunes on the Terrace (music concerts), and the Levings Showcase ^c
Blackhawk Park and Marinelli Field (96.51 acres)*	Playground, spray pad, basketball court, baseball diamond, volleyball court, baseball stadium, 1.6-mile paved trail, shelter picnic area, reservable shelter, stage area, restrooms. Blackhawk Park was one of the first two parks in Rockford, established in the early 1900s, and was once the home of the Rockford Zoo (Rockford Public Library, 2017). Marinelli Field was once home to several minor league baseball teams (Rockford Public Library, 2017).

^a Size of parks determined by Winnebago County parcel search (<https://agis.wingis.org/maps/PropertySearch.aspx>). The asterisked parks are those outside of the study area, but within a distance considered to be usable by residents in the study area.

^b The Story Book Walk is a program launched in 2020 by the Rockford Public Library, in conjunction with the Park District and Rockford River District, that mounts and installs storybooks on boards along paths and in parks, etc., allowing families to walk along and read the story book pages mounted on each board.

^c The Levings Showcase includes Live at Levings (talent shows, including singers, dancers, rappers, comedians, magicians and more great professional acts) and Domingos in el Parque (a music, arts and culture series celebrating Rockford's Latino community).

[Klehm Arboretum](#)

The Klehm Arboretum is an underutilized gem in Rockford. Established in 1910, the 155-acre site houses many rare trees, and, in combination with native species, houses an assortment unlike anywhere else in the United States. The arboretum features an education center; demonstration gardens; specialty gardens, including a wildfire garden, peony garden, rhododendron and azalea dell, and ornamental grass garden; the Nancy Olson Children's Garden; walking trails; and the Harding Horticultural Library. There is paid admission to the arboretum, but at \$6/adult and \$3/senior, student, or child 3 years of age or older, it is not entirely cost prohibitive. It should be noted that the average household size in the study area is about 3 people, and if 30% of the study area is below the poverty level and 30-60% of renters are cost-burdened, then paying to go to a park may be a luxury. Klehm Arboretum does offer a week-long free fall community event annually and waives daily admission fees on the first Tuesday of each month, making this asset more accessible for the entire community.



Figure 24. Major park asset in the study area, Klehm Arboretum and Botanical Garden. Photographs: (Left) Children's section of Klehm Arboretum, (Right) collection of trees in the arboretum.

There is also one community garden in the study area, located at the St. Elizabeth Community Center, and a number of greenspaces, including at least four vacant lots eligible for the City's Mow to Own Program. The Mow to Own Program allows adjacent property owners or eligible non-profits to acquire city-owned vacant residential lots by maintaining them (e.g., mowing, raking leaves, shoveling snow, and picking up trash) and if desired, making improvements (e.g., fencing, landscaping, tree removal, etc.) for a period of two years (City of Rockford, 2019b). This program reduces the maintenance burden on the City, improves the neighborhood environment, and provides a land purchase opportunity for property owners and non-profits.

The Trust for the Public Land conducts inventories of park access and quality in cities across the country. The City of Rockford ParkScore® inventory (The Trust for Public Land, 2018) indicates that the City is above average in the percentage of residents that live within a 10-minute walk of a free, public park (i.e., 63% compared to the national average of 55%). The percentage of Rockford residents within a 10-minute walk of a park is also higher for all ages when compared to the national average (i.e., 66% of children 0-19, 63% of adults aged 20-64, and 58% of seniors over 65. Lower income households in Rockford have the greatest percentage of residents who live within a 10-minute walk of a park (i.e., 69%), while



Despite above-average park access rate, just 4% of the land in the City of Rockford is used for parks and recreation, compared to the national median of 15%. (The Trust for Public Land, 2018)

middle income residents average 60% and higher income residents average 55%. Over 50% of residents of all races/ethnicities in Rockford live within a 10-minute walk to a park.

The Trust for Public Land (2018) map for Rockford shows that roughly half of the study area has adequate access to parks, defined as a 10-minute walk distance; however, the other half of the area has either a moderate or high need of nearby park access with the area above the arboretum in very high need (Figure 25). This area of high need is defined by tax-delinquent commercial properties, vacant properties, and residential areas. The vacant land there may provide an opportunity to construct a park.

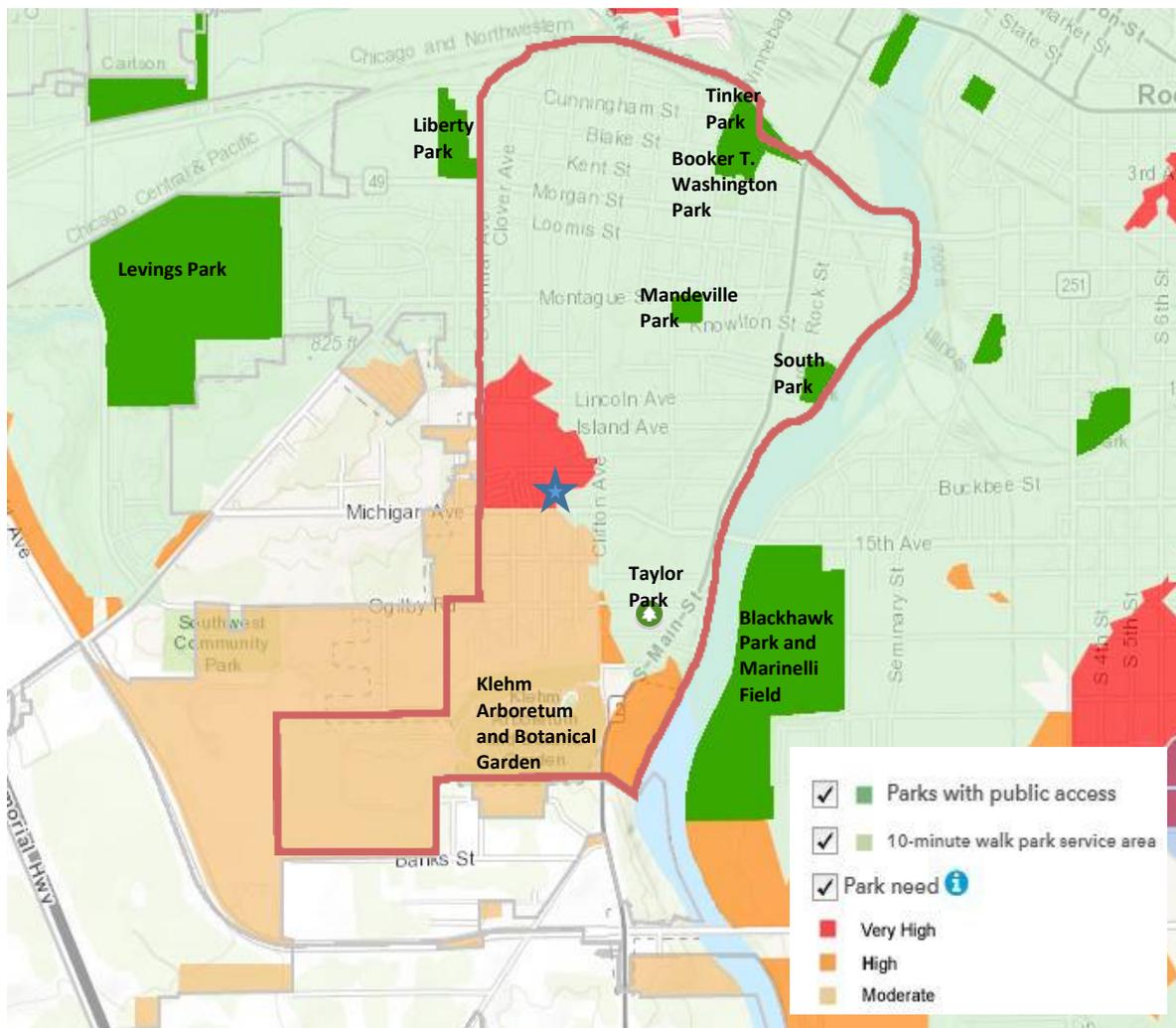


Figure 25. Park access and needs. Source: (The Trust for Public Land, 2018); the star on the map indicates a vacant residential property that could possibly be used to improve access to parks in the “very high” need area.

The star in Figure 25 is an example of where a pocket park could be placed in the study area to benefit the community. A pocket park is a small park accessible to the general public and is frequently created on a single vacant building lot or on small, irregular pieces of land. Reusing this 4.02-acre vacant residential parcel (921 Michigan Avenue, parcel # 11-27-356-022; Figure 26) as a pocket park would address the lower rate of access to parks in the southern half of the study area and provide a park within a 10-minute walk of home for a large portion of this area. A more thorough evaluation of parcels in the study area could highlight the potential for additional pocket park and greenspace locations.



Figure 26. Vacant residential lot that could serve as a pocket park to improve park access.

In addition to these parks and greenspaces, there is also a 2.25-mi paved multi-use path that runs between South Main Street and the Rock River from South Park south to the Blackhawk Fire Protection District's station near the US-20 Bypass. The South Main Multi-use Path was completed in 2017 and provides easy access to Klehm Arboretum and numerous businesses in the study area and has the potential to be connected to the 10.0-mi Rock River Recreation Path north of the study area to connect the South Main Corridor Area and downtown Rockford (Figure 27).

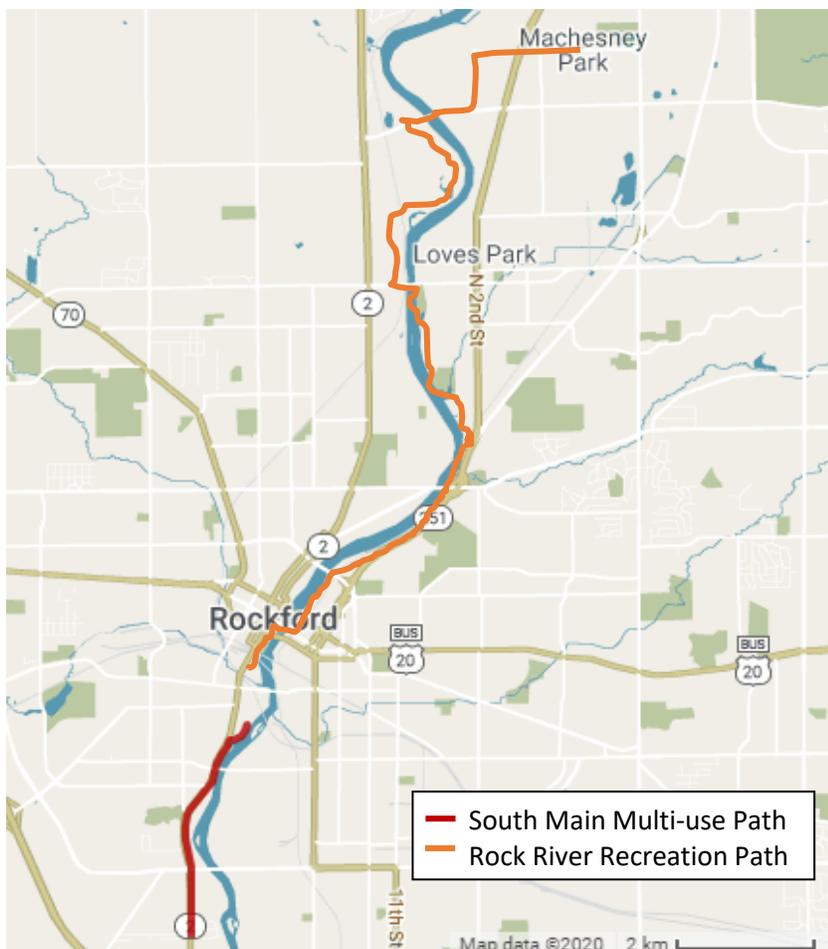


Figure 27. Walking trails along the Rock River inside and just outside the South Main Corridor Area.

Park Conditions

The City of Rockford FY 2020-2024 Five-Year Consolidated Plan and FY 2020 Annual Action Plan noted that parks, playgrounds, recreational areas, fields of play, and bike and walking trails throughout the City are in need of improvements and upgrades. Vandalism was also identified as an issue in predominantly low-income areas, particularly in pocket parks (City of Rockford, 2020b). In the study area, the playground at Liberty Park had to be demolished in 2018 because the structure was 28 years old and beyond its useful life, and during a cursory drive through the study area, aging park infrastructure and a contrast in the upkeep among several of the parks was observed.



While parks are a valuable asset, when not maintained properly, they can impact the aesthetics of a neighborhood, attract crime and deviants, and pose safety issues.

The Park District acknowledges that increased park and trail usage has resulted in the need for greater maintenance, security, and program resources; however, revenue has been limited and expenses continue to increase (Rockford Park District, 2020). The District's funding mainly comes from property taxes and fees; in 2019, property taxes made up 56.1% of the Park District's total operating revenue (Rockford Park District, 2019). The District hasn't levied a tax increase in 6 years knowing the impact property taxes have on residents, making it difficult to offset the expense increases each year. Closure of the park district facilities, programs, events and rentals through much of 2020 due to COVID-19 caused the loss of approximately \$1.5 million in fee revenue. In addition, the state's minimum wage increase will cost the District an additional \$2 million over the next 5 years due to the size of their workforce, without any additional assistance from the state (Rockford Park District, 2019).

To meet these challenges, the Park District has begun to reduce their footprint (selling off or closing facilities), decrease the dependency on property tax revenues, and prioritize resources and areas for implementation.

Park Usage and Perceptions

Currently, the City of Rockford does not track park usage. However, the Rockford Parks District conducted a survey in 2018 to garner feedback and priorities for parks from over 37,000 Rockford adults and children. The top three priorities identified by the 2018 community survey are:

- Increase investments in neighborhood parks, including refurbishing playgrounds and shelters, providing new amenities and programs, and reducing underutilized amenities
- Increase investments in the next generation, including expansion of youth programming, leadership development, and employment opportunities
- Increase investments in trails and paths, including maintenance of existing assets and the addition of new paths and trails (Figure 28).

The feedback documented by the Park District (2020) also prioritized the services that should depend on property tax revenue (i.e., services that benefit the entire community) and those services that should be funded by fees (i.e., services that provide more individual benefit; Figure 28).

What you told us ...

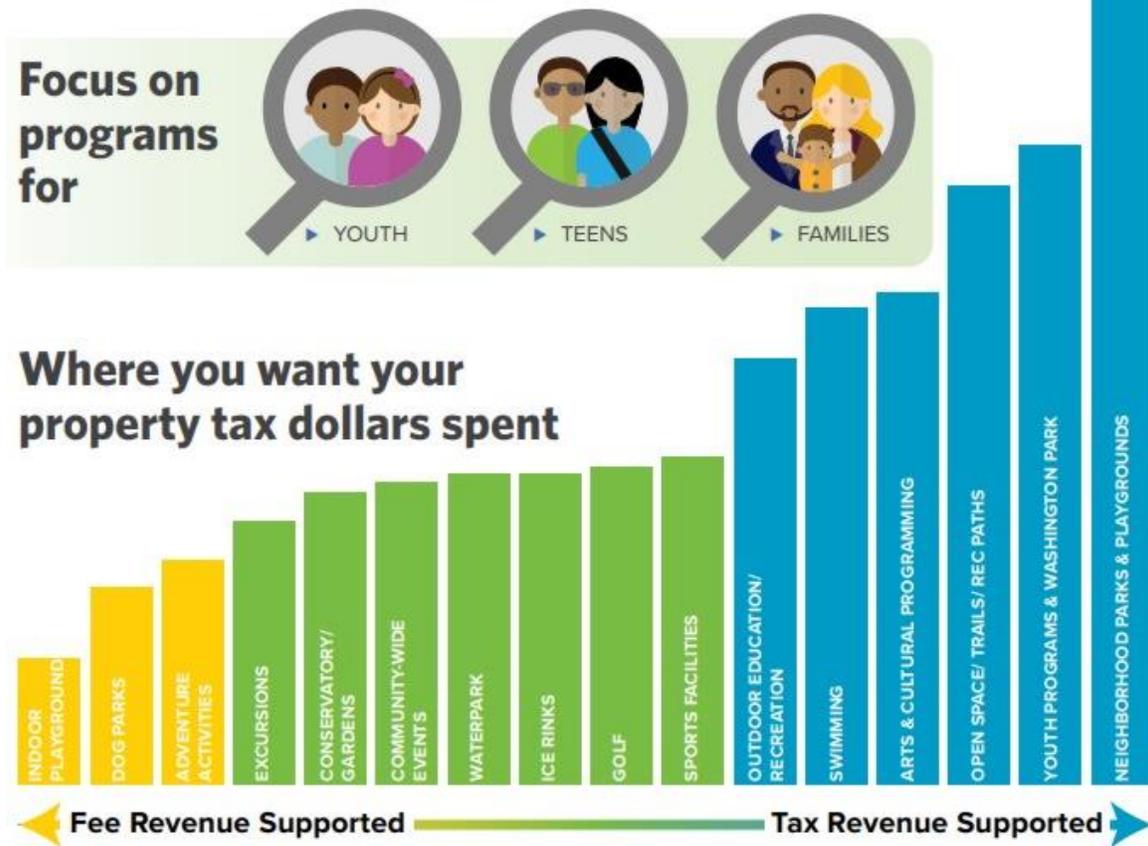


Figure 28. Park priorities as defined by residents. Taken from (Rockford Park District, 2020).

Water Recreation Opportunities in the Study Area

In discussions, the City of Rockford reported that fishing is a common activity along the Rock River and Kent Creek (Figure 29); however, the Illinois Department of Public Health has active fish advisories for the Rock River. There is a polychlorinated biphenyl (PCB) advisory for Common Carp, Channel Catfish, and Flathead Catfish in the Rock River from the Rockford Dam to the Milan Steel Dam, recommending no more than one meal per month for the carp and one per week for each of the catfish greater than 16 inches long (Illinois Department of Public Health, 2020). There is also a special mercury advisory for Flathead Catfish in the same area of one meal per week, but the limit extends to less than one meal per month for pregnant or nursing women, women of childbearing age, and children less than 15 years old (Illinois Department of Public Health, 2020).



Figure 29. Pier on the Rock River at South Park (Photos by K. Williams, EPA)

Swimming and water recreation are not recommended in the portion of the Rock River adjacent to the study area due to the currents (Crowley, 2020) or in Kent Creek, as the South Fork of Kent Creek is impaired for primary contact recreation, as a result of fecal coliform contamination (Illinois Environmental Protection Agency,

2018). Swimming is not allowed in Levings Lake, just outside the study area, and there are no public pools in the study area; however, several of the parks in the area do have spray pads that children can play in, including Liberty Park and Mandeville Park.

Natural Areas

Winnebago County has 26 natural area sites in the county, totaling 6,213 acres; the smallest site, Shirland Railroad Prairie, is under 2 acres, while the largest site, Sugar River, is 3,244 acres. In total, there are 19 protected areas in Winnebago County, as of October 2019, including nature preserves, natural heritage landmarks, and land and water reserves. None of these natural areas lie within the study area.

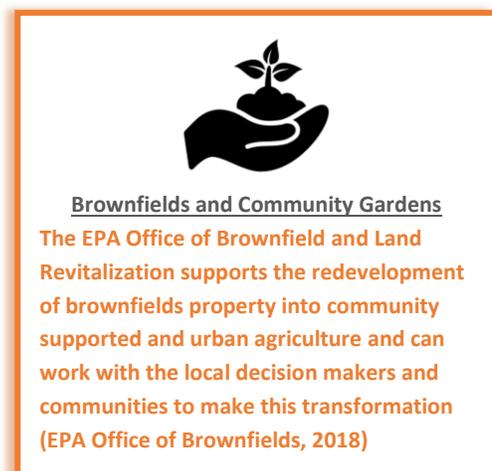
Neighborhood Revitalization, Parks and Greenspace, and Health

Parks, Greenspace, and Revitalization



Neighborhood revitalization can **benefit health** through efforts to provide access to healthful greenspaces and parks. Opportunities to engage with nature, engage in physical activity, fish, and socialize, both in formally constructed parks and in more passive installations of greenspace can increase the overall health and mental health of the community through multiple health pathways. Implementing the mayor’s vision that everyone have a park or open space within a 10-minute walk of their home will help to ensure equal access to parks for all Rockford residents ([The Trust for Public Lands 10-minute walk campaign](#)).

Revitalization efforts can provide simple and small ways to increase the quality of parks and greenspace in a community, through the development of streets or pedestrian-zoned thoroughfares lined with trees, greening of vacant lots, and upgrades to existing assets, for example, or larger efforts, such as the creation of new parks or redevelopment of vacant, remediated properties into parks and greenspace. Access to quality parks and greenspace can provide a neighborhood with a place to recreate, to reunite, and to connect. The physical activity benefits are well documented, but greenspace also provides mental health and social benefits. Social cohesion, documented in the *Social and Cultural Wellbeing* section, is predicated on having places where people can congregate together, and parks provide that space. Even small, one lot parks, known as pocket parks, can have these impacts. However, studies have indicated that parks and greenspace must have a clear plan for maintenance and upkeep to ensure these spaces can continue to provide these benefits. Parks and greenspace that are not well maintained have the potential to **detract from health**.



A stronger local economy is often one of the main goals of revitalization projects. Effective revitalization projects incorporate the public and private sectors, both incentivizing business development and prioritizing the creation of neighborhood amenities, such as parks and greenspace, by integrating the principles of smart growth development. Smart growth development may involve the preservation of open space, farmland, natural beauty and critical environmental areas, connecting trails and greenways into a continuous network; partnering with non-governmental organizations to acquire and protect land and support tree-preservation; and utilizing development strategies that promote the preservation of open space through in-fill, where development already exists.

Prioritizing the use of greenspace in redevelopment can beautify a neighborhood and help transform previously industrial or dilapidated areas into more desirable spaces, which can improve the value of properties nearby, attract residents and businesses, and even reduce crime. In Philadelphia, properties adjacent to greened vacant lots increased in property value by 30% over several decades (Wachter, 2005) and even those within 500 feet of greened lots increased in value over time (Heckert & Mennis, 2012). Vibrant parks and greenspace have also shown to be a catalyst for redevelopment and investment (Rockford Park District, 2019) and can lead to reductions in specific crime and violence (Bogar & Beyer, 2016). Crime Prevention through Environmental Design (CPTED) principles outline how proper design and effective use of the built environment that can lead to a reduction in the fear and incidence of crime (Crowe, 2000).

Programs offered at parks should appeal to the diverse interests of the residents. Park programs can be culturally based but also structured for different age groups or recreational interests. Youth activities can be sponsored to engage local residents and free programs would encourage participation. Park programs that are relevant and accessible will help local residents engage with local parks and greenspace.

Development of parks and greenspace can be a community-centered process that focuses on the environment, the local economy, and most importantly, the needs of those who live, work, and play in the area. Working in partnership with an organization such as the Conservation Fund, the City of Rockford could develop "Parks with Purpose." Through this program, the Conservation Fund helps cities and local organizations serve their most vulnerable communities by providing parks and greenspace, but the most significant part of the development of these parks is that they are planned, developed, and constructed by the residents of the community. After the parks are created, the municipality must maintain the parks with proper maintenance and surveillance, as needed, to provide for a safe place for the community to gather. The Conservation Fund has worked with many cities across the country to develop parks in their most underserved communities, including Atlanta, Kansas City, Raleigh-Durham, and Richmond, California (The Conservation Fund, 2020).

Potential Strategies for Promoting Health

Main Finding

Having safe, easy access to a quality park or greenspace within a 10-minute walk of home has numerous health benefits.

- Consider the development of additional neighborhood or “pocket” parks and upgrades to existing park assets in the study area to fulfill the vision that everyone lives within a 10-minute walk of a quality park or greenspace. Consider criteria to maximize utility, such as walking distance, traffic considerations, and banning tobacco.
- Work with community members to identify where parks and greenspace may be best sited, taking into consideration the location of residences and other points of interest, opportunities to connect to existing greenway trails and parkways, and accessibility by active transportation, including walking and bicycling.
- Consider construction of a greenway or park space along the waterfront that includes both a walking and bicycle path that connects the Rock River Recreation Path and downtown Rockford to the north to the existing South Main Multi-use Path in the study area.
- Provide clear diagrams and multilingual signage and maps for pedestrian and bicyclist access to parks. Important elements of access and design include effective wayfinding systems such as the use of landmarks, signage, distance to destination markers, and interest points to assist in navigating the routes easily.
- Follow Crime Prevention through Environmental Design (CPTED) guidelines, such as lighting and planting configurations, when developing and/or upgrading parks, trails, and greenways, and ensure these spaces are properly maintained to improve the safety and security of the spaces.

Main Finding

Well-maintained spaces with diverse recreational, programming, and social activities enhance opportunities for recreation and overall health. *Partnerships with volunteer organizations may help support park maintenance and programming.*

- Offer diverse amenities and opportunities for recreation at parks in the study area to maximize their potential use and health benefits, taking into account community-voiced desires and targeted outreach with translators and cultural community leaders to ensure those voices are heard. This can include work out equipment, play equipment for children, bicycle and walking trails, practice or sports fields, spray grounds, spaces for gathering and socializing, picnic areas and barbeque facilities, community centers, restrooms, and for parks along the river, fishing piers, birding platforms, water access, and areas to take in the views of the river. Maintenance requirements of installed features should be taken into account when planning.

- Consider the development of community gardens, food production or food foraging areas, and/or establishment of a farmer’s market in existing or new green spaces to address food insecurity in the study area and provide opportunities for social gathering. Assess the previous use of the site to ensure that no contamination or potential safety hazards exist.
- Consider offering cultural programming, similar to Domingos en el Parque, in parks in the study area.
- Provide clear signage along the Rock River, Kent Creek, and Levings Lake to communicate, in both English and Spanish, any fishing and/or swimming advisories and health risks associated with those activities.
- Research and develop co-management models, where neighborhood organizations have more formal responsibility for park management. Co-management arrangements could empower the neighborhood and ease the maintenance burden on the City of Rockford.
- Explore partnerships with organizations to facilitate access, education, and equipment sharing; additional recreational opportunities (e.g., pools, community gardens, etc.); and leadership capacity building for underrepresented populations.

Main Finding

Greenspace incorporated into new development and redevelopment and reuse of commercial, residential, and public spaces can help maximize the public health benefits of revitalization for the community.

- Prioritize the importance of greenspace (including streetscaping) when evaluating proposals for infill and mixed-use development and redevelopment and reuse of spaces in the study area, including City-owned property.
- Consider greening of vacant properties and Brownfields as a low-cost method for increasing greenspace.
- Programs such as Mow-to-Own should be continued, and information about the programs communicated widely, in both Spanish and English, to maximize participation.
- Consider joint use agreements that allow community to partner with government to allow school and similar public recreational facilities to remain open after normal operating hours.



Employment and Economy

Employment, Economy, and Health

Conditions in the environments where people live, work, learn, and play can impact their health (Braveman, Egerter, & Williams, 2011; Braveman, Egerter, & Barclay, 2011; Helman, 2015; Marmot, 2005; WHO, 2003; Anderson, Scrimshaw, Fullilove, & Fielding, 2003). As such, community and household economics both contribute to the overall health and well-being of an individual and a community. Many health determinants are directly related to the economic vitality of the community and the availability of community services, such as neighborhood safety, mobility and access to goods and services, physical activity and social engagement, and many others. On an individual level, household income, combined with housing costs (generally the largest expense for a household), often determine an individual's ability to afford essential health-related goods and services, such as food, clothing, utilities, healthcare, transportation, and childcare. Community and household economics are interrelated as a result of the exchange of taxes, social services, and spending by both the individual household and the government in the economy.

Local Economy

Local municipalities (counties, cities, towns, and villages) provide many of the essential services that support the health of residents, including job opportunities, education, parks and recreation, environmental protection, police and law enforcement, transportation, public health education and protection, and opportunities for social engagement and physical activity. A lack of any of these can negatively impact public health. The capacity to provide these services is directly tied to the economic vitality of the community.

A local economy is influenced by the presence of small and large businesses in the private and public sector, the cost of living, workforce characteristics and availability, revenues (such as property taxes, income taxes, and employment taxes), and expenditures. A strong local economy can provide opportunities for entrepreneurship, employment for the local workforce, business opportunities for employers, and tax revenues to maintain infrastructure and provide public services (Ingram, 2019). Strong local economies can also better weather the reduced revenues and limited aid that comes with downturns in the economic cycle.

Businesses are an important part of the economy. Not only do they provide employment opportunities, but the presence of different types of businesses can increase access to goods and services in the area, and businesses can boost tax income for local governments, as they pay a large portion of taxes in an area (e.g., income tax, property tax and employment tax). Higher tax revenues can allow local governments to increase spending and provide greater health-supportive services and amenities that improve the quality of life for the community (Lange & Vollmer, 2017).

Access to the goods, services, and amenities in an area also plays a role in the strength of a local economy, whether it be financial or physical access. Low household incomes lead to reduced spending, even on basic necessities, and can impact use of services and amenities; whereas, higher household incomes typically lead to higher consumer expenditures. Physical access factors range from population size to transportation options. Population increases are normally associated with increased consumerism and revenue, which can lead to economic growth and lower per-unit costs of public services. Population losses are normally associated with a reduction in consumerism and revenue, which can lead to business closures and vacancies; and although reductions in revenue are experienced, reductions in public spending don't always follow (at least not right away), because the financial obligations of public goods and services do not decline in proportion to population declines (Bland & Overton, 2019).

The transportation options available to access employment and goods and services also play an important part in the local economy. Research has shown that the probability of an individual walking or biking to their destination (parks/recreation, school, employment, and shopping) decreases as travel distance increases (ITE, 2003). As access points to employment and good and services extend further from a person's home, they may have to rely on public transportation or automobiles. Low income individuals are less likely to have access to reliable automobiles and without an already existing and sufficient public transportation system, a person less than 2 miles away from employment opportunities may be unable to gain or maintain steady employment.

Access to Employment

Working American adults spend almost half of their waking hours at work (U.S. Bureau of Labor Statistics, 2020a). Health is intricately tied to employment and an individual's ability to keep a job that earns enough money to provide for them and their family. Further, regular, gainful employment can provide mental health benefits, including the feeling of fulfillment through one's work, and the absence of stress due to financial instability.

The availability of employment opportunities in the local economy is an important factor in an individual's ability to find a job. Whether that be entrepreneurship opportunities through available business development strategies, such as business management courses and training as well as access to loans, tax breaks, and small business incubator resources, or job opportunities with local employers. HUD's Job Proximity Index (<https://hudgis-hud.opendata.arcgis.com/datasets/jobs-proximity-index>) measures the accessibility of a neighborhood to all job locations within a metro area as a function of distance, with higher index values indicating better access to employment opportunities. However, the proximity of fair-paying jobs commensurate with an individual's education and training is often more critical to finding and maintaining employment than is mere distance to employment opportunities.

Lack of availability of jobs commensurate with an individual's education, skills, and training can lead to underemployment (i.e., involuntary part-time employment, poverty-wage employment, and/or insecure employment) and unemployment (i.e., those who are without a job, but available to work and have actively looked for work) (Dooley, Fielding, & Levi, 1996).



In December 2019, the U.S. had an unemployment rate of 3.5%, with 5.75 million Americans without jobs. (U.S. Bureau of Labor Statistics)

Those who are unemployed and without a stable job do not likely have access to health insurance. They may suffer from poor health, stress-related conditions (e.g., stroke, heart attack, and high blood pressure), unhealthy coping behaviors (e.g., drug use and alcohol consumption), and depression (RWJF, 2013a). Those without stable employment and the underemployed may also face poorer nutrition due to food insecurity and housing instability, including having to select lower quality housing or neighborhoods, living in crowded conditions, or even homelessness in the event of a job loss. As discussed in the *Housing* section, housing instability is linked to a number of physical and mental health issues. "Adverse childhood experiences" related to a parent's unemployment, lack of stable employment, violence, or financial hardship can lead to mental and physical health issues in children and are linked to chronic health problems, mental illness, and substance misuse in adulthood (CDC, 2019).

Income

Employment contributes to health in a person's life for multiple reasons, ranging from the material to the mental. A job that pays sufficiently allows workers to live in healthier homes and neighborhoods; secure quality health care, childcare services, transportation, and nutritious food; affords them educational opportunities for them and their children; and provides economic security (RWJF, 2013b); all of these have been shown to improve overall health and well-being. Childhood development is also affected by a parent's employment and wages. The necessities that are provided for by a parent's wages can ensure that child can develop mentally and physically without hindrance.

Educational attainment has a substantial impact on the types of jobs and income that an individual can secure. As the job market has changed, individuals with less education have fewer employment opportunities and may be forced to accept jobs with low levels of control and low wages. Jobs requiring minimal education often pay minimum wage (i.e., the lowest hourly wage an employer can pay an employee, as determined by state and Federal labor laws) and may not carry health benefits. However, minimum wage is often not a living wage; that is, not sufficient to support the employee and their family given the local cost of living (MIT, 2020a). This can lead to individuals having to work long hours or multiple jobs to try and make ends meet. Working more



The Cost of Living Index is a composite index, published quarterly, that calculates the cost of living at the county-level, as well as for major metropolitan areas, and takes into account the cost of housing, utilities, groceries, transportation, health care and miscellaneous goods and services (C2ER, 2020).

than 40 hours per week is associated with increased stress, injury and illness; poorer perceived health; less time for family and healthy activities; and increased mortality (RWJF, 2013a).

Millions of employed Americans are classified as “working poor,” spending 27 or more weeks in the labor force, but having an income below the poverty level (U.S. Bureau of Labor Statistics, 2020b). Those with lower levels of education are more likely to be classified as working poor; 13.5% of those with less than a high school diploma were classified as working poor, compared to 1.4% of those with a Bachelor’s degree or higher (U.S. Bureau of Labor Statistics, 2020b).

People with lower incomes may face food insecurity, housing instability, put off preventative medical care, and lack access to other health-supportive services. Lower income levels have also been associated with shorter life expectancies (Chetty, et al., 2016; Kreiner, Nielsen, & Serena, 2018).



Blacks and Latinos are more than twice as likely to be working poor than Whites or Asians (U.S. Bureau of Labor Statistics, 2020b) .

Health Insurance, Paid Leave, Worker’s Compensation, and Retirement Benefits

Employment often provides more than just wages for many workers. Fair paying jobs often offer health insurance, paid leave, retirement benefits, and worker’s compensation, which allow access to preventative care, respite from financial- and health-related work stresses, and support a person’s overall health and well-being without the loss of wages. Over half of the non-elderly population in the U.S. is covered by employer-provided health insurance, but not all employers offer health insurance (KFF, 2019). Lower-wage jobs offer health insurance less frequently than higher-paying jobs, and even if insurance was offered, lower-wage workers may not be able to afford insurance coverage. Health insurance allows an individual to access health care and prescriptions and provides protection against unexpected medical costs. Access to health insurance has as positive impact on health by reducing the risk of chronic disease, infectious disease, injury, illness, and ER/hospital visits. In addition, most children receive health insurance through their parent’s employer, so steady employment means regular access to preventative and emergency health care a child needs to be healthy. Without health insurance, individuals and their families may postpone routine check-ups and preventative services, be unable to fill prescriptions, and be at risk of going in debt, default, or even bankruptcy due to unexpected medical costs.



Healthy workers are more productive, incur lower health care costs, and have lower rates of absenteeism and disability (Goetzal, Long, Hopkins, Wang, & Lynch, 2004).

Paid leave, worker’s compensation, and retirement benefits are health-supportive benefits that provide workers financial support at crucial times – when time off is needed due to sickness, respite, or other reasons; when injured and unable to work; and when they exit the workforce. Like insurance, low-wage workers are less likely to receive



Forty percent (40%) of private sector workers do not get paid sick leave through their employer (RWJF, 2013a). These individuals are more likely to go into the workplace when they are ill, because they cannot afford to stay home unpaid.

paid leave or retirement benefits through their employer (Egerter, Dekker, An, Grossman-Kahn, & Braveman, 2008).

Working Conditions

Having a job confers many benefits essential for health and well-being, but the conditions in which an individual works is also important. Unsafe work conditions due to the type of work tasks performed (e.g., shift work with little breaks, heavy lifting, use of dangerous tools, etc.) or the physical environment itself (e.g., inadequate ventilation; the presence of physical, biological, and chemical hazards; high noise levels; etc.) can increase the risk of physical harm and lead to accidents, injury, illness, and even death (Egerter, Dekker, An, Grossman-Kahn, & Braveman, 2008). There were 2.8 million non-fatal workplace injuries in the U.S. in 2019 and over 5,200 individuals died from workplace injuries in 2018 (U.S. Bureau of Labor Statistics, 2020c). Sleep deprivation, as a result of swing schedules, night shift work, or exceedingly long hours, has been associated with an increased risk of stress, mental health disorders, chronic disease, injury and illness, and even early death (Caruso, 2014).



Workers in lower-wage and lower-status jobs are disproportionately exposed to unsafe and unhealthy working conditions (Egerter, Dekker, An, Grossman-Kahn, & Braveman, 2008).

Lack of a supportive workplace culture, long work hours, and a demanding job with low reward can lead to stress-related conditions and poor overall health. Gender and racial discrimination in the workplace (perceived or actual) has been shown to be associated with increased stress and high blood pressure, but also musculoskeletal and joint pressure and heart disease (RWJF, 2013a). Job satisfaction, a sense of control over job tasks, a safe work environment, and social support in the workplace can lead to mental health benefits, including the feeling of fulfillment through one's work and the absence of stress.

Existing Conditions

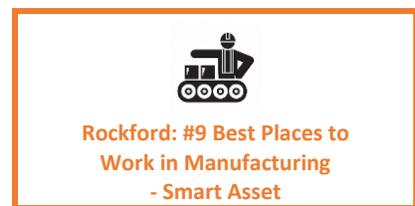
Economy

In July 2019, the population of the Rockford metropolitan area was estimated to be 336,116 (U.S. Census Bureau, 2020a), with the City of Rockford accounting for 145,609 of that total population (U.S. Census Bureau, 2020b). Between April 1, 2010 to July 1, 2019, the population in the City of Rockford decreased by 7,676 – a 5% decrease (U.S. Census Bureau, 2020b). Of U.S. cities with a population of 50,000 or more on April 1, 2010, Rockford is the 15th fastest-declining large city and 9th in cities with the largest numeric decrease (U.S. Census Bureau, 2020b). The population loss in Rockford has been attributed to job instability, high taxes, crime, and better job prospects elsewhere (The Workforce Connection, 2020).

The Rockford metropolitan area had a labor force of 165,703 in September 2019, with 157,152 individuals employed and an unemployment rate of 5.2% (U.S. Bureau of Labor Statistics, 2020f). This is considerably lower than the 11.9% unemployment rate for Rockford in the ACS 2014-2018 5-year estimates. While we don't have unemployment rates for the study area in September 2019, we do know

from the ACS 2014-2018 5-year estimates that Census Tracts 27 had a higher rate of unemployment when compared to the City (17.6% vs. 11.9%) and Census Tract 28 had a slightly lower rate of unemployment (9.7%). It is likely that the same unemployment trends existed in Census Tracts 27 and 28 in September 2019. Per the Illinois Northern Stateline Economic Development Region 5 Workforce Innovation and Opportunity Act Regional Plan (The Workforce Connection, 2020), the region saw a steady decrease in unemployment and an increase in jobs from 2014 to 2019. In September 2019, there were 150,000 non-farm jobs in the Rockford area (U.S. Bureau of Labor Statistics, 2020g). However, due to COVID-19, the unemployment rate in the Rockford metropolitan area has risen and jobs are down (like many places around the nation). In September 2020, the unemployment rate in the Rockford area was 10.0% and the number of non-farm jobs had declined to 138,800 (U.S. Bureau of Labor Statistics, 2020f; U.S. Bureau of Labor Statistics, 2020g).

The major businesses in the Rockford area are listed below, with the number of individuals they employ as of March 2020 shown in parentheses (Rockford Area Economic Development Council, 2020a). These employers represent several prominent industries in the Rockford area, including aerospace, automotive, health care, education, logistics and retail, and packaging:



- Rockford School District (4890)
- Mercyhealth (4520)
- Fiat Chrysler (3749)
- SwedishAmerican Health System (3375)
- United Parcel Service (2203)
- Collins Aerospace (2200)
- OSF St. Anthony Medical Center (2200)
- Woodward (1900)
- PCI Pharma Services (1800)

Rockford has a lower cost of living than the national average. This can be appealing to employers because they can offer lower salaries than in other comparatively -sized cities. Among 257 urban areas in the U.S. in 2019, Rockford had a Cost of Living Index score of 88.9 (as calculated by C2ER), indicating the cost of living in Rockford was 11.1% less than the national average (Rockford Area Economic Development Council, 2020b). Although the cost of living is low, the tax burden is high:

- Property tax: 13.39%
- Corporate income tax: 7%
- Individual income tax: 4.95%
- Sales tax: 8.75% (State of Illinois, 2020).

While the percentage of persons over age 65 is low in the study area (Tract 27 – 8.2%, Tract 28 – 4.7%), in the City of Rockford, 16.5% of the population are age 65 and over (ACS 2014-2018 5-year estimate) and the median age in the state is steadily increasing. The Workforce Connection (2020) notes that the

decline in the working population could pose challenges to ensuring an adequate workforce to meet job growth in the future.

Access to Employment

According to the ACS 2014-2018 5-year estimates, the unemployment rate in Census Tracts 27 and 28 was 17.0% and 9.7%, compared to an unemployment rate of 11.9% for the City of Rockford. Nearly 60% of the civilian labor force over age 16 in Census Tracts 27 and 28 were employed (Census Tract 27 - 60.9%, Census Tract 28 - 57.7%). Of the employed population, the majority were private wage and salary workers (Census Tract 27- 88.5%, Census Tract 28 - 77.5%). Only 2.7% of the employed population in Census Tract 27 and 5.3% of the population in Census Tract 28 were self-employed.

Table 12 shows the percent of the civilian employed workforce 16 years of age or older by industry in the study area compared to the City of Rockford. Based on the prominent industries in the Rockford area, it is not surprising that manufacturing; educational services, and health care and social assistance; professional, scientific, and management, and administrative and waste management services; and retail trades were common employers. It is interesting that almost one quarter of Census Tract 28 is employed in the arts, entertainment, and recreation, and accommodation, and food services; more than Census Tract 27 and the City of Rockford.

Table 12. Civilian Employed Population 16 Years and Over by Industry ^a

Industry	Census Tract 27 Percent	Census Tract 28 Percent	City of Rockford
Agriculture, forestry, fishing and hunting, and mining	0.6	0.0	0.3
Construction	4.8	7.8	4.2
Manufacturing	28.3	14.0	21.8
Wholesale trade	2.5	0.0	1.9
Retail trade	11.0	14.2	11.4
Transportation and warehousing, and utilities	5.7	1.7	5.2
Information	0.0	5.0	1.4
Finance and insurance, and real estate and rental and leasing	1.1	0.8	3.5
Professional, scientific, and management, and administrative and waste management services	14.8	14.0	10.8
Educational services, and health care and social assistance	18.0	13.9	21.2
Arts, entertainment, and recreation, and accommodation, and food services	9.9	22.0	10.5
Other Services, except public administration	3.4	6.5	5.3
Public administration	0.0	0.0	2.4

^a Source: ACS 2014-2018 5-yr estimates.

Based on the educational attainment of the population in Census Tracts 27 and 28 (i.e., approximately 40% without a high school diploma), it is not surprising that the majority of the civilian employed workforce 16 years of age or older were primarily employed in production, transportation, and material moving and service occupations (Table 13).

Table 13. Occupations for the Civilian Employed Population 16 Years and Over ^a

Occupation	Census Tract 27 Number Employed	Census Tract 27 Percent Employed Population	Census Tract 28 Number Employed	Census Tract 28 Percent Employed Population	City of Rockford Number Employed	City of Rockford Percent Employed Population
Management, business, sciences, and arts occupations	72	5.5	71	11.9	17290	27.4
Service occupations	426	32.7	206	34.4	13067	20.7
Sales and office occupations	282	21.6	129	21.5	13956	22.1
Natural resources, construction, and maintenance occupations	60	4.6	32	5.3	3835	6.1
Production, transportation, and material moving occupations	463	35.5	161	26.9	14954	23.7

^a Source: ACS 2014-2018 5-yr estimates.

According to the ACS 2014-2018 5-year estimates, people in the study area commute around 19 to 20 minutes to work on average, with 3.2% of workers in Census Tract 27 and 7.1% of workers in Census Tract 28 commuting over one hour to their place of employment. This signifies that few work within their census tract or even within the study area. This is not surprising, as the South Main Corridor Area is primarily residential. Though it does contain some commercial and industrial properties, as well as public and private businesses, stakeholder interviews conducted as part of the Land Revitalization Technical Assistance Grant also raised the issue of vacant storefronts in the area (Vita Nuova, 2020). Given public transportation and active transportation options in the study area (see *Neighborhood and Built Environment* section), the majority of workers were dependent on car transportation to get to and from work (Table 14).

Table 14. Modes of Transportation to Work for the Civilian Employed Population 16 Years and Over ^a

Mode of Transportation	Census Tract 27 Percent Employed Population	Census Tract 28 Percent Employed Population	City of Rockford Percent Employed Population
Drove alone	76	85	78
Carpooled	17	7.5	12.6
Public Transit	3	3	2.3
Bicycle	0	0	0
Walked	0	2.7	1.7
Worked at home	3	1.8	3.6
Other	0	0	1.7

^a Source: ACS 2014-2018 5-yr estimates.

Income

The per capita income of Census Tract 27 is nearly twice that of Census Tract 28 – \$24,175 compared to \$12,783, though the median household incomes are much closer, at \$35,987 and \$31,688, respectively. Per capita income is average income per person. It estimates the earning power of an individual and is used to describe the standard of living. The lower the per capita income, the lower the standard of living and the more vulnerable the population.

Table 15 shows the living wage calculation for the City of Rockford. The living wage is defined as an hourly rate that an individual must earn to support the basic needs of him or herself and their family (i.e., food, childcare, healthcare, housing, transportation, and other necessities), but does not reflect a wage necessary to enable the individual to save and invest money or to make large purchases, such as a car or home; it may be better described as the minimum subsistence wage (MIT, 2020b). The living wage in Table 4 is based on the local economy and average cost for basic necessities in Rockford. Table 16 shows the individual expenses that went into the living wage calculation, reflecting what would be spent on basic necessities in a given year and the required annual income before and after taxes to afford those expenses.

Table 15. Living Wage Calculation for Rockford, Illinois ^a

Wage	One Adult				2 Adults (1 Working)				2 Adults (Both Working)			
	0 Children	1 Child	2 Children	3 Children	0 Children	1 Child	2 Children	3 Children	0 Children	1 Child	2 Children	3 Children
Living Wage ^b	\$11.03	\$24.68	\$29.57	\$36.49	\$18.04	\$22.60	\$25.12	\$28.45	\$8.76	\$13.66	\$16.10	\$18.95
Poverty Wage ^c	\$6.00	\$8.13	\$10.25	\$12.38	\$8.13	\$10.25	\$12.38	\$14.50	\$4.06	\$5.13	\$6.19	\$7.25
Minimum Wage ^d	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00

^a Source: MIT, 2020.

^b The assumption for the living wage is that the individual is the sole breadwinner and is working a standard full-time schedule (2080 hours a year). In the case of households of two working adults, the values are per working adult.

^c The poverty wage is based on the federal poverty threshold as defined by the Department of Health and Human Services.

^d The minimum wage is the lowest hourly wage an employer can pay an employee, as determined by state and Federal labor laws. The minimum wage was updated from that provided in the Living Wage Calculator to reflect the increase in minimum wage that went into effect for Illinois in 2020.

Table 16. Annual Cost of Basic Necessities in Rockford, IL and the Income Needed to Afford Them ^a

Expense	1 Adult				2 Adults (1 Working)				2 Adults (Both Working)			
	0 Children	1 Child	2 Children	3 Children	0 Children	1 Child	2 Children	3 Children	0 Children	1 Child	2 Children	3 Children
Food	\$3,075	\$4,541	\$6,826	\$9,053	\$5,637	\$7,025	\$9,063	\$11,035	\$5,637	\$7,025	\$9,063	\$11,035
Child Care	\$0	\$8,269	\$12,386	\$16,504	\$0	\$0	\$0	\$0	\$0	\$8,269	\$12,386	\$16,504
Medical	\$2,563	\$7,366	\$7,078	\$7,198	\$5,256	\$7,078	\$7,198	\$7,099	\$5,256	\$7,078	\$7,198	\$7,099
Housing	\$6,300	\$9,600	\$9,600	\$12,960	\$7,260	\$9,600	\$9,600	\$12,960	\$6,300	\$9,600	\$9,600	\$12,960
Transportation	\$4,289	\$8,362	\$10,608	\$11,557	\$8,362	\$10,608	\$11,557	\$12,115	\$8,362	\$10,608	\$11,557	\$12,115
Other	\$2,929	\$4,883	\$5,070	\$6,378	\$4,883	\$5,070	\$6,378	\$6,381	\$4,883	\$5,070	\$6,378	\$6,381
Required annual income after taxes	\$19,156	\$43,022	\$51,568	\$63,650	\$31,398	\$39,381	\$43,796	\$49,590	\$30,438	\$47,650	\$56,182	\$66,094
Annual taxes	\$3,791	\$8,317	\$9,936	\$12,242	\$6,127	\$7,627	\$8,463	\$9,578	\$5,993	\$9,194	\$10,811	\$12,705
Required annual income before taxes	\$22,947	\$51,338	\$61,504	\$75,892	\$37,525	\$47,008	\$52,259	\$59,167	\$36,431	\$56,844	\$66,992	\$78,799

^a Source: MIT, 2020.

Comparing the annual income needed before taxes to afford basic necessities in Rockford (Table 16) to typical annual salaries in Rockford as listed in Table 17, it is evident that many of the lower wage occupations typical of employment in the study area, are not sufficient to support a family in Rockford.

Table 17. Typical Annual Salary for Rockford, IL by occupation ^a

Occupational Area	Typical Annual Salary
Management	\$82,162
Business & Financial Operations	\$55,653
Computer & Mathematical	\$69,660
Architecture & Engineering	\$72,425
Life, Physical, & Social Science	\$62,341
Community & Social Service	\$41,371
Legal	\$63,236
Education, Training, & Library	\$43,556
Arts, Design, Entertainment, Sports, & Media	\$34,845
Healthcare Practitioners & Technical	\$62,422
Healthcare Support	\$29,946
Protective Service	\$40,995
Food Preparation & Serving Related	\$21,285
Building & Grounds Cleaning & Maintenance	\$25,900
Personal Care & Service	\$23,643
Sales & Related	\$25,788
Office & Administrative Support	\$32,456
Farming, Fishing, & Forestry	\$0
Construction & Extraction	\$60,928
Installation, Maintenance, & Repair	\$44,420
Production	\$40,476
Transportation & Material Moving	\$29,986

^a Source: MIT (2020b) Living Wage Calculator, based on wage estimates from the Bureau of Labor Statistics.

Similarly, examining the annual income needed after taxes to afford basic necessities in Rockford (Table 16) indicates that the median household incomes in Census Tracts 27 and 28 would only be able to support one or two adults, but no children. And for the approximately 10% of households in both Census tracts with an income below \$10,000 a year (ACS 2014-2018 5-year estimates), this income is not sufficient to afford basic necessities for even a single individual. This indicates that there are a high number of working poor in the study area, as supported by the poverty rate in the area— 30.7% in Census Tract 27 and 33.9% in Census Tract 28.

It should be noted that the minimum wage in Illinois increased in 2020 for the first time in over a decade. Senate Bill 1, signed in February 2019, put into effect a phased approach for raising the minimum wage to \$15/hour by January 1, 2025. The bill put into effect a \$1 increase in the minimum wage on January 1, 2020 (from \$8.25 to \$9.25/hour); a second increase to \$10/hour on July 1, 2020; and a \$1 increase on January 1 of each year, until reaching \$15/hour on January 1, 2025 (Szalinski, 2019). While this increase is much needed, it still will not

provide a living wage for households with children and only one adult working. This is of significance, given that a third of households in Census Tract 27 are single parent households with children under the age of 18 (ACS 2014-2018 5-year estimates).

Health Insurance, Paid Leave, Worker’s Compensation, and Retirement Benefits

The benefits provided by local employers was not examined, but it is expected, per the literature, that lower wage jobs typical of employment in the study area likely do not offer health insurance, paid leave or retirement benefits. It is not conclusive the role employment plays overall in health insurance coverage in the study area, as the American Community Survey lumps employer-provided and direct purchase together as private insurance. Of the population in Census Tracts 27 and 28 with health insurance (Tract 27 - 85.9%, Tract 28 - 64.5%), over 50% had public health insurance coverage (e.g., Medicare, Medicaid, or Veteran’s coverage), not private insurance. The uninsured rate, 14.1% in Census Tract 27 and 35.5% in Census Tract 28, can be used as a proxy for residents’ ability to access and afford medical care.

Working Conditions

Each year in Illinois, approximately 200,000 work-related accidents occur, but in most cases, these are not lost workday accidents (State of Illinois Worker's Compensation Commission, 2020). The majority of these work-related accidents occur in the private sector, and the industries with the largest number of recordable cases are in trade, transportation, and utilities (34,000 recordable cases); education and health services (22,900 recordable cases); and manufacturing (18,100 recordable cases) industries – some of the primary industries employing workers in the study area (IDPH , 2019). While there is not data available on working conditions in the Rockford area, in fiscal year 2019, 1,496 workers compensation cases were filed in the Rockford area for injuries that resulted in more than three lost work days (State of Illinois Worker's Compensation Commission, 2020). Some of these claims will be dismissed and others will be settled.

Neighborhood Revitalization, Employment and Economy, and Health

Employment, Economy, and Revitalization

Neighborhood revitalization can **benefit health** through the creation of jobs making a living wage, workforce development and entrepreneurship programs, the transformation of underused sites into community assets, opportunities for investment and small business creation, and increased revenues to boost the local economy. New construction and development, brownfield remediation and redevelopment, demolition and deconstruction of derelict structures, and housing rehabilitation all provide opportunities for employment, and depending on the end use of the properties, could continue to provide employment opportunities, such as in the case of mixed-use development, retail, commercial sites, and small businesses. If employees are hired locally or local community members are given small business opportunities, access to employment in the study area improves, as does household economics in the community, which can spur economic revitalization.

Neighborhood revitalization can also include efforts to improve access to employment through improved transportation options and programs to improve the employability of local community members and enable them to fill the jobs created through neighborhood revitalization efforts and the workforce demands of the greater Rockford region at large (e.g., adult education and GED programs, job training, etc.). Increased education

and job skills and access to job opportunities can open new opportunities for the unemployed, those with low educational attainment, and low-income populations and lead to increases in household income, which have been linked to health improvements, especially for those at the lower end of the income scale (Braveman, Egerter, & Barclay, 2011). Increased wages ideally not only help families afford the basic necessities, but provide the opportunity to save, invest, and build wealth.

New development and redevelopment of vacant, contaminated, and tax-delinquent properties provides opportunity for investment and small business creation, spurring economic revitalization and increasing the local tax base through increased property and income tax revenues. As mentioned previously, brownfield remediation, demolition of derelict structures, housing renovations, and greening of vacant lots have all been shown to increase surrounding property values. An increased tax base can bring greater health by increasing the potential for economic growth and the creation of additional health-supportive goods and services in the community.

Redevelopment of abandoned industrial complexes and their surrounding areas, such as the Barber Coleman Brownfield complex in the northeast corner of the study area and the two City-owned blocks to the west of the complex, can provide the opportunity for development, physical improvements, economic revitalization, and job creation. Mixed-use development projects in the area could provide the opportunity for revenue-producing land uses, such as retail, office space, and residential; greenspace and recreation; and improved connectivity to downtown Rockford.

There are several programs in place at the local, state, and national level that could be leveraged in neighborhood revitalization to bolster employment and business opportunities (see *Appendix B*).

Potential Strategies for Managing Impact

Main Finding

Business development efforts can help to increase employment opportunities and access to goods and services in the study area and spur economic revitalization, improving local health.

- Market vacant and remediated property for business development, commercial, or mixed-use development.
- Increase the number of businesses in the study area, to increase job opportunities for residents, with a focus on jobs that provide economic self-sufficiency.
- Provide business development resources and funding opportunities to encourage development of local businesses, including minority- and women-owned businesses. This could include a business incubator to support small and local business development in the community.
- Encourage or require local hiring practices, including training programs, for the nearby community, and encourage businesses to provide services such as health insurance and paid parental leave.
- Advocate for the use of business revenue to support public services and activities in the study area, including childcare resources or educational programming for children and the community on relevant health promoting topics.

Main Finding

Non-business development efforts can help increase employment opportunities and access to goods and services in the study area and spur economic revitalization, improving local health.

- Increase the workforce participation rate through better job opportunities and education/training of the unemployed and underemployed.
- Due to the large number of individuals without a high school education, promote the development of adult education and general equivalency diploma (GED) programs, job training, and employment opportunities in the area to enable residents to earn a livable wage.
- Encourage collaboration between employment agencies and businesses, as well as local trade unions, business development centers and programs, and local colleges/universities to promote hiring and job training programs to train those in the local community to fill the needs of employers.
- Provide opportunity for a makerspace in the community to encourage entrepreneurship and increase access to tools and training.
- Improve public transit, active transportation, and other transportation modes through transportation initiatives that improve access to stable employment, job training, and goods and services.
- Strategically demolish or deconstruct vacant dilapidated structures, acquire abandoned or tax delinquent properties, and remediate brownfield properties and transfer these properties to productive re-use, improving aesthetics of the community, boosting the value of nearby land, providing revenue-earning potential, and increasing connectivity and access to goods and resources.
- Increase the inventory of affordable, safe, healthy housing through new construction, infill housing, and rehabilitation of existing homes and properties. This will improve the standard of living in the area and increase property values.
- Consider initiatives to decrease food insecurity in the community, such as community gardens and collaborations with food banks and local businesses and community organizations to create access points for free or reduced-price groceries.
- Promote initiatives to reduce the number of cost-burdened households in the study area and improve household economics, including an increase in affordable, healthy housing; rent control ordinances and other efforts, such as subsidies and vouchers; reduced cost utility programs; and homeowner and renter assistance programs.
- Engage regional and local employers in the neighborhood revitalization efforts and encourage them to invest in the community, through financial support and volunteer opportunities.



Crime and Safety

Crime, Safety and Health

Crime

Person-to-person and person-to-property crimes can influence both actual and perceived safety in a neighborhood, with person-to-person crime having the added risk of injury, impacts to mental health, and even death. Survivors of person-to-person violent crimes, including victims of domestic or intimate partner violence, can be left with mental health issues, including anxiety, depression, and post-traumatic stress disorder (PTSD), that last well after the incident and physical wounds heal. Higher levels of crime have been linked to more people with negative perceptions of neighborhood disorder (Latkin, German, Hua, & Curry, 2009; Kruger, Reischl, & Gee, 2007) and previous victimization and observations of antisocial behaviors and crime (e.g., public drunkenness, burglary, drug dealing, etc.) have been found to be associated with feelings of lower safety and security of an area (Sampson & Raudenbush, 1999; Yen, Michael, & Perdue, 2009; Latkin, German, Hua, & Curry, 2009; Bazargan, 1994).



Blight

In addition to crime, other things that may contribute to actual or perceived safety in a neighborhood include blight and upkeep, and traffic, pedestrian, and bicyclist safety. Visible signs of disorder in a community, such as blight, vacant properties, littering, and graffiti, encourages and attracts further disorder and misbehavior, including criminal activity and violence (Branas, et al., 2011). Increased social disorder has been linked to increased fear of crime, risk of mental health disorders (e.g., anxiety and depression), and severity of depression among adults (Ross, 2000; Kim D., 2008; Scarborough, Like-Haislip, Novak, Lucas, & Alarid, 2010). Blight and vacant properties have also been shown to lead to a breakdown in social capital and social cohesion, which results in residents feeling disconnected, living more in isolation, and being less willing to step in and act on behalf of the neighborhood, standing up to disorder, misbehavior, and crime (Cohen, Farley, & Mason, 2003; Garvin, Cannuscio, & Branas, 2012; Krieger & Higgins, 2002; Morrissey, 2016; RAND Corporation, 2005; Sadler & Pruett, 2015).

Traffic, Pedestrian and Bicyclist Safety

Other threats to personal safety may come as residents navigate their neighborhood. Many roads and transportation routes are designed to move individuals and goods efficiently from one point to another via motorized transportation, and with motorized transportation comes the risk of accidents, injury and death. In fact, motor vehicle-related accidents are one of the leading causes of death in the United States (CDC, n.d.). These transportation routes may or may not include safety measures for pedestrians and cyclists. A national telephone survey conducted by The National Highway Traffic Safety Administration (NHTSA) in 2012 found the leading cause of pedestrian injury was the poor quality of street facilities. Sidewalks or streets in disrepair, unsafe separation from motor vehicles, high-speed traffic, and multi-lane roads can pose hazards to pedestrians and bicyclists and may

inhibit residents from engaging in active transportation. Unintentional injuries, including traffic-related injuries, have been the leading cause of death among individuals 1 to 44 years of age in the United States for some time (Heron, 2018).

Impacts of Actual and Perceived Safety Concerns on Health

Over time, perceived risks to personal safety and fear of crime in a community can exacerbate health issues associated with cardiovascular and chronic disease, cause poor physical health, such as hypertension, cardiovascular disease, and immune dysfunction and can lead to fear, stress, poor mental health, and adoption of negative coping behaviors, such as alcohol and substance abuse (Latkin & Curry, 2003; Glaser & Kiecolt-Glaser, 2005; Vemuri & Costanza, 2006; McEwen, 2008; Weinstein, et al., 2015) (Figure 30). Actual and perceived safety concerns create barriers to the development of social connections (social cohesion), social capital, and outdoor physical activity. Lack of physical activity has impacts on physical health, including obesity and diabetes, and like isolation and a lack of social connections, can impact an individual's mental health.

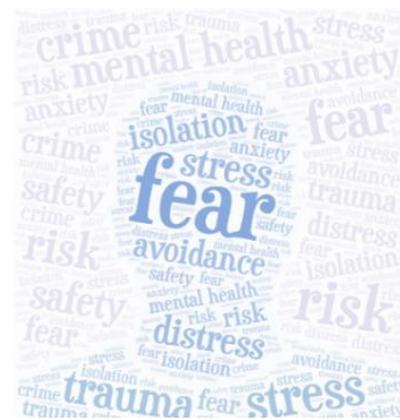


Figure 30. Risk and fear can impact mental health and social connections.

Neighborhoods with “concentrated disadvantage” (e.g., low income neighborhoods), ethnic heterogeneity, a large youth population (as teens are often responsible for property and violent crimes), and low home ownership rates are more likely to be subject to crime and increased safety issues (Brisson & Roll, 2012). However, in neighborhoods with high crime rates not everyone is impacted equally. Individual-level factors, such as age, gender, and differences in socioeconomic and health status, were found to influence the levels of perceived fear and/or perceived safety/security (Bracy, et al., 2014; Latkin, German, Hua, & Curry, 2009). For example, women have been found to worry more about their personal safety and be more fearful of crime than their male counterparts (Ferraro, 1995; Schafer, Huebner, & Bynum, 2006; Scarborough, Like-Haislip, Novak, Lucas, & Alarid, 2010; Logan & Walker, 2017). In a study of Minnesota Twin City youth, Patnode, et al. (2010) found that physical activity in girls was impacted more by perceived safety than boys. Youth and young children are highly susceptible to the influences of the social environment; being a victim of crime or witnessing a crime can place them at risk for poor mental health outcomes, including PTSD, anxiety, and depression, and poor behaviors, including aggression, alcohol and tobacco use, and sexual risk taking (Egerter, Barclay, Grossman-Kahn, & Braveman, 2011; U.S. Department of Health and Human Services, 2020c). Many adolescent mental health disorders (e.g., anxiety and depression) that developed from exposure to crime and the perceived environment often carry into adulthood (U.S. Department of Health and Human Services, 2020c). Persons who have been victims of a crime in the past are also more likely to be affected by perceived safety/security and actual crime rates than non-victims. And the literature suggests that poor physical health (perceived or actual), including disabilities, can have a strong effect on perceived vulnerability and lead to greater fear of crime (Gong, Palmer, Gallacher, Marsden, & Fone, 2016; Brown & Wycoff, 1987).

Interventions for crime and safety issues in a community include community policing, improved social capital and social cohesion, security cameras, youth opportunities and programming, accountability (punishment), rehabilitation (treatment and services to change behaviors), education, and support services and programs for both offenders and victims.

Existing Conditions

Crime

In 2017, Rockford accounted for 89% of violent crimes committed in Winnebago County and had a violent crime rate 44% higher than Chicago’s violent crime rate (Loyola University Chicago, 2020). According to the Federal Bureau of Investigation Uniform Crime Reporting, Rockford had 1370.7 violent crimes (murder, aggravated assault, robbery, forcible rape) per 100,000 population in 2018, compared to an average of 436.1 violent crimes per 100,000 across 750 cities in the U.S. with a population of 50,000 or more (NYU Langone Health, 2020), earning it the label of one of the “most dangerous” cities in the U.S. In 2018, Rockford had 3671.7 property crimes per 100,000 population (FBI, 2019), approximately 230-250 drug overdoses, and 80 deaths due to overdoses (City of Rockford, 2019a).

Both violent crimes and property crimes in Rockford were down in 2019 compared to 2017 and 2018; however, violent crime, robbery, shots fired, and aggravated assault rose in the first half of 2020 – a common trend seen throughout the country during the coronavirus pandemic – and juvenile crime in Rockford was up 100% in 2020 compared to 2019 (Rockford Park District, 2020). Crime in Rockford is an issue identified by both stakeholders and residents according to a June 2019 community survey conducted as part of a crime deterrence project facilitated by the Region 1 Planning Council (R1PC) and Loyola University Chicago. Thirty-five percent or more of respondents to the survey indicated they were “very concerned” about shootings, robbery, gang activity, and sale of drugs in their neighborhood (Loyola University Chicago, 2019).

Table 18 shows crimes committed in the South Main Corridor Area from January 2019 through July 2020.

Table 18. Crime Offenses in the South Main Corridor Area, January 2019 through July 2020^a

Crime	2019	Jan-July 2020	Jan 2019-July 2020
All Crimes (reported in the Open Data Portal) ^b	732	370	1102
Murder and Nonnegligent Manslaughter	1	0	1
Robbery	8	6	14
Aggravated Assault	64	36	100
Simple Assault	141	50	191
Intimidation	13	4	17
Arson	2	2	4
Burglary/Breaking & Entering	32	27	59
Shoplifting	7	2	9
Theft from Motor Vehicle	28	23	51
Theft of Motor Vehicle Parts/Accessories	4	0	4
All Other Larceny	69	27	96
Motor Vehicle Theft	21	11	32
Counterfeiting/Forgery	5	1	6
False Pretenses/Swindle/Confidence Game	1	2	3
Credit Card/Automatic Teller Fraud	6	6	12
Impersonation	5	2	7
Embezzlement	1	0	1
Stolen Property Offenses	4	1	5

Crime	2019	Jan-July 2020	Jan 2019-July 2020
Destruction/Damage/Vandalism of Property	142	85	227
Drug/Narcotic Violations	19	12	31
Drug Equipment Violations	4	4	8
Pornography/Obscene Material	3	0	3
Weapon Law Violations	34	23	57
Curfew/Loitering/Vagrancy Violations	1	0	1
Disorderly Conduct	50	31	81
Driving Under the Influence	21	4	25
Liquor Law Violations	8	1	9
Trespass of Real Property	38	10	48

^a Source: State of Illinois Data Portal, Data.illinois.gov (City of Rockford Crime Offenses 2011-Present), accessed 8/17/2020

^b Specific offenses that are potentially sensitive and confidential (e.g., rape, sodomy, incest, involuntary servitude, kidnapping/abduction/unlawful restraint, etc.) are not displayed on data.illinois.gov and are excluded from the dataset prior to being made available to the public.

In stakeholder interviews conducted as part of the Land Revitalization Technical Assistance Grant, there were mixed responses on feeling safe walking in the South Main Corridor Area during the day and near consensus of reduced safety at night. Some of the safety issues identified by stakeholders in the study area included unmaintained streets and sidewalks, domestic issues, vacant buildings, drug and gang activity, huge dogs, and rental population with high turnover (Vita Nuova, 2020). In addition, youth issues were identified as a major challenge facing the community (Vita Nuova, 2020). Disconnected youth, those who are 16-19 years of age and neither in school not working, are 2-3 times higher in Census Tracts 27 and 28 than the City as a whole (ACS 2014-2018 5-year estimates). Disconnected youth face a lack of social support and increased risk of poverty, unemployment, criminal behavior, substance abuse, and incarceration (Wald & Martinez, 2003).

Domestic violence accounts for nearly 30-35% of the violent crime in Rockford, and it is estimated that about 25% of the homeless population in Rockford is without a home due to domestic violence (Rockford Housing Authority, 2020; City of Rockford, 2020c). "We are averaging more than 13 incidents per day," said Rockford Mayor Tom McNamara (Rockford Housing Authority, 2020). More proactive policing and heightened public awareness have contributed to increased domestic violence arrests in the City of Rockford, and the use of the Lethality Assessment Program questionnaire by police to predict if a victim will be seriously hurt or killed as a result of domestic violence has increased calls to the domestic violence hotline (City of Rockford, 2017c). The Mayor's Office on Domestic Violence & Human Trafficking Prevention was created in 2018, and since then has been working with area organizations and agencies to tackle domestic violence and human trafficking in the community, including programming, education, and the establishment of the Family Peace Center, which provides services and support to individuals experiencing domestic or sexual violence. In addition to these resources, there is a single domestic violence shelter located in East Rockford, Remedies, that serves all of Winnebago and Boone Counties. Remedies serves approximately 2,000 victims of domestic violence each year, 25% of which are children, and another 2,000 individuals struggling with substance abuse (Remedies Renewal Lives, 2020). In 2018-2019, the City of Rockford conducted over 200 interviews to gain a better understanding of the gaps and barriers that exist to 1) preventing domestic violence and human trafficking; 2) protecting survivors and their children; 3) prosecuting perpetrators of these crimes; and 4) collaboration with community partners to address these issues and support survivors (City of

Rockford, 2019c). The results of these interviews will be used to develop trauma-informed, survivor-centered interventions and outcomes to fight domestic violence and human trafficking.

In 2016, the Region 1 Planning Council (R1PC) and Loyola University Chicago, along with county and local organizations and agencies began to design and implement a crime deterrence project in Rockford, supported partially by a grant from the U.S. Department of Justice through the Illinois Criminal Justice Information Authority. As part of this project, Winnebago County’s Criminal Justice Coordinating Council piloted a Focused Deterrence Intervention (FDI) between January of 2018 and November of 2019, identifying and deterring individuals at highest risk for engaging in violent crime. These individuals were identified; warned of the risks they face for continued involvement in crime or victimization, including “swift, certain and just punishment”; and offered a range of services (e.g., employment assistance, housing, substance abuse treatment, etc.) as a disincentive to criminal behavior (Loyola University Chicago, 2020). Most participants of the Focused Deterrence Intervention that received services, were not charged with new crimes during the program (Figure 31); that is, the recidivism rates were low (Loyola University Chicago, 2020). The long-term impacts of the intervention are not yet known.

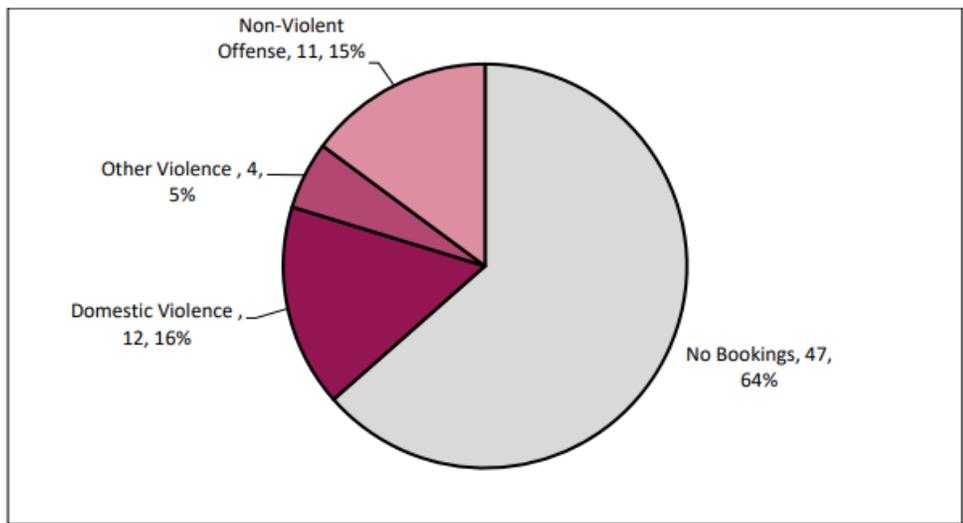


Figure 31. Recidivism rates of Focused Deterrence Intervention participants from January 2018 - November 2019. Taken from (Loyola University Chicago, 2020)

Because of the importance of the community in efforts to deter crime, two surveys of Rockford residents were conducted as part of the project – one in 2017 and a second in 2019 – to gauge their perception of crime and policing and justice in their neighborhoods. In the Loyola University Chicago (2019) Community Survey of more than 1,200 Rockford residents, the majority of respondents were supportive of crime deterrence approaches that includes both accountability (punishment) and rehabilitation (services and treatment). The majority of respondents were satisfied with policing in their neighborhood, felt that “the Rockford Police treat residents with respect, are honest, treat people fairly, care about the community, treat everyone equally, and take the time to listen” (a measure of police procedural justice), and felt the police were “satisfactory or better at fighting crime, being visible in the streets, treating people fairly and being available when you need them” (a measure of police effectiveness) (Loyola University Chicago, 2019). However, those who felt crime had increased in their neighborhood over the past year were less likely to be satisfied with policing and police effectiveness; ratings of police procedural justice tended to be lower among black respondents than other racial groups and lower among renters than homeowners; and

ratings of police effectiveness tended to be lower among black respondents than other racial groups and lower among the unemployed (Loyola University Chicago, 2019).

The majority of survey respondents agreed that people in their neighborhood were close-knit and had the same values and beliefs but did not get together or talk to each other often; however, renters were less likely to feel this way. This has real implications for social capital and social cohesion in the South Main Corridor Area, given the high rates of renters, and subsequently the likely unwillingness of neighborhood residents to step in and act on behalf of the neighborhood, standing up to disorder, misbehavior, and crime.

There are no police stations in the study area, although there is a sheriff department just north of the area. The Rockford Police Department has a Community Services Unit with officers who are responsible for partnering with citizens and businesses to reduce crime and solve problems in their areas (City of Rockford, 2020d). The Rockford Housing Authority pays for community policing by the Rockford Police Department at Housing Authority properties to help build rapport between the community and the police, and the Rockford Police Department has two officers that reside within the neighborhoods they serve, although neither of these are located in the study area (City of Rockford, 2020d). In 2019, the Rockford Police Department also started a Community Camera Network, which allows residents and businesses who own private security cameras to voluntarily register them with the police department (City of Rockford, 2019d). Law enforcement would contact owners of registered cameras in the network for surveillance footage if criminal activity occurred in the vicinity of their location. Surveillance footage offers crucial information when trying to determine the details of an incident and to identify and apprehend suspects. The locations of registered cameras are confidential and this information was not requested, so it is unknown whether any cameras exist in the study area.

Blight

As discussed in the *Neighborhood and Built Environment* section, blight and vacant properties in the South Main Corridor Area is a major challenge. Visible signs of disorder in a community, such as blight, vacant properties, littering, and graffiti, may encourage and attract further disorder and misbehavior, including criminal activity and violence and contribute to fear of crime and decreased personal safety.

Traffic, Pedestrian and Bicyclist Safety

According to the April 2019 Illinois Department of Transportation 5-Year Classification Map, the study area includes a principal arterial road (SR-2/South Main Street), several minor arterial roads and major collector roads, a minor collector road, and numerous local roads or streets (Figure 32). Arterial roads support heavy traffic volumes, high speeds, and long trips, while collector roads are used to connect local roads to arterials.

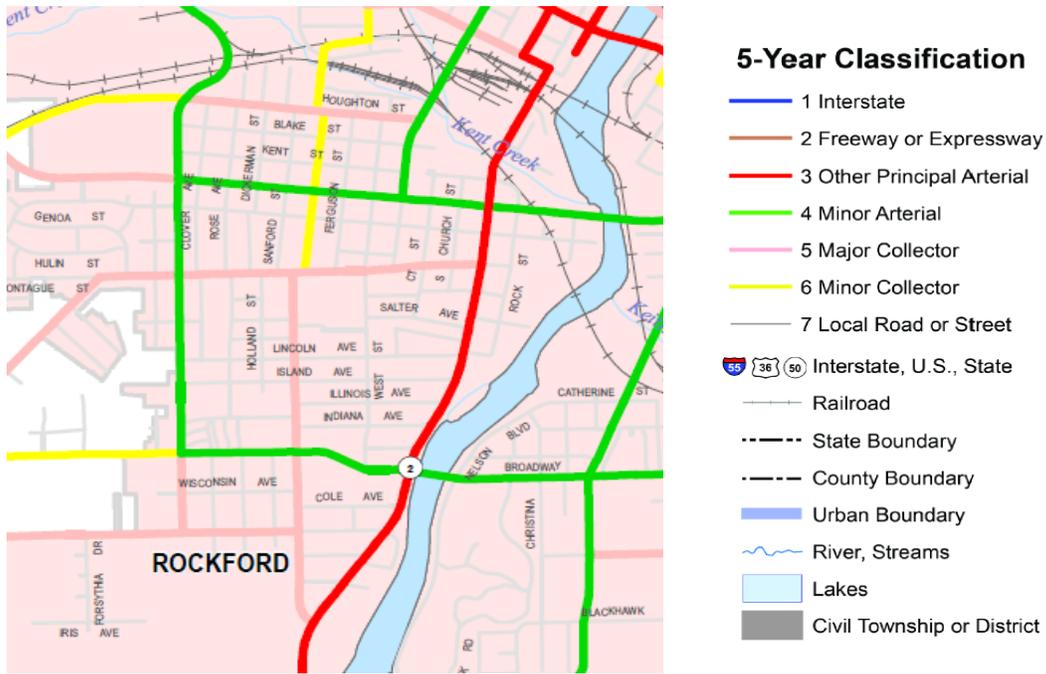


Figure 32. South Main Corridor Area road classifications. Source: (IL DOT, 2019)

Figure 33 shows the annual average daily traffic (AADT) volumes for vehicles and trucks on the roads in the study area. As you can see, many of the roads that would be used to access goods and services in the study area are heavily travelled by motor vehicles and trucks, and in some cases motorized traffic moving at high speeds. This can hamper the mobility and accessibility of pedestrians and bicyclists. The South Main Roadway Project was previously undertaken to improve the entrance to the city (downtown) from US-20. South Main street was widened and streetscaping was added. In interviews conducted as part of the Land Revitalization Technical Assistance Grant, some saw the road project as improvements, while others noted that it unintentionally increased traffic speeds (Vita Nuova, 2020).

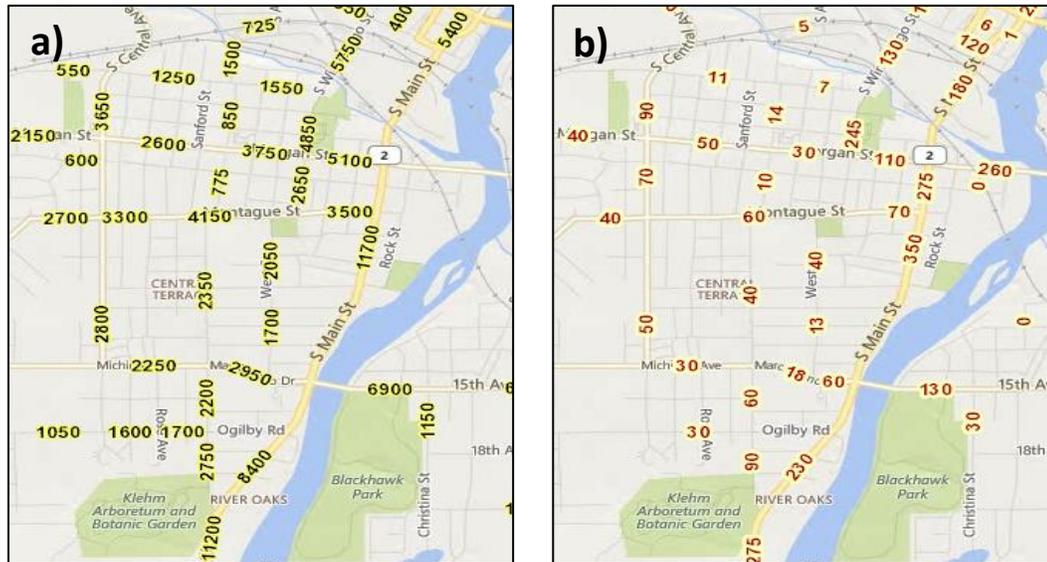


Figure 33. Annual average daily traffic (AADT) counts for a) motor vehicles and b) trucks. Source: (IL DOT, 2020)

In the South Main Corridor Area, there were a total of approximately 12 fatal traffic accidents between 2005 and 2017 (possibly more, as several were reported on Main Street without any cross streets or location identifiers to place the crash in the study area). Of those, 7 were fatal accidents involving drunk persons and 3 were involving pedestrians (Advameg, Inc., 2020). From 2017-2019, there were at least 99 traffic accidents involving bicycles, but none of them fatal (Kolkey, 2020).

In 2017, the City of Rockford adopted a Complete Streets Policy aimed at developing infrastructure to balance different modes of transportation (walking, biking, transit, and car) and support safe transportation options for people of all ages and abilities (City of Rockford, 2017a). Several aims of the Complete Streets Policy include personal safety, including safe walking and bicycling options to school for children (e.g., Safe Routes to School) and improved pedestrian and bicyclist safety through reductions in accidents between motorized and non-motorized users (City of Rockford, 2017a). Facilities and amenities that contribute to Complete Streets include, but are not limited to:

- “multi-use paths and sidewalk (new construction/development, gap construction, repair or replacement, ADA improvements)
- crosswalk improvements, bump-outs or pedestrian refuge islands
- accessible improvements consistent with the Americans with Disability Act (ADA)
- traffic calming measures
- street and multi-use path/sidewalk lighting
- bicycle accommodations following RMAP’s Bicycle and Pedestrian Plan
- landscaped boulevards and parkways improving the look of the streets while providing a water quality benefit” (City of Rockford, 2017a).

Neighborhood Revitalization, Crime and Safety, and Health

Neighborhood revitalization can **benefit health** through reductions in crime, victimization, blight, and improvements to traffic, pedestrian, and bicyclist safety. Physical or aesthetic improvements, without reductions in crime, may hamper revitalization , as crime may continue to **detract from health**. It is critical to see reductions in crime not only for the health of neighborhood residents, but for neighborhood revitalization, as crime has been shown to be a significant barrier to neighborhood investment (Steiner-Dillon, 2019).

Luckily, research has shown that physical improvements that reduce blight, including greening of vacant lots, demolition or deconstruction of derelict properties, and increases in greenspace can lead to decreases in crime and violence in the community. Greening of vacant lots led to reductions in assaults near greened lots in Philadelphia (Branas, et al., 2016; Branas, et al., 2018); and reductions in crime within 1/8 mile of greened lots in Cleveland (Mallach, Steif, & Graziani, 2016). In Baltimore, a 10% increase in tree canopy was associated with an estimated 12% decrease in crime (Troy, Grove, & O’Neil-Dunne, 2011), and in Philadelphia, the presence of tree canopy was shown to reduce the odds of gun assault in high-risk neighborhoods by 31% (Kondo, South, Branas, & Richmond, 2017). Finally, demolition of vacant/blighted single-family and small multifamily buildings led to a 5-8% reduction in overall crime in Saginaw, Michigan (Stacy, 2017) and a reduction in nearby burglary and theft in Cleveland (Spader, Schuetz, & Cortes, 2015).

In addition to reductions in crime, elimination of blight can also lead to reduced fear, improved perceptions of safety, and lead to increased social capital, neighborhood attachment, and personal interactions within the community. Improved social capital and cohesion is crucial to revitalization of the neighborhood and reductions in crime. Efforts to strengthen ties in the community, build trust among residents, and improve eyes on the street (including neighborhood watches and the community camera network) increases collective efficacy (i.e., the willingness of residents to step in and act on behalf of the neighborhood, standing up to disorder, misbehavior, and crime) (Krieger & Higgins, 2002; Cohen, Farley, & Mason, 2003; RAND Corporation, 2005; Garvin, Cannuscio, & Branas, 2012; Sadler & Pruett, 2015; Morrissey, 2016). Neighborhood attachment and collective efficacy have both been shown to reduce crime and violence (Jain, Buka, Subramanian, & Molnar, 2010; Bernat, Oakes, Pettingell, & Resnick, 2012).

In addition to improved relations among residents, strengthened relationships and collaborations between the Rockford Police Department and community can help reduce crime and improve neighborhood safety. Youth programming, leadership development, and employment opportunities have also been shown to reduce crime (Modestino, 2017; Council for a Strong America, 2018), and the Rockford Park District (2020) committed in its 2020 Action Plan Update to “increasing and creating youth opportunities and positive experiences that decrease juvenile crime.” Crime prevention and deterrence programs, as well punishment and rehabilitation of offenders, are also necessary tools in the fight against crime, and essential to achieving reduced rates of crime.

FIGHT CRIME: INVEST IN YOUTH

It costs \$111,000 to confine one youth for one year in a juvenile facility in Winnebago County. (Source: Justice Policy Institute and Winnebago County Crime & Safety Commission).

The application of Crime Prevention Through Environmental Design (CPTED) principles in neighborhood revitalization, including street and pedestrian lighting, planting configurations and maintenance, and fencing design, can improve crime prevention, safety, and perceptions of crime. Improvements to traffic, pedestrian, and bicyclist safety can also help alleviate safety concerns. Infrastructure improvements consistent with a Complete Streets Policy can improve safety and mobility, including well-maintained contiguous sidewalks, clearly marked and frequent crosswalks, street lights, traffic calming, protected bike lanes, clear signage, accessible public transit stops, curb extensions, medians, streetscapes, and more (U.S. DOT, 2015a; Smart Growth America, 2020; Active Living Research, 2020).



The presence of street lights, walk/don't walk signs, painted crosswalks, public transit, parks and maintained vacant lots was associated with significantly decreased odds of homicide in Philadelphia (Culyba, 2016).

Potential Strategies for Promoting Health

Main Finding

Crime prevention can reduce public health risks and remove barriers to investment and economic development.

- Implement programs in the study area to decrease crime and improve perceptions of safety, including crime prevention and deterrence programs.
- Provide a dual approach to managing offenders, including punishment and rehabilitation (e.g., treatment and support services) in an attempt to change their behaviors.

- Provide support services, including mental health support, for victims of crime.
- Develop and distribute outreach and communication materials, in both English and Spanish, to residents regarding safety information and resources.
- Reduce blight and improve neighborhood safety through demolition and/or deconstruction of derelict properties, greening of vacant lots, and expansion of greenspace.
- Implement Crime Prevention through Environmental Design Standards (CPTED) in street and pedestrian lighting, planting configurations and maintenance (including trimming of shrubbery and trees), and fencing designs.
- Promote programming and activities that improve social capital and neighborhood attachment and help build trust among residents, including community involvement in neighborhood revitalization planning and implementation.
- Promote programs such as a Community Camera Network.
- Expand youth programming, leadership development, and employment opportunities in the neighborhood.
- Continue efforts to combat domestic violence, including community outreach and education, services through the Family Peace Center and other programs, and housing for domestic violence victims.
- Consider EPA environmental workforce development and job training grants, which could help reconnect youth and young adults to the training and educational services needed to earn their GED and also help them attain the skills, experience, and certifications to meet local market needs and potential employment prospects.

Main Finding

Safe pedestrian and bicyclist access to amenities and services can sow improvements in public health and safety.

- Consider Complete Streets infrastructure improvements in the study area and Complete Streets features in any new development to improve pedestrian and bicyclist safety and mobility and promote active transportation. Feature can include well-maintained contiguous sidewalks, clearly marked and frequent crosswalks, street lights, traffic calming, protected bike lanes, clear signage, accessible public transit stops, curb extensions, medians, streetscapes, and more.
- Consider using the National Highway Traffic Safety Administration (NHTSA) [Walkability Checklist](#) and [Bikeability Checklist](#) to inform improvements to pedestrian and bicyclist safety.
- Consider implementing a Safe Routes to School Program in the study area.
- Improve safe routes and access points for residents on foot and bicycle to access amenities and services in the study area, including the supermarket, waterfront, and other businesses that require individuals to navigate and cross South Main Street.



Social and Cultural Wellbeing

Social and Cultural Wellbeing and Health

The social, racial, and cultural fabric of a community contribute to residents' sense of belonging, identity, and place. Neighborhoods bring together people of different ages, races, religions, ability, sexual orientation, socioeconomic status, education, marital status, and language. A neighborhood that is inclusive (i.e., in which individuals and groups are welcomed, respected, and supported) and in which there is equitable treatment, access, and opportunity for all people allows for strong social networks and connections to be formed. People's engagement in society; "their connectedness with friends and family and neighbors; and attitudes toward and relationships with neighbors, government, and groups unlike their own—are often associated with positive outcomes in many areas of life, including health, altruism, compliance with the law, education, employment, and child welfare" (National Research Council, 2014).

Social Cohesion and Social Capital

Social cohesion is defined as the level of trust, feelings of belonging, or willingness to participate and help one's local community (Chan, To, & Chan, 2006). As a vital part of any community, social cohesion helps strengthen the resiliency of a community to withstand uncertainty, including economic downturns and natural disasters. Social cohesion is achieved by building and strengthening networks of people and relationships between people and places (Cloete, 2014). A community that lacks social cohesion would display "social disorder and conflict, disparate moral values, extreme social inequality, low levels of social interaction between and within communities and low levels of place attachment" (Forrest & Kearns, 2001). When this happens, members of the community may spend less time outside, reducing their physical activity and exposure to nature, and increase their social isolation, which negatively impacts health. Social isolation is tied to increased risks to both physical and mental health, including depression, obesity, heart disease, stroke, and other medical issues (Cloete, 2014; National Academies of Sciences, Engineering, and Medicine, 2020).

Social capital refers to the more concrete support systems that stem from a high rate of social cohesion (Claridge, 2020). The most popular definition of social capital comes from Robert Putnam, first defined in 1995, but used as recently as his 2019 publications. Putnam defines social capital as, "features of social organizations such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit," (Putnam, 1995). It can be summarized by three broad categories or dimensions (Table 19). These dimensions exist at the micro (individual), meso (groups or organizations), and macro (community or national) levels. Measuring social capital is difficult, but it can be inferred through indicators or "proxies." Lower rates of crime, for instance, can be indicative of the presence or strength of social capital present in a community.

Table 19. Dimensions of Social Capital Source: (Claridge, 2020).

Dimension of Social Capital	Definition	Characteristics
Structural	Social structures	<ul style="list-style-type: none"> - Networks and connections - Roles, rules, and procedures - Civic engagement and voluntary activities
Cognitive	Shared understandings	<ul style="list-style-type: none"> - Shared language and narratives - Shared norms, values, and beliefs - Shared goals and vision
Relational	Nature and quality of relationships	<ul style="list-style-type: none"> - Identity and identification - Trust and trustworthiness - Obligations and expectations - Social cohesion and togetherness

Social Inclusion

According to the Urban Institute, a leading organization in developing evidence-based insights that improve people’s lives and strengthen communities, cities must consciously incorporate inclusion goals into their economic development planning to ensure that all residents can contribute and benefit from the local economy and the anticipated growth from revitalization. Social inclusion (including both economic and racial inclusion) prioritizes improving the participation of historically-excluded populations, lower-income residents, and people of color in society and improving “opportunities, access to resources, voice, and respect for rights” (United Nations, 2016). Economic inclusion focuses on residents with lower incomes and how they may contribute and benefit from economic prosperity. This is measured by looking at rates of income segregation, housing affordability, the percentage of working poor in the economy, and the high school drop-out rate. Racial inclusion, focused on residents of color, is measured by rates of racial segregation; racial gaps in homeownership, poverty, and educational attainment; and the percentage of the city that identifies as people of color.



Social inclusion, signaled by social connections, civic engagement, and feelings of belonging, has been associated with positive mental and physical health and well-being . Social exclusion can influence neighborhood conditions and health in a variety of ways. Minority neighborhoods are more likely to be low income and lack access to health supportive goods and services, experience reduced public spending, and be exposed to harmful conditions such as pollution, substandard housing, and crime. The lack of health-supportive services and exposure to harmful conditions can have a negative impact on physical and mental health, influence health behaviors, and lead to reduced social capital. Escaping the conditions of racially- and economically-segregated neighborhoods can be difficult because of lower educational attainment and a lack of quality employment and educational opportunities that can lead to upward social and economic mobility. Neighborhoods free of segregation, in which people have developed strong ties and trusting relationships improve mental health and provides a potential social safety net for residents.

In their analysis of 274 cities over 4 decades, The Urban Institute found a strong relationship between the economic health of a city and the city's ability to support inclusion for its residents (Peothig, Greene, Plerhoples Stacy, Srini, & Meixell, 2018). Notably, though, economic inclusion was not found to always trend with racial inclusion.

Community Assets and Social and Cultural Wellbeing

"Third Places" are defined as neither one's home nor one's workplace, but a third place where community can gather and interact, such as libraries community centers, , parks, churches, and coffee shops. Libraries are valued cornerstone institutions in urban, suburban, and rural communities and have been for years. In 2017, the Pew Research Center surveyed adults and the value they place on libraries and found that 90% identified libraries as "welcoming and friendly places," and over half had visited or otherwise used a public library in the last 12 months (Geiger, 2017). Pew's research also found that the majority of the public believes that the training programs that many libraries provide help them in their lives. Results showing libraries help them 'a lot' or 'some' in making decisions were found to be higher among Hispanic (75%) and Black (70%) respondents as compared to all adults (61%) and women (63%) as compared to men (58%) (Geiger, 2017). Further, they found that, "65% say libraries help them grow as people; 49% think libraries help them focus on things that matter in their lives; 43% believe libraries help them cope with a busy world; 38% say libraries help them cope with a world where it's hard to get ahead; and 27% think libraries help them protect their personal data from online thieves" (Geiger, 2017).

Community centers are also an important social institution that provides residents opportunities to socialize, build relationships, engage in physical activity, and better themselves through the social, cultural, and educational programming that community centers often provide.

As noted earlier, parks and greenspace can also provide spaces where the community can gather, interact, and build and maintain relationships. Access to parks and greenspace in a residential neighborhood can highly influence social cohesion and overall well-being, if the community can feel safe using it (van den Berg, Maas, Verheij, & Groenewegen, 2010). Well-designed and properly-maintained greenspace can also provide a sense of satisfaction and pride in the neighborhood, furthering the sense of care that residents have for greenspace and the neighborhood environment and the value they place on personally maintaining it. Intergenerational social groups can thrive in parks and greenspace, strengthening communities through the transfer of institutional knowledge, networks, and resources. When people value local green space and feel safe, they are more likely to utilize it and find more satisfaction with their neighborhood and personal well-being (Maas, van Dillen, Verheij, & Groenewegen, 2009; van den Berg, Maas, Verheij, & Groenewegen, 2010). Access to green space can also provide an opportunity for spiritual reflection, as well. Spiritual reflection, or the ability to practice one's spirituality in a natural environment, is shown to improve a person's overall health and well-being, reducing stress and improving a person's sense of identity and control in their lives (Unruh & Hutchinson, 2011). Studies have shown that when a person cannot practice their spirituality or access the spaces in which they practice, they experience greater levels of stress and worsening overall health and well-being (Koenig, 2012). Gardening as a means to engage in greenspace, whether in a spiritual way or not, has been shown to positively impact health, as demonstrated with a study of cancer patients who valued the spirituality aspect of gardening (Unruh & Hutchinson, 2011).

Existing Conditions

Social Cohesion and Social Capital

Measurement of social cohesion and social capital is qualitative by nature, but there are several characteristics of the South Main Corridor Area that would indicate that strong social ties, neighborhood attachment, and collective efficacy may be lacking, including high rates of crime, social inequalities due to poverty and disinvestment, high presence of renters, and a lack of neighborhood organizations. A lack of social cohesion has been found to be associated with crime and disorder, social inequality, and a lack of neighborhood attachment (Forrest & Kearns, 2001). In addition, renters (who make up nearly half of the study area) are typically more transient and often don't form social ties and neighborhood attachment typical of homeowners and long-term residents.

In a June 2019 community survey conducted across the City of Rockford, nearly 60% of respondents somewhat or strongly disagreed that people in their neighborhood get together or talk often (Loyola University Chicago, 2019). In the South Main Corridor Area, a lack of neighborhood organizations could contribute to this. While there is one neighborhood association listed in the South Main Corridor Area, the Cunningham St Block Club (House of Representatives, 2011), this group does not seem to be active. In stakeholder interviews conducted as part of the Land Revitalization Technical Assistance Grant, community engagement was identified as one of the biggest challenges facing the neighborhood (Vita Nuova, 2020).

However, there have been several actions taken recently to help foster community throughout the City of Rockford; it is hoped that these efforts can help strengthen social cohesion and social capital in the South Main Corridor Area and bring the neighborhoods of Rockford together. In 2019, the City of Rockford established a new position – Neighborhood Specialist, whose job it is to create relationships, connect people with resources, and provide support to neighborhoods. In the same year, they established a Community Relations Commission made up of citizens that serve as an advisory board to help foster community, inclusion and respect.

Social Inclusion

The Urban Institute analyzed the 274 largest cities in the nation, including the City of Rockford, for rates of economic and racial inclusion. They estimated that the overall inclusion rank of the City of Rockford fell from around 189 in the year 2000 to 258 in 2013 (Stacy, Meixell, Hariharan, Poethig, & Greene, 2020). In 2013, the City ranked 258 of 274 in overall inclusion, 248 of 274 in economic inclusion, and 241 of 274 in racial inclusion. The City of Rockford's economic health ranking fell dramatically from 1980 to 2013, from just over 100 to nearly the bottom of the list at 264 (Stacy, Meixell, Hariharan, Poethig, & Greene, 2020).

Economic Inclusion

Economic inclusion grew worse in the city because of trends in income segregation, rent-burdened residents, working-poor families, and high school drop-out rate (Figure 34). While the Urban Institute analysis didn't zero in on the South Main Corridor Area itself, the comparison of Rockford to the average across 274 U.S. cities is valuable in light of the economic and racial makeup of the study area. Of special note is the considerably higher trend in income segregation in the City of Rockford compared to the average income segregation across the other cities since 1980. The HIA analysis has documented many of the same trends in income segregation seen

in the City of Rockford within the South Main Corridor Area, including high rates of poverty, cost-burdened households, and working poor.

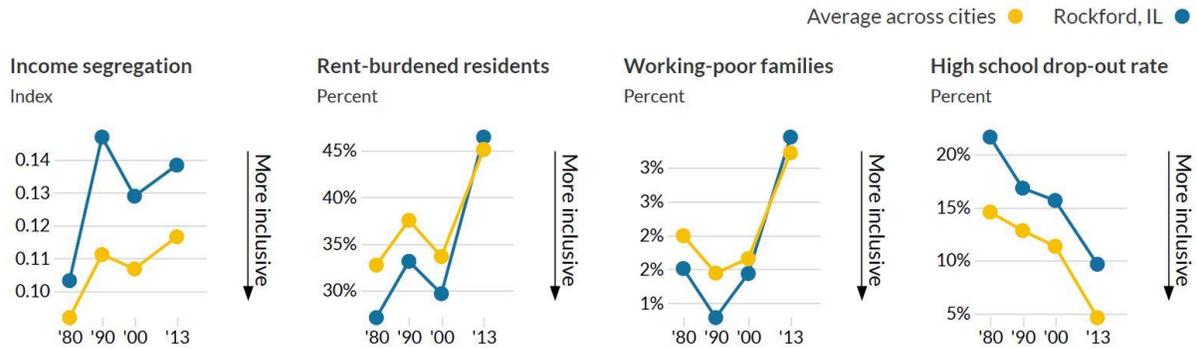


Figure 34. Measures of economic inclusion in the City of Rockford, from a study of the 274 largest U.S. cities. Taken from Stacy, Meixell, Hariharan, Poethig, & Greene (2020).

Racial Inclusion

Racial inclusion in the City of Rockford is worse overall than the average across the U.S. cities analyzed, according to the Urban Institute (Figure 35). Racial segregation has been higher than the national average since the 1980s, and although the rate has fallen dramatically since then, there are still clear delineations between Black, Hispanic, and White neighborhoods in Rockford (Figure 36). The racial homeownership gap remains high in Rockford and rose dramatically from 2000 to 2013. The racial poverty gap also rose dramatically during this same time period; a trend that is troubling given that the average racial poverty gap across the cities analyzed flattened from 2000 to 2013. The racial education gap sharply declined in the same period, mirroring the average across the U.S. cities analyzed. The HIA analysis has documented many of the same trends in racial segregation seen in the City of Rockford within the South Main Corridor Area, including people of color as a share of the population, racial segregation, racial homeownership gap, and the racial poverty gap.

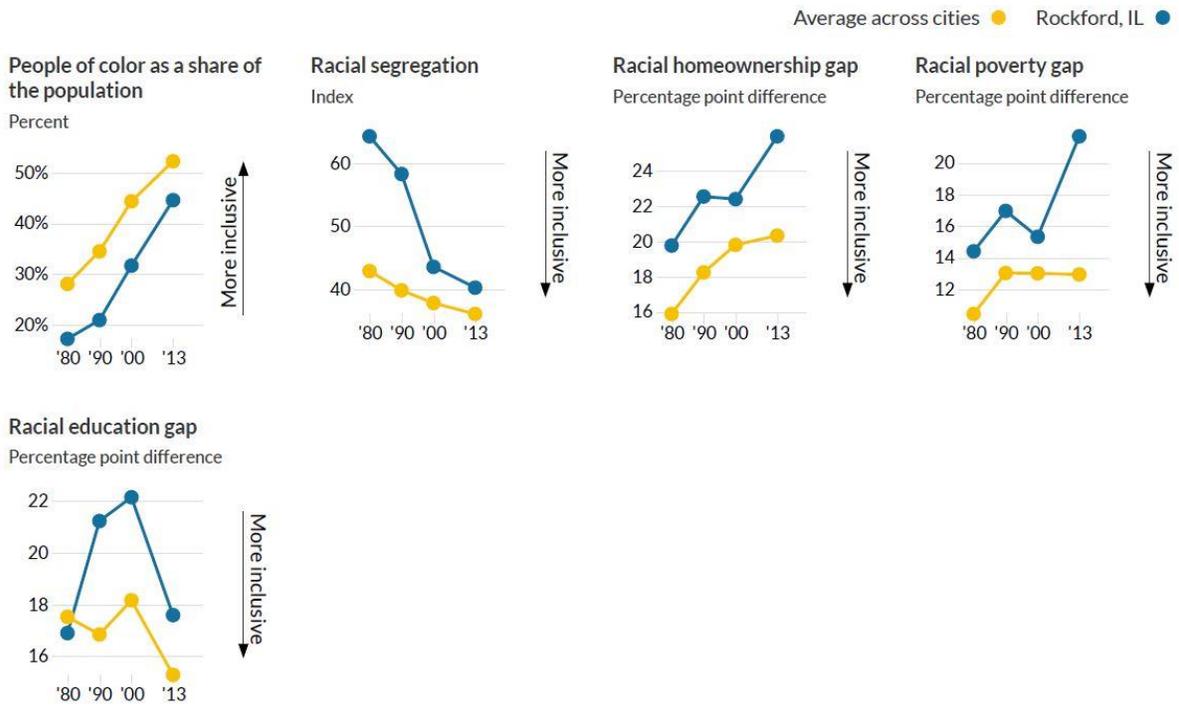


Figure 35. Measures of economic inclusion in the City of Rockford, from a study of the 274 largest U.S. cities. Taken from Stacy, Meixell, Hariharan, Poethig, & Greene (2020).

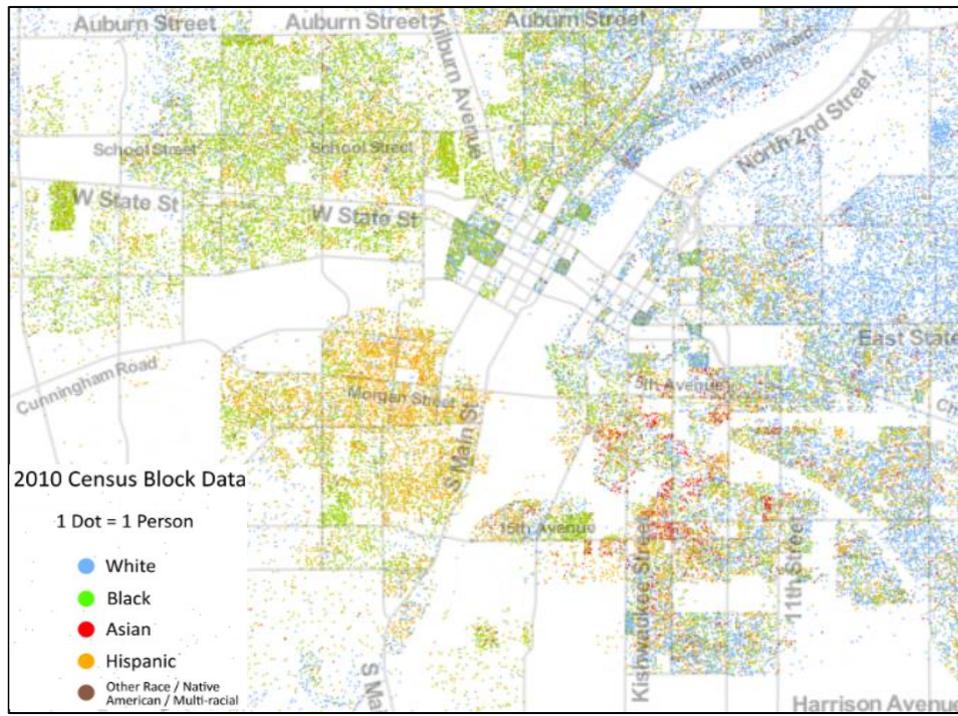


Figure 36. Racial Dot Map showing the racial segregation of Rockford neighborhoods, with clear delineations between Black, Hispanic, and White neighborhoods. Source: (University of Virginia, 2017)

Community Assets

Community assets of social and cultural importance in the South Main Corridor Area include the Rockford Public Library, community centers, social organizations and clubs, several historically- and culturally- significant sites, and numerous parks. These are spaces where the community can gather, interact, form relationships, and build social capital.

Library

The Montague Branch of the Rockford Public Library opened in 1923 and is located at the corner of Winnebago and Montague Streets, across from Mandeville Park (Figure 35). This is the library system's oldest facility, and in 2011, underwent renovations including the addition of a community room that can be rented out, wireless computer area, and children's storytelling space, doubling the size of the facility (Rockford Public Library, 2018).



Figure 37. Montague Branch of the Rockford Public Library

In addition to an extensive print and digital collection, the library also offers events and programming for families and individuals of all ages. Programming and events include storytelling and crafts for children; gaming, educational presentations, genre-specific book clubs, and classes and workshops on a variety of topics for teens; technology classes, English as a Second Language (ESL) classes, book discussions, arts and crafts, and educational and health and wellness workshops and presentations for adults; as well as family game nights (Rockford Public Library, 2020b). The library also hosts a number of cultural events, such as Dia de los Muertos (Day of the Dead), El Día de los Reyes, Chinese New Year, ¡Celebrar el Carnaval!, and St. Patrick's Day, and monthly meetings of PFLAG Rockford, an organization for lesbian, gay, bisexual, transgender, and queer (LGBTQ+) people, their parents, families, and allies (Rockford Public Library, 2020b).

During the coronavirus pandemic, the library has continued to provide services, including curbside pickup, virtual access to books and other resources, online story time, and other online activities, like museum video streaming (Rockford Public Library, 2020a). In addition, the Rockford Public Library, partnered with the Rockford Park District and the Rockford River District, to create a number of Storybook Walks around the City, mounting storybooks to boards and installing them in parks, storefront windows, and along paths and trails for people of all ages to enjoy (Figure 38).

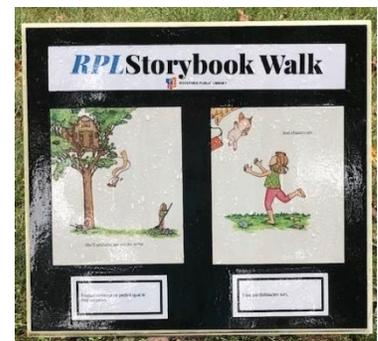


Figure 38. A portion of the Storybook Walk installed at Mandeville Park. Photo by Katie Williams, EPA

Community Centers

There are two community centers in the South Main Corridor Area, both located in the northeast portion of the Study Area. The first is the St. Elizabeth Catholic Community Center, located just west of South Park at 1536 S. Main Street. This community center serves over 1,300 individuals a week, providing an early childhood development program for children ages 3-5, before and after school care, summer camp for children ages 5-12,

ESL and general education development (GED) classes, adult fitness classes, a soup kitchen, food pantry, and clothing closet (Diocese of Rockford, 2020). The St. Elizabeth Catholic Community Center is also home to a children's community garden (Figure 39).



Figure 39. St. Elizabeth Catholic Community Center children's community garden.

The second community center in the study area is the Booker T. Washington Community Center located as 524 Kent Street. This community center is recognized as Illinois' oldest African-American community center and is home to the African American Resource Center. The Booker T. Washington Community Center offers computer access, rental space, community events, and educational, recreational, social, and cultural programming, including summer and afterschool activities, teen-aged tai-kwon-do classes, cultural cooking classes, topical town hall discussions, job training and recruitment events, and social events for seniors (Booker Washington Community Center, 2020). This community center also has historical and cultural significance in the Rockford community; for more details, see the section on *Historically- and Culturally-Significant Sites* below.

Social Organizations/Clubs

There are a number of social organizations and clubs in the South Main Corridor Area as well, including the American Legion, Saint Ambrogio Society, and the Lithuanian Club. The American Legion is a nationwide veterans organization that provides support for servicemembers and veterans and opportunities for comradery, youth mentorship, and programs in the community (The American Legion, 2020). The Saint Ambrogio Society was a social club originally established in 1918 for those who migrated to America from a particular region of Italy, but today is open to all people and cultures and provides opportunities for socializing and fellowship and engaging with the community (Saint Ambrogio Society, 2008). Finally, there is the Rockford Lithuanian Club, a private social club aimed at building community ties and promoting the Lithuanian heritage, although you don't have to be Lithuanian to join (The Rockford Lithuanian Club, 2020).

Of note, no formal Hispanic social clubs or organizations were found in the study area.

Historically- and Culturally-Significant Sites

There are a number of sites or landmarks in the northern portion of the South Main Corridor Area that are historically- and culturally-significant and also serve as community assets - the Booker T. Washington Community Center, Tinker Swiss Cottage Museum, Ethnic Heritage Museum, and the Graham-Ginestra House.

The Booker T. Washington Community Center was originally established as a War Camp Community Center in 1916 at 218 South Main Street. Known as the Colored Soldiers Club, it served as the only social enterprise for Rockford's African American troops and soldiers (Booker Washington Community Center, 2020). The name of the club was changed to the Booker T. Washington Center in 1919, and in 1936, the center relocated to its present day location at 534 Kent Street (Figure 40), the site of Rockford's third public school, established in 1858 (City of Rockford, 2020e).



Figure 40. Mural on the outside of the Booker T. Washington Community Center

Tinker Swiss Cottage was built in 1869 as the home of Robert H. Tinker and opened to the public as a museum in 1934 (Figure 41). Tinker Swiss Cottage Museum houses over 10,000 objects, 99% of which are original to the occupants of the Tinker Swiss Cottage (Tinker Swiss Cottage Museum & Gardens, 2020a). In addition to the house, the 27-acre museum complex contains a barn, carriage house, gardens, and a Pre-Columbian Native American mound that has been archaeologically dated between 1000-1300 ACE (Tinker Swiss Cottage Museum & Gardens, 2020a). In 1998, the Victorian Rose Garden was returned to its 1890–1910 condition, featuring over 25 different heirloom varieties of roses. The site also includes an Iris Path; a prairie meadow that was restored in 2010 to its 1834 condition; and Tinker's Railroad Garden, originally created in 1908 alongside the Illinois Central Railroad for passengers to enjoy as they traveled through town (Tinker Swiss Cottage Museum & Gardens, 2020b). Tinker Swiss Cottage was placed on the National Register of Historic Places in 1972.



Figure 41. Tinker Swiss Cottage Museum. Photo by Katie Williams, EPA.

The Ethnic Heritage Museum contains six galleries that explore the local heritage of immigrant groups that settled in southwest Rockford – African American, Hispanic, Irish, Italian, Lithuanian, and Polish (The Ethnic Heritage Museum, 2020). The Ethnic Heritage Museum also hosts cultural events, such as Black History Month, the Anniversary of the Women's Suffragist Movement, local "Hispanic Women of the Year," and other community events.

The Graham-Ginestra House was built in 1857 and was listed on the National Register of Historic Places in 1979. It was owned by the Graham family until 1927, when the Ginestra family bought it; both were prominent families with successful businesses in Rockford (Illinois Department of Commerce & Economic Opportunity, 2020). Later, it was opened as a museum, and is currently operated as a museum as part of the Ethnic Museum complex (Illinois Department of Commerce & Economic Opportunity, 2020).



Figure 42. Graham-Ginestra House

Parks

Parks provide spaces for socialization and for participating in cultural events and activities. Families can unite for private parties; friends can gather to catch up; small fitness and wellness businesses can host their group classes; children can gather for day camp or activities through their schools, churches, or community centers; and parks alongside waterways provide access to fishing. See the *Parks and Greenspace* section for more information on parks in the South Main Corridor Area.

Neighborhood Revitalization, Social and Cultural Wellbeing, and Health

Neighborhood revitalization provides an opportunity to **benefit health** through social cohesion by 1) improving the physical environment in which the community lives, and 2) providing an opportunity for the public to join together in a project that positively impacts their lives. Community engagement is a necessary aspect of revitalization because it ensures community needs are considered, builds social capital, and helps to build the buy-in necessary to keep a neighborhood flourishing post revitalization. Further, community engagement during the neighborhood revitalization efforts may help catalyze the development of a more formal community organization that would participate in on-going and long-term planning. This would increase the sense of community within the South Main Corridor Area by demonstrating that the opinion and experience of residents matters in the development of their neighborhood. When a community can see themselves in the decisions their city makes, they are more likely to treat their neighborhood with respect and develop and sense of place and attachment to their neighborhood. Deliberate efforts should be made to engage Latino residents in the South Main Corridor Area, as this was identified as a challenge during stakeholder interviews conducted as part of the Land Revitalization Technical Assistance Grant (Vita Nuova, 2020).

Community engagement and outreach would benefit from developing meaningful communication materials for limited English proficient community residents. Strategies should include a process to determine the level of English proficiency, the primary language spoken, and what their language needs are. Materials developed by the U.S. Department of Education Office for Civil Rights and the U.S. Department of Justice include [Tools and Resources for Ensuring Meaningful Communication with Limited English Proficient Parents](#), which provides a useful overview and specific approaches to achieve meaningful outreach.

Revitalization may also attract new residents to the South Main Corridor Area. Promoting community engagement and activities that bring the community together for a common goal, encourage social connections, and empower residents can help bridge any potential rifts between original residents and incoming residents.

The establishment of community gardens or park co-management models are two such activities that can provide these benefits. Gardens provide a variety of benefits beyond socialization opportunities, including knowledge transfer of a valuable skill; access to local healthy food through the production of fruits and vegetables; and the physical benefits of engaging in gardening.

Humans are inherently social creatures, and much of human health stems from the ability to socialize with others, providing mental and physiological health benefits. Supporting local connections should be emphasized, such as block-level relationship-building. Supporting smaller, more localized social events such as block parties or neighborhood clean-ups can help support social and other community investments. Ensure equitable outreach to engage residents in activities and events, such as by providing language-appropriate outreach materials and locally accessible venues.

Socialization promotes social cohesion, a sense of community and connection, and feelings of safety and identity within a neighborhood. The ability to practice one's culture, religion, and food ways is also important to individual and community identity and culture, as well as mental and overall health and well-being. This means that any plan to revitalize a neighborhood should prioritize providing safe and healthful places where the community can get to know one another and engage in cultural experiences important to its residents. Revitalization efforts that provide space for gathering, development of social ties to residents and neighborhood, and cultural experiences can include improvements to walkability and bikeability; reductions in crime; development of parks and greenspace, community centers, business districts, and mixed-use developments; and recreational, cultural, spiritual, and social programming and events. Revitalization also provides the potential to develop a deliberate "city center" for the South Main Corridor Area that establishes a sense of place for this community and its residents.

Potential Strategies for Promoting Health

Main Finding

Where social cohesion and social capital are lacking, neighborhood revitalization efforts provide an opportunity to strengthen social networks and community ties in the area.

- Promote programming and activities that improve social capital and neighborhood attachment to help build trust among residents.
- Engage the public in visioning, strategizing, and prioritizing revitalization efforts in the South Main Corridor Area, making deliberate efforts to engage the Latino residents of the area. Without the presence of an engaged community organization, the City could establish a concerted effort to encourage participation in planning events.
- Utilize culturally-appropriate messaging for community engagement and advertising of community events, including language and cultural references.
- Encourage the creation of a neighborhood organizations reflective of the diversity of the community and comprised of local residents, community leaders, and businesses to support efforts to improve the quality of life in the South Main Corridor Area.
- Incorporate economic and racial inclusivity into revitalization efforts to ensure social equity.

- Increase the opportunity for community members to gather and interact through improved walkability and bikeability; reductions in crime; development of parks and greenspace, community centers, business districts, and mixed-use developments; and recreational, cultural, spiritual, and social programming and events.
- Consider the development of a “city center” that establishes a sense of place for the South Main Corridor Area and its residents.
- Monitor and maintain public spaces to ensure they remain welcoming, safe, and inclusive spaces for socialization.
- Encourage creation of regular ward or association meetings to provide an overarching structure for engagement.

Main Finding

Neighborhood revitalization efforts should highlight and promote the existing assets in the community. Efforts should be taken to celebrate the people and promote the places of historical and cultural significance.

- Promote the use and growth of valuable assets, such as the Klehm Arboretum, Tinker Swiss Cottage, Graham-Ginestra House, Ethnic Heritage Museum, Rockford Public Library, and Rockford Park District facilities.
- Provide signage highlighting the location of assets and major amenities and educational signage communicating the importance of historical or cultural spaces.
- Explore options for funding community organizations or partnering with local organizations to put on cultural and social events in the study area that celebrate the people of the South Main Corridor Area. These events or activities should be based on community input and participation, with attention paid to cultural sensitivity and suitability.

Strategies for Promoting Health in the South Main Corridor Area Neighborhood Revitalization

The goal of this rapid Health Impact Assessment (HIA) was to explore the use of health impact assessment to assess the potential positive and negative health impacts of revitalizing the South Main Corridor Area. Table 20 provides a compilation of the main findings and potential strategies for promoting health from each of the health determinants examined in this HIA. It should be noted that there are two overarching themes included in the strategies that follow: 1) involving and engaging the community in the planning, implementation, and monitoring of neighborhood revitalization in the study area; and 2) addressing the community's needs and advancing equity through revitalization. These strategies are general in nature and do not speak to any specific revitalization decision, policy, or program (e.g., specific development or site remediation); nor do strategies represent any sort of mandatory regulatory obligation, as this HIA and its findings are completely non-binding. Adoption of any strategy is at the sole discretion of the City, as they must balance the health considerations with the other technical, social, political, and economic considerations related to the decision.

Table 20. Compilation of HIA Findings and Strategies for Promoting Health

Health Determinant	Main Finding	Strategy
<p>Housing</p>	<p>Stable, accessible, healthy housing can help support low- and fixed-income populations; minorities; those with special needs or chronic behavioral, physical, or mental health conditions.</p>	<p>Provide assistance for low- and middle-income populations and those on fixed incomes to become homeowners and help build wealth through programs such as down payment assistance, homeownership programs, and closing cost assistance.</p>
		<p>Provide assistance for home rehabilitation and retrofits that make housing safe and accessible for seniors and those with disabilities.</p>
		<p>Through new construction and rehabilitation of existing housing, develop accessible and supportive housing for seniors, people with disabilities, and those with special needs.</p>
		<p>Work to acquire funding aimed at reducing the mortgage default rates and foreclosure rates for low- and middle-income homeowners.</p>
		<p>Develop an inventory of single-family housing for purchase and rent-to-own that is affordable to the lower income population through new construction, infill development, and rehabilitation, leveraging City or publicly-owned properties, abandoned properties, and tax-delinquent properties.</p>
		<p>Provide training and outreach to raise awareness of fair housing rights and promote fair housing choices for residents with incomes near the poverty level, racial and ethnic groups, immigrants, older adults, and people with disabilities. Campaigns and materials should be multilingual, so that all members of the population can be reached.</p>
<p>Housing</p>	<p>Revitalization strategies can help support the availability of affordable housing.</p>	<p>Increase the inventory of affordable, safe, healthy housing through rehabilitation of existing homes and properties, new construction, and infill housing.</p>
		<p>Promote mixed-income housing development in the area to stabilize the housing market.</p>
		<p>Consider rent control ordinances and other efforts, such as subsidies and vouchers, to make existing housing affordable to area residents.</p>
		<p>Partner with local community colleges, workforce development boards, and labor unions to train unemployed and underemployed individuals in construction and building trades to fill the workforce needs of renovation and rehabilitation efforts.</p>

Health Determinant	Main Finding	Strategy
Housing	Safe, healthy housing that is properly maintained and free of lead and substandard conditions helps promote public health.	Provide financial assistance to low- and middle-income homeowners and quality landlords to rehabilitate and maintain their housing, make home energy improvements, make improvements to the exterior façade and land parcel, and improve ADA accessibility.
		Provide programs and facilitate partnerships that assist homeowners and landlords with maintaining and improving their properties (e.g., community fix-up or clean-up campaigns, corporate outreach programs, Youth Build, bank loan programs, Habitat for Humanity).
		Continue to address housing code violations, through a mixture of code enforcement and incentive programs, to maintain a safe and healthy housing inventory in the area.
		Deconstruct or demolish derelict housing that is economically infeasible to rehabilitate; incentivize deconstruction as a sustainable alternative to demolition via expedited deconstruction permits or other means.
		Encourage negligent or absentee landlords to sell their properties to the City for rehabilitation, demolition, or deconstruction.
		Provide incentives for private developers and non-profit housing providers to construct housing and mixed-use developments in the community.
		Acquire abandoned or tax delinquent properties for re-use or infill housing development.
Neighborhood and Built Environment	Revitalization strategies can help support access to health-supportive goods and services	Utilize smart growth principles to ensure neighborhood revitalization efforts support economic growth, strong communities, and environmental health.
		Increase the number of service- and retail-based businesses in the study area that are accessible by sidewalk, bicycle, and transit to provide employment opportunities for local residents and make for a more service-friendly community. In addition to improving access to good and services, this can also support residents aging in place.
		Consider mixed-use development that includes employment opportunities, residences, and essential services together to create a more “complete neighborhood” that aligns with the vision of current residents.
		Engage community members in creating a vision for the South Main Corridor Area to ensure that improvements to goods and services meet the needs of the community and benefit all residents.

Health Determinant	Main Finding	Recommendation
Neighborhood and Built Environment	Improvements to walkability, bikeability, and mass transit in car-dependent areas have the potential to connect residents to goods and services and provide opportunity for physical activity.	Consider Complete Streets infrastructure improvements in the study area and Complete Streets features in any new development to improve pedestrian and bicyclist safety and mobility and promote active transportation. Features can include well-maintained contiguous sidewalks, clearly marked and frequent crosswalks, street lights, traffic calming, protected bike lanes, clear signage, accessible public transit stops, curb extensions, medians, streetscapes, and more.
		Consider improvements to public transportation infrastructure and services to increase mobility and access to goods and services for area residents.
Neighborhood and Built Environment	Strategies exist to mitigate the effects of blight, aging infrastructure, and Brownfields.	Carry out revitalization efforts in a way that protects long-term residents and businesses from displacement. This can include rent and housing subsidies, the inclusion of affordable housing, and more.
		Strategically renovate, restore, demolish, or deconstruct vacant dilapidated structures, acquire abandoned or tax delinquent properties, and remediate Brownfield properties and transfer these properties to productive re-use, improving aesthetics of the community, boosting the value of nearby land, providing revenue-earning potential, and increasing connectivity and access to goods and resources.
		Improve the appearance of existing historic, commercial, and public buildings in need of repair through facade improvements and renovations.
Parks and Greenspace	Having safe, easy access to a quality park or greenspace within a 10-minute walk of home has numerous health benefits	Consider the development of additional neighborhood or “pocket” parks and upgrades to existing park assets in the study area to fulfill the vision that everyone lives within a 10-minute walk of a quality park or greenspace.
		Work with community members to identify where parks and greenspace may be best sited, taking into consideration the location of residences and other points of interest, opportunities to connect to existing greenway trails and parkways, and accessibility by active transportation, including walking and bicycling.
		Consider construction of a greenway or park space along the waterfront that includes both a walking and bicycle path that connects the Rock River Recreation Path and downtown Rockford to the north to the existing South Main Multi-use Path in the study area.
		Provide clear diagrams and multilingual signage and maps for pedestrian and bicyclist access to parks. Important elements of access and design include effective wayfinding systems such as the use of landmarks, signage, distance to destination markers, and interest points to assist in navigating the routes easily.

Health Determinant	Main Finding	Recommendation
Parks and Greenspace (Cont.)	Having safe, easy access to a quality park or greenspace within a 10-minute walk of home has numerous health benefits (Cont.)	Follow Crime Prevention through Environmental Design (CPTED) guidelines, such as lighting and planting configurations, when developing and/or upgrading parks, trails, and greenways, and ensure these spaces are properly maintained to improve the safety and security of the spaces.
Parks and Greenspace	Well-maintained spaces with diverse recreational, programming, and social activities enhance opportunities for recreation and overall health. <i>Partnerships with volunteer organizations may help support park maintenance and programming.</i>	<p>Offer diverse amenities and opportunities for recreation at parks in the study area to maximize their potential use and health benefits, taking into account community-voiced desires and targeted outreach with translators and cultural community leaders to ensure those voices are heard. This can include work out equipment play equipment for children, bicycle and walking trails, practice or sports fields, spray grounds, spaces for gathering and socializing, picnic areas and barbeque facilities, community centers, restrooms, and for parks along the river, fishing piers, birding platforms, water access, and areas to take in the views of the river. Maintenance requirements of installed features should be taken into account when planning.</p> <p>Consider the development of community gardens, food production or food foraging areas, and/or establishment of a farmer’s market in existing or new green spaces to address food insecurity in the study area and provide opportunities for social gathering.</p> <p>Consider offering cultural programming, similar to Domingos en el Parque, in parks in the study area.</p> <p>Provide clear signage along the Rock River, Kent Creek, and Levings Lake to communicate, in both English and Spanish, any fishing and/or swimming advisories and health risks associated with those activities.</p> <p>Research and develop co-management models, where neighborhood organizations have more formal responsibility for park management. Co-management arrangements could empower the neighborhood and ease the maintenance burden on the City of Rockford.</p> <p>Explore partnerships with organizations to facilitate access, education, and equipment sharing; additional recreational opportunities (e.g., pools, community gardens, etc.); and leadership capacity building for underrepresented populations.</p>

Health Determinant	Main Finding	Recommendation
Parks and Greenspace	Greenspace incorporated into new development and redevelopment and reuse of commercial, residential, and public spaces can help maximize the public health benefits of revitalization for the community.	Prioritize the importance of greenspace (including streetscaping) when evaluating proposals for infill and mixed-use development and redevelopment and reuse of spaces in the study area, including City-owned property.
		Consider greening of vacant properties and Brownfields as a low-cost method for increasing greenspace.
		Programs such as Mow-to-Own should be continued, and information about the programs communicated widely, in both Spanish and English, to maximize participation.
Employment and Economy	Business development efforts can help increase employment opportunities and access to goods and services in the study area and spur economic revitalization, improving local health.	Market vacant and remediated property for business development, commercial, or mixed-use development.
		Increase the number of businesses in the study area, to increase job opportunities for residents, with a focus on jobs that provide economic self-sufficiency.
		Provide business development resources and funding opportunities to encourage development of local businesses, including minority- and women-owned businesses. This could include a business incubator to support small and local business development in the community.
		Encourage or require local hiring practices, including training programs, for the nearby community, during neighborhood revitalization and in the end use of the sites.
		Advocate for the use of business revenue to support public services and activities in the study area, including educational programming for children and the community on relevant health promoting topics.
Employment and Economy	Non-business development efforts can help increase employment opportunities and access to goods and services in the study area and spur economic revitalization, improving local health.	Increase the workforce participation rate through better job opportunities and education/training of the unemployed and underemployed.
		Due to the large number of individuals without a high school education, promote the development of adult education and general equivalency diploma (GED) programs, job training, and employment opportunities in the area to enable residents to earn a livable wage.
		Encourage collaboration between employment agencies and businesses, as well as local trade unions, business development centers and programs, and local colleges/universities to promote hiring and job training programs to train those in the local community to fill the needs of employers.

Health Determinant	Main Finding	Recommendation
Employment and Economy (Cont.)	Non-business development efforts have the opportunity to increase employment opportunities and access to goods and services in the study area and spur economic revitalization, improving local health. (Cont.)	Provide opportunity for a makerspace in the community to encourage entrepreneurship and increase access to tools and training.
		Improve public transit, active transportation, and other transportation modes through transportation initiatives that improve access to stable employment, job training, and goods and services.
		Strategically demolish or deconstruct vacant dilapidated structures, acquire abandoned or tax delinquent properties, and remediate brownfield properties and transfer these properties to productive re-use, improving aesthetics of the community, boosting the value of nearby land, providing revenue-earning potential, and increasing connectivity and access to goods and resources.
		Increase the inventory of affordable, safe, healthy housing through new construction, infill housing, and rehabilitation of existing homes and properties. This will improve the standard of living in the area and increase property values.
		Consider initiatives to decrease food insecurity in the community, such as community gardens and collaborations with food banks and local businesses and community organizations to create access points for free or reduced-price groceries.
		Promote initiatives to reduce the number of cost-burdened households in the study area and improve household economics, including an increase in affordable, healthy housing; rent control ordinances and other efforts, such as subsidies and vouchers; reduced cost utility programs; and homeowner and renter assistance programs.
		Engage regional and local employers in the neighborhood revitalization efforts and encourage them to invest in the community, through financial support and volunteer opportunities.
Crime and Safety	Crime prevention can reduce public health risks and remove barriers to investment and economic development.	Implement programs in the study area to decrease crime and improve perceptions of safety, including crime prevention and deterrence programs and community policing.
		Provide a dual approach to managing offenders, including punishment and rehabilitation (e.g., treatment and support services) in an attempt to change their behaviors.
		Provide support services, including mental health support, for victims of crime.
		Develop and distribute outreach and communication materials, in both English and Spanish, to residents regarding safety information and resources.

Health Determinant	Main Finding	Recommendation
Crime and Safety (Cont.)	Crime prevention can reduce public health risks and remove barriers to investment and economic development. (Cont.)	Reduce blight and improve neighborhood safety through demolition and/or deconstruction of derelict properties, greening of vacant lots, and expansion of greenspace.
		Implement Crime Prevention through Environmental Design Standards (CPTED) in street and pedestrian lighting, planting configurations and maintenance (including trimming of shrubbery and trees), and fencing designs.
		Promote programming and activities that improve social capital and neighborhood attachment and help build trust among residents, including community involvement in neighborhood revitalization planning and implementation.
		Promote programs such as a Community Camera Network.
		Expand youth programming, leadership development, and employment opportunities in the neighborhood.
		Continue efforts to combat domestic violence, including community outreach and education, services through the Family Peace Center and other programs, and housing for domestic violence victims.
		Consider EPA environmental workforce development and job training grants, which could help reconnect youth and young adults to the training and educational services needed to earn their GED and also help them attain the skills, experience, and certifications to meet local market needs and potential employment prospects.
Crime and Safety	Safe pedestrian and bicyclist access to amenities and services can sow improvements in public health and safety.	Consider Complete Streets infrastructure improvements in the study area and Complete Streets features in any new development to improve pedestrian and bicyclist safety and mobility and promote active transportation. Features can include well-maintained contiguous sidewalks, clearly marked and frequent crosswalks, streetlights, traffic calming, protected bike lanes, clear signage, accessible public transit stops, curb extensions, medians, streetscapes, and more.
		Consider using the National Highway Traffic Safety Administration (NHTSA) Walkability Checklist and Bikeability Checklist to inform improvements to pedestrian and bicyclist safety.
		Consider implementing a Safe Routes to School Program in the study area.
		Improve safe routes and access points for residents on foot and bicycle to access amenities and services in the study area, including the supermarket, waterfront, and other businesses that require individuals to navigate and cross South Main street.

Health Determinant	Main Finding	Recommendation
Social and Cultural Wellbeing	Where social cohesion and social capital are lacking, neighborhood revitalization efforts provide an opportunity to strengthen social networks and community ties.	Engage the public in visioning, strategizing, and prioritizing revitalization efforts in the South Main Corridor Area, making deliberate efforts to engage the Latino residents of the area. Without the presence of an engaged community organization, the City could establish a concerted effort to encourage participation in planning events.
		Utilize culturally-appropriate messaging for community engagement and advertising of community events, including language and cultural references.
		Encourage the creation of a neighborhood organization comprised of local residents, community leaders, and businesses to support efforts to improve the quality of life in the South Main Corridor Area.
		Incorporate economic and racial inclusivity into revitalization efforts to ensure social equity.
		Increase the opportunity for community members to gather and interact through improved walkability and bikeability; reductions in crime; development of parks and greenspace, community centers, business districts, and mixed-use developments; and recreational, cultural, spiritual, and social programming and events.
		Consider the development of a “city center” that establishes a sense of place for the South Main Corridor Area and its residents.
		Monitor and maintain public spaces to ensure they remain welcoming, safe, and inclusive spaces for socialization.
Social and Cultural Wellbeing	Neighborhood revitalization efforts should highlight and promote the existing assets in the community. Efforts should be taken to celebrate the people and promote the places of historical and cultural significance.	Promote the use and growth of valuable assets, such as the Klehm Arboretum, Tinker Swiss Cottage, Graham-Ginestra House, Ethnic Heritage Museum, Rockford Public Library, and Rockford Park District facilities.
		Provide signage highlighting the location of assets and major amenities and educational signage communicating the importance of historical or cultural spaces.
		Explore options for funding community organizations or partnering with local organizations to put on cultural and social events in the study area that celebrate the people of the South Main Corridor Area. These events or activities should be based on community input and participation, with attention paid to cultural sensitivity and suitability.

Monitoring and Evaluation

Monitoring and evaluation is the final step of a Health Impact Assessment (HIA) and includes an evaluation of the HIA process itself (i.e., process evaluation), the impact of the HIA on the project and its decision-making process (i.e., impact evaluation), and the impact of project implementation on health (i.e., outcome evaluation).

Process Evaluation

Process evaluation considers whether the HIA was carried out according to the plan of action and applicable standards (National Research Council, 2011). After the HIA analysis was complete, the HIA Project Team evaluated the ability of the HIA to meet its stated goals and the *Minimum Elements and Practice Standards for HIA* (Bhatia, et al., 2014). Evaluating the design and execution of the HIA results in valuable information that can be used to help refine methods and approaches used in HIA and advance the HIA community of practice. Early in the HIA process, the HIA Leadership Team developed a plan for evaluating the HIA, which included an Agency administrative review and an external peer-review by an HIA practitioner. In addition, the HIA Leadership Team also identified successes, challenges, and lessons learned, based on their experience and input received from stakeholders.

Achievement of HIA Goals

After drafting the HIA Report, the HIA Leadership Team determined if the goals set out for this HIA were met. Table 21 presents the results of that evaluation.

Table 21. Evaluation of HIA Goal Achievement

HIA Goal	Achieved?	Documentation
Conduct a rapid HIA that examines health considerations for neighborhood revitalization.	Yes	The HIA described the general health impacts and public health strategies for six neighborhood revitalization areas of interest: housing, neighborhood and built environment, parks and greenspace, employment and economy, crime and safety, and social and cultural well-being.
Consider, discuss, and address health in new ways for brownfields and land revitalization.	Partially	The HIA was successful in facilitating discussions of health among the decision-makers and stakeholders of the Land Revitalization Technical Assistance Grant and in identifying strategies for addressing broader determinants of health that may be directly or indirectly impacted in revitalization efforts. However, given project time constraints and because of COVID-19, broader engagement of the community in these discussions was not possible.

HIA Goal	Achieved?	Documentation
Bring evidence-based information to help inform the City of Rockford’s neighborhood revitalization project.	Yes	The HIA Report includes information from the literature regarding the connection of each health determinant to public health; the connection of neighborhood revitalization to public health; data on existing conditions related to each health determinant; and evidence-based strategies and approaches for promoting health.
Investigate the utility of HIA as a decision-support tool for brownfields and land revitalization .	Partially	While the HIA was successful in providing evidence and public health strategies for consideration in the South Main Corridor Area neighborhood revitalization, the utility of HIA, elements of HIA, and other approaches for incorporating health in brownfields and land revitalization will continue to be examined.

Achievement of HIA Minimum Elements and Practice Standards

The *Minimum Elements and Practice and Practice Standards for HIA* (Bhatia, et al., 2014) were used as benchmarks when planning and conducting this HIA. Minimum elements are the essential elements that constitute an HIA and set it apart from other practices and assessment methods, while practice standards are best practices in carrying out an HIA (Bhatia, et al., 2014). This HIA satisfied the minimum elements for HIA, although the extent to which the HIA met the minimum element to “involve and engage stakeholders affected by the proposal, particularly vulnerable populations” was limited due to time and COVID-19 constraints. The neighborhood revitalization is focused on one of the most vulnerable areas of Rockford, IL, as illustrated by data, metrics, and community input. While the HIA did not directly engage the community or stakeholders, it did utilize community and stakeholder input from efforts external to the HIA, including input from City representatives, stakeholder interviews, and a full-day workshop with stakeholders conducted as part of the Land Revitalization Technical Assistance Grant. Stakeholder interviews conducted by the Land Revitalization Technical Assistance Contractor included the council member (alderman) for the area, other City representatives, business owners, organization leaders and a small group of residents, although an identified limitation of the stakeholder engagement was the lack of engagement of the Latino community, which makes up a large percentage of the population in this area. Given the time and COVID-19 restraints, wider public involvement was not feasible and all partners understood that.

Questions asked as part of the interviews conducted during the separate Land Revitalization Technical Assistance Grant included:

1. How has the community changed in the last 3 years? Better or worse? Why? What makes you say that?
2. What is the biggest challenge this neighborhood faces?
3. Would you recommend this community for anyone else to live in and why?
4. Where is the center of the community? Is there a building / landmark that people go to?
5. Safety question: how safe do you feel walking in the neighborhood during the day? At night? Why?
6. Funding: What redevelopment/revitalization activity/project would you like to see done in this neighborhood? What funding sources are you aware of that exist to do this?
7. In your opinion, what does a healthy neighborhood look like and what steps would you want to move in that direction?

Successes Identified by the HIA Leadership Team

This rapid HIA was successful in several ways. One success was to facilitate coordination between the EPA, City of Rockford, local and regional partners, and the Land Revitalization Technical Assistance Contractor to discuss health in new ways for brownfield and land revitalization projects. The HIA provided these entities with a better understanding of the social determinants of health related to brownfields and land revitalization; for example, the mental health impacts of housing, crime, and the physical and social environment, providing a new lens through which stakeholders can examine these issues facing the community. This HIA also presented strategies for improving public health and for building up the existing community and their cultural contributions and civic participation. Furthermore, this HIA raised awareness of HIA as a decision-support tool and investigated how HIA could inform land revitalization projects in general.

Challenges and Lessons Learned Identified by the HIA Leadership Team

One important distinction of this HIA was its particular lack of focus on a specific revitalization plan and decision point. The initial phase of the Land Revitalization Technical Assistance Grant was to explore a range of revitalization options; therefore, this HIA served to more broadly assess the health impacts associated with neighborhood revitalization, in general.

COVID-19 unfortunately delayed the start of this project and also precluded in-person engagement. While site visits and personal contact would have benefited the project and perhaps facilitated in-person visits with the broader community, partners and stakeholders adapted to virtual meetings and digital communications to keep the project moving forward.

A final challenge that EPA and interested partners will continue to pursue is whether the six-step HIA process, elements of HIA, or some derivative is more applicable for incorporating health into brownfields and land revitalization projects. While this rapid, yet comprehensive, HIA provided great insights into land revitalization and public health, the content, format, and approach was not able to be seamlessly integrated into the development of the land revitalization strategy for a number of reasons. EPA will continue to investigate how the HIA process can be better integrated into brownfields and land revitalization projects and whether elements of HIA or HIA derivatives (such as infographics, worksheets, pre-made presentations, health determinant databases, or other tools) might be more advantageous given the roles, responsibilities, and different sectors represented in land revitalization.

External Peer-Review of HIA

This HIA Report underwent a review by a land revitalization expert and HIA practitioner external to the HIA effort (i.e., external peer-reviewers) who could provide an experienced perspective outside of those directly involved in the process and the decision. The peer reviewers were charged with evaluating the HIA against established HIA benchmarks (Bhatia, et al., 2014) and evaluating whether the HIA findings and recommendations and the assumptions, parameters, and methodologies used in carrying out the HIA were appropriate and reasonable. Invitations were sent to potential reviewers inviting them to provide a critical review of the HIA. The external peer reviewers provided comments and proposed revisions, which the HIA Project Team considered and incorporated into the HIA Report, as needed.

Plan for Impact Evaluation

Impact evaluation seeks to understand the impact of the Health Impact Assessment (HIA) on the decision, the decision-making process, or other factors outside the specific decision being considered (National Research Council, 2011). EPA plans to follow up with the City of Rockford and its stakeholders regarding the utility of the HIA process and which elements of HIA and HIA-related materials or information were most helpful. As the City moves into subsequent stages of its neighborhood revitalization, an impact evaluation could include answering questions, such as:

- Were any HIA strategies for promoting health reflected in the neighborhood revitalization planning and design?
- To what extent did the HIA as a whole or in part inform the neighborhood revitalization planning process?
- What HIA methods, resources, or tools were or would be most helpful during land revitalization, redevelopment planning, and brownfield assessment and cleanup?

Plan for Outcome Evaluation

Outcome evaluation focuses on the changes in health status or health indicators resulting from implementation of a proposal (National Research Council, 2011). It is difficult to attribute a change in health to a specific decision, however, because individual and public health are affected by a wide variety of factors, many unrelated to the implementation being monitored. Table 22 provides a limited list of potential indicators, data sources, and partners that could be considered to monitor the impact of neighborhood revitalization on the health determinants in the Health Impact Assessment (HIA). These indicators are often closely related to or can approximate actual health outcomes.

Table 22. Potential Indicators for Monitoring the Impacts of Neighborhood Revitalization on Health

Health Determinant	Potential Indicators, including Health Outcomes	Potential Data Sources	Potential Partners
Housing Access and Stability	<ul style="list-style-type: none"> • % Owner-occupied housing by race • % Vacant housing units • Percent of population who move frequently • Number of subsidized and assisted housing units • Eviction and foreclosure rates • Number of Fair Housing Act violations/complaints • Homelessness rates 	<ul style="list-style-type: none"> • American Community Survey • HUD Resource Locator • Rockford Community and Economic Development Department • Rockford Housing Authority • HUD Office of Fair Housing and Equal Opportunity (FHEO) • Rockford Community Action Agency 	<ul style="list-style-type: none"> • Rockford Human Services Department • Rockford Community and Economic Development Department • Rockford Housing Authority • Illinois Housing Development Authority • Rock River Homeless Coalition • Community Action Agency
Housing Affordability	<ul style="list-style-type: none"> • Monthly housing costs (renter and homeowner) • Number of cost-burdened households • Fair market rent • Median residential housing value 	<ul style="list-style-type: none"> • American Community Survey • HUD location affordability index • National Low Income Housing Coalition 	<ul style="list-style-type: none"> • Rockford Human Services Department • Rockford Housing Authority • Illinois Housing Development Authority
Housing Safety and Quality	<ul style="list-style-type: none"> • Number of houses rehabilitated • Number of houses demolished or deconstructed • Number of new homes constructed • Number of housing code violations • Number of crowded or overcrowded housing units 	<ul style="list-style-type: none"> • Rockford Community and Economic Development Department • Rockford Human Services Department • American Community Survey 	<ul style="list-style-type: none"> • Rockford Community and Economic Development Department • Rockford Human Services Department • Rockford Housing Authority • Illinois Housing Development Authority • Habitat for Humanity

Health Determinant	Potential Indicators, including Health Outcomes	Potential Data Sources	Potential Partners
Neighborhood and Built Environment	<ul style="list-style-type: none"> • % residents within a 1/2 mile of an area with 75% of common public and private services • % residents within 30-min transit or walking commute to healthcare facility • % residents within 1/2 mile of a full service grocery store with fresh produce • % households receiving SNAP • Health Professional Shortage Area designations • % uninsured • Walkability of neighborhood • Miles of bike network and bikeability improvements • Complete Streets improvements • Mass transit access • Number of derelict or vacant properties demolished, deconstructed or rehabilitated • Acres of brownfields remediated and redeveloped 	<ul style="list-style-type: none"> • Winnebago County GIS • USDA ERS • U.S. Health Resources and Services Administration • American Community Survey • WalkScore® • EPA National Walkability Index • Ride Illinois • Center for Neighborhood Technology AllTransit™ • Rockford Community and Economic Development Department • Cleanups in My Community 	<ul style="list-style-type: none"> • Winnebago County GIS • Rockford City Public Works • Rockford Mass Transit District • Ride Illinois • Rockford Community and Economic Development Department • EPA Office of Brownfields and Land Revitalization • Habitat for Humanity
Parks and Greenspace	<ul style="list-style-type: none"> • Park and greenspace acreage • Miles of trails • Number of community gardens • % households within a 10-minute walk of a park or greenspace • Number of Mow-to-Own lots • Inventory of park amenities and programming • Number of park improvements 	<ul style="list-style-type: none"> • Rockford Parks District • The Trust for Public Land ParkScore 	<ul style="list-style-type: none"> • Rockford Parks District • Rockford Community and Economic Development Department

Health Determinant	Potential Indicators, including Health Outcomes	Potential Data Sources	Potential Partners
Employment and Economy	<ul style="list-style-type: none"> • Population • % unemployment • % self-employed • % population employed by industry and occupation • Educational attainment of population • Job training programs • Work commute time • Per capita income • Median household income • Cost of Living Index • Living Wage • IL minimum wage • Increased business development in the area, including the number of small businesses and businesses opened by local residents • Property and income tax revenue 	<ul style="list-style-type: none"> • U.S. Census Bureau • American Community Survey • U.S. Bureau of Labor Statistics • Rockford Area Economic Development Council • The Workforce Connection 	<ul style="list-style-type: none"> • Rockford Area Economic Development Council • The Workforce Connection • Rockford Chamber of Commerce • Illinois Department of Commerce and Economic Opportunity • Local business organizations • Local trade unions • Local business development centers/programs • Local colleges and universities
Crime and Safety	<ul style="list-style-type: none"> • Rates of violent and non-violent crime • Rates of vehicle, pedestrian, and bicyclist accidents • Crime- and transportation-related injuries and death • % disconnected youth (youth age 16-19 who are neither in school nor working) 	<ul style="list-style-type: none"> • Rockford Police Department • State of Illinois Data Portal • Federal Bureau of Investigations Uniform Crime Reporting • IL Department of Transportation • American Community Survey 	<ul style="list-style-type: none"> • Rockford Police Department • Mayor’s Office on Domestic Violence & Human Trafficking Prevention • Region 1 Planning Council • Winnebago County Criminal Justice Coordinating Council • Local hospitals and health clinics

Health Determinant	Potential Indicators, including Health Outcomes	Potential Data Sources	Potential Partners
Social and Cultural Wellbeing	<ul style="list-style-type: none"> • % renters • Number of neighborhood organizations • Community engagement activities • Cultural programming and activities • Rates of economic, social, and racial inclusion 	<ul style="list-style-type: none"> • American Community Survey • Rockford Human Services Department • Community Centers, Public Library, Social Organizations, Historical or Cultural Organizations • Rockford Park District • Urban Institute 	<ul style="list-style-type: none"> • Rockford Human Services Department • Rockford Community Relations Commission • Rockford Park District • Local Community Centers • Rockford Public Library • Local social organizations • Tinker-Swiss, Ethnic Heritage Museum • Local churches and schools

Conclusions

Cities across the country are tackling the challenge of urban revitalization to promote economic development and healthy and sustainable communities, while preserving the historical, cultural, and social identity of its neighborhoods and preventing gentrification of long-time residents. Several principles have been identified by health researchers as representing sustainable and healthy communities:

- Equity (lack of disparities)
- Inclusive, equitable and broad community participation
- Empowerment of the community to assess and address their own health concerns
- Multi-sector participation and collaboration
- Mixed land uses to bring people closer to the places where they live, work, worship, and play
- Housing / shelter
- A strong economy and employment opportunities
- A stable, sustainable ecosystem and environment
- Access to health care and preventive health services, parks and greenspace, healthy food, and quality education
- Transportation and opportunities for active living
- Safety
- Healthy public policy (Health Resources in Action, 2013).

A sustainable and healthy community can see benefits resulting from strengthened social capital, social networks, and collective efficacy; improved physical environment; economic investment; increased property values; improved services and amenities; increased community capacity and pride; improved equity; decreased gentrification; and better physical and mental health. In the absence of addressing these healthy community elements, current conditions in the area can persist.

Results from this Health Impact Assessment (HIA) suggest that there is ample opportunity to consider, discuss, and address health in new ways for brownfields and land revitalization projects. As the City of Rockford continues with its neighborhood revitalization of the South Main Corridor Area, EPA will continue efforts to develop best practices for considering health in evidence-based brownfields and land revitalization decision making.

This HIA helps bring new and greater attention on health and potential health impacts of redevelopment that can be considered as part of long-term revitalization strategies in the target corridor and surroundings areas and future brownfield projects.

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Appendix A. Housing Related Interventions

Several programs in place at the local, state, and national level could be leveraged in neighborhood revitalization to assist with housing related issues, including access and stability housing affordability, and housing safety and quality. These serve as examples and do not represent endorsement by the EPA:

- [HUD Grants](http://hudexchange.info/grantees/rockford-il/), (hudexchange.info/grantees/rockford-il/) such as:
 - Community Development Block Grant (CDBG)
 - Home Investment Partnership Program (HOME)
 - Emergency Solutions Grant (ESG)
- | City of Rockford 2020 HUD Grants | |
|----------------------------------|-------------|
| CDBG Amount: | \$2,171,919 |
| HOME Amount: | \$982,552 |
| ESG Amount: | \$184,641 |
- Illinois Housing Development Authority Community Revitalization [Technical Assistance, Grants, and Programs](http://ihda.org/wp-content/uploads/2019/11/Community-Revitalization-FAQ.pdf), (ihda.org/wp-content/uploads/2019/11/Community-Revitalization-FAQ.pdf) such as:
 - Down Payment Assistance Program
 - Abandoned Property Program
 - Blight Reduction Program
 - Single Family Rehabilitation Program
 - Land Bank Capacity Program and Technical Assistance
 - Home Accessibility Program
 - Foreclosure Prevention Program
 - Housing Tax Credit (such as the Low Income Housing Tax Credit)
 - Homeownership Programs
- 

The Illinois Housing Development Authority awarded the Region 1 Planning Council grant funding to form the Northern Illinois Land Bank Authority. The [Land Bank](#) specializes in acquiring vacant, abandoned, and tax delinquent properties at low cost, eliminating the property liabilities (e.g., back taxes or clouded titles), and returning the property to productive use.
- Rockford Human Services [Housing Assistance](http://rockfordil.gov/city-departments/human-services/community-services/housing-programs/) (rockfordil.gov/city-departments/human-services/community-services/housing-programs/) and [Energy Programs](http://rockfordil.gov/city-departments/human-services/community-services/energy-programs/) (rockfordil.gov/city-departments/human-services/community-services/energy-programs/) such as:
 - Rapid Rehousing
 - Homeless Prevention
 - Condemnation Relocation
 - Foster Youth Housing Assistance Program
 - Weatherization Assistance Program
 - Low Income Home Energy Assistance Program
 - Emergency Furnace Program
 - Percentage of Income Payment Plan
 - Rockford Housing Authority [Programs](https://rockfordha.org/housing/) (<https://rockfordha.org/housing/>) and [Resident Services](https://rockfordha.org/contact-us/frequently-asked-questions/resident-service-programs/) (<https://rockfordha.org/contact-us/frequently-asked-questions/resident-service-programs/>) such as:
 - Public housing
 - Housing vouchers and subsidies (e.g., Project-based Vouchers, Housing Choice Vouchers, and VA Supportive Housing Vouchers)

- Home Ownership Program
- Family Self-Sufficiency (FSS) Program
- Resident Opportunities Self Sufficiency (ROSS) Program
- Section 3 ([Rockford Housing Authority Job Bank \(rockfordha.org/section-3/\)](http://rockfordha.org/section-3/))

Appendix B. Employment and Economy-Related Interventions

Several programs in place at the local, state, and national level could be leveraged in neighborhood revitalization to bolster employment and business opportunities. These serve as examples and do not represent endorsement by the EPA:

- Job training, such as:
 - Critical Core Manufacturing Skills Program in conjunction with Rock Valley College (RVC) and local businesses
 - NIU@RVC Engineering Program
 - Lifeforce Development Institute’s Job/Career Readiness Skills-based training- available for Rockford Housing Authority clients and residents
 - EPA’s Environmental Workforce Development and Job Training (EWDJT) Program - to build a skilled workforce in communities where EPA brownfields assessment and cleanup activities are taking place.

There are entrepreneurial development opportunities that already exist in the area, too. The Enterprise Zone is a program that helps with the revitalization of distressed areas by offering financial assistance such as tax incentives to encourage business growth. These tax incentives include investment tax credit, building material sale tax exemption, utility tax exemption, high impact service facility machinery and equipment sale tax exemption, and local property tax abatement.

In addition to the Enterprise Zone, there is a “River Edge Zone,” that the State of Illinois created to promote the development of environmentally challenged properties near rivers. Through this program, a developer can access building material sale tax exemption, dividends deduction, interest income deduction, State historic tax credit, and local property tax abatement.

Further business development incentives include: Tax Increment Financing (TIF); CDBG Development Assistance and Job Creation; Economic Development for a Growing Economy (EDGE) Tax Credit; Opportunity Zones; Illinois Finance Authority; Advantage Illinois; Tax Exempt Bonds; The Community Foundation of Northern Illinois (CFNIL); the Revolving Loan Fund; Business First, Economic Development Administration – Investments for Public Works and Economic Development Facilities, and the Small Business Administration (SBA) Section 504 Loan Program.

There are programs specifically targeted for assisting specific populations too, including youth, felons, and veterans. These include: Tech-Prep Youth Vocational Program Credit; Dependent Care Assistance Program Credit; Employee Child Care Tax Credit; Ex-Felons Job Credit; Veterans Job Credit; and Student-Assistance Contribution Credit.

Lastly, the EPA Brownfields Program provides support for states, communities, and other stakeholders in their efforts to clean up and revitalize brownfield sites.

Appendix C: Quality Assurance: Peer Review, Data Sources, and HIA Methodology

Prior to conducting this HIA, EPA reviewed over 80 existing HIAs to determine the current state of the science and to identify best practices and areas for improving HIA implementation (EPA, 2013). The findings from EPA's review, along with several HIA practice documents, were used to direct the HIA process and promote quality assurance; the HIA practice documents reviewed included:

- Bhatia, R. (2011). *Health Impact Assessment; A Guide for Practice*. Oakland, CA: Human Impact Partners.
- Bhatia R, Farhang L, Heller J, Lee M, Orenstein M, Richardson M and Wernham A. (2014). *Minimum Elements and Practice Standards for Health Impact Assessment, Version 3*.
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- National Research Council. (2011). *Improving Health in the United States; The Role of Health Impact Assessment*. Washington, D.C.: The National Academies Press.
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- WHO. (1999). *Health Impact Assessment; Main Concepts and Suggested Approach*. Gothenburg Consensus Paper. Brussels (Belgium): World Health Organization (WHO), Regional Office for Europe, European Center for Health Policy.

The HIA Project Team used these documents to manage the execution of the HIA. In addition, the HIA Leadership Team, including an HIA advisor, continuously monitored and guided the process to ensure the HIA followed the minimum elements and practice standards set forth by the North American HIA Practice Standards Working Group (Bhatia, et al., 2014) and best practices in the field based on professional expertise. Furthermore, internal QA audits conducted annually throughout the course of the assessment resulted in no findings or corrective actions.

PEER REVIEW

Upon completion, the HIA Report underwent extensive review by two internal members of the HIA Research Team. Furthermore, external peer review was performed by subject matter experts to provide an experienced perspective outside of those directly involved in the process and/or the decision. The external peer-reviewers were charged with evaluating the HIA against the *HIA Minimum Elements and Practice Standards* (Bhatia, et al., 2014) and providing input on the soundness of the evidence regarding neighborhood revitalization and public health. Blind invitations were sent through a third party to potential reviewers, inviting them to provide a critical review of this HIA. Three reviewers, Dr. Andrew Dannenberg, Ms. Tatiana Y. Lin, and Dr. Sandra Whitehead agreed to provide a critical review and were provided monetary compensation for their time and effort. Dr. Dannenberg is an affiliate professor in the Department of Environmental and Occupational Health Sciences in the School of Public Health at the University of Washington, Seattle. Ms. Lin is a Strategy Team Leader at the Kansas Health Institute in Topeka, Kansas. Dr. Whitehead is the Program Director and Assistant Professor at

George Washington University, Sustainable Urban Planning Program in Washington, D.C. The external peer reviewers provided comments and proposed revisions, which the HIA Leadership Team considered and incorporated into the HIA Report, as appropriate.

DATA SOURCES

The HIA Project Team established the South Main Corridor neighborhood in Rockford, Illinois as the study area, given the neighborhood revitalization decisions being evaluated in this HIA. Data were matched to the spatial extent of the study area and the most recent health and demographic data available at the time of the assessment step (through 2019) were used to characterize the population.

The HIA Research Team developed an Assessment Workplan that identified the following for each of the six health determinants researched (1. Housing; 2. Neighborhood and Built Environment; 3. Parks and Greenspace; 4. Parks and Greenspace; 5. Employment and Economy; 6. Crime and Safety) evaluated in this HIA:

- Baseline research question – to identify the current conditions in Suffolk County related to the variable
- Impact research question – to determine how the proposed decision alternatives would potentially impact the variable
- Indicators and data sources – to be used to answer the research questions
- Approach or methods – to be used to answer the research questions
- Data gaps and/or data acquisition needs

This HIA utilized both quantitative and qualitative metrics retrieved from secondary data sources to characterize the demographics, physical characteristics, or other properties of the Rockford, IL geographic extent. However, the HIA did not involve any primary data collection efforts, such as air quality sampling, soil testing, or administration of human health surveys. Data sources included the following:

- Center for Neighborhood Technology
- City of Rockford Community and Economic Development Department
- City of Rockford 2020 Healthy Community Survey
- City of Rockford Police Department
- City of Rockford Public Works
- Esri Data and Maps
- Illinois Department of Public Health
- Illinois Department of Transportation
- Illinois Environmental Protection Agency
- Illinois Housing Development Authority
- Illinois Region 1 Planning Council
- National Center for Healthy Housing
- US Bureau of Labor Statistics
- US Census Bureau, American Community Survey, 5-year estimates, 2014-2018
- US Census Bureau, Annual Resident Population Estimates, 2020
- U.S. Centers for Disease Control and Prevention (CDC) Agency for Toxic Substances and Disease Registry (ATSDR)

- US Department of Health and Human Services
- US EPA EJSCREEN
- US Housing and Urban Development

In all the above listed data sources, the Federal, State, and Local government agencies with statutory authority to collect these data were used. Federal data sets undergo extensive scrutiny and quality control measures prior to being posted for public distribution. Therefore, they satisfy the five assessment criteria in the following ways:

1. *Soundness*
 - a. The data are reasonable and consistent with the design of the intended application.
 - b. The data sets are based on sound scientific, statistical, or econometric principles.
2. *Applicability and Utility*
 - a. The data sets' purpose, design, outcome measures and results are relevant to EPA's intended use of the analysis.
 - b. The domains (e.g., duration, species, exposure) of the data, models, or results are valid and useful to EPA's application.
3. *Clarity and Completeness*
 - a. The documentation clearly and completely describe the underlying scientific, statistical, or economic theory and the statistical and analytic methods used.
 - b. The complete data sets are accessible, including metadata, data-dictionaries and embedded definitions.
4. *Uncertainty and Variability*
 - a. Appropriate statistical techniques have been employed to evaluate variability and uncertainty.
 - b. The studies or data sets identified potential uncertainties such as those due to inherent variability in environmental and exposure-related parameters or possible measurement errors.
5. *Evaluation and Review*
 - a. There have been independent verification or validation of the data sets and results.
 - b. The procedures, methods, or models have been used in similar, peer reviewed studies.

Although state and local data sets do not necessarily have the same standards as data collected by federal agencies, the data used from Illinois and the City of Rockford come from the government agencies with similar data quality requirements. In addition, the HIA Project team evaluated these data sets for the assessment criteria described above on an as-needed basis. The following questions and criteria helped to assess the data sets:

1. *Soundness*
 - a. To what extent are the procedures, measures, methods, or models employed to develop the information reasonable and consistent with sound scientific theory or accepted approaches?
 - b. Evaluate data quality relative to the intended use of the data. Identify criteria or metadata for judging data or information quality, including accuracy, precision, representativeness, completeness, and comparability. Do individual data points fall within known or biologically plausible ranges?
2. *Applicability and Utility*
 - a. How relevant are the data set's purpose, design, outcome measures and results to EPA's intended use of the analysis?

- b. How relevant is the data set to conditions of interest? Is the sampled population relevant to Suffolk County? How well does the sample take into account sensitive subpopulations?

3. *Clarity and Completeness*

- a. To what extent does the documentation clearly and completely describe the underlying scientific, statistical, or economic theory and the statistical and analytic methods used?
- b. Is the complete data set accessible, including metadata, data-dictionaries and embedded definitions (e.g., codes for missing values, data quality flags and questionnaire responses)? Are there confidentiality issues that may limit accessibility to the complete data set?

4. *Uncertainty and Variability*

- a. To what extent have appropriate statistical techniques been employed to evaluate variability and uncertainty? To what extent have the sensitive parameters of models been identified and characterized?
- b. Did the data set identify potential uncertainties such as those due to inherent variability in environmental and exposure-related parameters or possible measurement errors?

5. *Evaluation and Review*

- a. To what extent has there been independent verification or validation of the data set or study method and results? What were the conclusions of these independent efforts, and are they consistent?
- b. Has the procedure, method or model been used in similar, peer reviewed studies? Are the results consistent with other relevant studies?

<i>Criteria</i>	Data Relevance	Geography	Timeframe
<i>Good</i>	Data directly represent needed information, such as pollution concentration measurements to assess pollution levels.	Data directly represent the geographic area of interest with representative coverage.	Data coincide with timeframe of interest and have appropriate temporal resolution. (within 5 years)
<i>Adequate</i>	Data are related to needed information but not a direct representation, such as age of homes to indicate type of ISS in use to manage wastewater.	Data can be used to garner information of the area of interest but with limitations, such as zip code data applied to neighborhoods. Must cover 50% of area of interest	Timeframes do not necessarily coincide but are close enough (within 10 years) in time to provide relevant information.
<i>Deficient</i>	Data have no association to needed information.	Data are too far removed geographically from area of interest to be relevant.	Data represent a timeframe that is too old to be representative or do not have adequate resolution. (>10 years)

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