LOUISVILLE METRO HEALTH EQUITY REPORT

The Social Determinants of Health in Louisville Metro Neighborhoods

2011

LOUISVILLE METRO PUBLIC HEALTH & WELLNESS

The Center for Health Equity

LOUISVILLE METRO HEALTH EQUITY REPORT

The Social Determinants of Health in Louisville Metro Neighborhoods

This report was produced by the Metro Department of Public Health and Wellness' Center for Health Equity. The Center for Health Equity works to address the root causes of health disparities by supporting projects, policies and research working to change the correlation between health and longevity and socioeconomic status.

Authors:

Patrick Smith, AICP
Margaret Pennington, MSSW
Lisa Crabtree, MA
Robert Illback, PsyD

REACH of Louisville, Inc.
www.reachoflouisville.com

Comments, questions, and requests for additional information can be directed to:

C. Anneta Arno, PhD, MPH
Director, Center for Health Equity
Louisville Metro Department of Public Health and Wellness
2422 West Chestnut St.
Louisville, KY 40211
(502) 574-6616

Design:

REACH of Louisville, Inc.

Cover Photo Credits:

Child on Bicycle - © Photo courtesy of Louisville Metro
Group exercising - © Courier Journal
All other photos courtesy of the UofL Urban Design Studio

PUBLIC HEALTH AND WELLNESS
LOUISVILLE, KENTUCKY

GREG FISCHER
MAYOR

LaQuandra Nesbitt, MD, MPH,
Director

Dear Reader,

The Louisville Metro Department of Public Health and Wellness seeks to advance community health and well-being in every corner of our city. Where we live shouldn't determine how long we live. Too many Louisvillians are experiencing inequitable opportunities to achieve their highest level of health because of socioeconomic status, race/ethnicity, food access, environmental quality and many other social and economic factors; these are known as the social determinants of health and they play a significant role in the overall health of our city.

The Center for Health Equity works to address the root causes of the health disparities that exist across our community and it is out of this framework that we offer the *Louisville Metro Health Equity Report: The Social Determinants of Health in Louisville Metro Neighborhoods*. The research and data found in this report provide us with a baseline understanding of the degree to which health inequities exist across our city. It should be used as a starting point to address community environmental factors to promote better health for each of us in the places and spaces where we live, work and play.

Our goal is a shared understanding of the issues and a commitment to achieving a healthier Louisville that will take all of us working together. We hope this report will serve as a catalyst for conversations and collaboration between communities, organizations and government entities to embrace a health equity lens, and to engage as community partners in the creation of opportunities for improved health, including policy changes that promote healthy choices, opportunities and community conditions that make the healthy choice the easy choice.

Health equity is everybody's work – we need *your* help to make Louisville a healthy place for everyone!

I hope you will join the conversation.

Sincerely,

C. Anneta Arno, PhD., MPH
Director, Center for Health Equity

www.louisvilleky.gov
400 E. GRAY STREET LOUISVILLE, KENTUCKY 40202-1704 502.574.6530 FAX: 502.574.6588

EXECUTIVE SUMMARY

The social and physical conditions into which people are born, live and work profoundly affect well-being and longevity. The influence of place and neighborhood is increasingly seen as a major, if not the most significant, determinant of health. Thanks to a growing record of research and reporting, the body of evidence continues to amass on how the shape and fabric of communities and neighborhoods impact our health. Rather than simply functioning as the setting for interventions designed to change individual health and health behavior, community environments must be understood to have at least equal importance as health determinants.

Much of the research on place and health has been articulated through a set of constructs termed "the Social Determinants of Health" (SDOH). The SDOHs consider how social and neighborhood conditions come together to impact health outcomes. Research has demonstrated that access to proven health protective resources like clean air, healthy food, recreational space, opportunities for high-quality education, living wage employment, and decent housing, is highly dependent on the neighborhood where one lives. Some of the implications for Louisville described in the report are as follows:

Louisvillians in the poorest neighborhoods have lower life expectancies, sometimes by as much as ten years shorter than the overall Louisville Metro life expectancy (see page 5).

Louisville residents ages 40-65 who earn less than $20,000 annually are significantly more likely to report that they have had a heart attack (see page 17).

Neighborhoods that have been labeled as "food deserts" have diabetes mortality rates that are two to three times higher than the total Louisville Metro rate (see pages 15 and 38-41).

Opportunities for physical activity in some neighborhoods could be impeded by safety issues including hazards for pedestrians and bicyclists, or high rates of violent crime in or near public parks (see pages 37 and 51).

The primary goal of the Louisville Metro Health Equity Report is to promote a community-wide understanding of the root causes of health inequities in Louisville Metro. It can also serve as an impetus for discussing the neighborhood conditions that contribute to health in all of Louisville's neighborhoods. Key to fostering this understanding is thoughtful engagement with health and social determinant data and research. The research and data accumulated within this report should be of broad interest to community members, but our greater desire is that the findings portrayed within the report will be used to move discussions beyond individual choice-making toward the underlying community environmental factors that perpetuate poor health.

THE SOCIAL DETERMINANTS OF HEALTH ARE THE SOCIAL, ECONOMIC, & PHYSICAL CONDITIONS THAT CONTRIBUTE OR DETRACT FROM THE HEALTH OF PEOPLE AND NEIGHBORHOODS

Income & Employment

Housing

Environmental Quality

Education

Transportation

Food Access

Health Care Access

Community Safety

Parks & Physical Activity

CONTENTS

Special thanks to the National and Local Work Groups: See Appendix for listing.

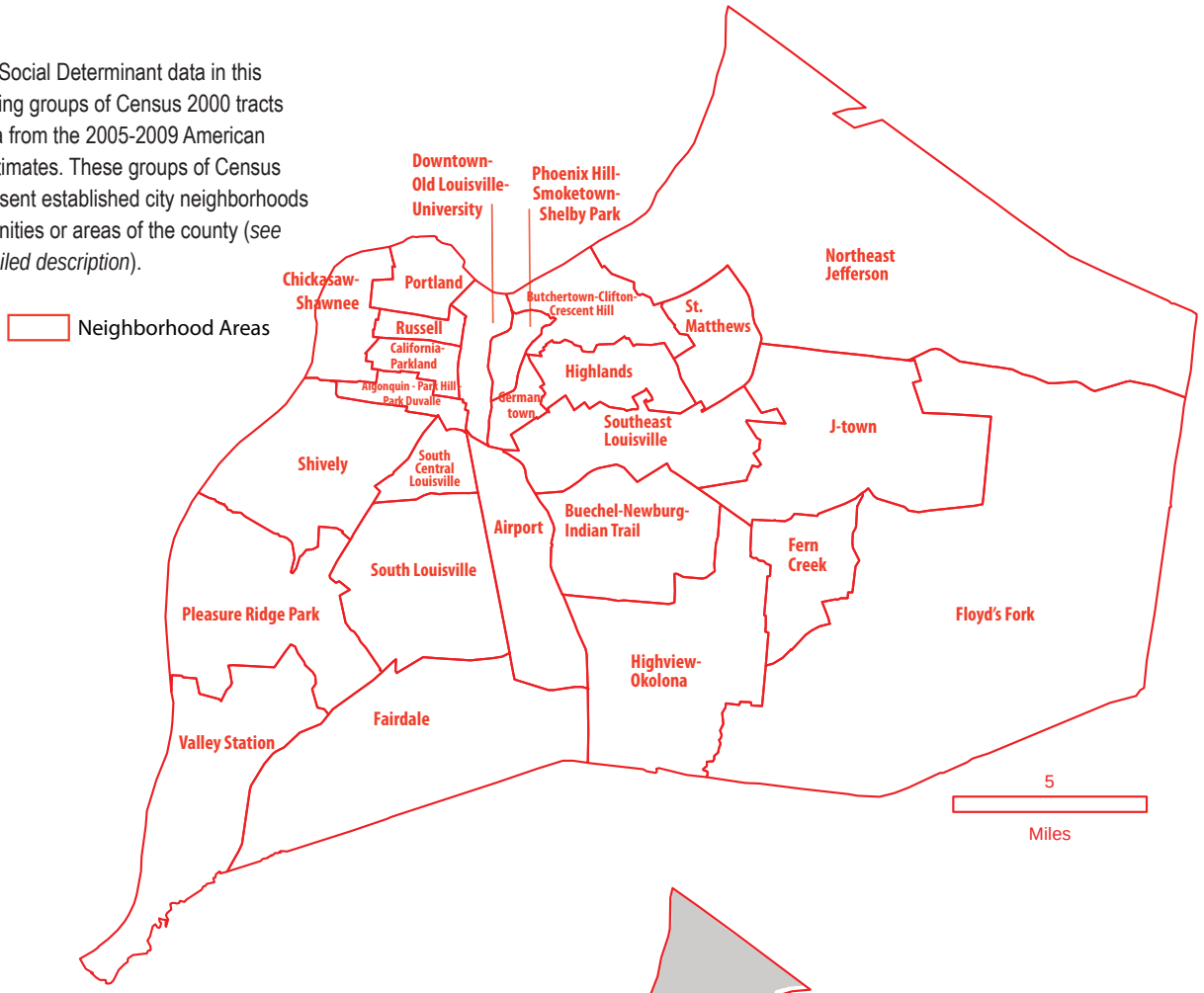
Special thanks to Catherine Fosl, PhD for contributions for Louisville's historical context, and to Ray Yeager, MPH for analysis on age-adjusted life expectancies and mortality rates.

LIST OF FIGURES

LIST OF MAPS

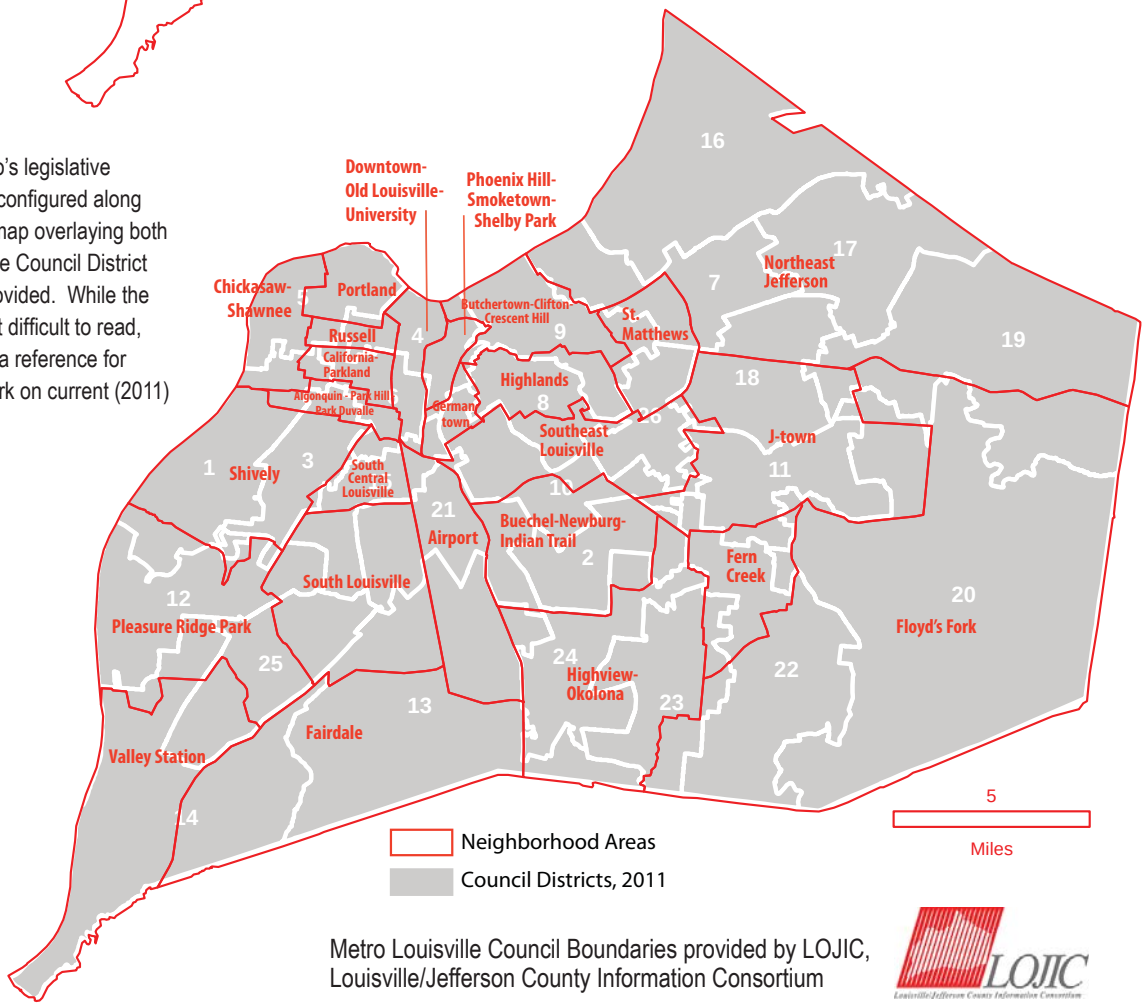
TECHNICAL NOTE

The demographic and Social Determinant data in this report are depicted using groups of Census 2000 tracts that correspond to data from the 2005-2009 American Community Survey Estimates. These groups of Census Tracts attempt to represent established city neighborhoods and residential communities or areas of the county (*see page 7 for a more detailed description*).



TECHNICAL NOTE

Because Louisville Metro's legislative governance structure is configured along Council District lines, a map overlaying both the neighborhood and the Council District boundaries has been provided. While the overlapping lines make it difficult to read, hopefully it will serve as a reference for those who base their work on current (2011) legislative boundaries.



Metro Louisville Council Boundaries provided by LOJIC, Louisville/Jefferson County Information Consortium

INTRODUCTION

Place Matters & Neighborhood Counts

Social, physical, and economic conditions shape the places into which we are born, and where we live, learn, work, play, and age. The characteristics of a given neighborhood or community represent the interplay of contemporary and historical burdens and benefits associated with these conditions. There are significant differences in health status between groups in society who are economically and socially advantaged and those who are not (due to factors such as socioeconomic status, race/ethnicity, sexual orientation, gender, and disability).[1] Research now provides compelling evidence that group differences in health status are, at least in part, attributable to the influence of place. Place is not merely the physical location where one lives (and within which health interventions occur); place is a major determinant of risk and protective factors associated with health status and worthy of examination in its own right. This is the essence of a social-determinants of health and health equity perspective. The underlying determinants are pervasive, and are evident in the quality and quantity of housing (including the degree of residential segregation), education, income and employment, transportation, natural and built environment, as well as community safety, and access to healthy food, parks and opportunities for physical activity. Collectively, they tend to be manifested in places -- therefore place matters and neighborhoods count in opportunities for health!

A social-determinants lens also helps to shine light on the underlying 'root causes' of health inequities. Health inequities are unfair, avoidable, systemic differences in health status, morbidity and mortality rates. Social-determinants demonstrate that the underlying cause of individual and community health outcomes are not primarily the inevitable result of genes or individual health behaviors; nor the result of some 'natural' health-wealth calculus. Neither is access to 'health care' the primary driver. While genes, health behaviors and access to care are critically important, collectively, they contribute to only half of the entire health equation.

Health Equity Report Framework

The primary goal of the Louisville Metro Health Equity Report is to promote a community-wide understanding of the root causes of health inequities in Louisville Metro. It can also serve as an impetus for discussing the community conditions that contribute to health in all of Louisville's neighborhoods. Key to fostering this understanding is thoughtful engagement with health and social determinant data and research. Data that illuminate the underlying conditions that perpetuate health inequities at the community level are important to illustrate social and economic conditions that lead to health inequities in communities.[2] The research and data accumulated within this report should be of broad interest to community members, but our greater desire is that its contents will be used to move discussions beyond individual choice-making toward the underlying community environmental factors that perpetuate poor health.

To achieve this broader goal, the Health Equity Report has three primary objectives:

1. To portray current social, economic and environmental factors associated with inequities in health;
2. To assist local organizations in facilitating community dialogues regarding health inequities, focusing on root causes, rather than just individual behaviors;
3. To encourage community-based actions related to social, economic, and environmental determinants of community health.

Health inequities are disparities in health or health care that are systemic and avoidable, and therefore considered unfair. Healthy People 2020 defines a health disparity as "a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic

> "Health Equity is the attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing social efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities."
>
> *- Healthy People 2020*

status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion."[3] Different neighborhoods in Louisville Metro can have very different health outcomes for their resident populations, and many of these differences are associated with social inequities related to income, race, ethnicity, gender, or immigration status. Poor health is concentrated among low income people and people of color residing in certain places.[4]

The Louisville Health Equity Report provides a baseline for understanding the root causes of health inequities in Louisville Metro, and also serves as a mechanism for providing more localized data about neighborhood conditions that contribute to health outcomes. This report will examine income or race based health inequities, and will also present indicators addressing the social and physical environment of neighborhoods that contribute to health. These social and physical factors are referred to as the Social Determinants of Health (SDOH), and through learning more about the SDOH, community members can learn more about the root causes affecting health outcomes in communities.

It is important to note that this report operates under the understanding that health does not equal health care.[5] Access to health care is a crucial need that is addressed within the report, but it is not the most important determinant of good health. In fact, only "...10 to 15 percent of preventable mortality has been attributed to medical care." [6]

There is a common perception that individual behavior is the primary determinant of health. This presumes that some individuals choose to be unhealthy, and that such choices are within the control of every individual. This report counters this belief by citing data that suggest that people are, in large part, the products of their environment, and are often limited to making choices about health from those available to them. Individual choice is a factor; however, some environments do not contain the health promoting resources that are necessary for maintaining good health, such as grocery stores with fresh, affordable produce and parks that are safe. Also, some neighborhoods have a disproportionate concentration of negative factors, including vacant buildings, crime, fast food retailers, or toxic polluting industries that can lead to serious health problems and shorter life spans for residents.

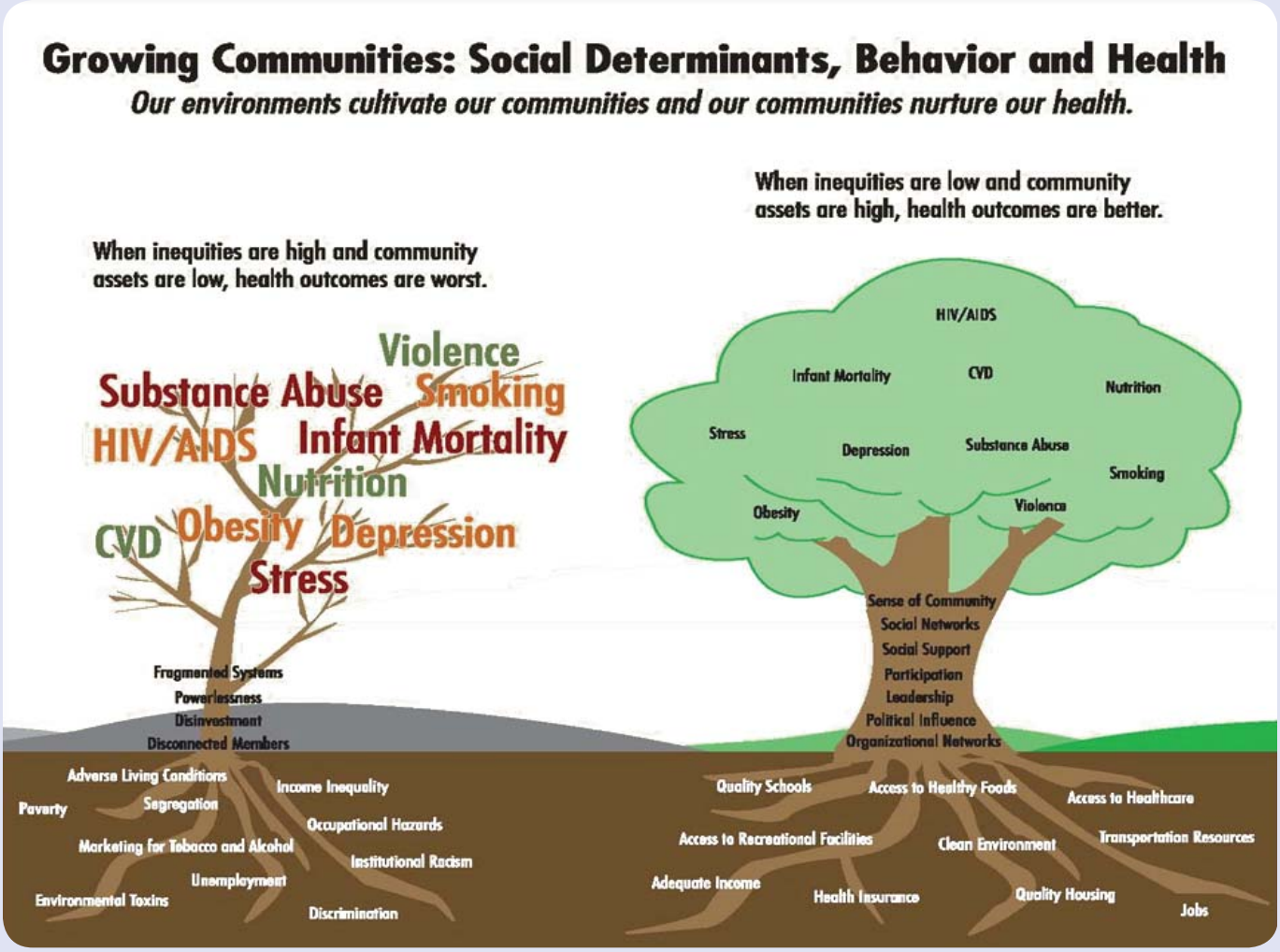
This report seeks to elevate the community discourse regarding health beyond issues of individual behavior or access to medical treatment by examining the relationships between social inequities and the neighborhood conditions that shape overall health. As the focus is narrowed to the places where people live, rather than individual choices and decisions, the influence of social inequity becomes more clear.

The Social Determinants of Health

Much of the research on place and health has been articulated through a set of constructs termed "the Social Determinants of Health" (SDOH). The SDOHs consider how social and neighborhood conditions come together to impact health outcomes. Research has demonstrated that access to proven health protective resources like clean air, healthy food, recreational space, opportunities for high-quality education, living wage employment, and decent housing, is highly dependent on the neighborhood where one lives.[7]

Health can also be affected by the presence of risk factors. For example, the lack of a supportive neighborhood environment can lead to social and psychological circumstances that work to cause long-term stress, anxiety, insecurity, low self-esteem, social isolation and lack of control over work and home life. These psychosocial risks accumulate during life and increase the chances of premature death.[8]

Neighborhoods where people live have been associated with all-cause mortality, cause-specific mortality, coronary heart disease, low birth weight, perceived health status and rates of violent crime.[9]



Brennan Ramirez LK, Baker EA, Metzler M. Promoting Health Equity: A Resource to Help Communities Address Social Determinants of Health. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2008.

Social Inequalities

The Louisville Health Equity report continues the discussion surrounding the root causes of poor health outcomes along socioeconomic, racial and ethnic lines. These differences in health are strongly related to social inequities that have historically resulted in unequal opportunities to be healthy.[10]

Life expectancy is shorter and many diseases are more common further down the social ladder, as measured by socioeconomic status.[11]

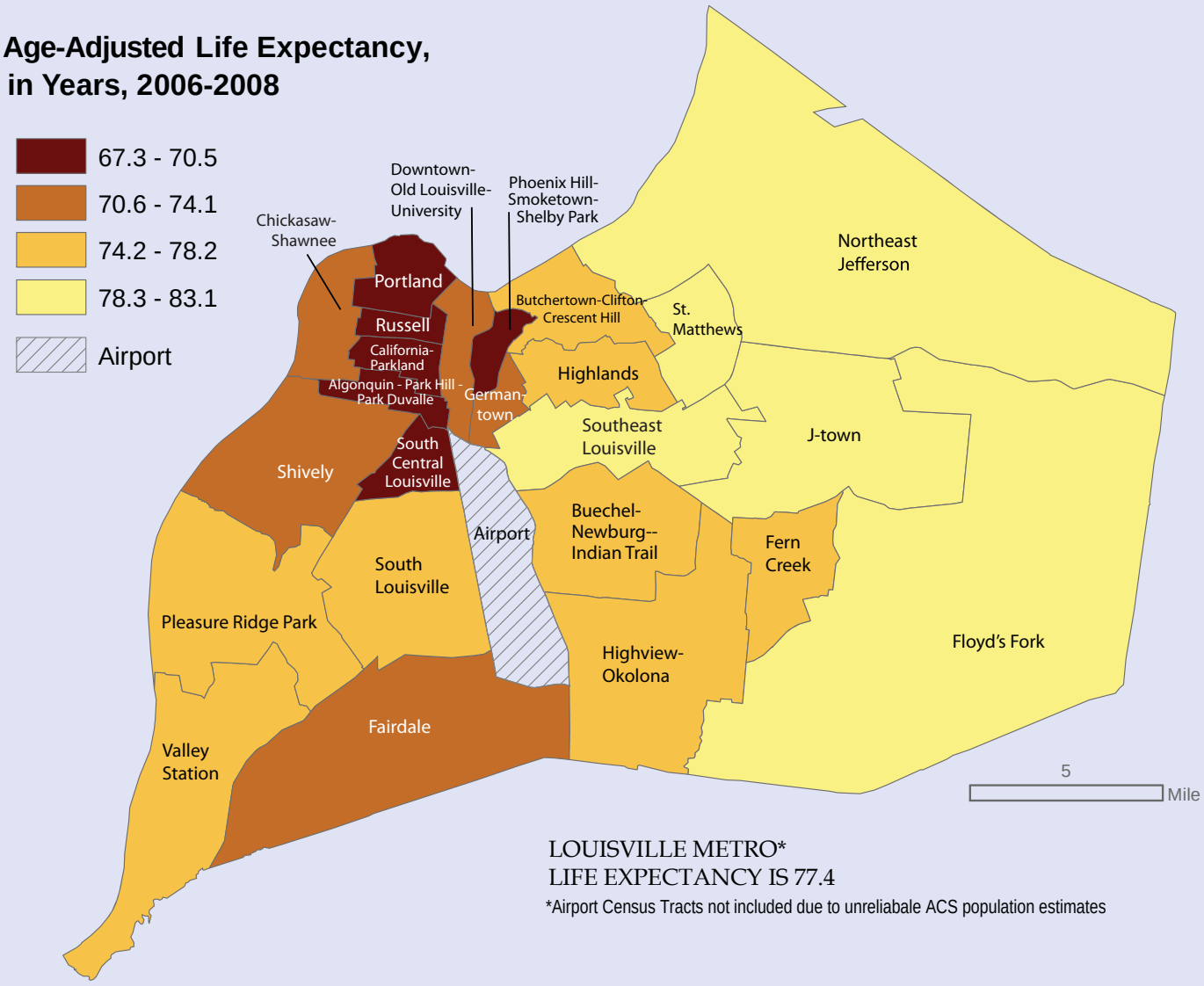
Though people of color often experience poorer health outcomes, these relationships are by no means permanently fixed; the health impact of income and socioeconomic status is evident across all races and ethnicities. This is demonstrated by the fact that neighborhoods that are predominantly white, but poor, will frequently have mortality rates equal to or greater than the mortality rates of neighborhoods of color with equal or higher income levels. An example is the low life expectancy rates in the predominantly white, low income Portland neighborhood of Louisville.

Structural Racism

Structural racism examines racial and ethnic impacts that stem from a history of disenfranchisement and policies that favored those in power. Consequently, the origins of urban inequality for communities of color cannot be separated from structural racism. An example is the history of federal housing policies that not only denied homeownership to urban African-Americans but physically destroyed many black neighborhoods under the policies of urban renewal.[12] While it is beyond the scope of this report to fully address the history of structural racism in this community and the full extent of its impact, this report will provide references to the impact of these forces on the root causes of health.

Social Determinants

This report also provides information and indicators on determinants of health that have implications for the health of all Louisville's neighborhoods, not just those with poor health. Neighborhoods that are above the poverty level and



LOUISVILLE METRO*
LIFE EXPECTANCY IS 77.4

*Airport Census Tracts not included due to unreliabale ACS population estimates

neighborhoods with lower concentrations of racial and ethnic minorities can also be affected by poor social and physical conditions. Even though needs may not seem as immediate or apparent in these communities, they should nevertheless be addressed. For example, low-density, large lot zoning policies can result in disconnected neighborhoods with poor accessibility to health-promoting environments. Additionally, many Louisvillians live too far away from their job and from services and therefore spend too much time in their cars, resulting in measurable health detriments. Neighborhoods may not have concentrated poverty, but they may be burdened with poor environmental conditions including pollution or flooding. While the problems of the relatively better off are not as immediate as those living in poverty, they also encounter preventable problems that could be addressed through thoughtful and informed community design.

In Jefferson County, the neighborhood in which one lives can serve as a predictor of life expectancy.

Neighborhoods that have the lowest life expectancies are the same neighborhoods with high levels of poverty, crime, vacancies, payday lenders, and fast food retailers.

These associations provide strong evidence that the quality of the social and physical environment may play an important role in determining the health of community residents.[9]

HISTORICAL CONTEXT

Many conditions in Louisville Metro neighborhoods today are not the result of chance or of individual choice. They are the result of policies and widely held ideas that developed, in part, out of our nation's tragic history of slavery and racial discrimination. That history has a continuing impact on the health of our community today, leaving Louisville with some striking racial and economic disparities.

In the first generations of Louisville's existence, the practice of slavery stripped the vast majority of African American residents of any hope of economic advancement—this meant that no matter how hard they worked, they could not acquire wealth as other Americans could. Slavery also deprived them of the most basic rights, including the rights to education and legal marriage. Even the city's sizeable free black population—though it managed to grow and thrive—was kept out of many occupations and places, and barred from voting.

The Civil War brought an increase to the city's African American population as black soldiers flocked into the Union Army through its Louisville headquarters and toward the freedom the war achieved in 1865. By 1900, Louisville had the nation's seventh largest concentration of African Americans among U.S. cities (19.1%), a population growth that brought overcrowding and new majority-black neighborhoods such as Smoketown, California, and "Little Africa."

Although Black Louisvillians organized themselves and advanced socially, educationally and politically, their opportunities remained limited by racial segregation and discrimination. Until World War II, most black Louisvillians were unwelcome in higher-paying industrial jobs and were hired only for unskilled labor, domestic services, or in institutions catering only to blacks. Prior to the 1960s, African Americans were not allowed to eat in most restaurants or to try on clothing in downtown shops. In the area of housing, a city ordinance segregated the races by law until 1917. Even when the ordinance was overturned, whites continued to act to keep blacks out of many residential areas through strategies that ranged from restrictive clauses in deeds to community-wide petitions to outright violence.

Only people organizing together in massive social protest movements brought about long-overdue and meaningful change in the years after WWII. Landmark civil rights laws (1964) and open housing laws (1967) ended legal segregation and many forms of discrimination. Yet some unfair policies and practices continued, especially in housing, where whites remained resistant to living in neighborhoods with an influx of African American residents (such as in Louisville's western neighborhoods). In 1968, a protest there against the actions of a white police officer turned violent; two teenagers were killed and numerous stores were looted and damaged. When the riots ended, white business owners decided not to rebuild. They took their investments to other parts of town. Many white churches followed suit. Increasingly, well-to-do people of both races moved out as well. West Louisville, lacking the infusion of commercial development or new resources, became even more economically and racially isolated. While county-wide busing after 1975 integrated area schools and widened educational opportunities, many students returned to long-standing disparities in their neighborhoods.

This brief review of Louisville's history will hopefully contribute to a fuller understanding of the social determinants of health and of the disparities that exist among Louisville Metro neighborhoods.

REPORT METHODOLOGY

Literature Review

In understanding the critical importance of social and physical environments in determining population health outcomes, this report will present recent research that illustrates the connections between place and health.

Social Inequities & Health Outcomes

This report includes recent data from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS)*, organized by factors including race and income to illustrate the health inequities experienced in low-income neighborhoods and communities of color.

A local work group comprised of community organizations and local agency representatives worked to identify the indicators and guide the primary content presented in this report.

Social/Environmental Determinants & Louisville Neighborhood Areas

This report presents a range of social and environmental indicators for Neighborhood Areas in Louisville that provide localized data about the neighborhood conditions that contribute to health. In this context, Neighborhood Areas are defined as…

> *"… groupings of census tracts, neighborhood areas represent established city neighborhoods and residential communities or areas of the county. To improve statistical reliability, smaller city neighborhoods with similar populations were often combined into a single neighborhood area. Census tract boundaries were sometimes not consistent with neighborhood boundaries, but combining neighborhoods often allowed us to overcome the mismatch. In the core of the city, neighborhood areas were kept relatively small in population size and spatial area in an attempt to maintain historical distinctions between places."* [13]

For organizing data at the sub-county level, the report chooses to use Neighborhood Areas rather than Zip Codes or Council Districts for a number of reasons. The most important reason being that the Neighborhood Areas help connect the statistics to the actual places and people they are describing. When a Neighborhood Area is associated with a particular indicator, the reader creates a mental picture much more easily than would be possible if Zip Codes or Council Districts were the unit of enumeration. Further, most Zip Codes and Council Districts overlap and segment traditional neighborhood areas across Louisville Metro. Any given Zip Code or Council District can contain bits and pieces of several traditional Louisville neighborhoods that are often very different from one another socially, economically, or physically. However, compartmentalizing neighborhood data is complex and imperfect, and Neighborhood Area boundaries will not perfectly reflect realities of everyday life in communities. Neighborhoods do not exist in isolation, but for the purpose of understanding some of the immediate and powerful determinants of health inequities, it is helpful to artificially isolate the neighborhood context and examine it independent of the larger county-wide context. [14]

Data Sources

This report includes the most recent data that could be analyzed at a sub-county level that was available at the time of report production. Within the available data sources, researchers selected the measures that were the best proxies for social determinants of health. Mortality data from Kentucky Vital Statistics was averaged for the years 2006-2008 (the latest final versions available at the time of report productions).

Many of the Social Determinant indicators were derived from the 2005-2009 American Community Survey (ACS) Estimates, which are available at the Census Tract level (using Census 2000 Tract boundaries). Beginning with Census 2010, the Census Bureau began replacing the traditional long form with data from the ACS. But as the ACS data is a sample survey, it has a higher margin of error than the prior collection method. For this reason, Social Determinant indicators that include population statistics for Census Tracts in the 'Airport' Neighborhood Area were not included due to unreliability associated with sampling very small populations.

Many data sources were derived from state or local government agencies in list or database formats that were geocoded and analyzed using Geographic Information Systems. These data include locations of crimes, fast food outlets, bicycle and pedestrian collisions, etc.

Most of the thematic map data depicted is this report is organized using the "Jenks" Natural Breaks data classification method. This classification statistically determines the best arrangement of values into classes by seeking to minimize each class's average deviation from the class mean, while maximizing each class's deviation from the means of the other groups.The method reduces the variance within classes and maximizes the variance between classes.

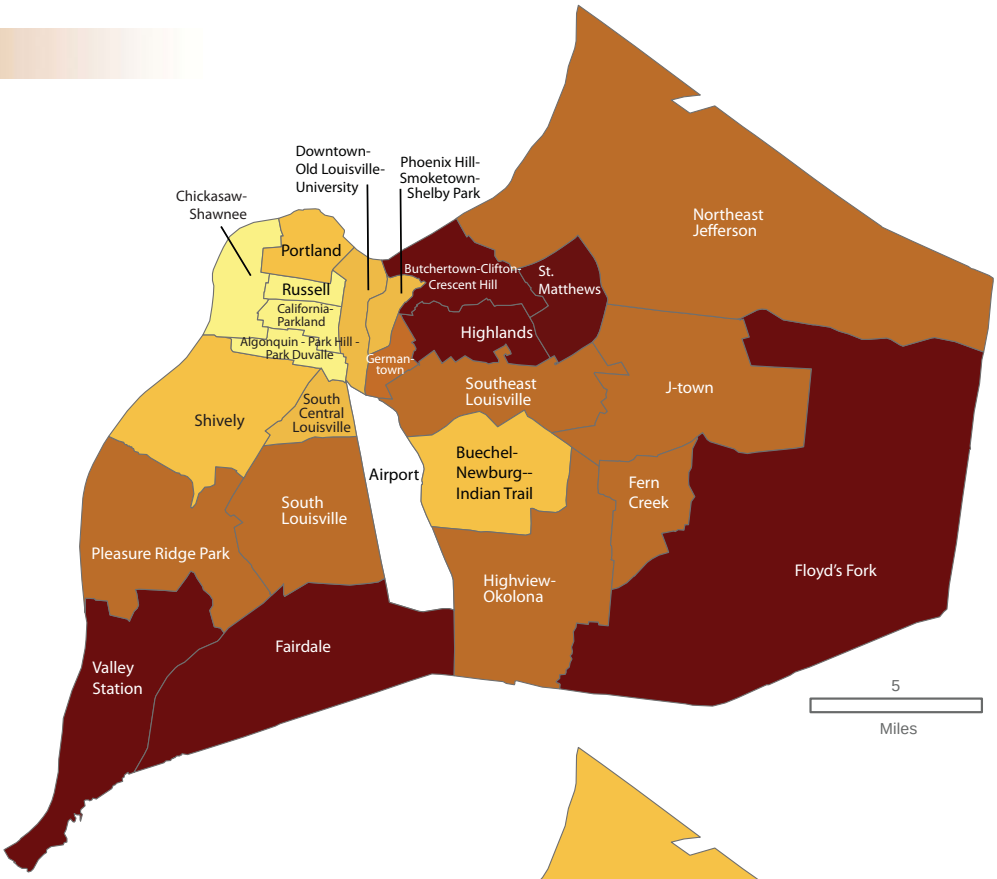
*See note regarding BRFSS data at the bottom of page 17

SELECTED DEMOGRAPHICS

Race & Ethnicity

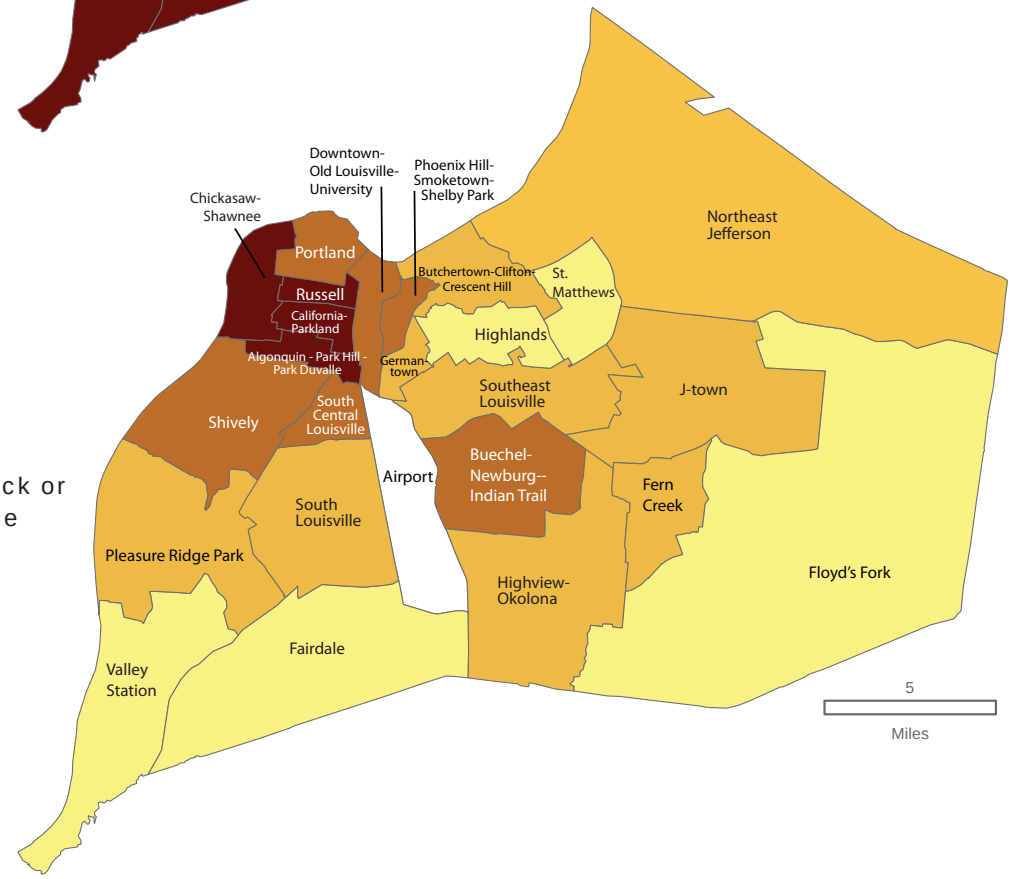
Percent of Population by Neighborhood Who Are White, One Race
2005-2009 ACS Estimate

- 5.6% - 10.5%
- 10.6% - 64.6%
- 64.7% - 87.5%
- 87.6% - 95.0%



Percent of Population by Neighborhood Who Are Black or African American, One Race
2005-2009 ACS Estimate

- 1.8% - 4.9%
- 5% - 13.9%
- 14% - 59.6%
- 59.7 - 92.4%



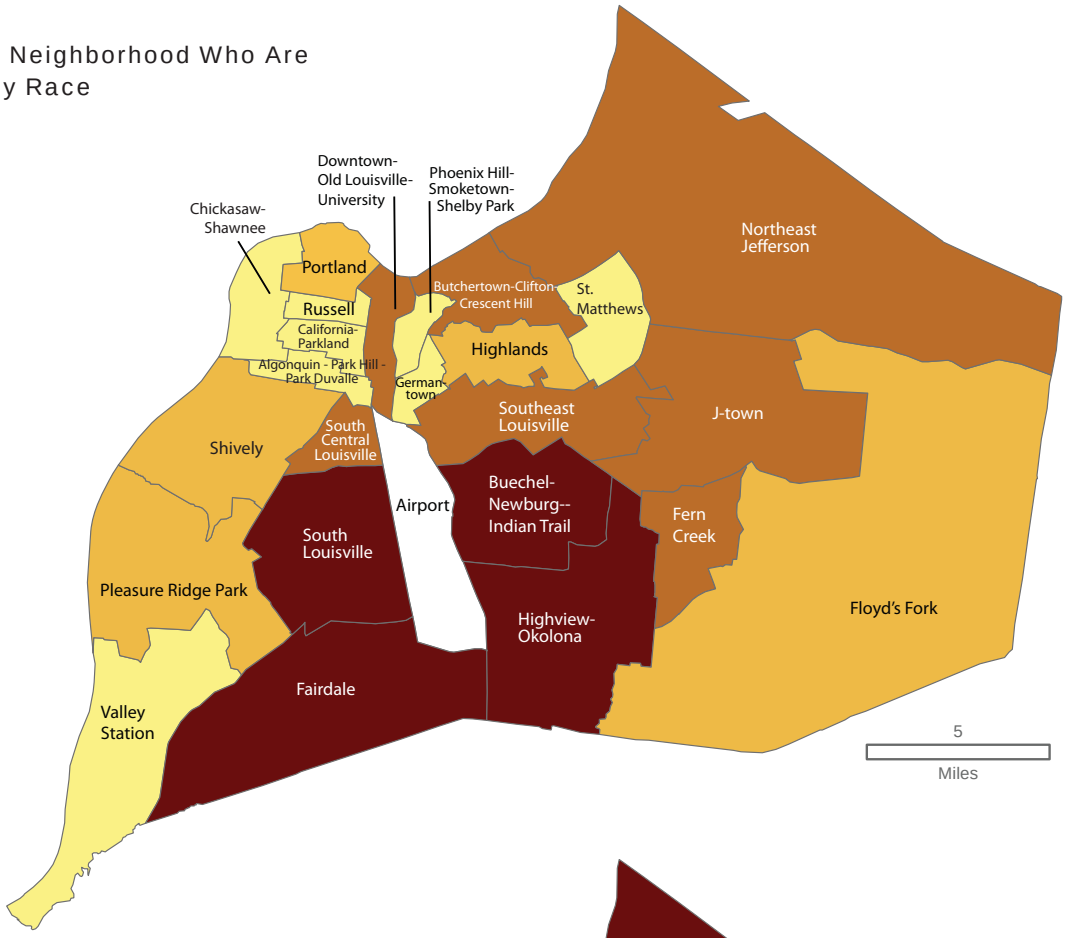
Residential Segregation: Black & White

The Index of Dissimilarity compares the amount of spatial segregation or spatial dissimilarity between two populations (or ethnic/racial/immigrant groups) across geographic units that make up a larger geographic entity. The index ranges from 0 to 100, with 0 meaning no segregation or spatial disparity, and 100 being complete segregation between the two groups with no spatial overlap. The index of dissimilarity for the white and black populations of Metro Louisville Neighborhood Areas is 53%. This means that 53% of the black population would have to move in order for the white and black population to be spatially integrated.

Percent of Population by Neighborhood Who Are Hispanic or Latino, of Any Race

2005-2009 ACS Estimate

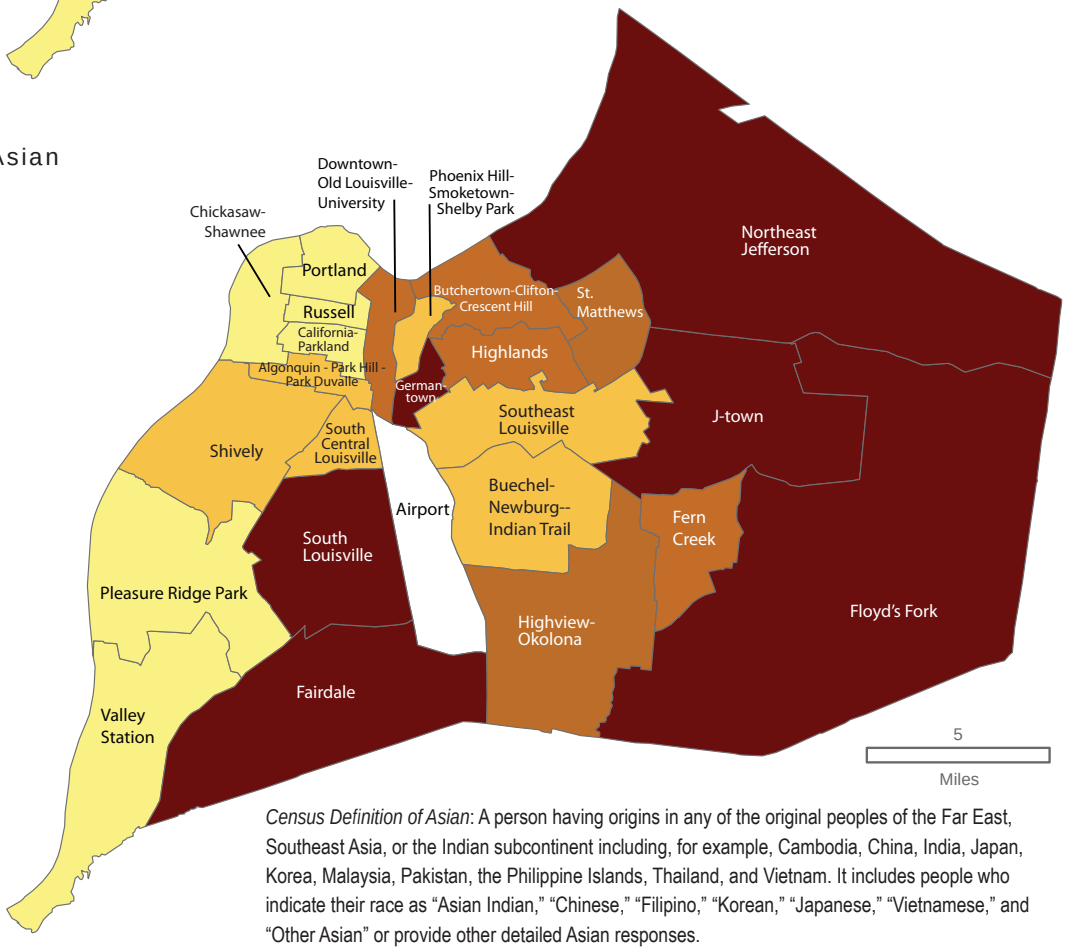
- 0.5% - 1.0%
- 1.1% - 1.7%
- 1.8% - 4.3%
- 4.4% - 8.0%



Percent of Population by Neighborhood Who Are Asian

2005-2009 ACS Estimate

- 0% - 0.1%
- 0.2% - 0.8%
- 0.9% - 2.2%
- 2.3% - 3.9%

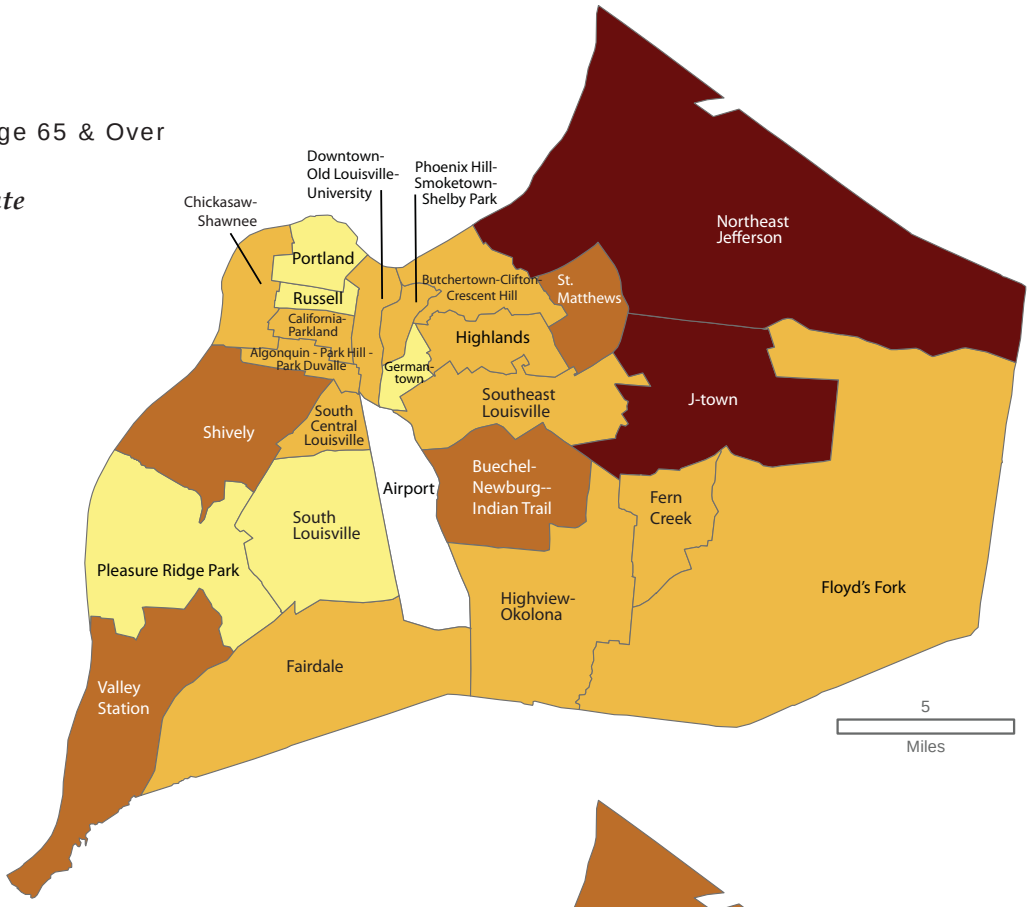


Census Definition of Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. It includes people who indicate their race as "Asian Indian," "Chinese," "Filipino," "Korean," "Japanese," "Vietnamese," and "Other Asian" or provide other detailed Asian responses.
http://quickfacts.census.gov/qfd/meta/long_RHI405210.htm

Age

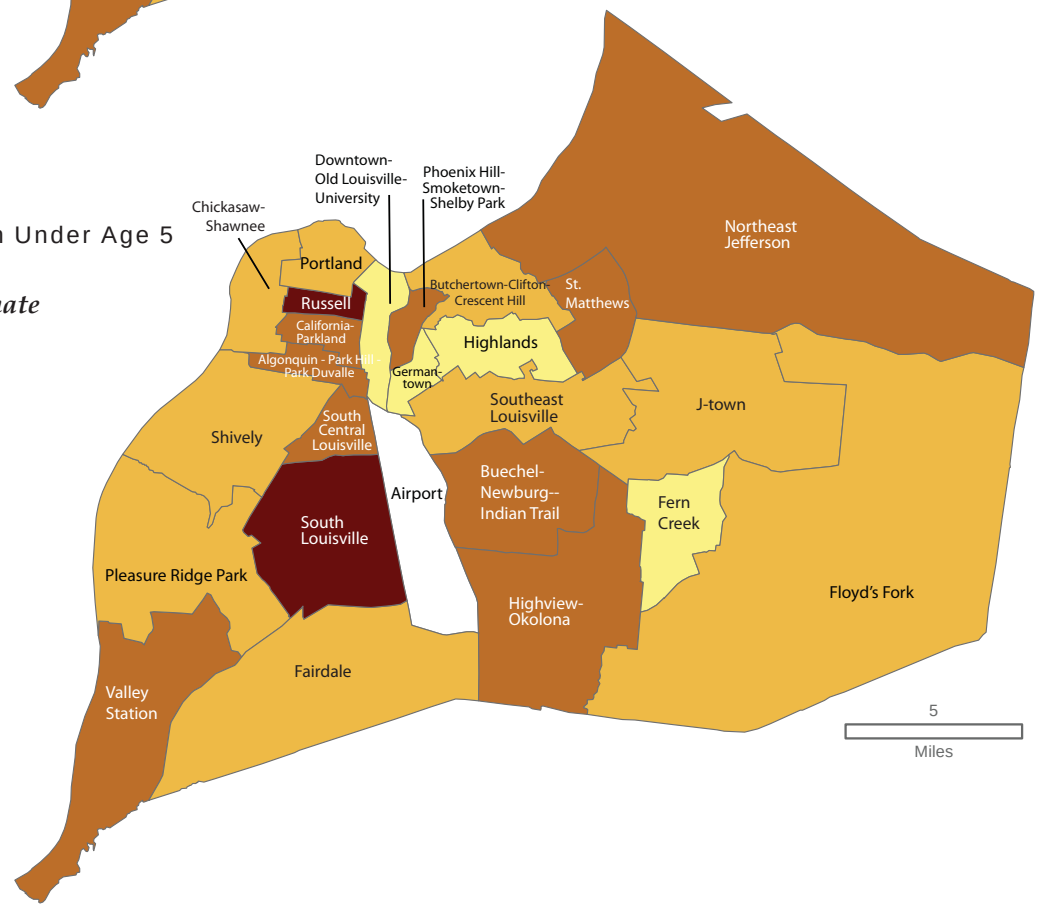
Percent of People Age 65 & Over by Neighborhood
2005-2009 ACS Estimate

- 6.2% - 9.6%
- 9.7% - 13.3%
- 13.4% - 17.2%
- 17.3% - 24.3%



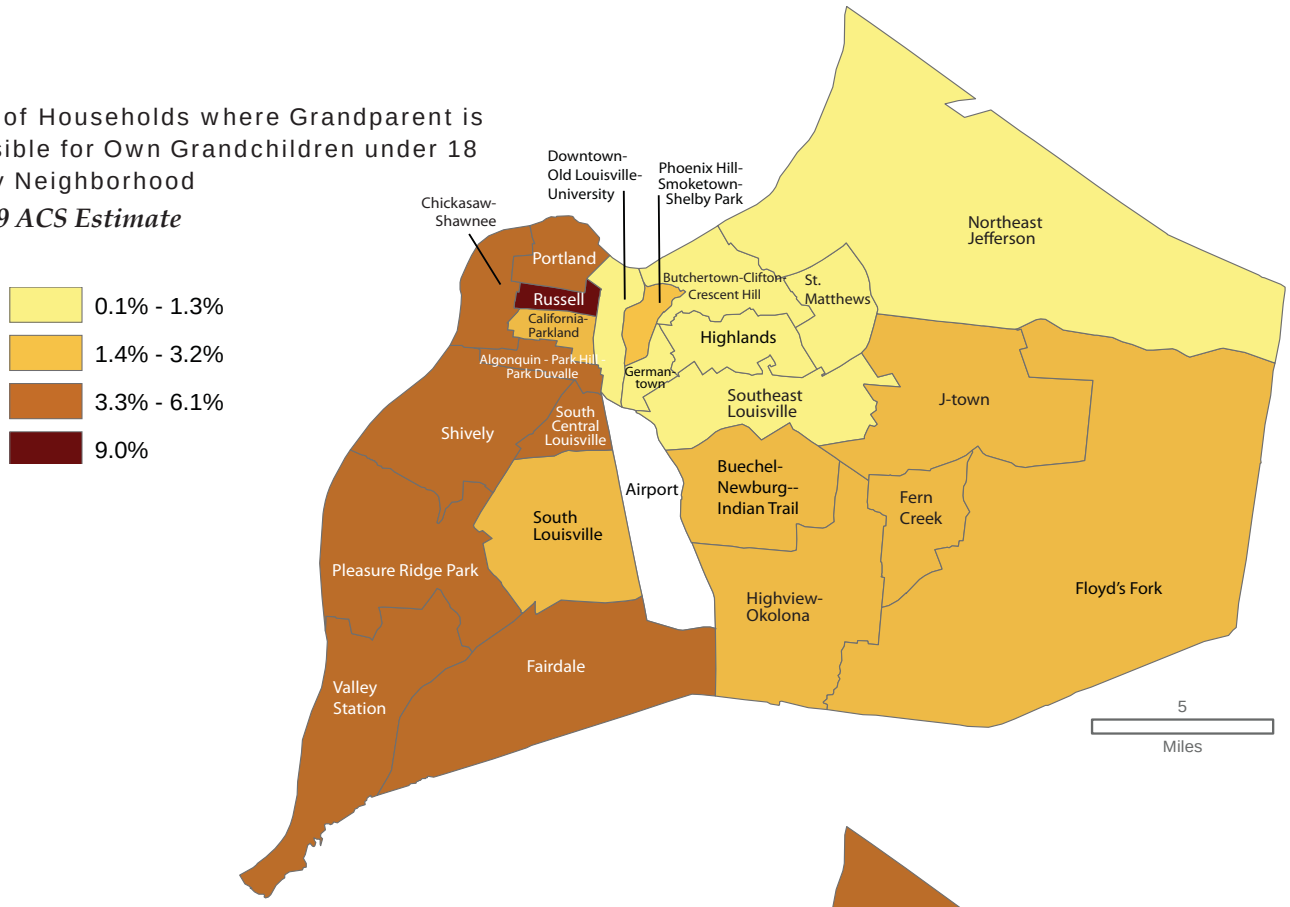
Percent of Children Under Age 5 by Neighborhood
2005-2009 ACS Estimate

- 2.3% - 3.5%
- 3.6% - 6.5%
- 6.6% - 11.1%
- 11.2% - 16.8%



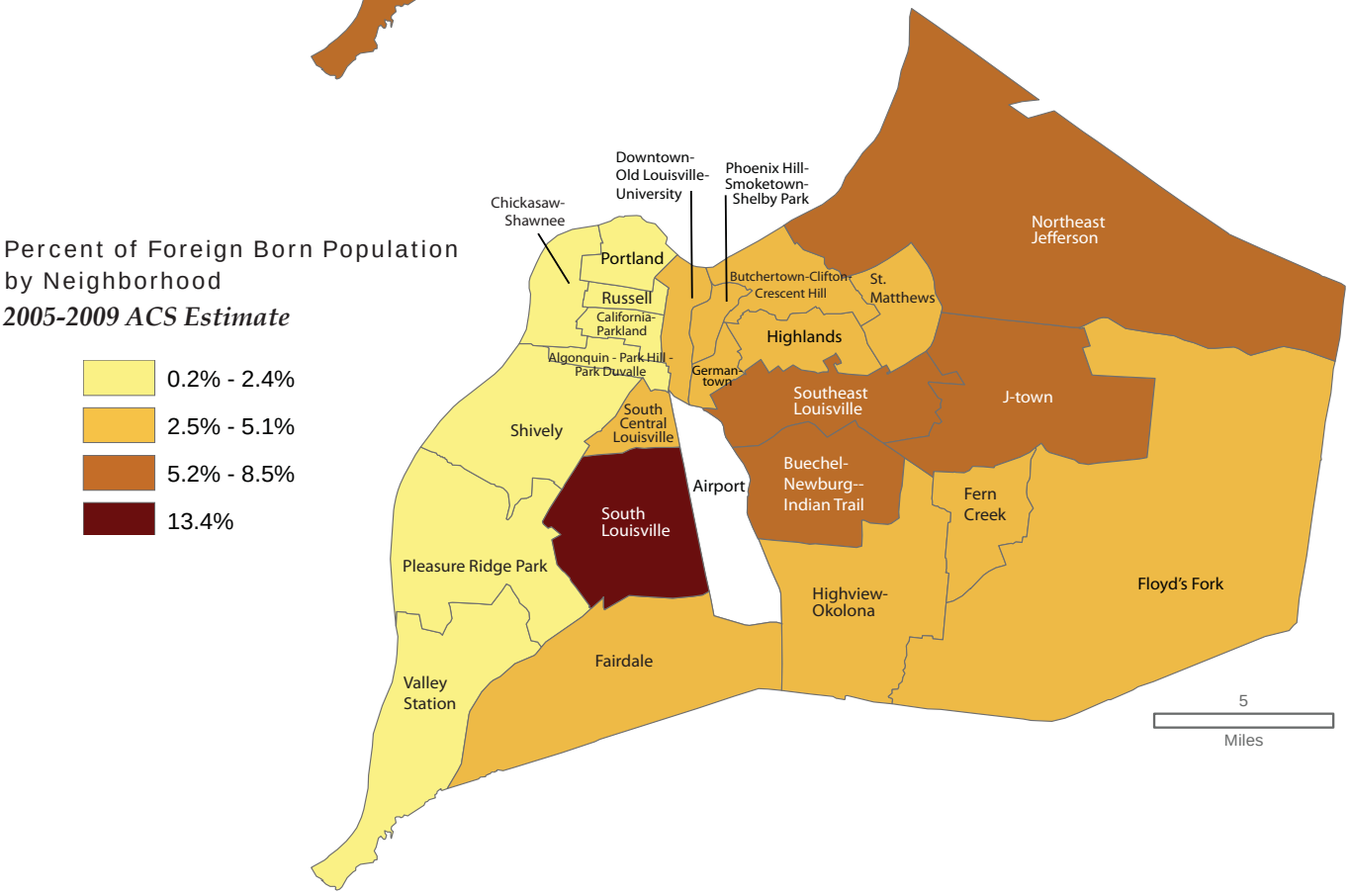
Percent of Households where Grandparent is Responsible for Own Grandchildren under 18 Years by Neighborhood

2005-2009 ACS Estimate



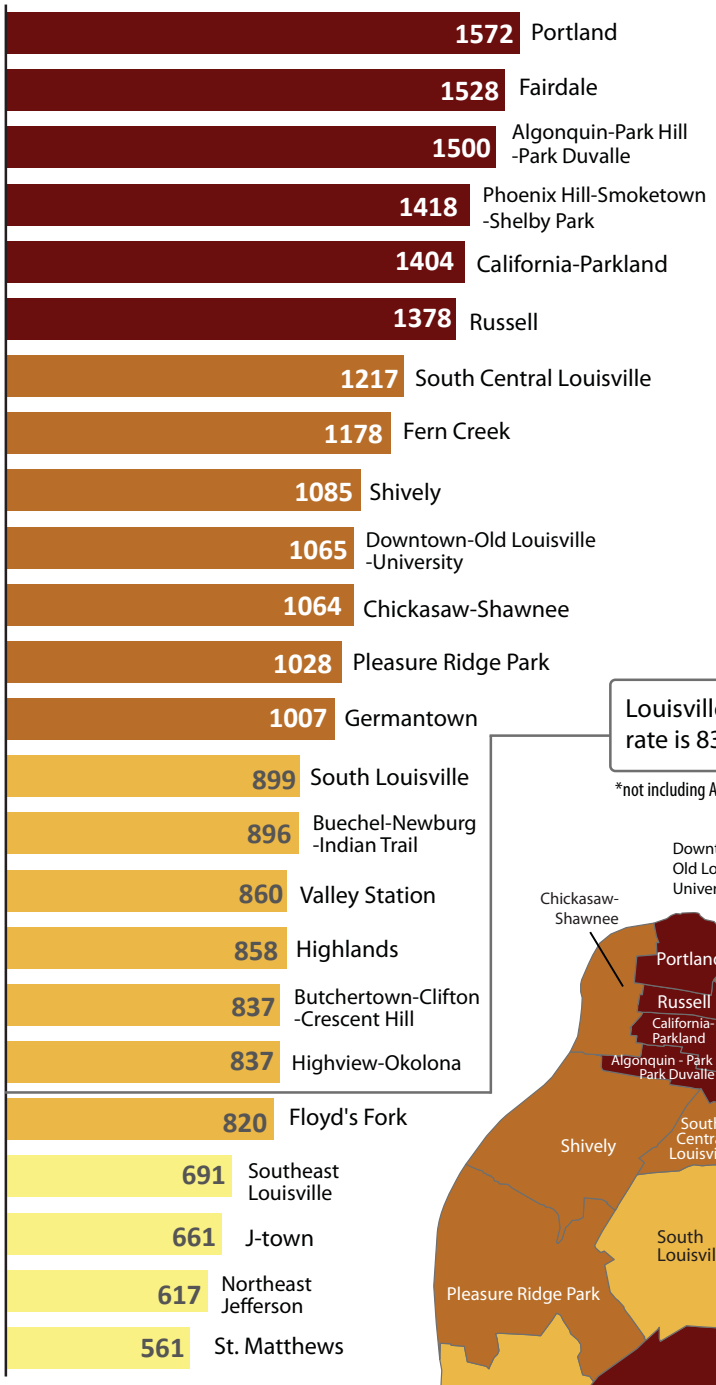
Percent of Foreign Born Population by Neighborhood

2005-2009 ACS Estimate



HEALTH STATUS - *Selected Mortality & Disease Rates*

Deaths Due to All Causes *(Age-Adjusted Rate per 100,000 Population)*
2006 -2008 Vital Statisitcs



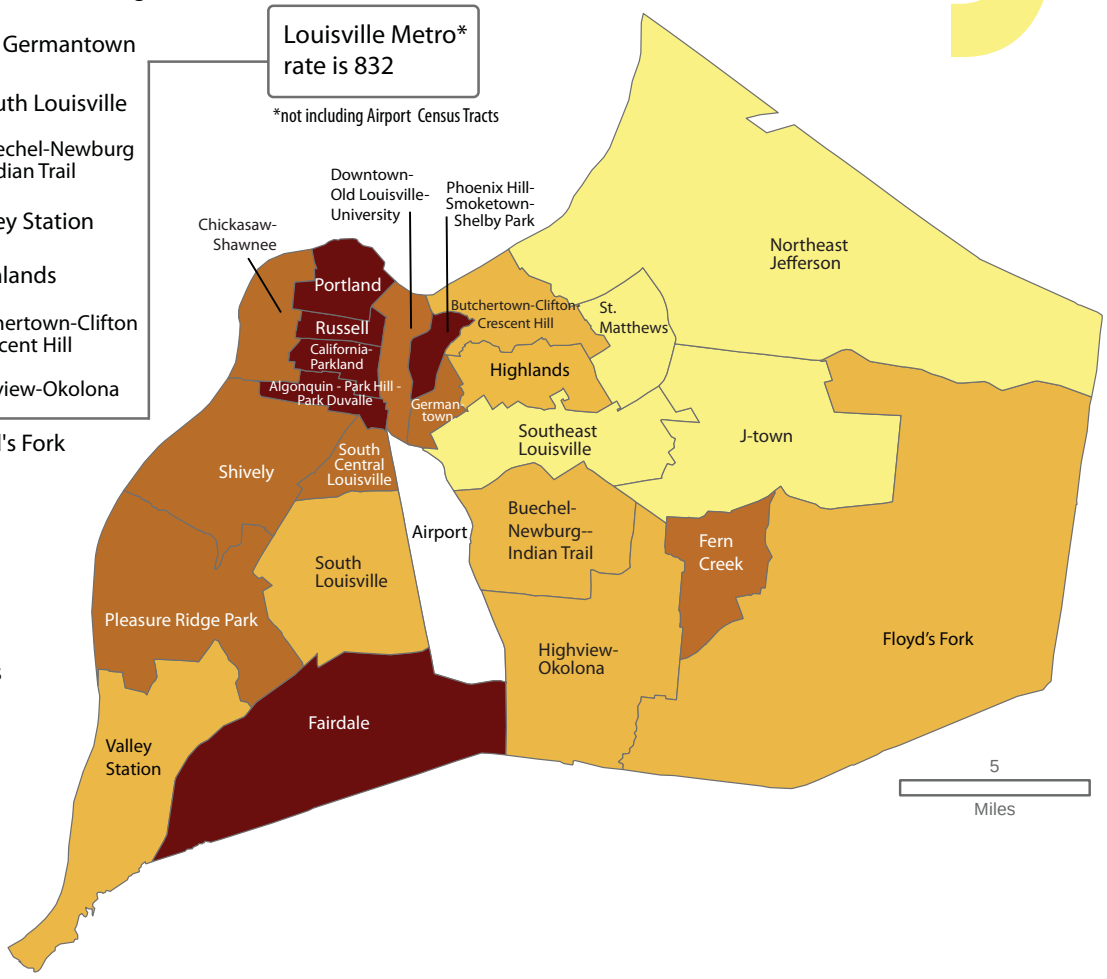
In a 2003 study involving blacks, Mexican-Americans, and whites in the United States, mortality rates for all gender and racial/ethnic groups were two to four times higher for those with the lowest incomes who lived in the lowest SES neighborhoods compared with those with the highest incomes who lived in the highest SES neighborhoods.

Deaths would hypothetically be reduced by about 20% for each subgroup if everyone had the same death rates as those living in the highest SES neighborhoods.

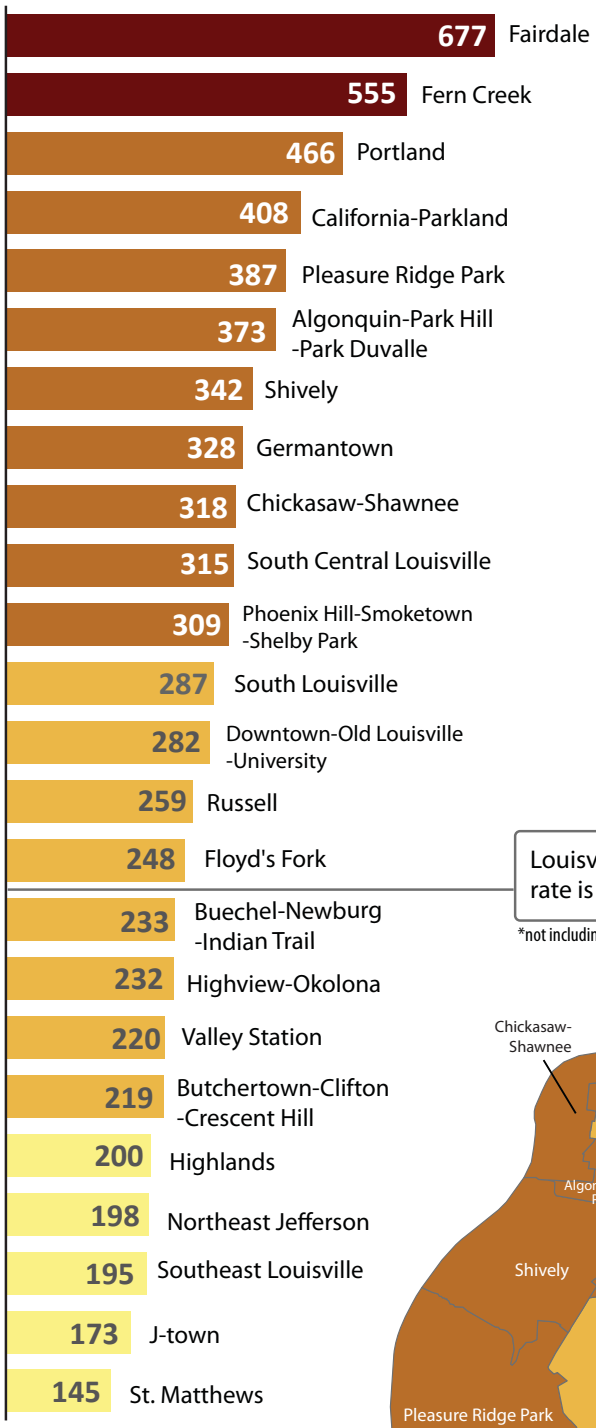
Winkleby MA, and Cubbin C. (2003). J Epidemiol Community Health. 2003 Jun;57(6):444-52.

Louisville Metro* rate is 832

*not including Airport Census Tracts



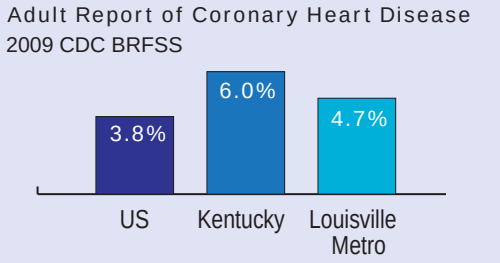
Deaths Due to Diseases of the Heart *(Age-Adjusted Rate per 100,000 Population)*
2006 -2008 Vital Statistics

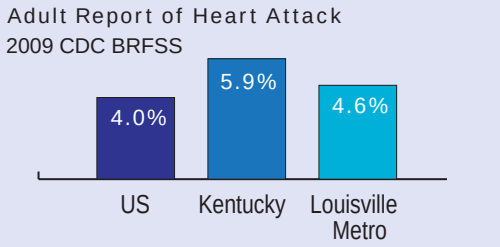


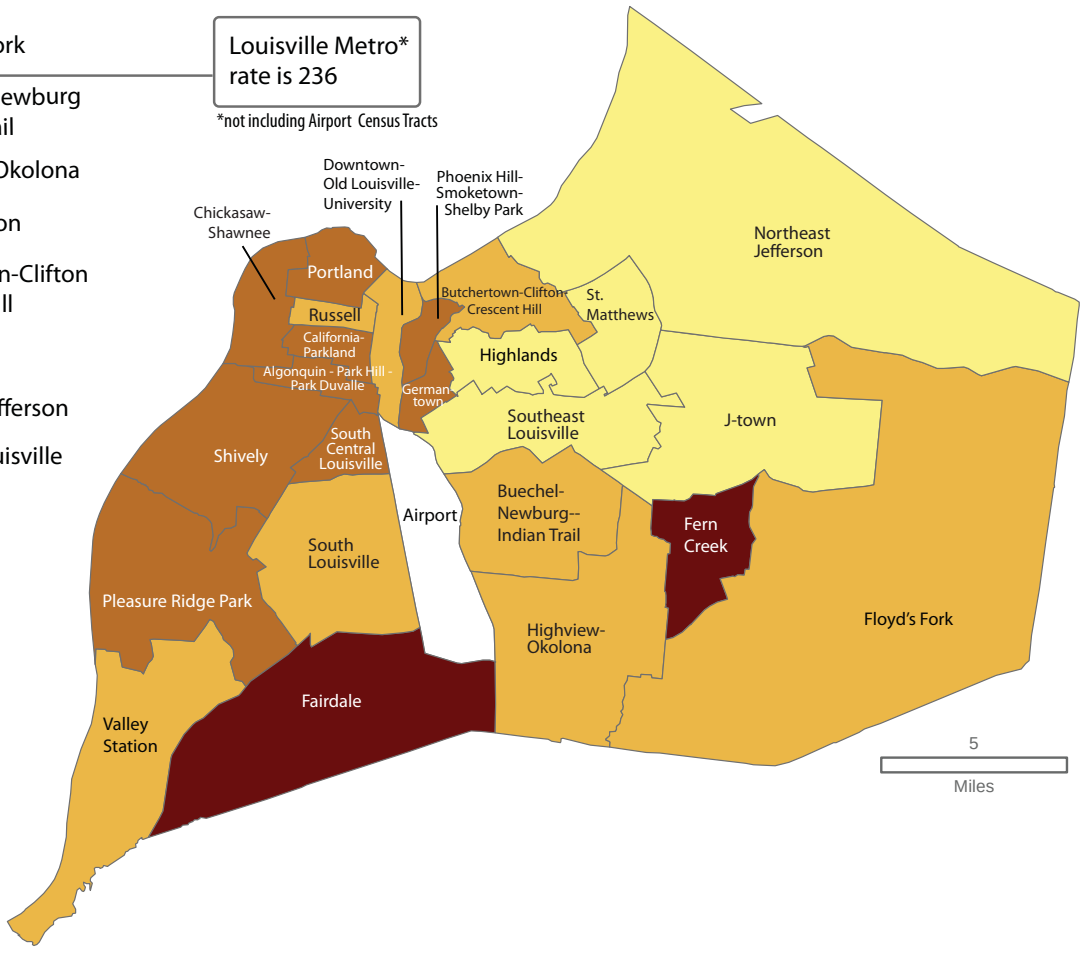
Louisville Metro* rate is 236

*not including Airport Census Tracts

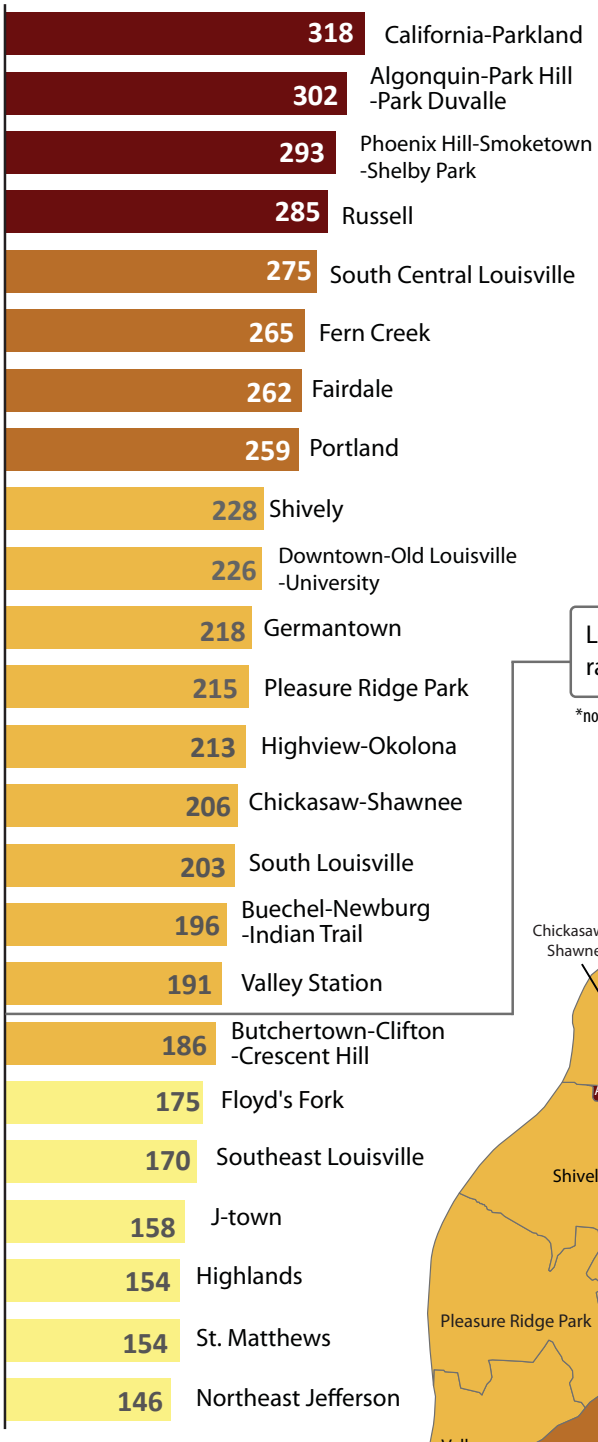
Adult Report of Heart Disease or Heart Attack

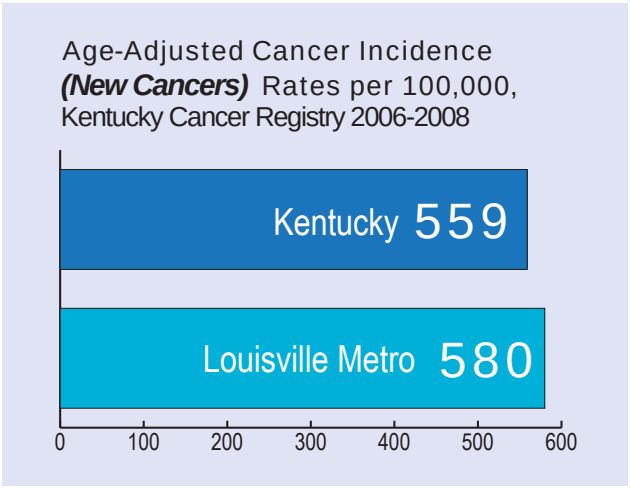






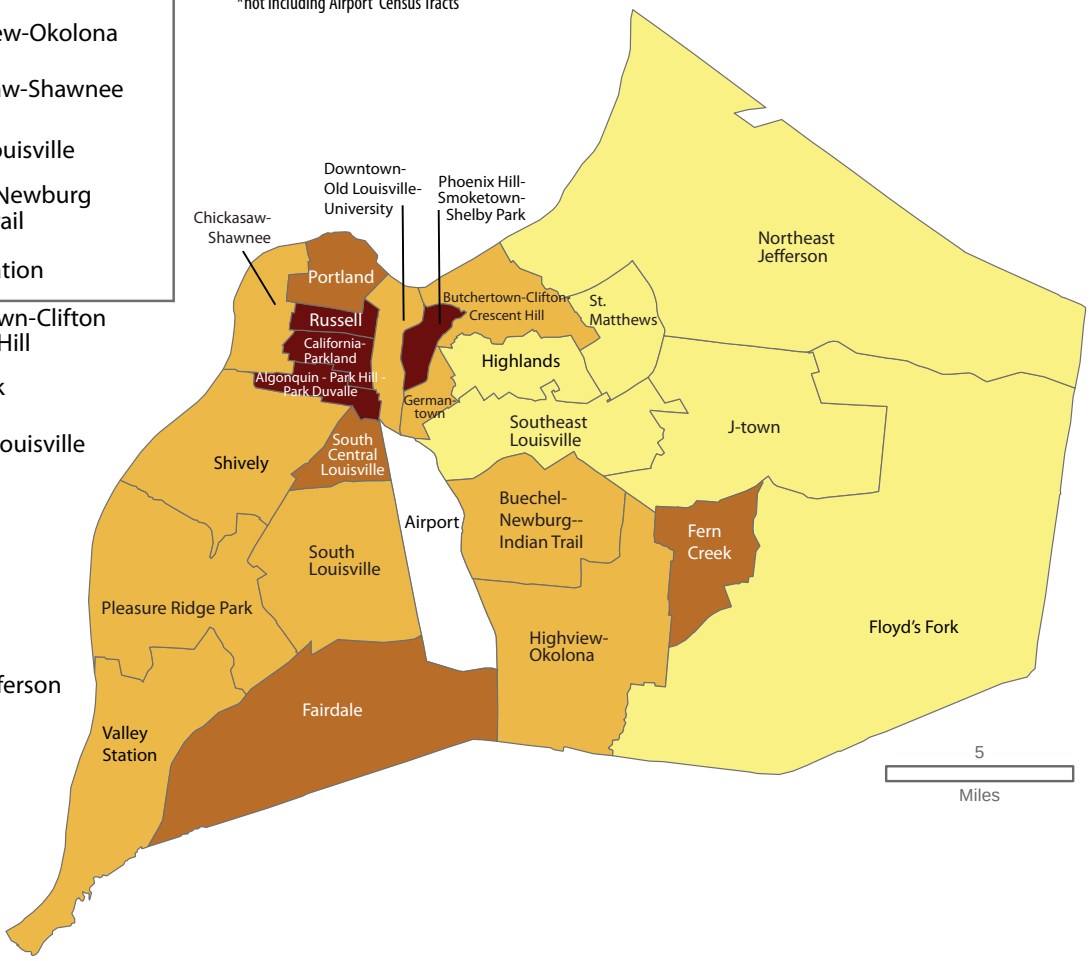
Deaths Due to Cancer, All Types *(Age-Adjusted Rate per 100,000 Population)*
2006 -2008 Vital Statisitcs



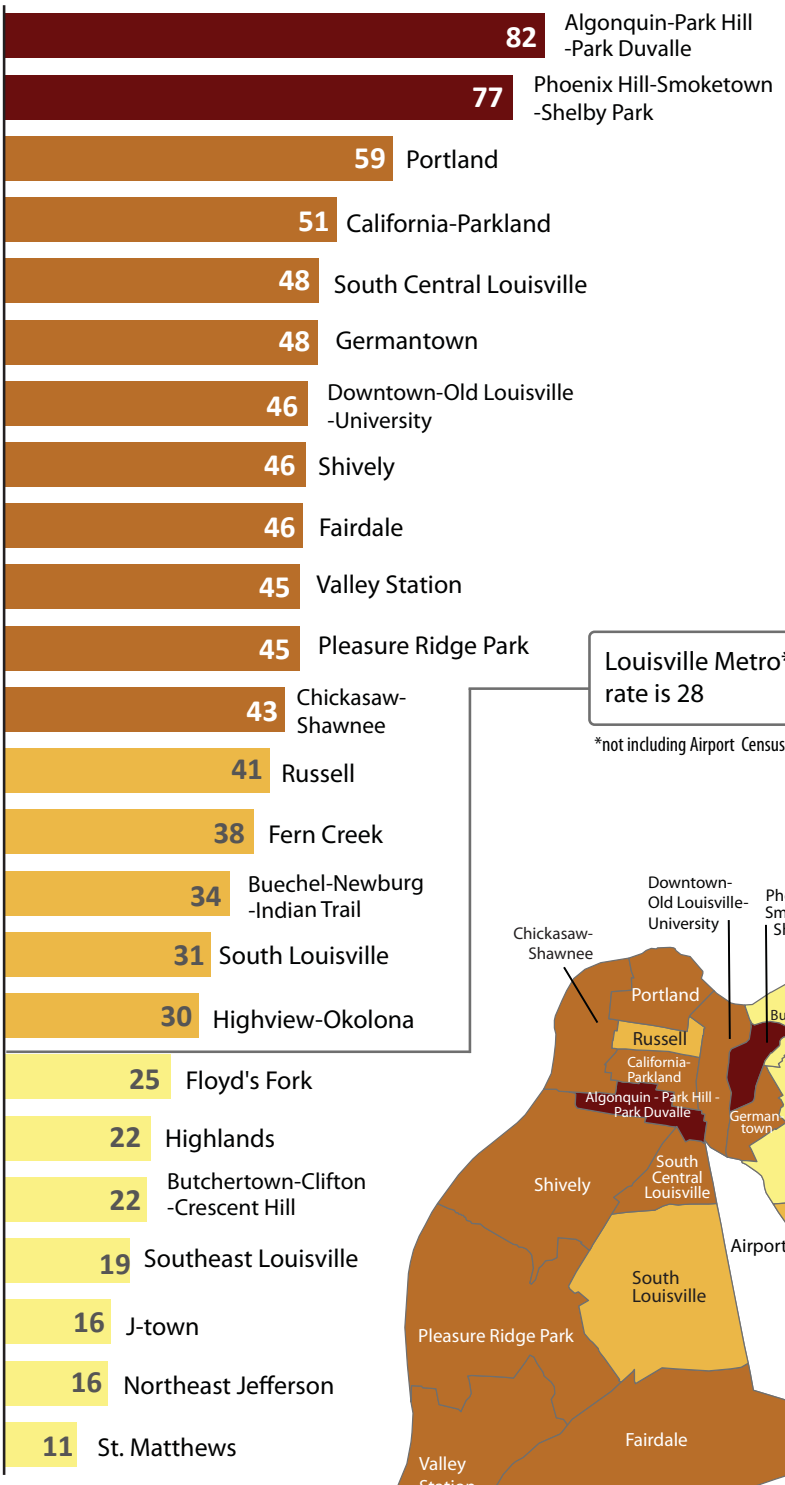


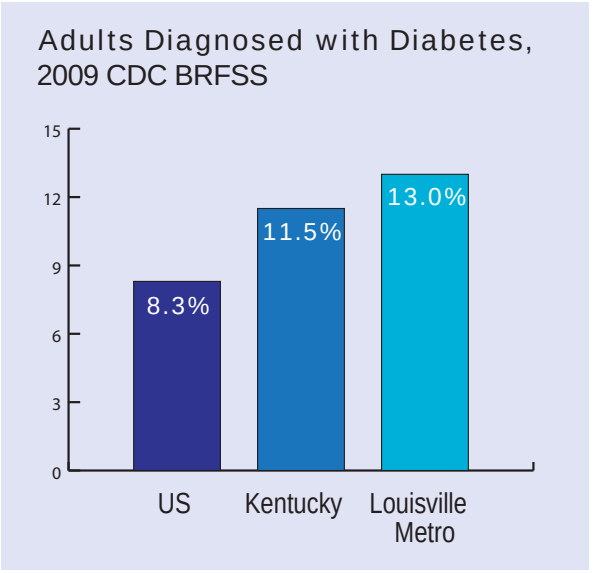
Louisville Metro* rate is 189

*not including Airport Census Tracts



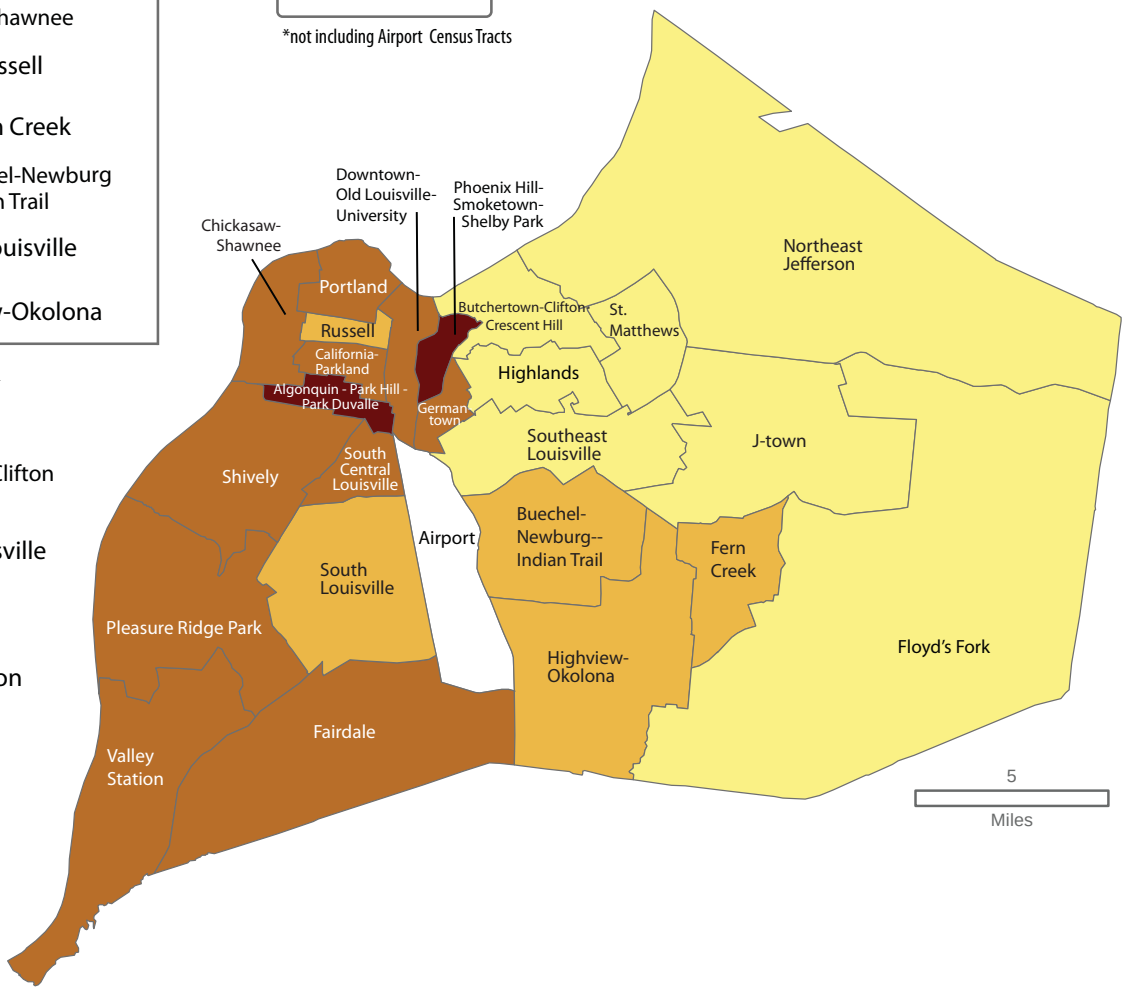
Deaths Due to Diabetes *(Age-Adjusted Rate per 100,000 Population)*
2006 -2008 Vital Statisitcs





Louisville Metro* rate is 28

*not including Airport Census Tracts



INCOME & EMPLOYMENT

Poverty and Health

The findings from research about the links between poverty and poor health outcomes are compelling:

- *People who are poor face increased odds of developing disease. Income and wealth are the strongest determinants of positive health outcomes, and the strength of this relationship is increasing.*[1]
- *Lower socioeconomic status is adversely associated with psychosocial factors linked to coronary heart disease, particularly hostility and depression.*[2]
- *Heart and lung diseases are disproportionately found among those living in low income households.*[3]
- *Both individual poverty and neighborhood poverty are associated with poorer health outcomes.*[4]
- *Poverty limits access to health-promoting resources, including access to healthy food and favorable housing, as well as adequate medical care and stable health insurance.*[5]

People lower on the socioeconomic scale are more likely to experience:[6]

- *Newborn health problems like premature birth, low birth weight, and birth defects.*
- *Signs of future disease like high blood pressure, obesity, weakened immune system.*
- *Chronic diseases like diabetes, heart disease, and many types of cancer.*
- *Infectious diseases ranging from HIV/AIDS to seasonal flu.*
- *Disabilities like blindness, mental illness and decline of physical strength.*

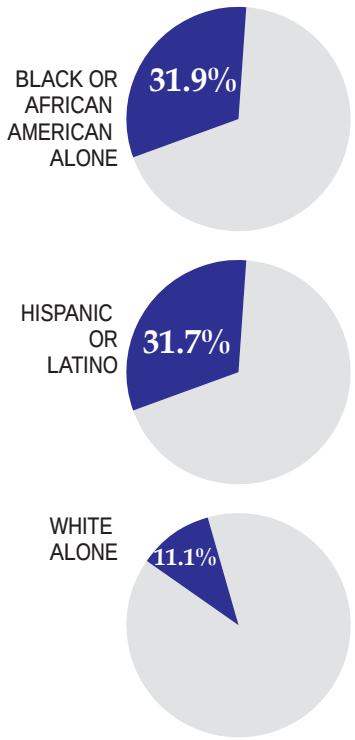
In terms of dollars, federal poverty guidelines are set each year by the U.S. Department of Health & Human Services as a national measure used to determine eligibility for an array of programs and services. These guidelines are sometimes referred to as the Federal Poverty Level, or FPL. The 2009 poverty level for one person is $10,830 in annual income and $22,050 for a family of four (U.S. Dept. of Health & Human Services. www.aspe.hhs.gov).

Poverty in Louisville Metro

In Louisville Metro, 12.7% of all families have incomes below the poverty level, and 15.7% of all people have incomes below the poverty level.[7] Both measures for Jefferson County are higher than the national rates of 10.5% and 14.3% respectively.

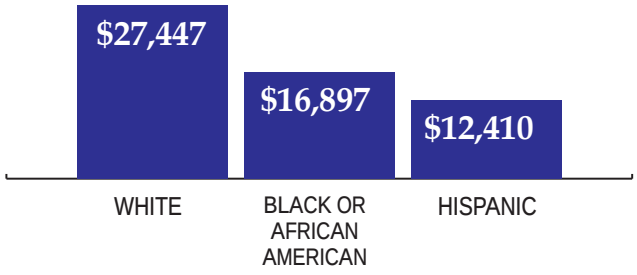
In Louisville, poverty rates for Blacks and Hispanics are nearly three times higher than the poverty rates of whites.

Income Below Poverty Level, 2009 ACS ESTIMATE



Income Inequality and Health

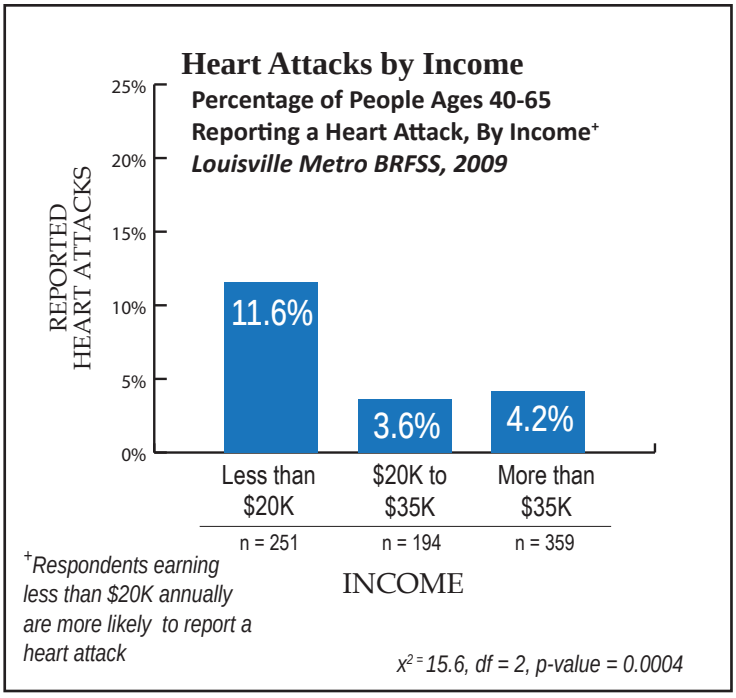
Poverty is by itself a risk factor, but the size of the gap between those with high incomes and those at the lower end of the economic scale appears to pose additional risks. A growing amount of research shows that health outcomes are directly connected to how evenly income is distributed across the population.[8] While the reasons for this are still being explored, some researchers believe that larger rich-poor gaps may lead to spatial concentrations of race and poverty that lead to poorer health outcomes.[9]



Income Inequality

The gap between rich and poor is increasing at a high rate in Kentucky. A study released in 2007 showed that from the late 1990s to the mid 2000s, the poorest 20% saw their incomes fall by 9.7%, and families in the middle income range saw decreases of 5.8%, while the drop for those at the top was only 1.3%.[10]

One example of the higher rates of disease among people living in poverty is evident in the chart to right.The chart shows that for BRFSS* respondents ages 40-65 in Jefferson County (2009), the rate of people who report having had a heart attack who live in households making less than $20,000 is more than twice that of respondents in households making more than $20,000.



*The Behavioral Risk Factor Surveillance System (BRFSS) is performed under the auspices of the Centers for Disease Control and Prevention (CDC). This state-based telephone surveillance system is designed to collect data on individual risk behaviors and preventive health practices related to the leading causes of morbidity and mortality in the United States. The version of the BRFSS used in this report was administered by the KY Department of Public Health, and made available by the CDC. The Louisville Metro Department of Public Health and Wellness uses the same survey instrument in selected years, but did not administer the BRFSS in 2009.

Lack of job opportunities with adequate wages

In trying to make ends meet in the face of low wages and the high costs of living, low income people are forced to make difficult choices in paying for basic needs, including housing, food, transportation, and health care.[11]

The scope of the problem is demonstrated through the following example. The American Community Survey (2009) estimate of the number of people in the Louisville Metro who are employed in service occupations is 60,983, or 17.8 percent of the population. The typical hourly wage for a Food Preparation and Service Worker in the Louisville Metro for 2008 was $7.92. Therefore, within one industry, approximately 60,000 people in the Louisville Metro could be earning an average wage of just $7.92 an hour, barely a living wage for one adult, much less for a family with children.

Hourly Wages in Louisville Metro, 2008

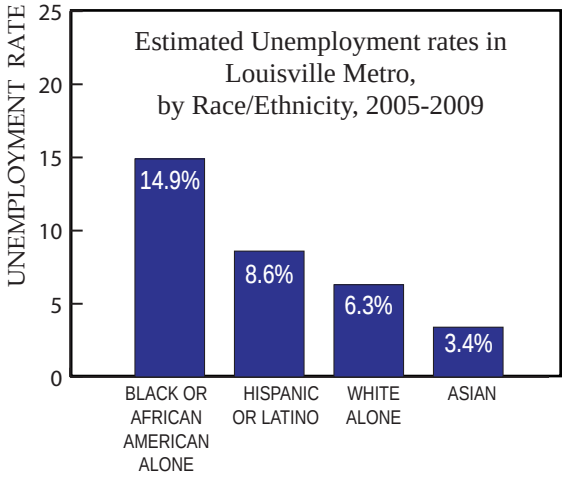
	1 Adult	1 Adult, 1 Child	2 Adults	2 Adults, 1 Child	2 Adults, 2 Children
Living Wage	$7.93	$15.5	$12.29	$19.9	$26.04
Poverty Wage	$5.04	$6.68	$6.49	$7.81	$9.83
Minimum Wage	$7.25	$7.25	$7.25	$7.25	$7.25

Source: Dr. Amy K. Glasmeier and The Pennsylvania State University

Employment Rates

Hispanic and black communities in metropolitan areas generally experience greater hardship from unemployment than whites.[12]

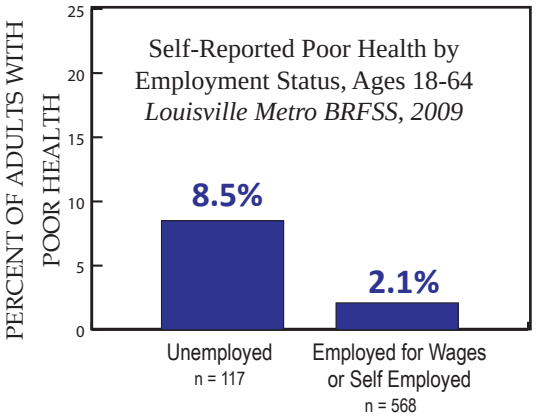
The single-year ACS estimates for 2009 give an unemployment estimate for Louisville Metro of 10.4%, higher than the 2009 Louisville Metro KY/IN Metropolitan Statistical Area (MSA) rate of 10.1%.[13] The 5-year ACS estimate for 2005-2009 shows the black unemployment rate at more than double that of whites. This is believed to be an underestimate because of the way unemployment rates are calculated. These rates are based on the proportion of estimated adult workers who are currently receiving unemployment benefits. Because of the extended nature of the recession, the period of unemployment for many people has exceeded the eligibility period; and these individuals are no longer reflected in the count.



Unemployment and Health

Unemployment is associated with premature death, cardiovascular disease, hypertension, depression, and suicide.[14] Evidence shows that, even after allowing for other factors, unemployed people and their families suffer a substantially increased risk of premature death.[15]

The chart to the right shows that for BRFSS respondents ages 18-65 in Jefferson County in 2009, the rate of poor self reported health for the unemployed was four times higher than the rate for respondents that were employed for wages or self employed.



Job Insecurity and Health

In the current economy, workers are increasingly worried that they may be laid off. Unemployed workers may eventually be forced to take temporary employment with agencies that do not have the workers' long term interests at heart.[16]

This sort of insecurity has been shown to impact mental health (particularly anxiety and depression), self-reported ill health, heart disease and risk factors for heart disease.[17] Having little control over one's work is strongly related to an increased risk of low back pain, absenteeism, and cardiovascular disease.[18]

Examining inequities in job insecurity, blacks are more likely than Latinos or whites to work nonstandard hours, including rotating shifts, which is associated with greater health risks.[19]

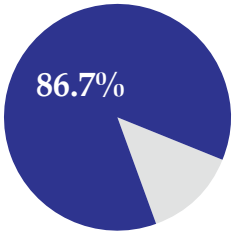
Employment and Health Benefits

The United States has a long-standing tradition of linking health insurance to employment, a relationship that was cited recently in the Louisville Health Status Report.[20] The Institute of Medicine (2001) found that families with at least one full-time, full-year worker are more than twice as likely to have health insurance coverage, compared to families whose wage earners work as part-time employees, as temporary workers, or in which there is no wage earner.[21] Individuals without health insurance frequently forego timely health care, suffer more severe illness, and are more likely to die a premature death than their insured counterparts.[22]

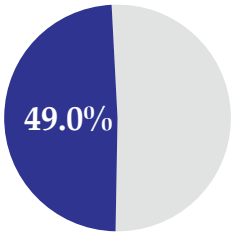
The 2009 ACS estimates 12.1% of the population in Louisville Metro (85,000 people) do not have health insurance coverage.[23] While high, this is less than the overall KY rate of 16.1%.[24]

Health Insurance Coverage by Employment Status in Louisville Metro

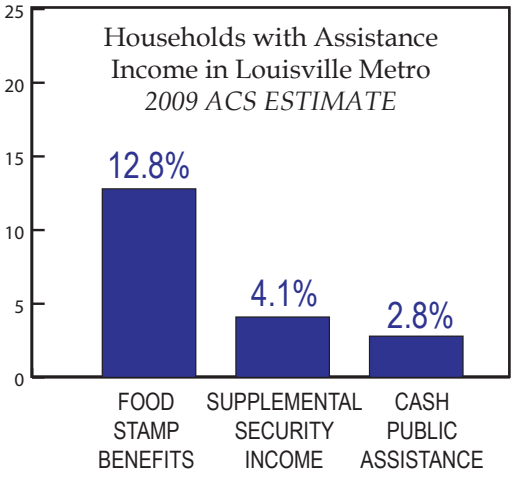
2009 ACS ESTIMATE



EMPLOYED WITH INSURANCE



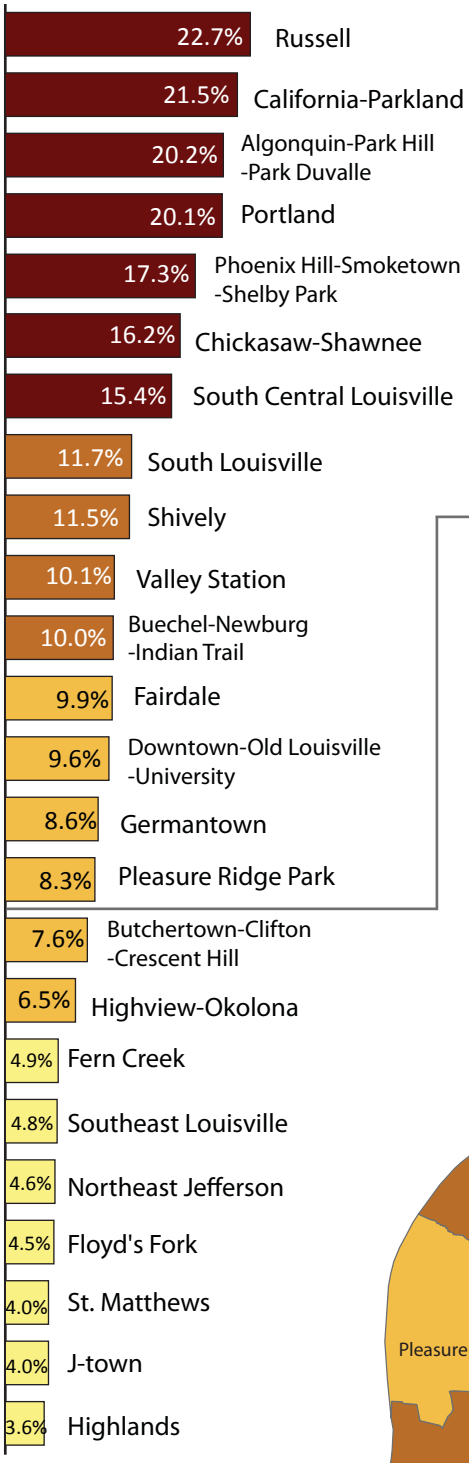
UNEMPLOYED WITH INSURANCE



Income support programs

With the lack of "good paying" jobs and jobs with sufficient health benefits, people are increasingly looking to supplement shrinking incomes with income-supporting programs, such as Medicaid, W I C, food stamps, and Section 8 Housing benefits.

UNEMPLOYMENT (PERCENT)
(Civilian Labor Force, Ages 16 and Older)
2005-2009 ACS ESTIMATE

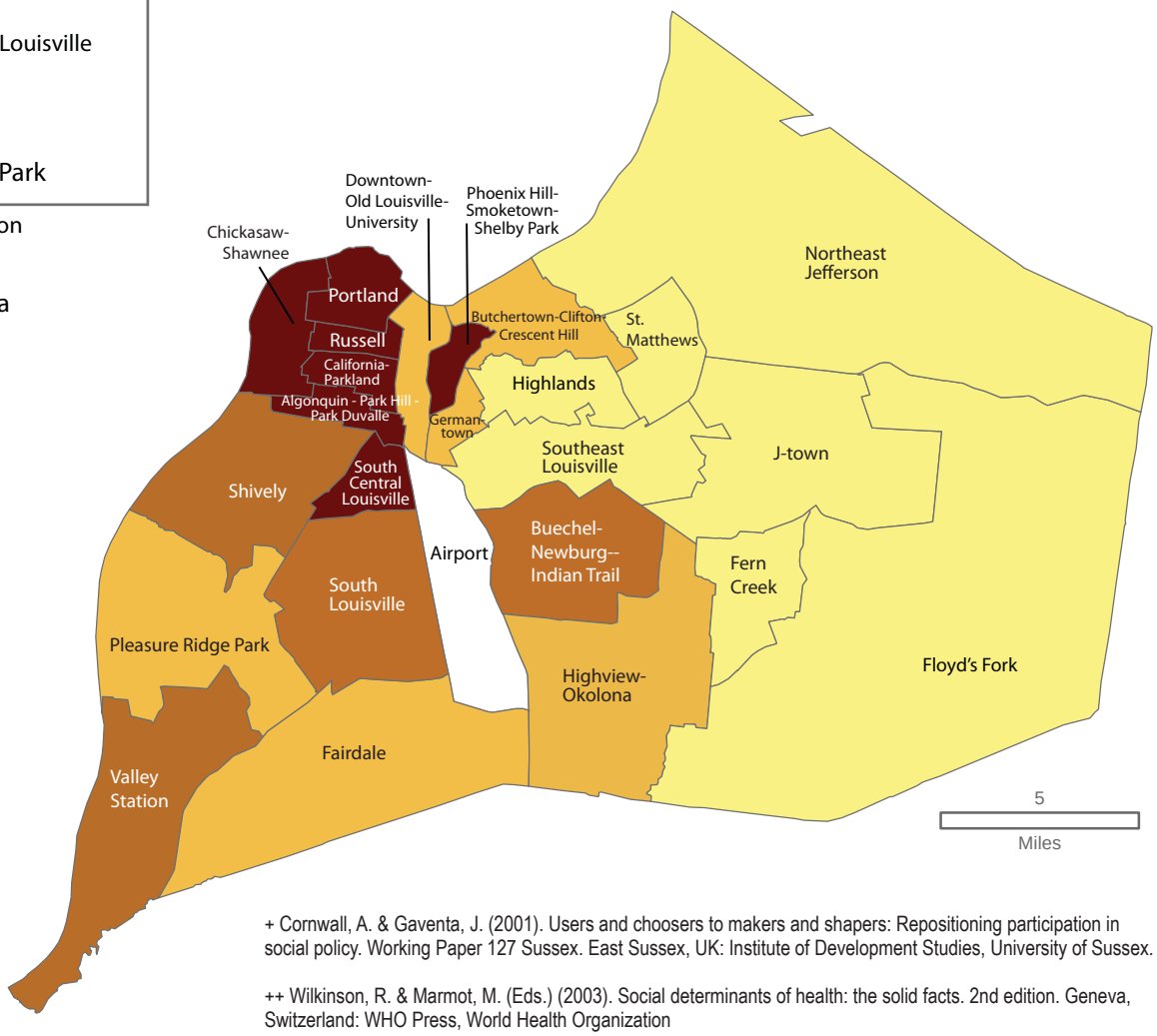


Louisville Metro* rate is 7.9%

*not including Airport Census Tracts

Unemployment is associated with premature mortality, cardiovascular disease, hypertension, depression, and suicide.+

Evidence shows that, even after allowing for other factors, unemployed people and their families suffer a substantially increased risk of premature death. ++

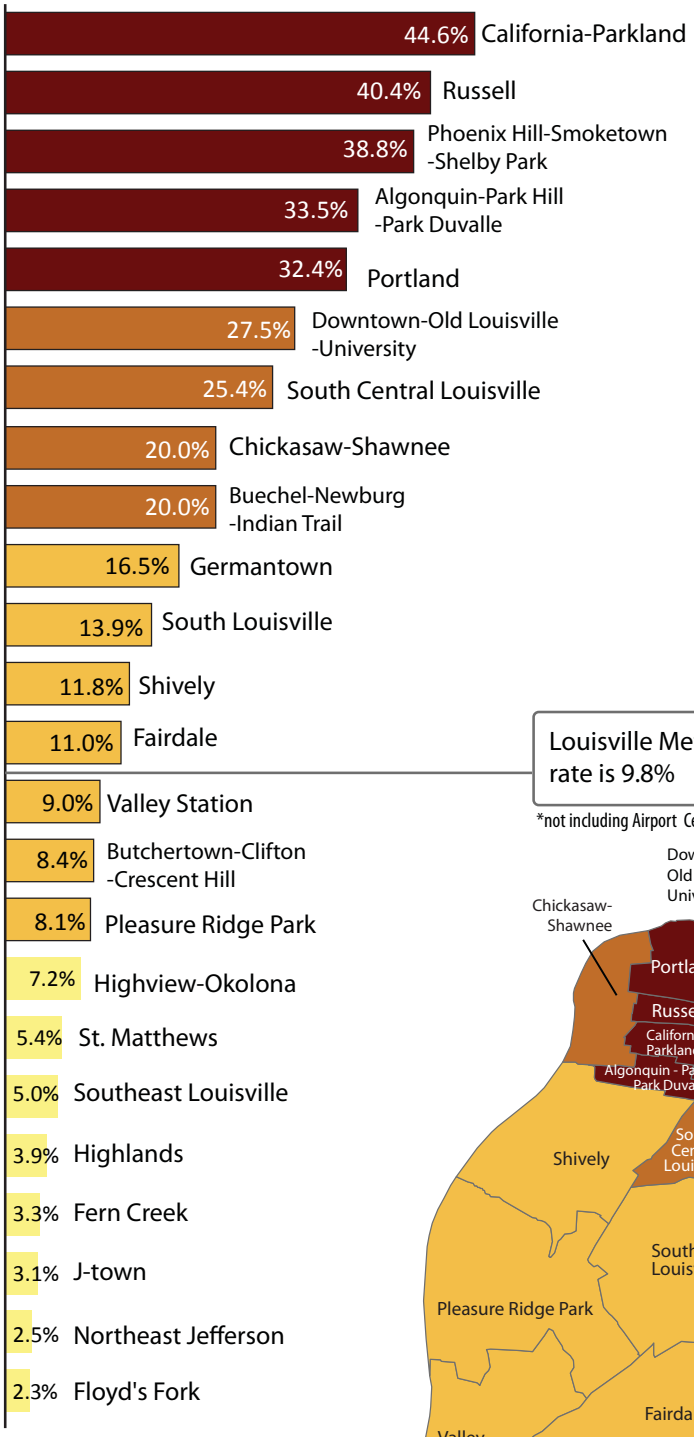


+ Cornwall, A. & Gaventa, J. (2001). Users and choosers to makers and shapers: Repositioning participation in social policy. Working Paper 127 Sussex. East Sussex, UK: Institute of Development Studies, University of Sussex.

++ Wilkinson, R. & Marmot, M. (Eds.) (2003). Social determinants of health: the solid facts. 2nd edition. Geneva, Switzerland: WHO Press, World Health Organization

FAMILIES EARNING LESS THAN $15,000 (PERCENT)
(Income & Benefits in 2009 inflation adjusted dollars)

2005-2009 ACS ESTIMATE

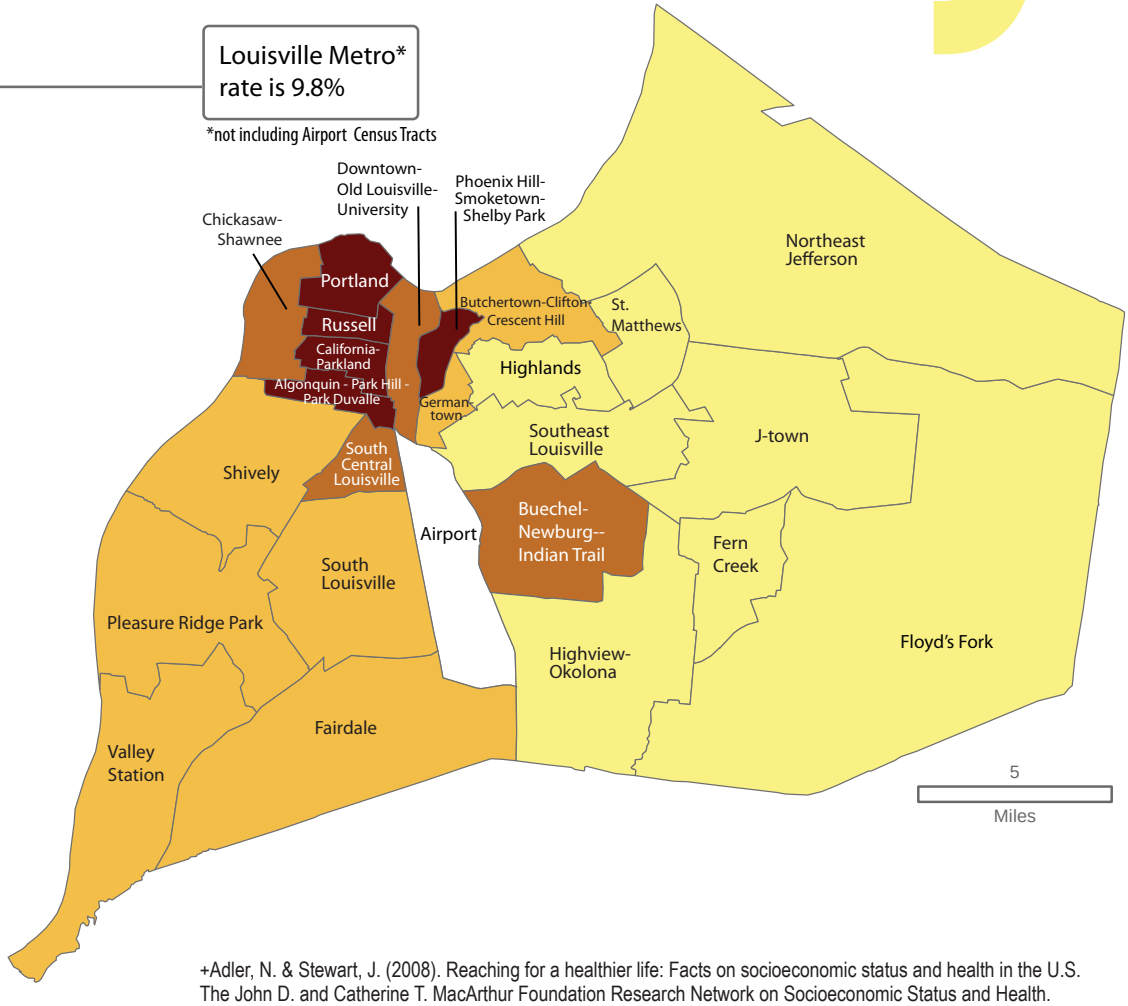


Louisville Metro* rate is 9.8%

*not including Airport Census Tracts

People lower on the socioeconomic scale are more likely to experience:+

- Newborn health problems like premature birth, low birth weight, and birth defects.
- Signs of future disease like high blood pressure, obesity, weakened immune system.
- Chronic diseases like diabetes, heart disease, and many types of cancer.
- Infectious diseases ranging from HIV/AIDS to the seasonal flu.
- Disabilities like blindness, mental illness and decline of physical strength.



+Adler, N. & Stewart, J. (2008). Reaching for a healthier life: Facts on socioeconomic status and health in the U.S. The John D. and Catherine T. MacArthur Foundation Research Network on Socioeconomic Status and Health.

HOUSING

Housing is a dynamic, multi-faceted issue. In this brief overview of the ways in which housing can contribute to health or disease, the following factors are considered:

- Housing Affordability
- Home Ownership
- Foreclosures
- Fair Lending
- Housing Segregation
- Subsidized Housing and Housing Supports
- Housing Instability and Residential Displacement
- Homelessness

In low-income neighborhoods and communities of color, adverse housing factors are disproportionately present and their cumulative effect can take a serious toll on the health of their citizens.

Housing & Health

Housing can be a determinant of the health of individuals, families, and the communities in which they live. Health is not only affected by the physical characteristics of housing units and neighborhood design, but it is deeply impacted by the social and economic factors that underlie housing statistics, such as neighborhood stability and the building of wealth through homeownership. Housing not only provides basic shelter, it can determine where people shop, go to school, play, and work, and it can influence who their friends are and the opportunities they have to be an active part of a community.[1]

Families that have difficulty affording housing:

- Often live in neighborhoods of disinvestment with more risk factors, including larger stocks of substandard housing *(the links between poor housing conditions and a range of preventable and chronic diseases are addressed more fully in the section on Environment and Health on page 32).*
- Lose out on the opportunity for "wealth accumulation" that has traditionally come from homeownership; or they can risk a financial crisis and bankruptcy when they are over-extended. Wealth accumulation associated with homeownership improves access to neighborhoods with more health promoting assets, such as grocery stores, places to exercise, and good schools, as well as to higher quality housing.[2]
- Are at risk for a myriad of poor health outcomes associated with the impact of accumulated stress. Financial strain related to housing is linked with poor health outcomes including all-cause mortality, a higher prevalence of chronic conditions, and a higher incidence of depressive symptoms.[3]

Housing Affordability & Health

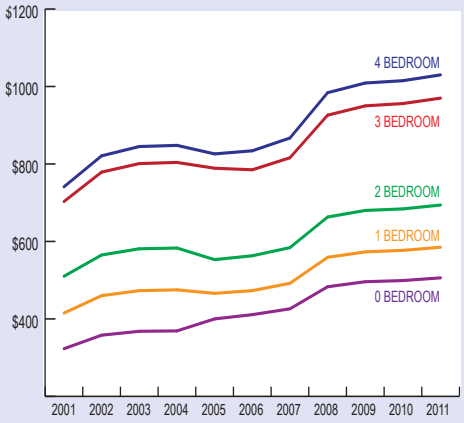
High housing-related costs lead to health risks in a variety of ways, with families having to make tough decisions between housing costs and health insurance, medications, and healthy foods.[4]

The stress experienced as a result of unaffordable housing is associated with a increased risk for developing hypertension, lower levels of psychological well-being, and more visits to the doctor.[5]

For both homeowners and renters, those living in unaffordable housing are more likely to report cost-related health care nonadherence, poor self-reported health, and have higher rates of specific chronic health conditions in comparison to similar people living in affordable housing.[6]

When looking specifically at renters, research shows significant associations between unaffordable rent, and inadequate childhood nutrition and growth.[7] Higher rents, especially for low-income families, drastically reduce the income that a family can devote to other basic needs, including food, clothing, medicine, health care and family activities that help provide exercise and emotional stability.[8]

Fair Market Monthly Rents for Louisville Metro
FY 2001 - FY 2011



To afford Fair Market Rent (2010) for a 2 Bed Room unit in Louisville, a household needs an annual income of **$27,360**

46% of Renters in Louisville are unable to afford the Fair Market Rate for 2 Bed Room housing unit

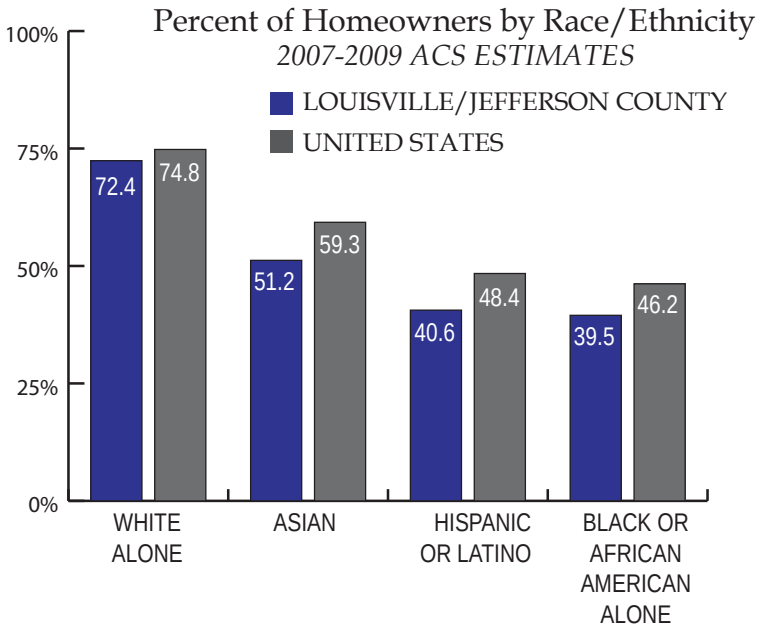
Source: U.S. Department of Housing and Urban Development
*data for years 2001 and 2002 are for the Louisville, KY/IN MSA

Homeownership and Health

Historically, homeownership has been the primary, long-term strategy for building wealth in the United States, and wealth is one of the strongest determinants of health.[9] But many families continue to deal with obstacles to accessing and maintaining homeownership, including the ever-increasing cost in utilities, health care, food, and other necessities and the impact of flat or declining income.[10]

Nationally, homeownership rates have dropped to their lowest levels since 1998, and homeownership rates for Hispanics and African Americans have dropped nearly twice as much as for whites.[11] This represents a massive drain of wealth from Latino and African American communities, who were starting with homeownership rates some 25 points lower than whites. This disparate drop in homeownership exacerbates the growing racial wealth gap.[12]

A reduction in homeownership has also been linked to a reduction in local businesses, which not only affects the goods and services that are available, but also affects the employment opportunities for local residents. The ripple effect continues in that the loss of jobs can, in turn, lead to increased foreclosures, and general disinvestment.[13]

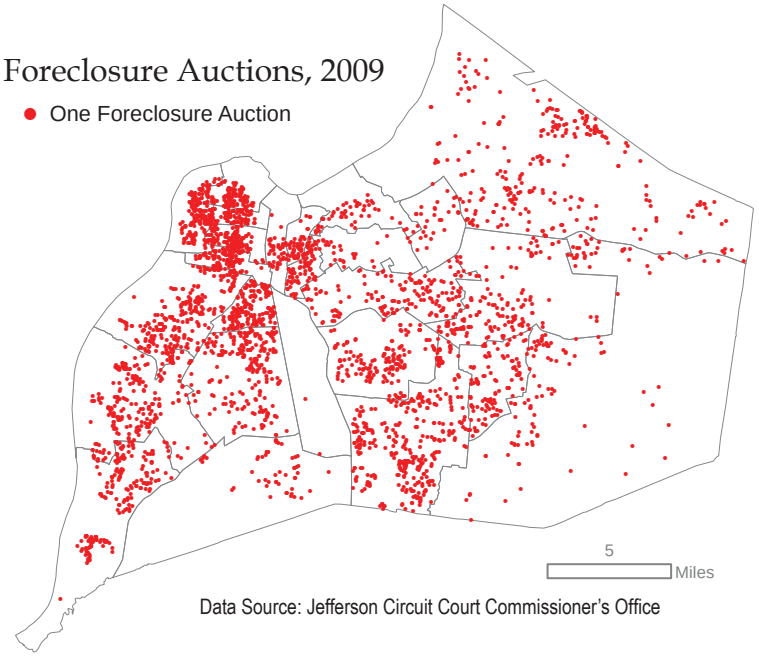


Foreclosures

Foreclosures can have devastating health impacts, not only for individuals and families undergoing severe stress and loss of wealth from the process, but also for entire neighborhoods that experience the effects of intensified disinvestment. Homes sold through foreclosure auctions at a considerable discount will further depress values of surrounding properties, directly impacting the quality of the community.[14] Combined, the loss of health, wealth, and stability in these communities brought on by foreclosures present an acute public health crisis.[15]

Many of the neighborhoods impacted by high foreclosure rates already bear the burden of the poorest health outcomes, with the life expectancy in these areas being up to 10 years less than other areas of the city.[16] In a recent study conducted on foreclosures in Louisville, 50% of the foreclosure study participants cited medical expenses or health issues as a primary factor leading to the foreclosure.[17]

At the root of many foreclosures are high cost loans and the practice of sub prime lending. African American and Latino sub prime borrower losses due to foreclosure nationally represent 46% of total losses to foreclosure, even as these two groups represent only 27.9% of the population of the United States. The loss of wealth among African American and Latino sub prime borrowers due to foreclosure is estimated at $213.1 billion, compared to a loss of $462.2 billion for sub prime borrowers as a whole.[18]



Housing Segregation

Living in racially segregated neighborhoods has been associated with higher rates of infant mortality, overall mortality, violent crime, chronic disease, and higher risk for transmission of infectious diseases such as tuberculosis.[19] A significant contributor to these conditions is the poverty that exists in many of these neighborhoods. Poverty is exacerbated by diminished opportunities for accruing wealth through homeownership in a safe and desirable neighborhood and the discriminatory practices of unfair lending practices. Research has shown that African American homeowners accumulate less equity in their homes because they often own homes in segregated neighborhoods.[20]

Some segregation can be linked to individual attitudes of people wanting neighbors with similar characteristics, such as race, color or religion; however, extensive studies confirm that in many cases people with low incomes live together not through mechanisms of "self-segregation", but rather by not having any other choice.[21] Since housing choice is directly related to housing affordability, families live in areas with the most affordable options, even if that means living in an area that is harmful to health.

> Louisville was ranked as the 26th most segregated of 150 metropolitan areas according to an analysis of the 2000 Census by the University of Louisville. Forty-five percent of Louisville residents live in extreme racial segregation, despite Louisville's increase in racial and ethnic diversity in recent decades - these factors have contributed to decreasing homeownership rates for African-Americans in Louisville, during a period when the homeownership rates have increased for African Americans in most other metropolitan areas in the country.
>
> *Metropolitan Housing Coalition, 2010*

Fair Lending

The stress related to high cost loans, mortgage debt, and insecure homeownership is associated with a greater likelihood of developing hypertension, lower levels of psychological well-being, and increased visits to the doctor.[22]

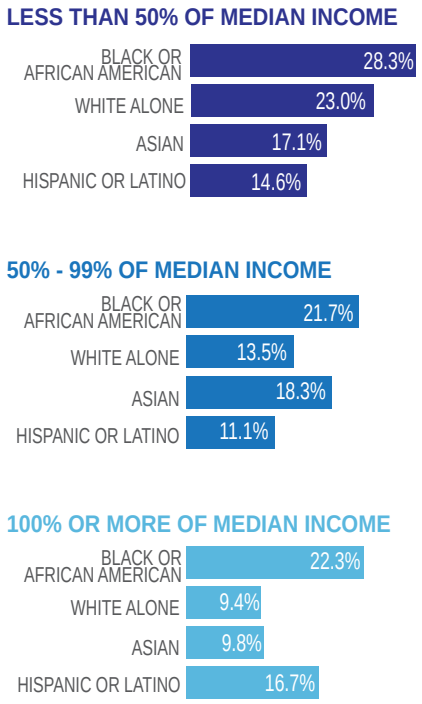
Latinos and African Americans receive high costs loans at a higher rate than whites, regardless of income. A study conducted in 2009 found that Latinos and African Americans received high-cost loans at a rate two to three times that of whites.[23] Among borrowers with the highest FICO (Fair Isaac Corporation) scores (>720), 13.5% of Latino and 12.8% of African Americans received high-cost loans, compared to 2.6% of white borrowers with FICO scores above 720.[24]

Housing Instability and Residential Displacement

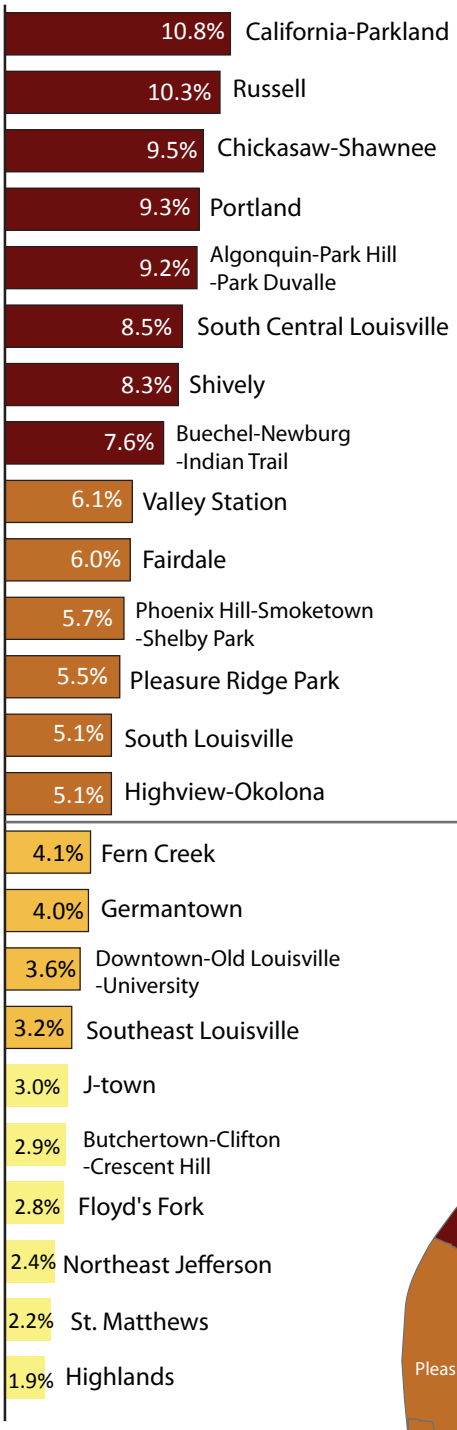
Whether it involves homeowners struggling to maintain their homes during foreclosures, or families relocating as public housing is torn down, housing instability and residential displacement affects community health. When people lose their homes, or are threatened by losing their homes, they experience high levels of stress and emotional strain. The impact of this loss can be exacerbated given the person's emotional attachment to their home.[25]

Displacement not only means a disruption in one's living situation, but it can result in loss of job, difficult school transitions, and the loss of health protective social networks.[26] Displacement can be extremely difficult on all members of a family and people of all ages. Research has shown that it can affect child development.[27] A longitudinal study of the impact of residential stability on health outcomes found that residential stability at childhood (as measured by moving 0-2 times) increases the odds that an individual will have better health outcomes later in life.[28]

Home Purchase Loans Denied by Race/Ethnicity and Income, *Louisville KY/IN MSA 2009*



FORECLOSURE RATE
(Estimated Foreclosure Starts/Estimated Number of Mortgages)
2007- June 2008 - HUD

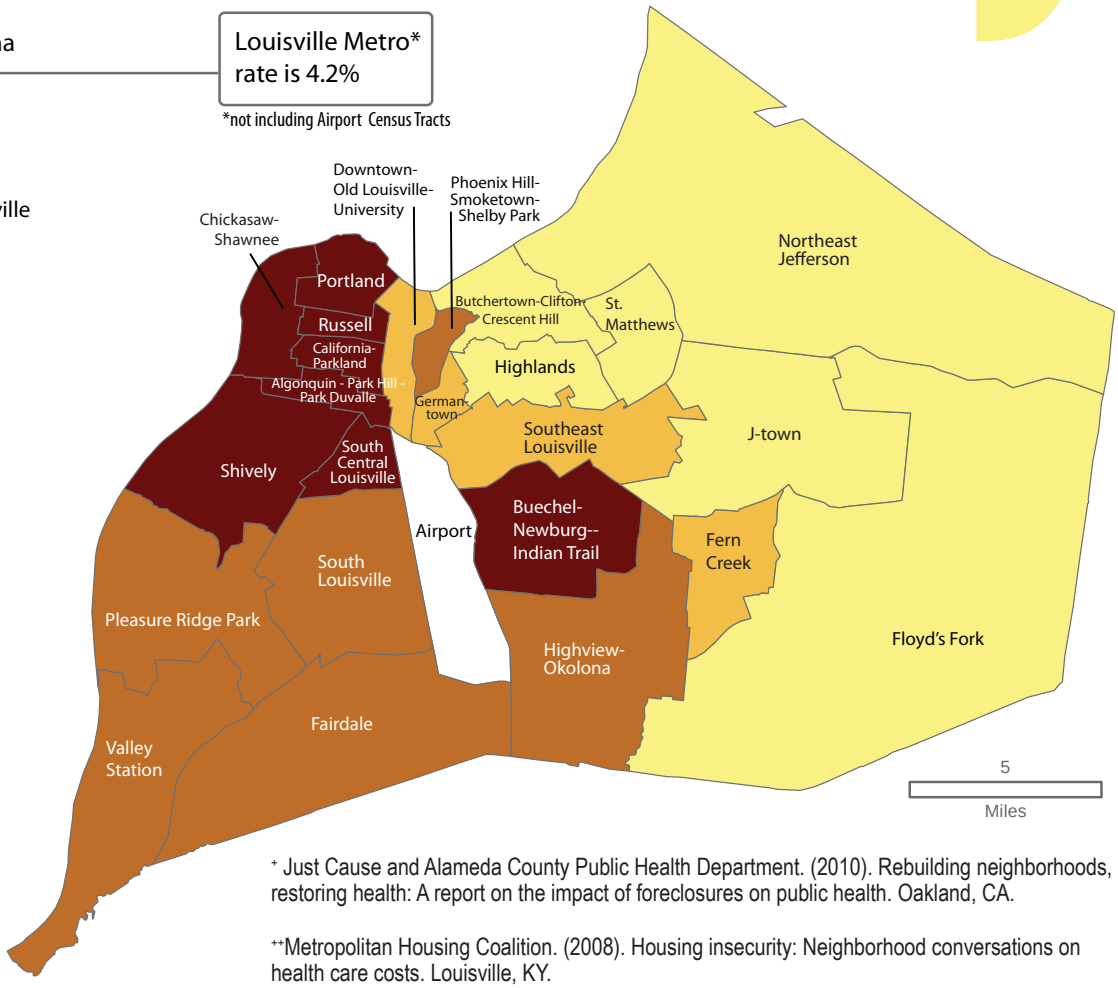


Louisville Metro* rate is 4.2%

*not including Airport Census Tracts

Many of the neighborhoods impacted by high foreclosure rates already bear the burden of the poorest health outcomes, with the life expectancy in these areas being up to 10 years less than other areas of the city.[+]

In a recent study conducted on foreclosures in Louisville, 50% of the foreclosure study participants cited medical expenses or health issues as a primary factor leading to the foreclosure action against them.[++]

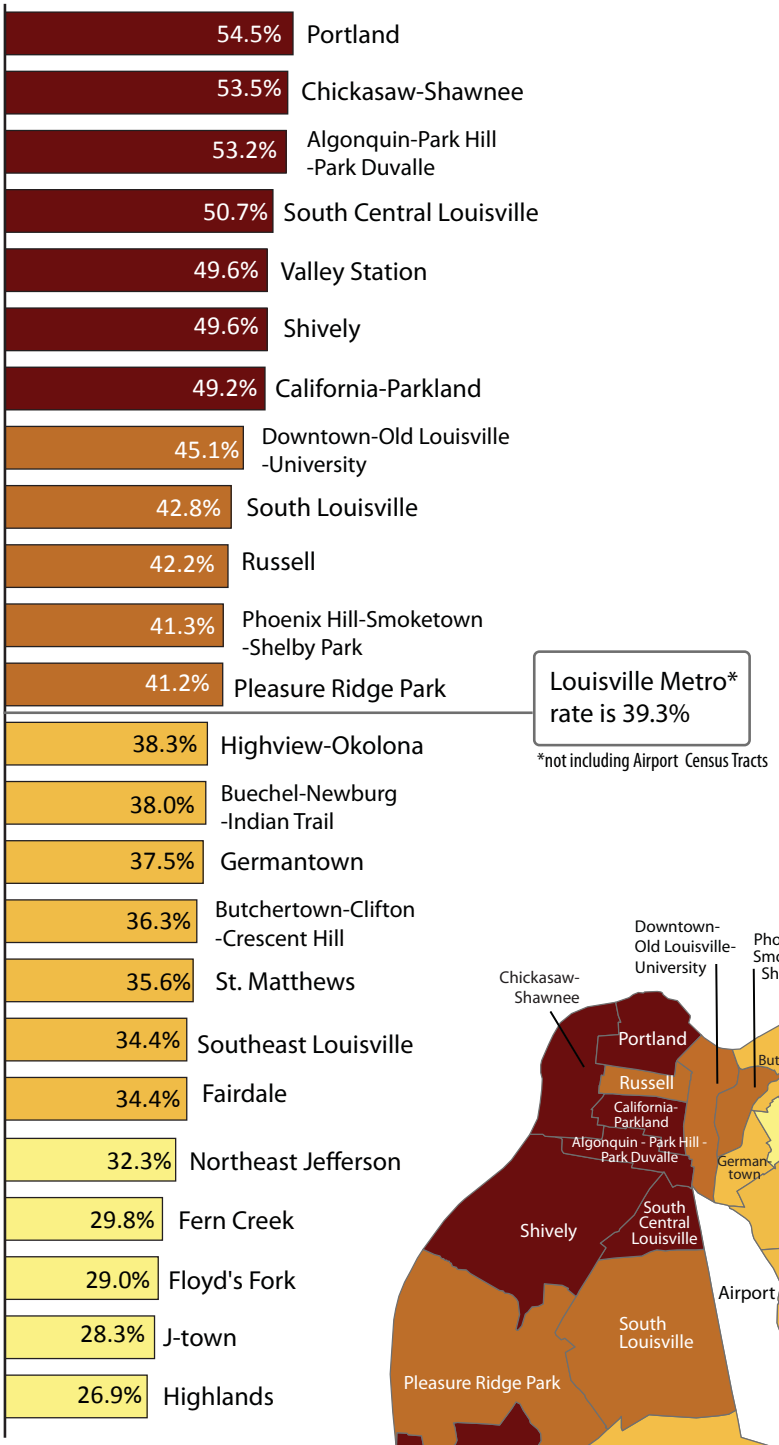


[+] Just Cause and Alameda County Public Health Department. (2010). Rebuilding neighborhoods, restoring health: A report on the impact of foreclosures on public health. Oakland, CA.

[++]Metropolitan Housing Coalition. (2008). Housing insecurity: Neighborhood conversations on health care costs. Louisville, KY.

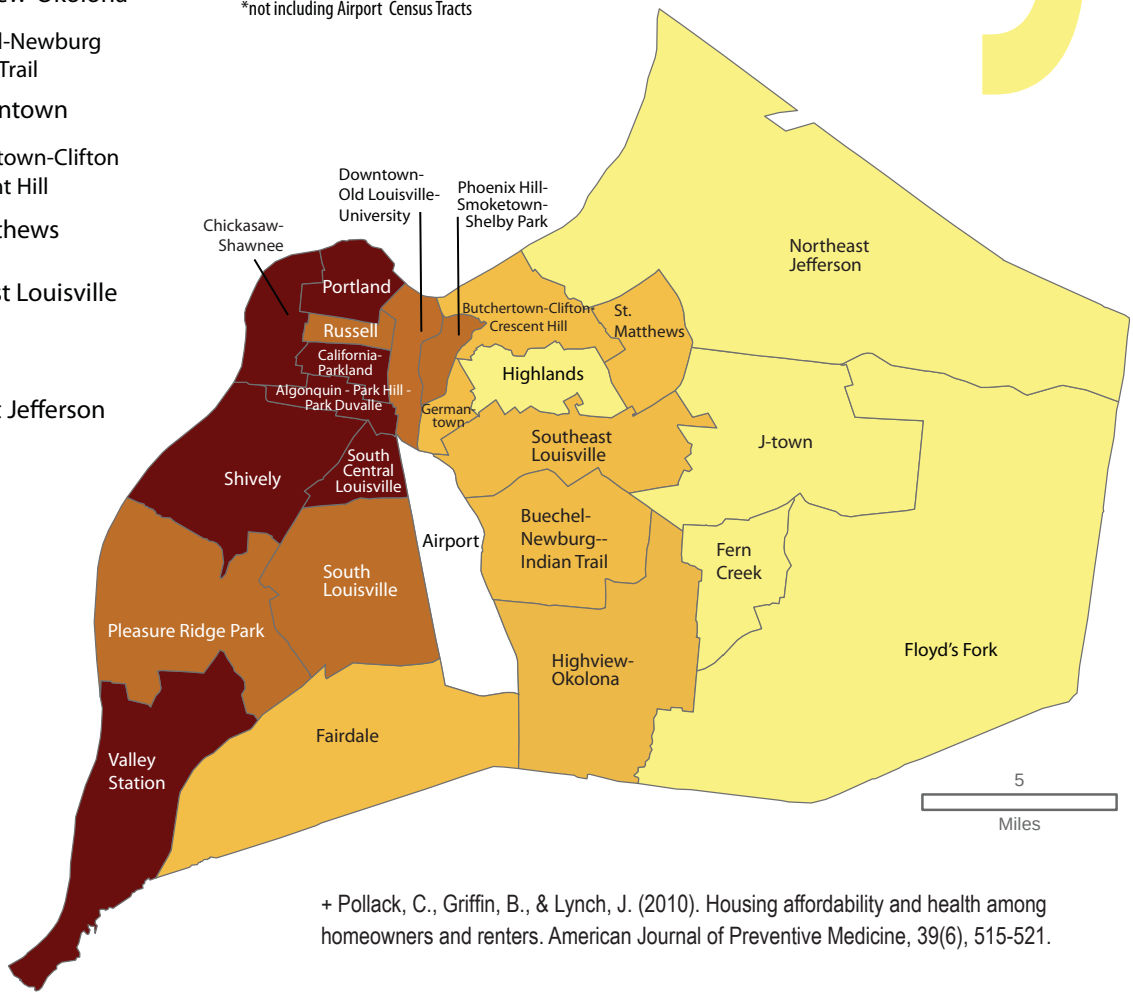
PERCENTAGE OF HOUSEHOLDS PAYING 35% OR MORE OF INCOME FOR RENT

2005-2009 ACS ESTIMATE



High housing-related costs lead to health risks in a variety of ways:+

- Such as when families have to make tough decisions between housing costs and paying health insurance, medications, and healthy foods;
- Through the potential association with housing quality and neighborhood features; and,
- As an indicator for low socioeconomic status associated with material deprivation and housing instability



+ Pollack, C., Griffin, B., & Lynch, J. (2010). Housing affordability and health among homeowners and renters. American Journal of Preventive Medicine, 39(6), 515-521.

ENVIRONMENTAL QUALITY

Indoor Environmental Quality & Health

The impact on health of having access to safe, affordable housing was addressed in a previous section. However, the internal environment within a home can also create threats to health. These threats can come in the form of hazardous substances used in the building of the home. For example, Asbestos in older homes can cause lung cancer, asbestosis, and mesothelioma[1]; and, lead paint, also found in older homes, can be a serious risk to the health of children and pregnant women. Health implications for children exposed to lead paint include an increased risk for asthma, learning disabilities, seizures, and lead poisoning.[2]

Health threats can also be caused by a deterioration of the home's structure or an infestation of pests within the structure. Furthermore, the ability to control the climate in the living unit is compromised when doors and windows do not fit properly; and, improperly winterized homes can lead to the secondary use of improper heating devices. Improperly installed or poor quality heating devices have caused respiratory ailments and even death.[3] Exposure to rain or other forms of moisture caused by a leaky roof or internal pipe can compromise the home's internal environment by causing mold and mildew. These biological contaminants can lead to respiratory diseases such as asthma or allergic symptoms.[4]

Homes that are open to the elements are vulnerable to pest infestation and mold and mildew; both of which can cause respiratory diseases such as asthma or allergies.[5] Materials used for building or for pest control can be additional sources of danger: pesticide residues can cause neurological disorders, and pressure-treated wood can contain dangerous carcinogens.[6]

While not all old housing is dangerous, large stocks of older housing in disinvested neighborhoods are likely to contain many of the physical features associated with substandard housing. For example, areas in Louisville with high concentrations of poverty and communities of color have much of the housing built before 1950; however, it was not until the 1970s that the ban on lead in paint took effect.[7] In an analysis of housing conditions and other risk factors related to health, Louisville's Metropolitan Housing Coalition found that problems related to poor indoor air quality were highly concentrated in northwest and southwest portions of Metro Louisville.[8]

Outdoor Environmental Quality & Health

Air pollutants are causal factors for increased rates of mortality, disease and illness.[9] Airborne pollutants can cause increased sickness and premature death from asthma; bronchitis; emphysema; pneumonia; and cardiovascular disease, including coronary artery disease, abnormal heart rhythms, and congestive heart failure.[10] Air pollution comes from a variety of sources: both stationary and mobile. The stationary sources stem from industrial uses and utilities, and include steam production, process boilers, coal fire, and other forms of electricity generation. Mobile sources include the emissions from cars, trucks, and other vehicles. Together they contribute a huge amount to pollution in the air.[11]

Exposure to traffic-related pollution is associated with health problems including asthma, reduced lung function, certain types of cancers, cardiopulmonary and stroke mortality, and premature births.[12] Particulate matter from cars and trucks creates higher rates of cardiovascular disease and asthma, leading to hospital visits and premature death.[13] More specifically, research has shown that living within 1000 feet of high traffic roads (measured by some as 100,000 vehicles a day) leads to measurably higher non-cancer health risks.[14] On a typical urban freeway with large truck traffic of 10,000-20,000 a day, particulate matter from diesel represents about 70 percent of the potential cancer risk from the vehicle traffic. Diesel particulate emissions are of particular concern as research demonstrates an association between particulate matter and premature mortality in those with existing cardiovascular disease.[15]

Louisville has a number of high traffic volume highways. Three interstate highways traverse Jefferson County and they converge in downtown Louisville.

The high number of industrial, chemical, and manufacturing plants in the county can also contribute to poor environmental quality. Two recent studies point to the particular problem in Louisville's poor and minority communities.

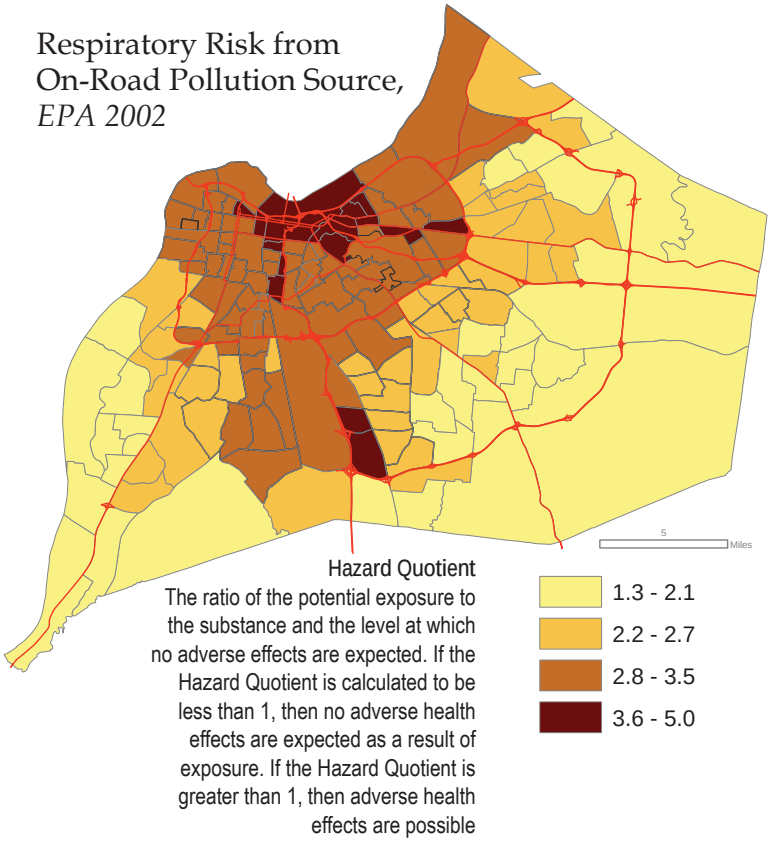
- *A study of air toxins conducted in 2000-2001 found that chronic risk levels from outdoor air pollution were higher in every West Louisville testing site.*[16]
- *In a 2009 nationwide study, looking at the largest discrepancies between the percentage of minorities at risk of poor health outcomes from industrial air toxins and their percentage of the population, Louisville, KY-IN MSA was ranked sixth from the top. In the MSA encompassing Louisville Metro and Southern Indiana, minorities account for 37% of the health risk while making up only 18% of the total population.*[17]

In addition to air pollutants, low-income persons, racial and ethnic minorities, children, the elderly, and those with disabilities suffer disproportionately from environmental pollutants in the soil and ground water near low income neighborhoods.[18] Undesirable land uses such as power plants and factories are often situated in low-income neighborhoods.[19] The most polluted locations often have significantly higher-than-average percentages of blacks, Latinos, and Asian-American residents.[20]

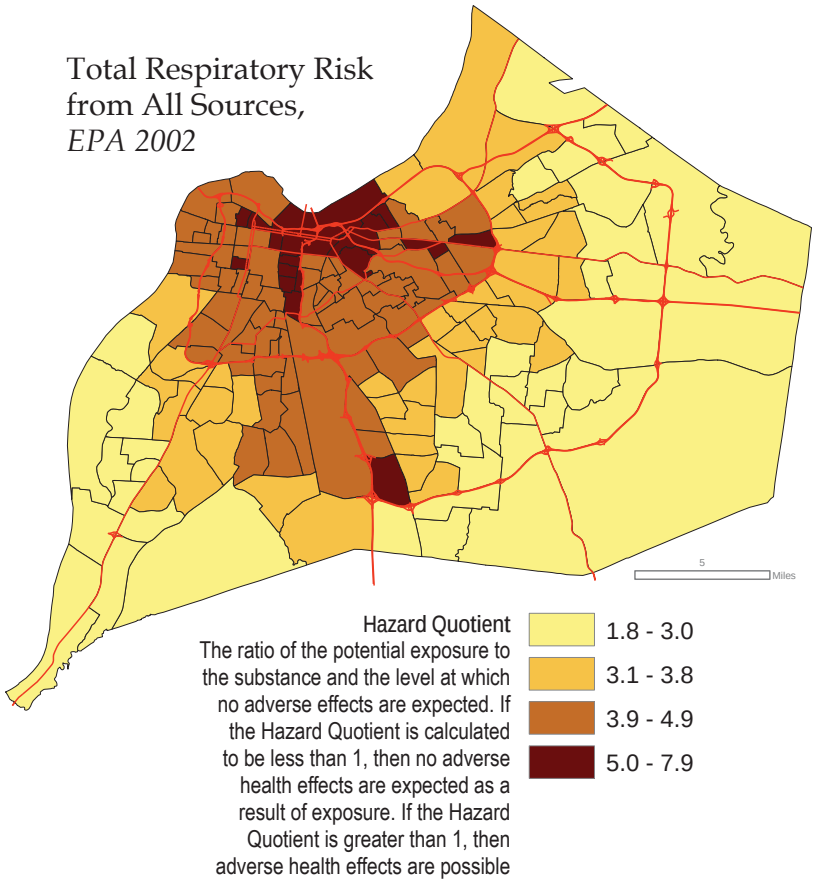
Abandoned industrial sites, known as brownfields (which may be contaminated) can be a burden for communities with low levels of investment.[21] Brownfields can provide environmental hazards in any of several domains. As described by the EPA, brownfields can be the source of the following risks:[22]

- Safety – abandoned and derelict structures, open foundations, other infrastructure or equipment that may be compromised due to lack of maintenance, vandalism or deterioration, controlled substance contaminated sites (i.e., methamphetamine labs) and abandoned mine sites;
- Social & Economic – blight, crime and vagrancy, reduced social capital or community 'connectedness', reductions in the local government tax base and private property values that may reduce social services; and,
- Environmental – biological, physical and chemical from site contamination, groundwater impacts, surface runoff or migration of contaminants as well as wastes dumped on site.

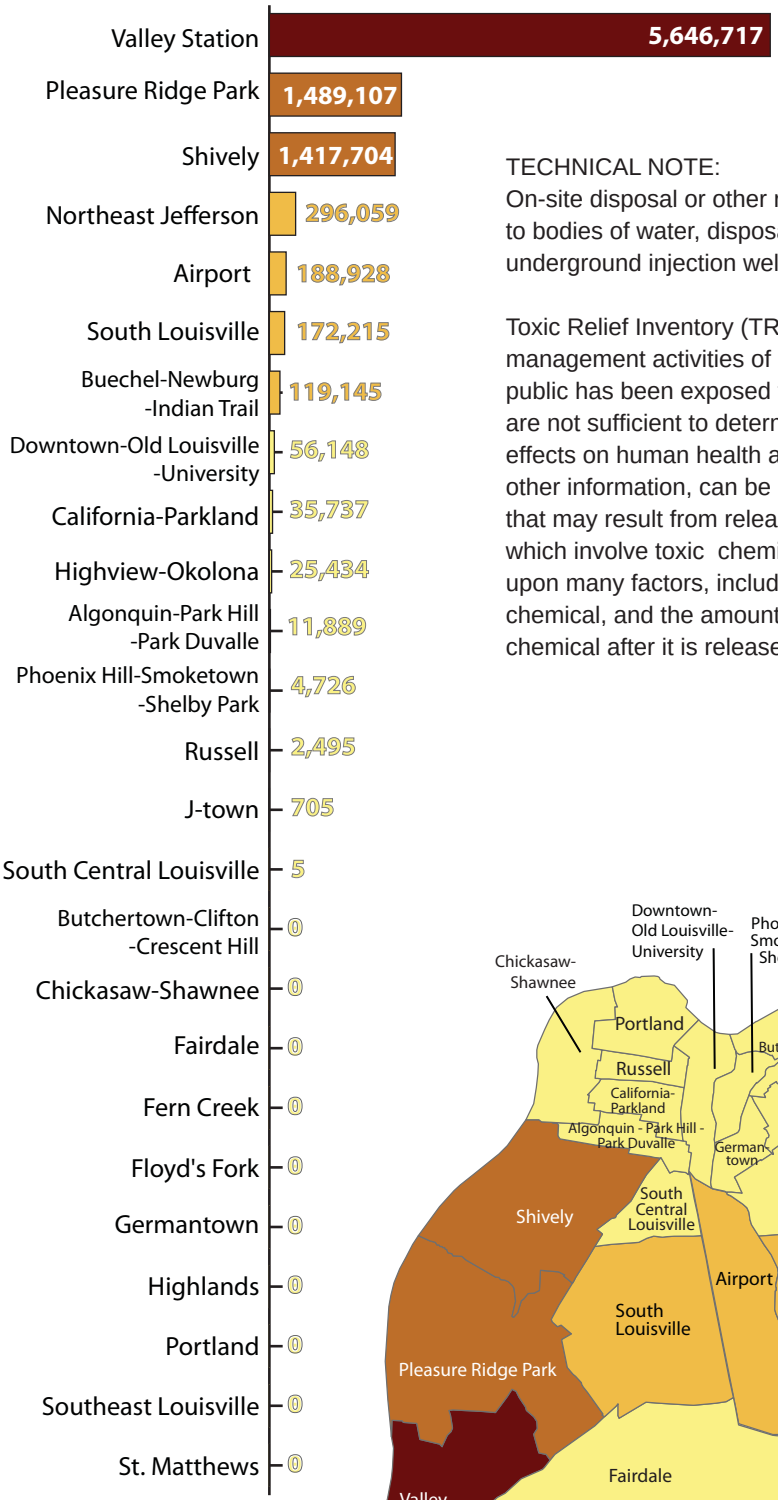
Respiratory Risk from On-Road Pollution Source, *EPA 2002*



Total Respiratory Risk from All Sources, *EPA 2002*

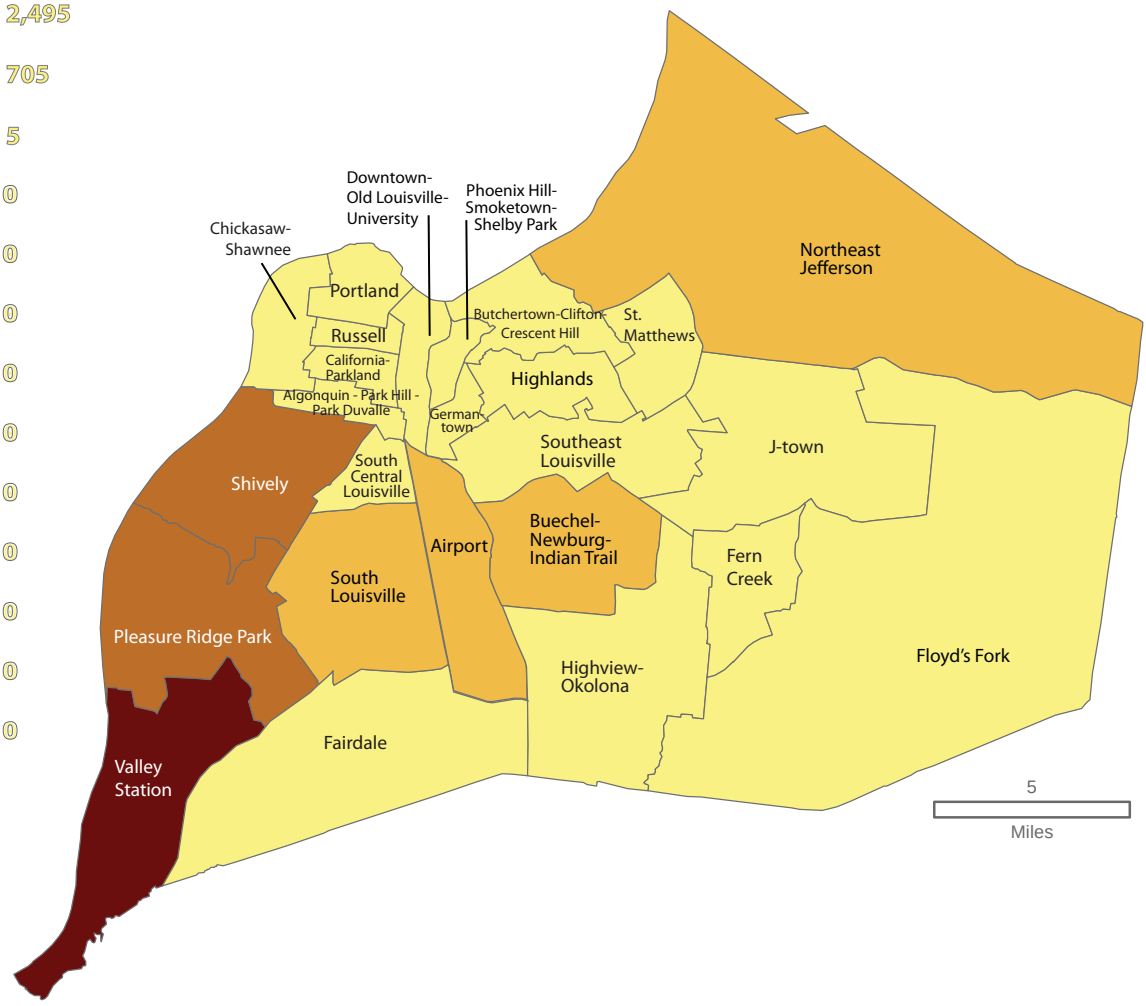


ON-SITE TOXIC RELEASES FROM FACILITIES
(Total On-Site Disposal or Other Releases in Pounds)
EPA TOXIC RELEASE INVENTORY 2009

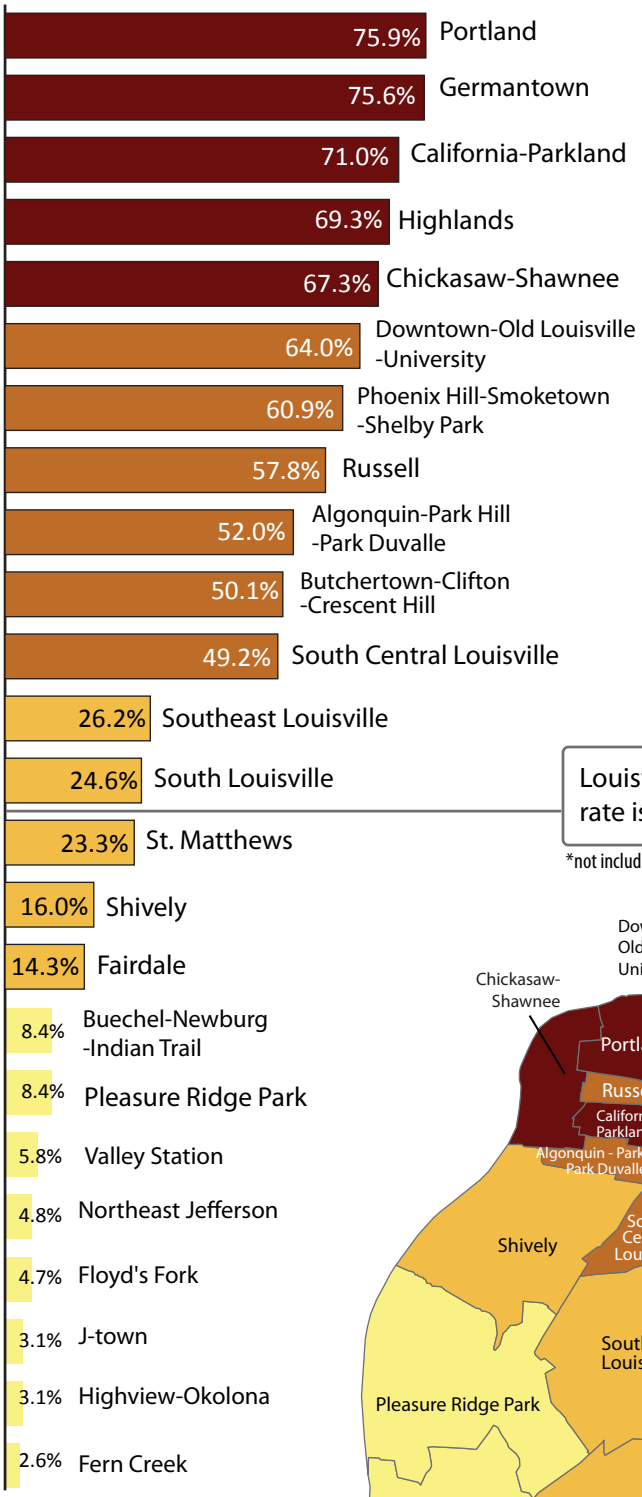


TECHNICAL NOTE:
On-site disposal or other releases include emissions to the air, discharges to bodies of water, disposal at the facility to land, and disposal in underground injection wells.

Toxic Relief Inventory (TRI) data reflect releases and other waste management activities of chemicals, not whether (or to what degree) the public has been exposed to those chemicals. Release estimates alone are not sufficient to determine exposure or to calculate potential adverse effects on human health and the environment. TRI data, in conjunction with other information, can be used as a starting point in evaluating exposures that may result from releases and other waste management activities which involve toxic chemicals. The determination of potential risk depends upon many factors, including the toxicity of the chemical, the fate of the chemical, and the amount and duration of human or other exposure to the chemical after it is released.

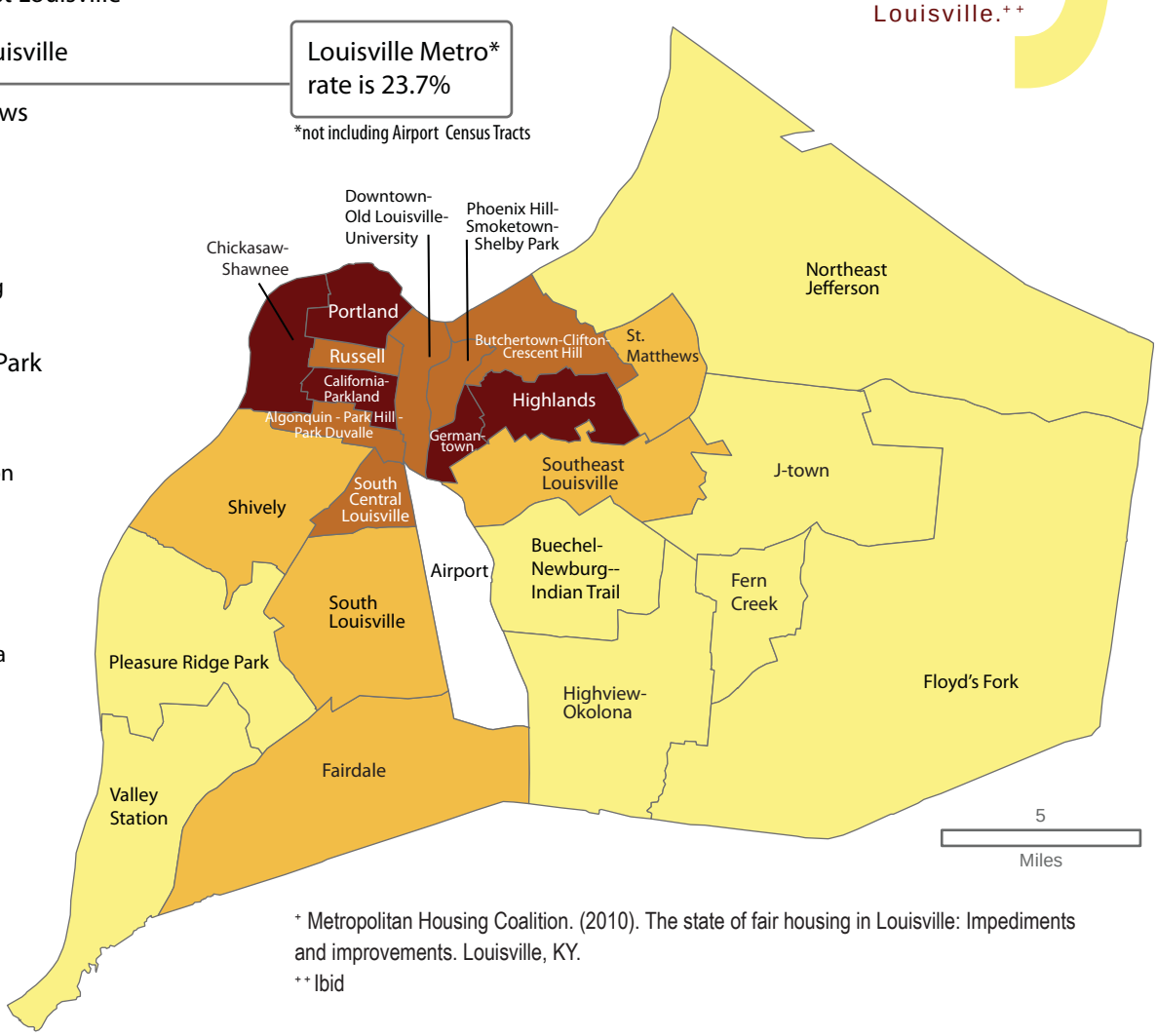


PRE 1950's HOUSING
(Percentage of Older Houing Stock per Neighborhood Area)
2005-2009 ACS ESTIMATE



Areas in Louisville with high concentrations of poverty and communities of color have much of the housing built before 1950; and, it was not until 1950 that the first regulations limiting lead appeared nationally.[+]

In an analysis of housing conditions and other risk factors related to health, Louisville's Metropolitan Housing Coalition found that problems related to poor indoor air quality were highly concentrated in northwest and southwest portions of Metro Louisville.[++]



[+] Metropolitan Housing Coalition. (2010). The state of fair housing in Louisville: Impediments and improvements. Louisville, KY.

[++] Ibid

EDUCATION

Education and Health

Inequalities in education and income are at the root of many health disparities in the U.S. The population groups that suffer the worst health status also are those that have the highest rates of poverty and the lowest levels of education.[1] For people ages 25-64, the overall death rate for those with less than a high school education is more than twice that for people with 13 or more years of education.[2]

While income levels are an important determinant, research has shown that independent of income, education level is associated with improved health outcomes -- each additional year in school is associated with increased life expectancy.[3]

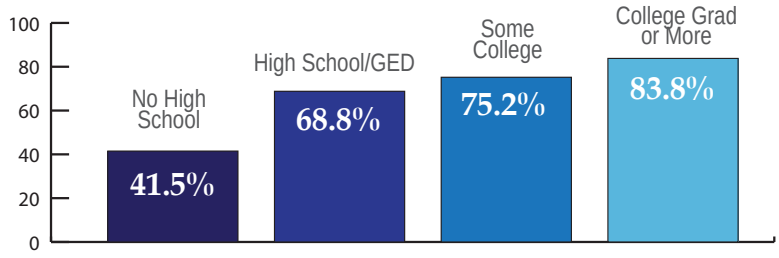
An individual's health is highly correlated with success in school, and the number of years spent in school are major factors in determining social and occupational status in adulthood.[4]

Education, Health and Wealth

Educational attainment is one of the strongest predictors of income, and income is directly related to our health.[5] Education indirectly impacts health through enhanced access to necessary resources (e.g., health care). Further, as incomes rise, people are more willing and able to pay for health care and preventive health care.[6]

People Ages 25-65 Reporting 'Good' or 'Excellent' Health, by Education Level*

Louisville Metro BRFSS, 2009



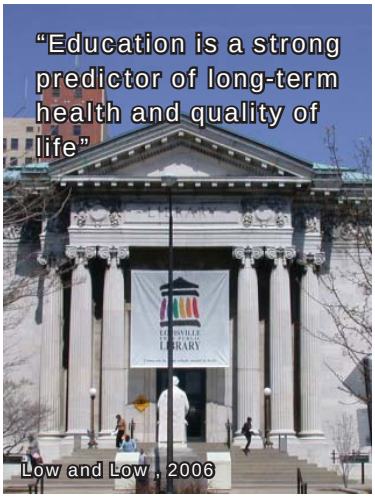
**Respondents with higher ediucation levels are more likely to report 'Good' or 'Excellent' health*
$x^2 = 58.9$, df = 3, p-value = 0.0000001

Higher levels of inequality between rich and poor in a society correlate with increased mortality among occupants of the lower economic segment.[7] Lack of a high school education accounts for much of this income inequality effect and is a powerful predictor of mortality variation among U.S. states.[8]

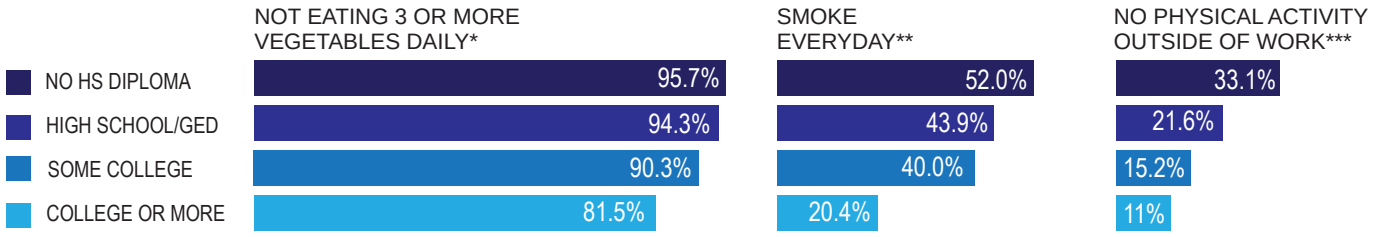
Education & Risk Behavior

Lower levels of education are connected to increased health risk behaviors such as smoking, being overweight or engaging in minimal physical activity.[9] Higher levels of education are associated with better health decision making.[10]

Persons with high levels of education also display healthier eating habits. The most recent data from the Behavioral Risk Factors Surveillance Survey (2009) illustrates the link between educational level and healthy behaviors. Nineteen and a half percent (19.5%) of adults in the Louisville Metro who have a college degree report eating three or more vegetables a day; while fewer than five percent (4.3 %) of Louisville Metro adults without a high school degree report eating three or more vegetables a day.[11] Similar trends are noted for physical health and smoking.



People Ages 25-65 Reporting Risk Behaviors, *Louisville Metro BRFSS, 2009*



**Respondents with more education are more likely to eat 3 or more vegetables daily*
$x^2 = 24.6$, df = 3, p-value = 0.00002

***Respondents with more education are less likely to smoke*
$x^2 = 32.6$, df = 3, p-value = 0.0000004

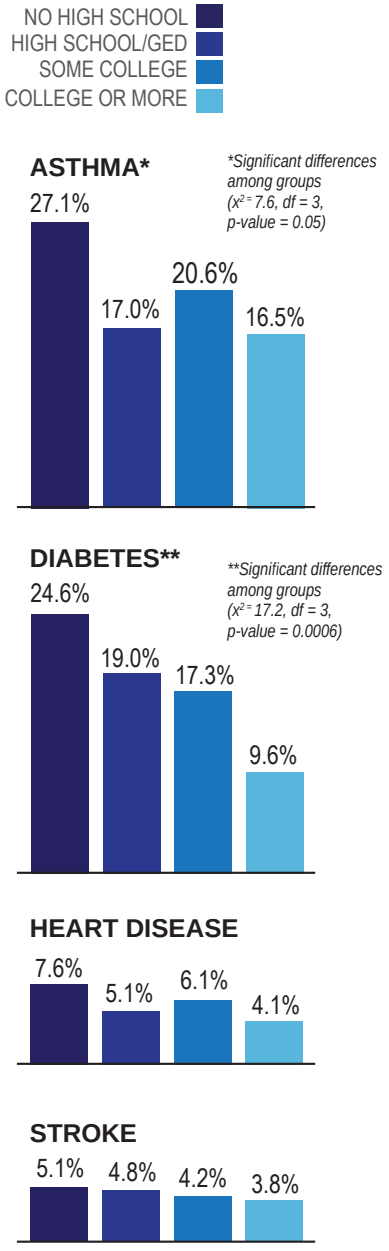
****Respondents with more education more likely to exercise*
$x^2 = 32.95$, df = 3, p-value = 0.0000003

Education & Chronic Conditions

In a recent CDC survey, Louisville respondents ages 25-65 with less than a high school education were more likely to have been diagnosed with diabetes, stroke, heart disease, and asthma compared to respondents with a college degree.

People Ages 25-65 Reporting Chronic Conditions

Louisville Metro BRFSS, 2009



Parental Education Level

There is a powerful connection between infant and child health and level of maternal education. [12] The impact seems to begin in the womb, as numerous studies have found strong correlations between educational attainment of the mother and birth outcomes.[13] Mother's education is an important predictor of the health of children even after controlling for income, health environments, and other socioeconomic variables.[14]

The education level of parents has also been shown to affect levels of obesity. In one study, parental education level was the strongest predictor of children's obesity and children of the lowest social status had more than three times the risk of being obese than children of the highest social status.[15]

High Quality Child Care

Research has demonstrated the significance of early childhood development as a foundation for long-term health and well-being.[16] The ability to succeed in school and later in life is heavily influenced by factors that are determined before children start school.[17]

Higher quality child care can help improve school readiness and enhance language skills among children experiencing the negative developmental effects of poverty.[18] One study found that young adults who had consistent child care as children scored higher on tests of academic skills, were more likely to attend a four year college, and were more likely to still be in school at age 21.[19]

Dropping out of High School

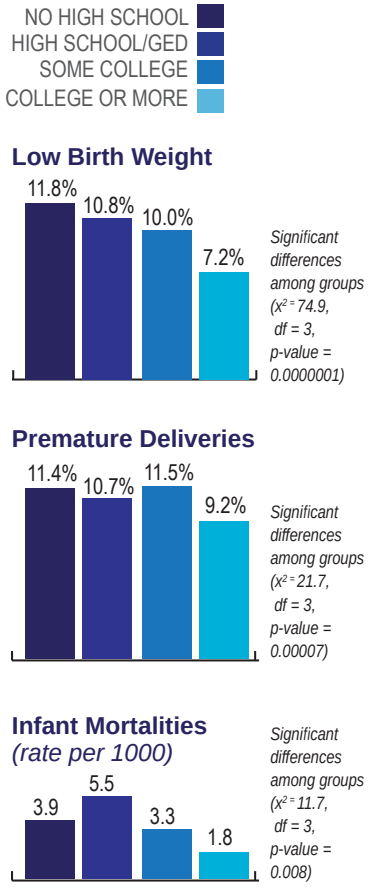
Health factors often drive the decision to leave school early. Pregnancy, family illness and chronic conditions (e.g., asthma, learning disability or physical disability) are all examples of health related reasons for withdrawing.[20]

Dropping out of school can lead to limited employment opportunities, poverty, and poor health, and is also associated with adolescent substance abuse, delinquency, injury, and pregnancy.[21]

Adolescents living in high poverty neighborhoods often have lower level of educational achievement and a higher risk of dropping out of school.[22]

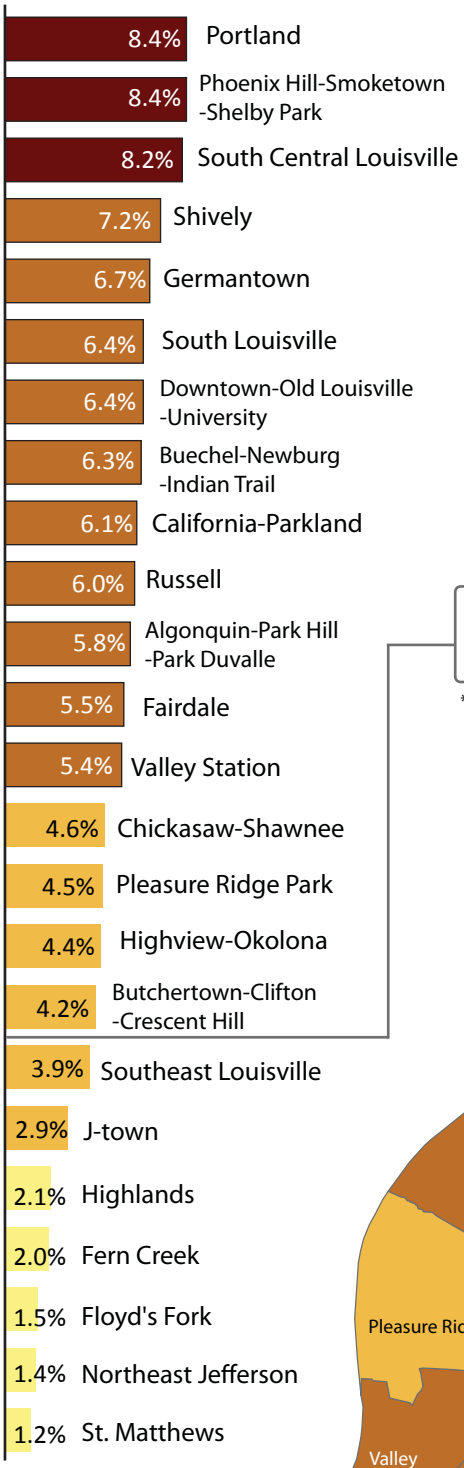
Birth Outcomes by Mother's Education Level, 2008-2009

Jefferson County Vital Statistics



NINTH GRADE EDUCATION OR LESS
(Percentage of People 25 or Older with 9th Grade Education or Less)

2005-2009 ACS ESTIMATE

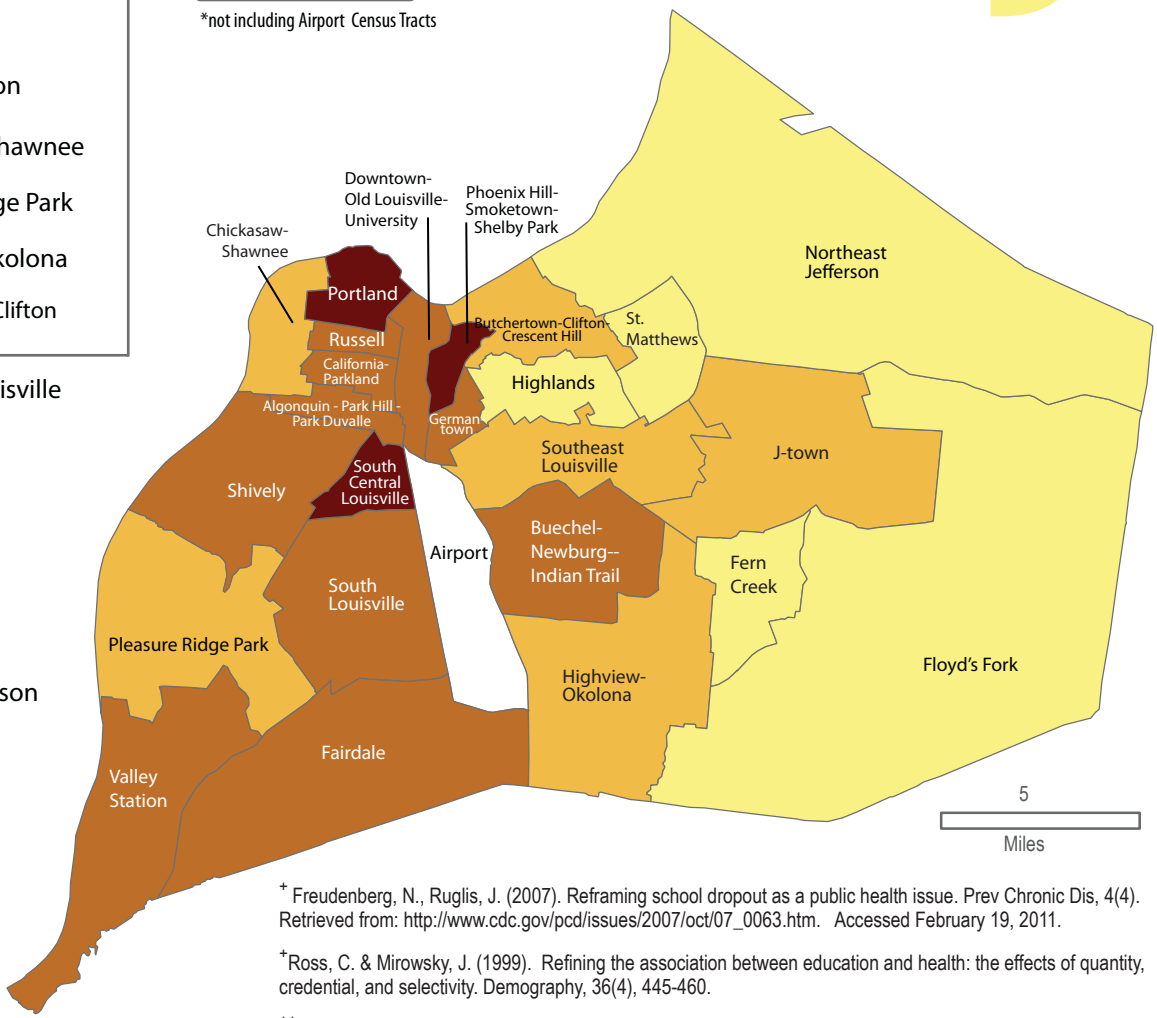


Louisville Metro* rate is 4.1%

*not including Airport Census Tracts

Educational attainment is one of the strongest predictors of income, and income is directly related to our health.[+]

Education indirectly impacts health through enhanced access to necessary resources (e.g., health care). Further, as incomes rise, people are more willing and able to pay for health care and preventive health care.[++]

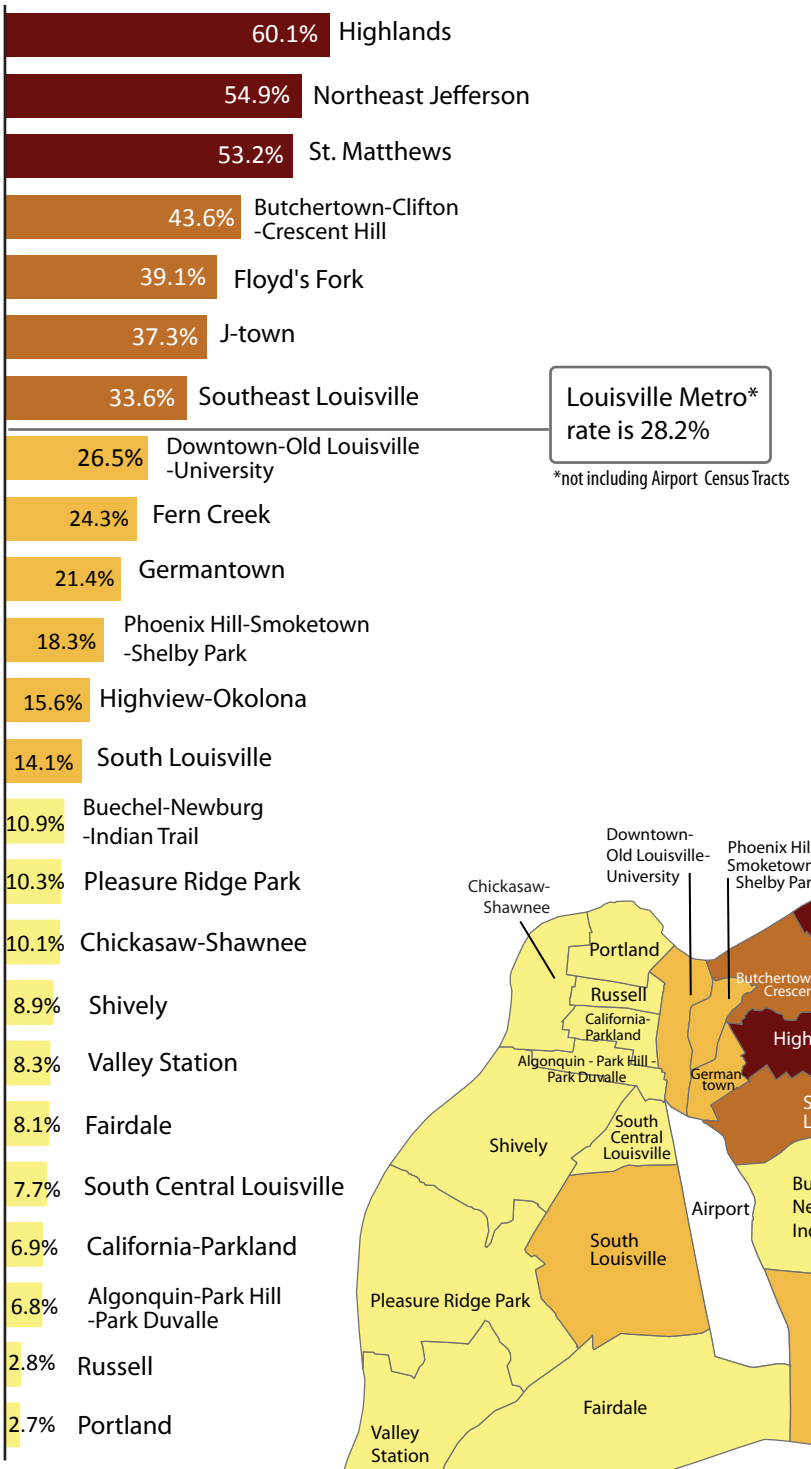


[+] Freudenberg, N., Ruglis, J. (2007). Reframing school dropout as a public health issue. Prev Chronic Dis, 4(4). Retrieved from: http://www.cdc.gov/pcd/issues/2007/oct/07_0063.htm. Accessed February 19, 2011.

[+]Ross, C. & Mirowsky, J. (1999). Refining the association between education and health: the effects of quantity, credential, and selectivity. Demography, 36(4), 445-460.

[++]Cutler, D. M. (2006). Education and health: Evaluating theories and evidence. National Bureau of Economic Research Working Paper 12352.

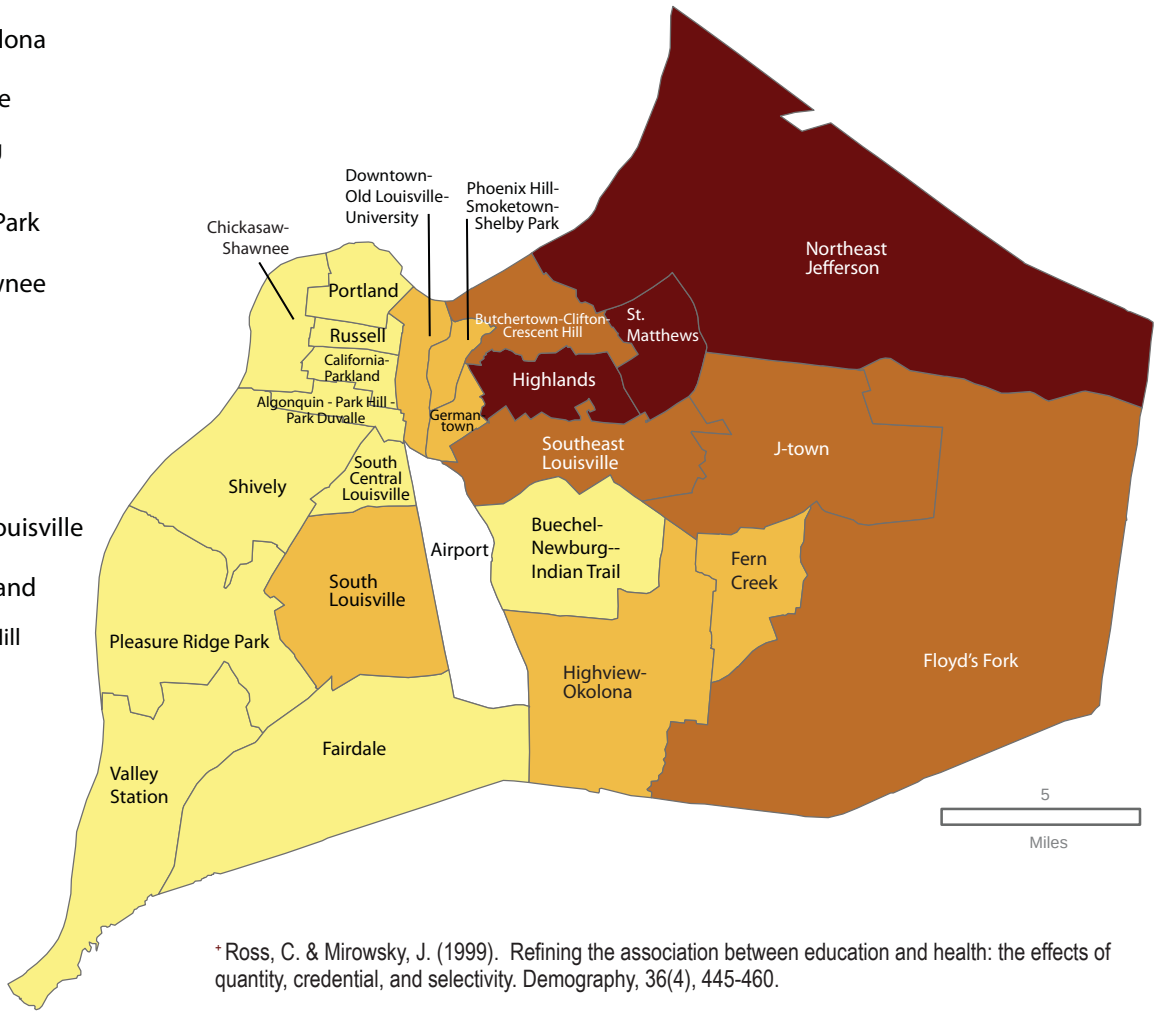
BACHELOR'S DEGREE OR HIGHER
(Percentage of People 25 or Older with at least a Bachelor's Degree)
2005-2009 ACS ESTIMATE



Louisville Metro* rate is 28.2%

*not including Airport Census Tracts

An individual's health is highly correlated with success in school, and the number of years spent in school are major factors in determining social and occupational status in adulthood.[+]



[+] Ross, C. & Mirowsky, J. (1999). Refining the association between education and health: the effects of quantity, credential, and selectivity. Demography, 36(4), 445-460.

TRANSPORTATION

Transportation & Health

"Expanding the availability of, safety for, and access to a variety of transportation options and integrating health-enhancing choices into transportation policy has the potential to save lives by preventing chronic diseases, reducing and preventing motor-vehicle-related injury and deaths, and improving environmental health, while stimulating economic development, and ensuring access for all people."[1]

Research shows that land-use planning and transportation decisions, directly and indirectly affect our health.[2] Poor decisions in these areas can:

- Reduce opportunities for physical activity, contributing to rising obesity and other negative health consequences associated with minimal exercise;
- Increase the amount of air pollution, contributing to respiratory and cardiovascular illness and accelerating climate change;
- Increase traffic accidents, and the injuries and deaths that result from these accidents; and
- Exacerbate poverty and inequity by placing especially heavy burdens on vulnerable populations.[3]

Transportation Costs

Lower income families are disproportionately affected by the absence of affordable forms of transportation. Households generally pay around 20% of their income for transportation, but lower income families can spend a much higher percentage of their more limited resources. One study documented that lower income families spend up to 30% or more, depending on the location of the neighborhood where they live.[4] When these researchers looked at the data for 28 Metropolitan Statistical Areas (MSAs), they found that lower-income working families ($20K-$35K) living away from employment centers spent 37% of their income on transportation.[5] Another study found that the poorest fifth of auto-owning Americans spend 42% of their annual household budget on automobile ownership, more than twice the national average.[6]

When faced with high housing costs, many families are forced to make difficult choices, primarily in the area of transportation.[7] Many working families (whose incomes are between $20,000 and $50,000) that move far from work to find affordable housing, can end up spending much of their savings on transportation.[8]

Public Transit & Health

Having an efficient alternative to automobile travel can contribute to the health and vitality of a community. While the lack of such a system can be a source of health risks for everyone, the inability to access public transit disproportionately affects vulnerable populations: the poor, the elderly, people who have disabilities and children.[9] People who cannot afford a car or who are unable to drive face a relative lack of mobility options when it comes to jobs, housing, education, social services, and activities.[10]

The relationship between public transportation and access to employment options has been the focus of many studies. These studies have found significant employment effects from increased bus access and improved accessibility to employment hubs.[11] In a study focusing on single women receiving public assistance, researchers found that women without an automobile experienced employment benefits from increased access to public transportation.[12]

While the lack of access to services and employment is a problem for low-income individuals, difficulties with access can affect anyone at any income level who lives in a part of town that lacks alternative transportation options.[13] Many people must live far away from their jobs to find affordable housing. Others choose the suburbs or more rural areas of the county for other reasons. Regardless of the basis for choosing a home outside of the city-center, long commutes diminish the amount of time for social/civic engagement and contribute to poor air quality. Both the loss of time for other activities and the increase in air pollutants have consequences on our health.[14]

Further, every additional hour spent in a car per day is associated with a 6% increase in the likelihood of obesity; while each additional hour walked per day is associated with a 4.8% reduction in the likelihood of obesity.[15] Another study found that transit users met the recommended levels of physical activity by walking to and from the transit stops.[16]

Pedestrian & Bicycle Safety

In the U.S., traffic crashes continue to be the greatest single cause of death and disabilities for Americans 1-44 years of age.[17] Pedestrians and bicyclists are at an even greater risk of death from crashes than those who travel by motor vehicles.[18]

Areas with high traffic volume can be particularly dangerous, and higher rates of traffic flow generally lead to higher rates of pedestrian injury.[19]

Conversely, research has shown that areas with greater pedestrian flows experience less risk of pedestrian-vehicle collision.[20] Numerous studies show that motorists are less likely to collide with pedestrians and cyclists if more people are walking and cycling.[21] Such research helps demonstrate that there is safety in numbers as more people have the opportunity to walk or bike to destinations.

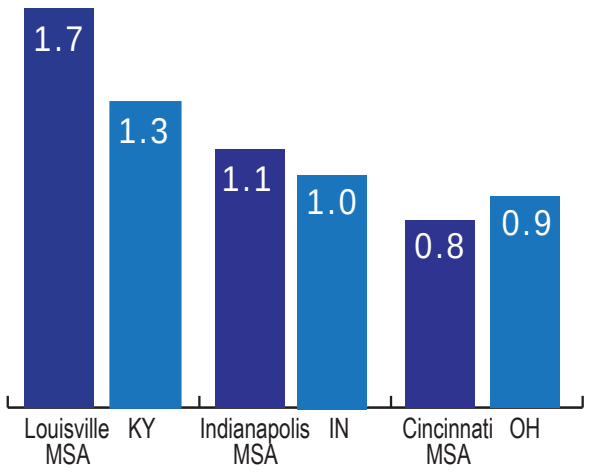
The more rural, less developed areas of the county face different issues. They often lack pedestrian walkways such as sidewalks, paths, and/or shoulders that are critical for pedestrian safety.[22] Another difference is the speed with which vehicles travel. While there are more pedestrian/auto collisions in urban areas, the risk of fatality in a rural area is double or even triple the rate in urban areas, as motor vehicles tend to travel faster in rural areas.[23]

While biking and walking can be healthy options for getting to employment or services, pedestrians and bicyclists can face serious dangers in areas that are designed mainly for cars. Many communities are taking on the safety challenge by improving their infrastructures and making their roadways more accommodating to walkers and cyclists. One such approach is Complete Streets. A "Complete Street" is safe, accessible, and convenient for all users, regardless of transportation mode, age, or physical disability.[24] Complete Streets adequately provide for bicyclists, pedestrians, transit riders, and motorists; and, they promote healthy communities and reductions in traffic congestion by offering viable alternatives to driving. They are designed to prevent injury and to promote health.

Expanding the availability of, safety for, and access to a variety of transportation options and integrating health-enhancing choices into transportation policy has the potential to save lives by preventing chronic diseases, reducing and preventing motor-vehicle-related injury and deaths, and improving environmental health, while stimulating economic development, and ensuring access for all people.

Centers for Disease Control, 2010

Average Annual Pedestrian Deaths per 100,000 (2000-2009)

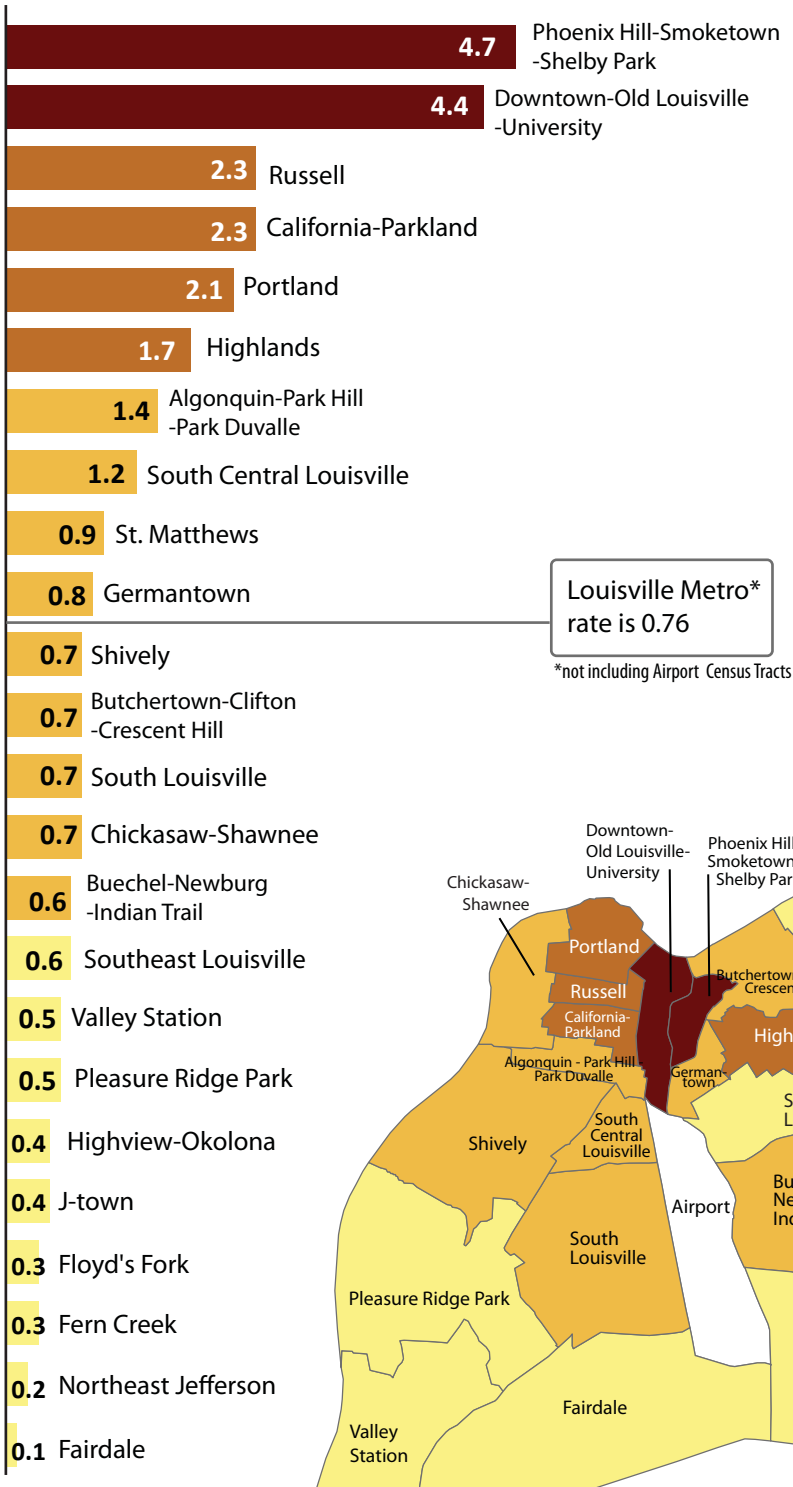


Out of the 52 MSAs with at least one million inhabitants, the Louisville MSA ranks the 19th most dangerous for pedestrians. The Louisville MSA had 192 pedestrian fatalities from 2000 to 2009.

Transportation for America, 2011

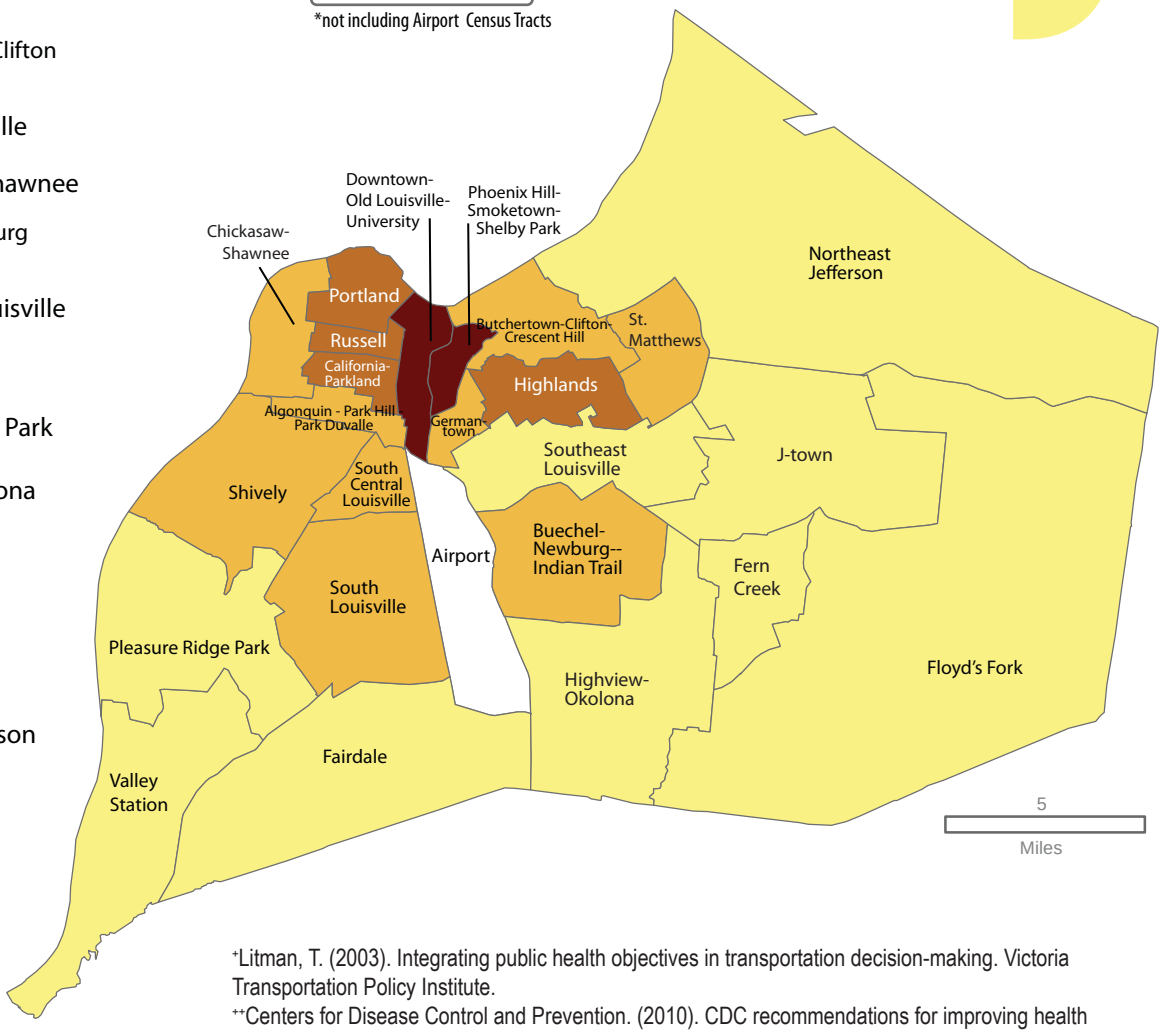
BICYCLE AND PEDESTRIAN COLLISIONS WITH MOTOR VEHICLES
(Rate per 1000 people)

2009 KSP Collision Data



In the U.S. traffic crashes continue to be the greatest single cause of death and disabilities for Americans 1-44 years of age.[+]

Pedestrians and bicyclists are at an even greater risk of death from crashes than those who travel by motor vehicles.[++]



[+]Litman, T. (2003). Integrating public health objectives in transportation decision-making. Victoria Transportation Policy Institute.

[++]Centers for Disease Control and Prevention. (2010). CDC recommendations for improving health through transportation policy. Retrieved February 12, 2011, from http://www.cdc.gov/transportation/docs/FINAL%20CDC%20Transportation%20Recommendations-4-28-2010.pdf.

FOOD ACCESS

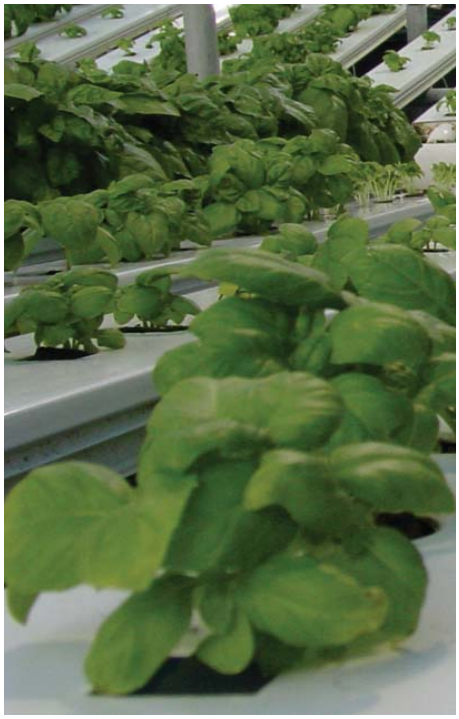
Nutrition & Health

Diet-related disease is one of the top causes of preventable deaths among people in the U.S.[1] Poor nutrition has been known to cause or contribute to: obesity, hypertension, high cholesterol, diabetes, heart disease, stroke, some cancers, and other health problems. Research has found diet and nutrition to be especially important for children because of the link between hunger, malnutrition and delayed brain development.[2]

Food Access and Health

Evidence of the impact of these challenges has been documented by many researchers. A few examples of research in this area are listed below:

- *Vehicle access is a major issue when living in a neighborhood with less healthy food options, as residents in low-income communities are less likely to own a car and less likely to have a grocery store within their neighborhood.*[3]



- *Lack of access to supermarkets is correlated with the prevalence of diet related diseases like diabetes and obesity.*[4]

- *The longer the distance necessary to travel to a full service grocery store, the higher the body mass index (BMI). For a 5'5" person, traveling 1.75 miles or more to get to a grocery store equaled a weight difference of about 5 pounds compared to someone who did not have to travel that far.*[5]

- *Better access to a supermarket or large grocery store is associated with healthier food intakes.*[6]

- *Limited knowledge about nutrition among many individuals living in low-income neighborhoods, combined with a retail food environment that offers few choices for nutritious food and/or too many options for less nutritious alternatives, place these individuals at greater risk for poor health outcomes.*[7]

Food Deserts

The lack of grocery access has caused many low-income, inner city neighborhoods to be labeled as Food Deserts. Food Deserts are "large and isolated geographic areas with no, few, or distant mainstream grocers offering a variety of fresh foods and nutritious foods that support a balanced and healthy diet".[8] Research has demonstrated that residents of food deserts are more likely to suffer from diet related diseases after controlling for race, income, and education, and to die prematurely. Local researchers have concluded that Louisville would show similar results given a more complete analysis.[9]

WEST LOUISVILLE FOOD ASSESSMENT

Research conducted by the West Louisville Food Assessment Research Advisory Team found that cost and quality of food available to Louisville residents depends on where they live within the city. The problem was particularly acute for residents of the low-income West Louisville and East Downtown areas who were likely to have to spend more for healthy foods and to have the least access to high-quality foods.[10]

The analysis found that West Louisville had only 1 full-service grocer per 25,000 residents, compared to a Jefferson County ratio of 1 grocery for every 12,500 residents.[11]

The same report found that East Downtown was also underserved by supermarkets and grocery stores.[12]

Convenience Stores and Corner Stores

The trend toward fewer and larger grocery stores, often locating in the suburbs, caused more urban neighborhoods to meet their grocery needs through convenience and corner stores.[14] These stores are easy to access for residents without transportation, they have convenient hours, and some provide culturally appropriate foods and products for immigrant communities.[15] However, they typically carry no or limited fresh produce, they sell a greater proportion of processed foods, and they sometimes incorporate a fast-food carry-out.[16]

In one regional study, the USDA found that the average full-service supermarket offered three times as many kinds of fruit, six times as many kinds of vegetables, and nine times as many kinds of meat as the average small store.[17] In low-income neighborhoods, access to healthy foods is further limited by price, as the cost of food items in small food stores can be significantly higher than the cost in larger groceries and supermarkets.

Concentration of Fast Food Retailers

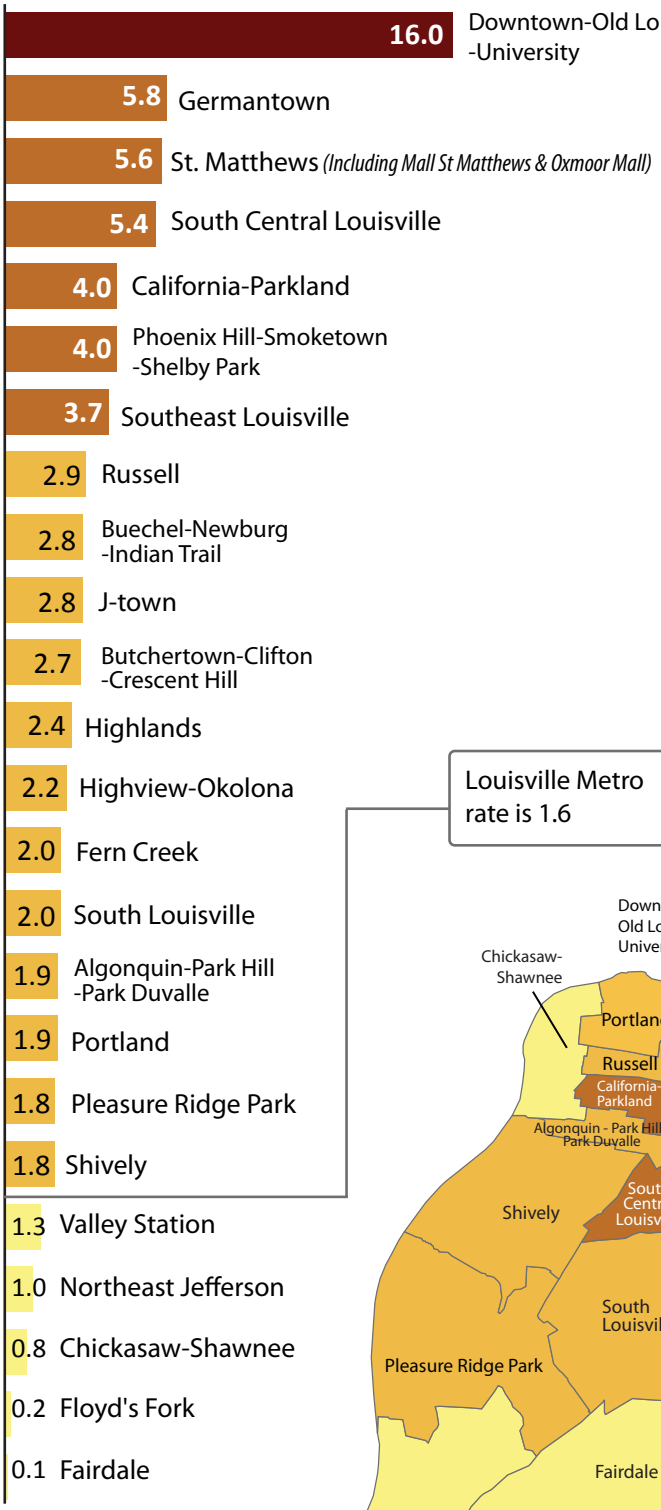
Large concentrations of fast food restaurants are related to higher diet-related disease rates.[18] People on limited incomes, such as young families, the elderly and the unemployed, are least able to eat well, and often substitute inexpensive, processed foods for fresh food.[19] While high-fat, high sodium fast food options are pervasive throughout many communities in the United States; their impact can be particularly harmful in neighborhoods where there are few other options.

A study conducted in New Orleans found that predominantly black neighborhoods had 2.4 fast food restaurants per square mile compared to 1.5 restaurants in predominantly white neighborhoods with the conclusion that, "the link between fast food restaurants and black and low income neighborhoods may contribute to an understanding of the environmental causes of the obesity epidemic in these populations".[20]

The health implications of living in a food desert were documented in a 2006 survey of residents in West Louisville, where 37% of respondents reported having high blood pressure, 74% reported being overweight or obese and 12% reported having diabetes.[13]

FAST FOOD OUTLET DENSITY
(Number of Fast Food Outlets per Square Mile)

2010 Food Inspection Data

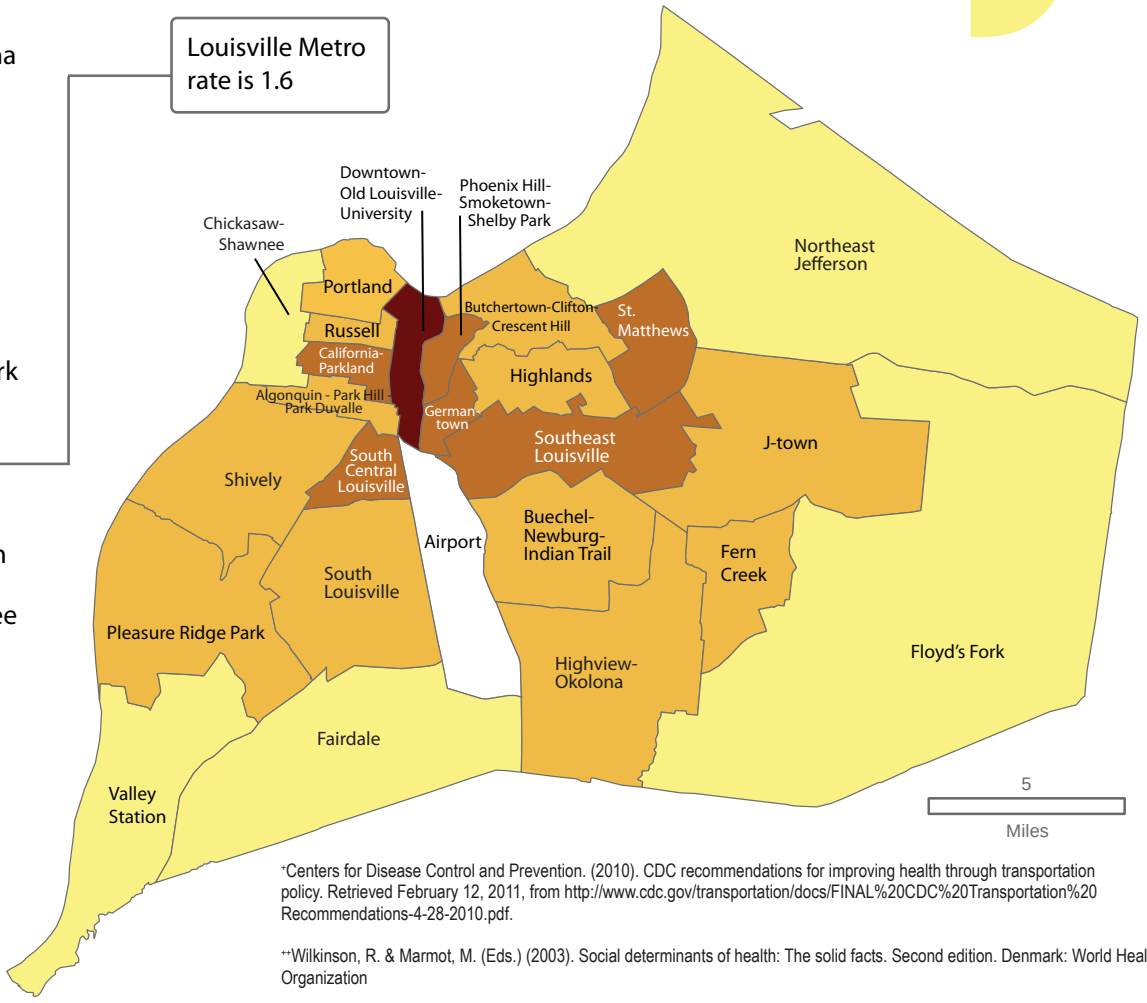


Large concentrations of fast food restaurants are related to higher diet-related disease rates .[+]

People on limited incomes, such as young families, elderly people and the unemployed, are least able to eat well, and often substitute inexpensive, processed foods for fresh food.[++]

Many poorer communities have more than their share of fast food restaurants that provide unhealthy, high-fat foods, and pose risks for community nutrition.[+++]

Louisville Metro rate is 1.6



[+]Centers for Disease Control and Prevention. (2010). CDC recommendations for improving health through transportation policy. Retrieved February 12, 2011, from http://www.cdc.gov/transportation/docs/FINAL%20CDC%20Transportation%20Recommendations-4-28-2010.pdf.

[++]Wilkinson, R. & Marmot, M. (Eds.) (2003). Social determinants of health: The solid facts. Second edition. Denmark: World Health Organization

[+++]Community Farm Alliance/ West Louisville Food Working Group. (2007). Bridging the divide: Growing self-sufficiency in our food supply. Louisville, KY: Community Farm Alliance/West Louisville Food Working Group.

HEALTH CARE ACCESS

Access to quality, affordable health care influences how a person uses health care and ultimately impacts the person's health. People with good access to a trusted provider or primary care clinic are more likely to use preventative services and have lower hospitalization rates.[1] Conversely, people who experience barriers to health care, including the poor and the uninsured, suffer higher rates of disease and premature death.[2]

While there are many factors that affect a person's access to health care, primary among them are:

- Insurance coverage
- Location and operating hours of physician practices and available capacity among primary care providers
- Transportation
- Language and cultural barriers

The Role of Insurance

A person's health insurance status may be the single most important determinant in whether or not an individual has access to primary care services. In the United States, there has been a long history of health insurance being part of the benefit package associated with full time employment. This arrangement has worked fairly well for those who are in salaried positions and employed full time, or who are the spouse or child of someone who is in one of these positions.

The employer-linked health care system is becoming increasingly expensive, to the employer and the employee; and, it leaves out those who are employed part-time, those who work as contractors, and those who are unemployed.

- *A 2010 report by the Robert Wood Johnson Foundation (RWJF) found that more middle-class Americans are uninsured. The total number of uninsured, middle-class Americans increased by more than 2 million between 2000 and 2008, to 12.9 million people.[3] The primary driver of this increase is the loss of employer-sponsored coverage.*

- *The average employee's costs for health insurance rose, while income fell. Nationwide, the average cost an employee paid for a family insurance policy rose 81% from 2000 to 2008. During the same period, median household income fell 2.5 percent (adjusted for inflation). Those with low incomes, including the working poor, make up a disproportionately large share of the uninsured.[4]*

- *In a 2010 analysis conducted by the Kaiser Foundation, they found that 40% of the uninsured have family incomes below the federal poverty level ($22,050 a year for a family of four); and nine in ten of the uninsured have family incomes below 400% of poverty.[5]*

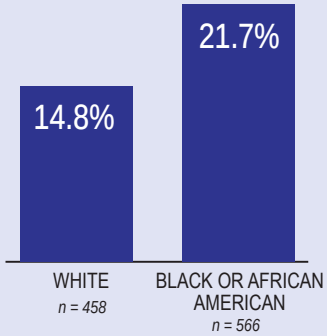
When employer-based insurance is not available, some people are able to pay for their own private insurance. However, this is often very expensive, and is beyond the reach of many individuals who have limited financial resources.

More than one in five adults under age 65 (22%) was uninsured in 2009, a condition that puts both their health and their financial security at risk.[6] African Americans, rural residents, and people with incomes between $10,000 and $20,000 were most likely to have inadequate coverage.[7]

When the private sector does not address the need, many people turn to the public sector for coverage, through Medicaid or Medicare. However, these programs do not cover everyone; and typically leave out non-disabled adults between the ages of 22 and 65 who are not responsible for a dependent child.

Medicaid is a state run program that requires both income eligibility and categorical eligibility. While the eligibility rules are numerous and complex, and vary by state, a person typically has to be poor, disabled or a member of a family with a dependent child or a pregnant woman.

PERCENT WITHOUT ANY TYPE OF HEALTH COVERAGE, *AGES 25-65*
Louisville Metro BRFSS 2009

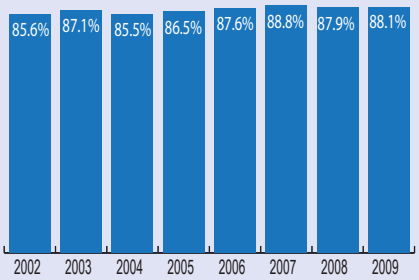


***Blacks are more likely to be without any type of health coverage than whites*
$x^2 = 7.9$, p-value = 0.002

Medicare is a resource for individuals over the age of 65 and for people with disabilities, who have contributed to Medicare or are eligible through the Medicare contributions of a family member. Because Medicare does not adequately cover many outpatient services, most recipients purchase supplemental insurance to cover the gaps.

Because health care costs have been rising faster than beneficiaries' income, the purchase of supplemental Medicare packages has become increasingly difficult for many people. In an analysis conducted by the Kaiser Family Foundation, ten percent (10%) of Medicare recipients had no supplemental coverage in 2008. Among those who were lacking supplemental coverage, there was an over-representation of individuals within the following groups: people under-65 years of age, the disabled, the near poor (incomes between $10,000 and $20,000), rural residents, and African Americans.[8]

PERCENT WITH ANY TYPE OF HEALTH COVERAGE,
Louisville Metro BRFSS 2002-2009



In 2009, 88% percent of Louisville Metro residents reported some type of health care coverage. This is slightly higher than the nation (86%) and higher than the state (84%).[9]

However, according to an analysis by the Louisville Metro Department of Public and Health and Wellness (LMPHW), the percent of Louisville Metro African Americans who report having health care coverage has decreased since 2004, with 75% reporting some type of health coverage in 2008, compared to 79% in 2004.[10]

In reviewing 2009 data from the Behavioral Risk Factor Surveillance System (BRFSS), it can be seen that while the proportion of white respondents ages 25-65 with some sort of insurance is comparable to the state and national average rates, the percentage for African American respondents ages 25-65 is much lower that the state and national average rates.

Neighborhoods and Access to Health Care

The location of physician practices and primary care providers also affect health care access. Even in an urban area with large numbers of practitioners, access to care can be compromised by the geographic distribution of the primary care providers. While there are significant variations between different neighborhoods and an individual's ability to access primary care, a neighborhood's social capital and health care resources can significantly predict an individual's access to primary care.[11] Living in neighborhoods with low levels of investment has been found to reduce the likelihood that families and individuals will have a usual source of care and a means of obtaining recommended preventive services.[12] Living in a poor neighborhood also reduces the likelihood that a person will have access to products and services, such as pharmacies or places to exercise, that are a part of recommended treatment or preventive care.[13] These conditions increase the likelihood of having unmet medical needs.[14]

In an effort to mitigate the disparities associated with the distribution of private sector practitioners, publicly funded clinics have been established in underserved areas. For example, Louisville Metro has a network of public health clinics and family health care centers. Some of these clinics operate under the direction of the Louisville Metro Department of Public Health and Wellness, while others are privately operated Federally Qualified Healthcare Centers.

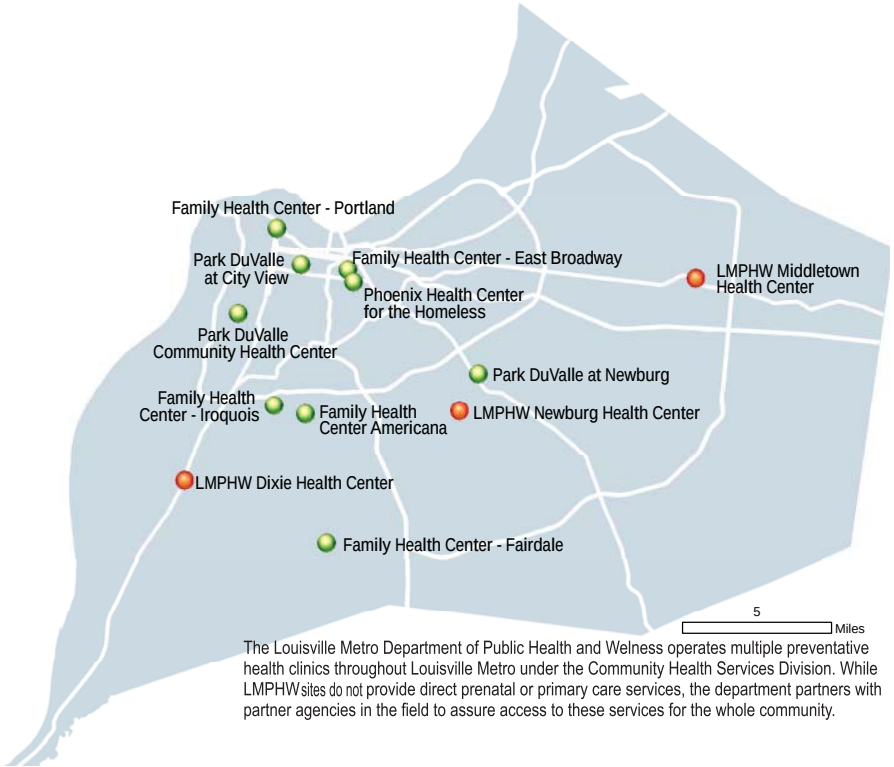
Transportation & Health Care Access

Not having a working vehicle or the lack of access to public transportation can be a significant barrier to care. Even in an urban area with public transportation, getting to medical appointments can be a problem. The challenges include long travel times determined by the route map and the need for transfers; the difficulties associated with walking to the bus stop and boarding the bus while traveling with one or more young children.

A paper on the barriers to care presented a number of studies demonstrating how transportation can be a barrier to health care.[15] A few findings from these studies are listed below:

- *A analysis of data from the 2002 Behavioral Risk Factor Surveillance System yielded the finding that 9% of people ages 65 and older did not get needed medical care because of transportation problems, suggesting that they might be people living in rural areas, no longer drive, or depend on others or public transportation.*[16]

- *A door-to-door survey of the non-elderly urban poor found that 30% of respondents had a transportation barrier to health care.*[17]



The Louisville Metro Department of Public Health and Welness operates multiple preventative health clinics throughout Louisville Metro under the Community Health Services Division. While LMPHW sites do not provide direct prenatal or primary care services, the department partners with partner agencies in the field to assure access to these services for the whole community.

- *Research finds that public transportation barriers have adverse effects on the populations that depend most on them for health services access, namely the poor and older persons.*[18]

- *One study described bus service to clinics as inconsistent, leading to missed appointments.*[19] *This same study found some bus stops to be poorly maintained and perceived to be unsafe by people trying to get to health care.*[20]

Louisville Metro has an extensive system of bus routes and a system for providing medical transportation through the public transit system. Depending upon where a person lives and where the person needs to go, their route can be complex and time consuming. For example, the major routes outside the Watterson Expressway tend to follow a spoke-like design toward the city-center. If a person who lives beyond the expressway and wants to travel a short distance to the west or east, it is likely that he/she will have to travel one route into the city's center, transfer buses, and ride the second bus out beyond the expressway to the desired location.

Language and cultural barriers to Health Care Access

Two additional barriers relate to the growth and diversity of the immigrant population. While not only immigrant and refugee populations face cultural barriers to health care access, these communities face barriers associated with language and culture in addition to those mentioned previously. The ability to communicate symptoms and medical history is severely compromised when the patient and provider do not speak the same language or when a trained interpreter is not available. The number and increasing diversity of immigrants and refugees coming into the U.S., particularly into the urban centers, have made these barriers even more formidable. For example, in 2010, the two resettlement agencies within Louisville Metro resettled people from the following countries: Cuba, Haiti, Columbia, Bhutan, Iraq, Iran, Afghanistan, Burma, Nepal, Somalia, Ethiopia, Congo, Sudan, and Rwanda. Recent arrivals and their languages are added to the already diverse population of immigrants, including Vietnamese, Cambodian, and Bosnians. While Catholic Charities, one of Louisville Metro's two resettlement agencies, has interpreters for 40 different languages, these individuals are not always available in the health care setting. Without an effective means of communication, it is difficult for health care professionals to diagnose and prescribe the most effective forms of treatment.

A recent survey of nearly 200 area Hispanics conducted by Norton Cancer Institute and members of St. Rita Catholic Church found that many — largely because of linguistic, cultural, and other barriers — simply don't know where to go for certain services.

Courier Journal - Jan. 21, 2011
www.courier-journal.com/article/20110121/NEWS01/301210083/New-survey-shows-Louisville-s-growing-Hispanic-population-lacks-access-health-care

A person's culture and traditions can also create barriers to accessing health care and to complying with the regimen of treatment. Much has been written on the role of culture in health and health care and the myriad of barriers that stem from different belief systems and values. However, the discussion is limited to a few examples that relate to the cultures of recent refugees into the Louisville Metro area:

- *Haitians tend to believe that pain affects the whole body system; therefore the origin of the pain source is less important. Because they often use terms that are more general or vague, a Western trained physician may have difficulty in understanding the reason for the visit.*[21]

- *Immigrants from Asia may believe that Western medications are too strong and may not take them in the prescribed doses. They also may be at risk for drug interactions due to the concurrent use of herbs and other traditional medicines.*[22]

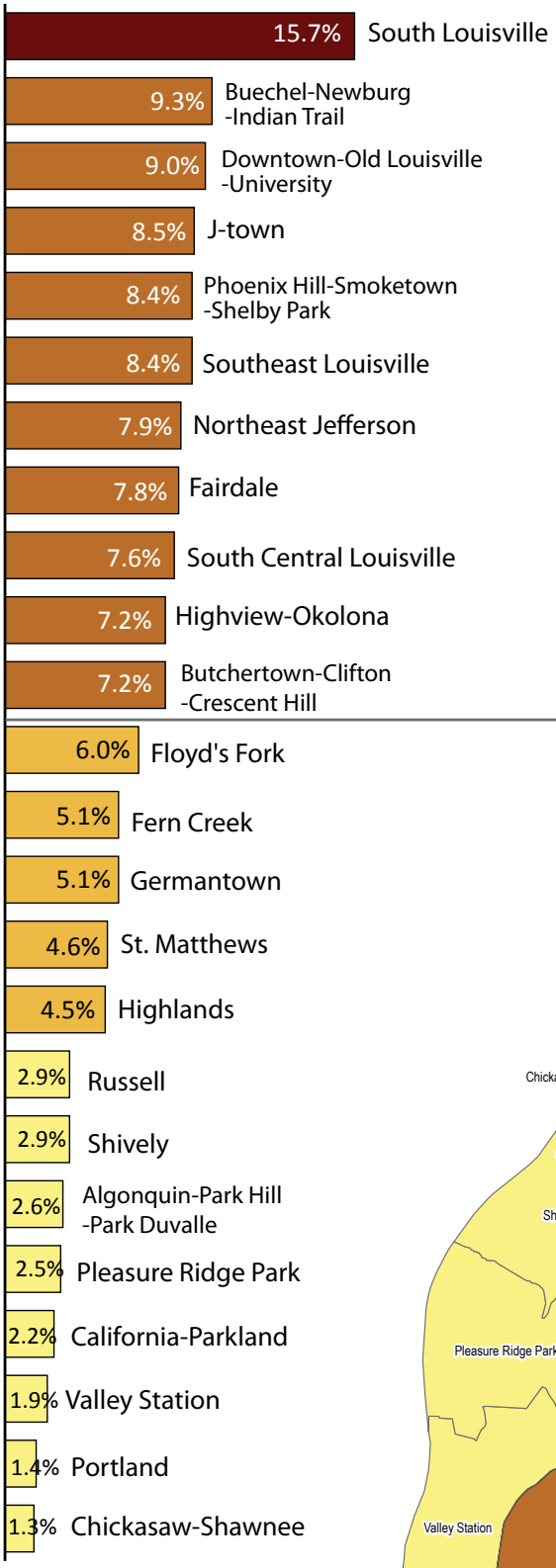
- *Conservative values related to sexuality may contribute to female immigrants from conservative cultures being less willing to obtain mammograms or gynecological exams.*

- *Health prevention among Somalis is practiced primarily through prayer and living a life according to Islam. Many Somalis "believe that illness may be caused by a communicable disease, by God, by spirit possession, or by the "evil eye".*[23]

- *Health literacy includes the ability to negotiate complex health care systems, understand doctor's directions and consent forms and the instructions on prescription drug bottles.*[24] *Gaining effective access to health care often assumes high levels of health literacy, regardless of education level and insurance status. Ensuring health equity means going beyond saddling health consumers with full responsibility for health literacy.*

In summary, immigrants and refugees often face formidable challenges in their efforts to maintain health and receive care. Not only are they dealing with the shock and stress of acculturating to a new country, but they also are subjected to new environmental risk factors. When these stressors are combined with the difficulty in obtaining health care coverage and the language barriers they encounter in seeking care, it is not surprising that they are at risk for diminished health outcomes. Health care providers and institutions need to proactively respond to a broader range of cultural, language and health literacy capabilities.

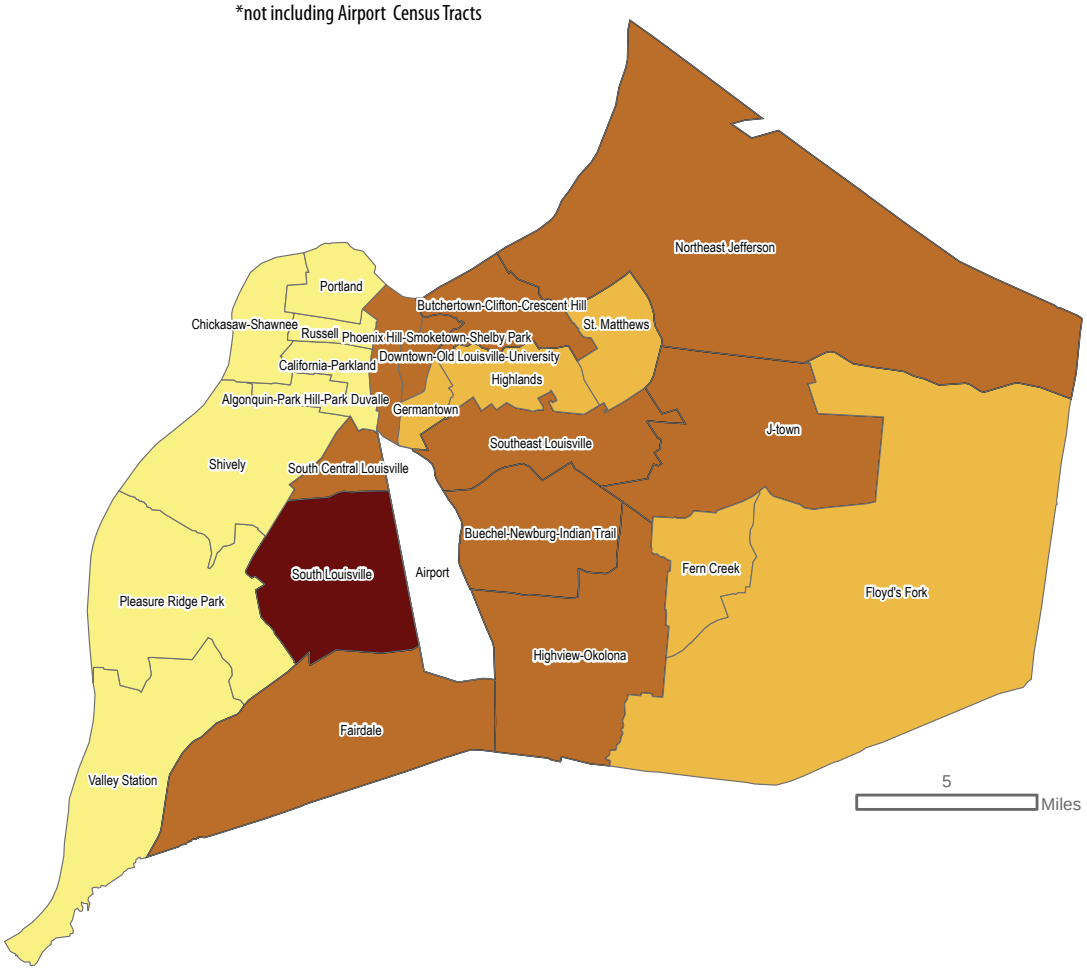
LANGUAGE OTHER THAN ENGLISH SPOKEN AT HOME
Population 5 years and over
2005-2009 ACS ESTIMATE



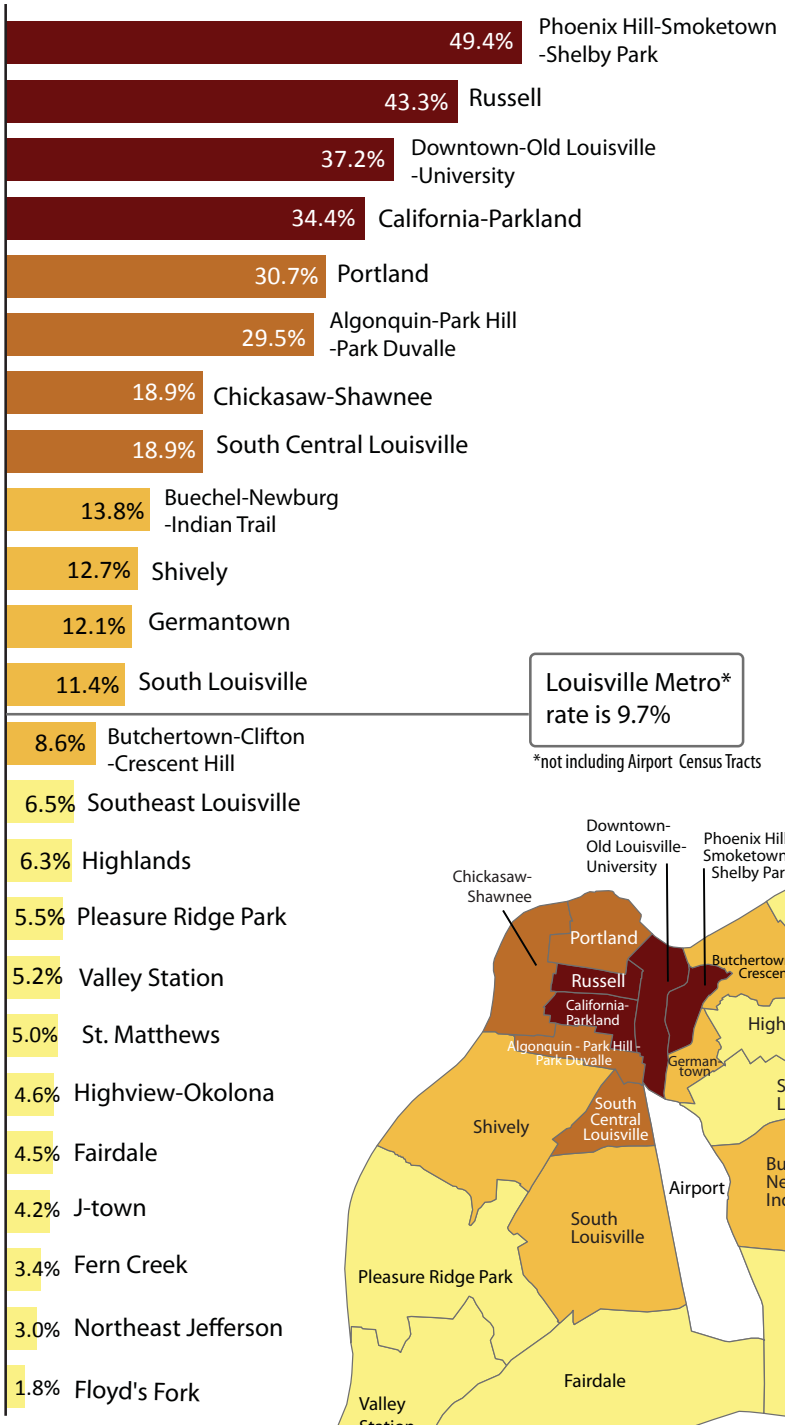
Louisville Metro* rate is 6.8%

*not including Airport Census Tracts

- The ability to communicate symptoms and medical history is severely compromised when the patient and provider do not speak the same language or when a trained interpreter is not available.
- The number and increasing diversity of immigrants and refugees coming into the U.S., particularly into the urban centers, have made these barriers even more formidable.

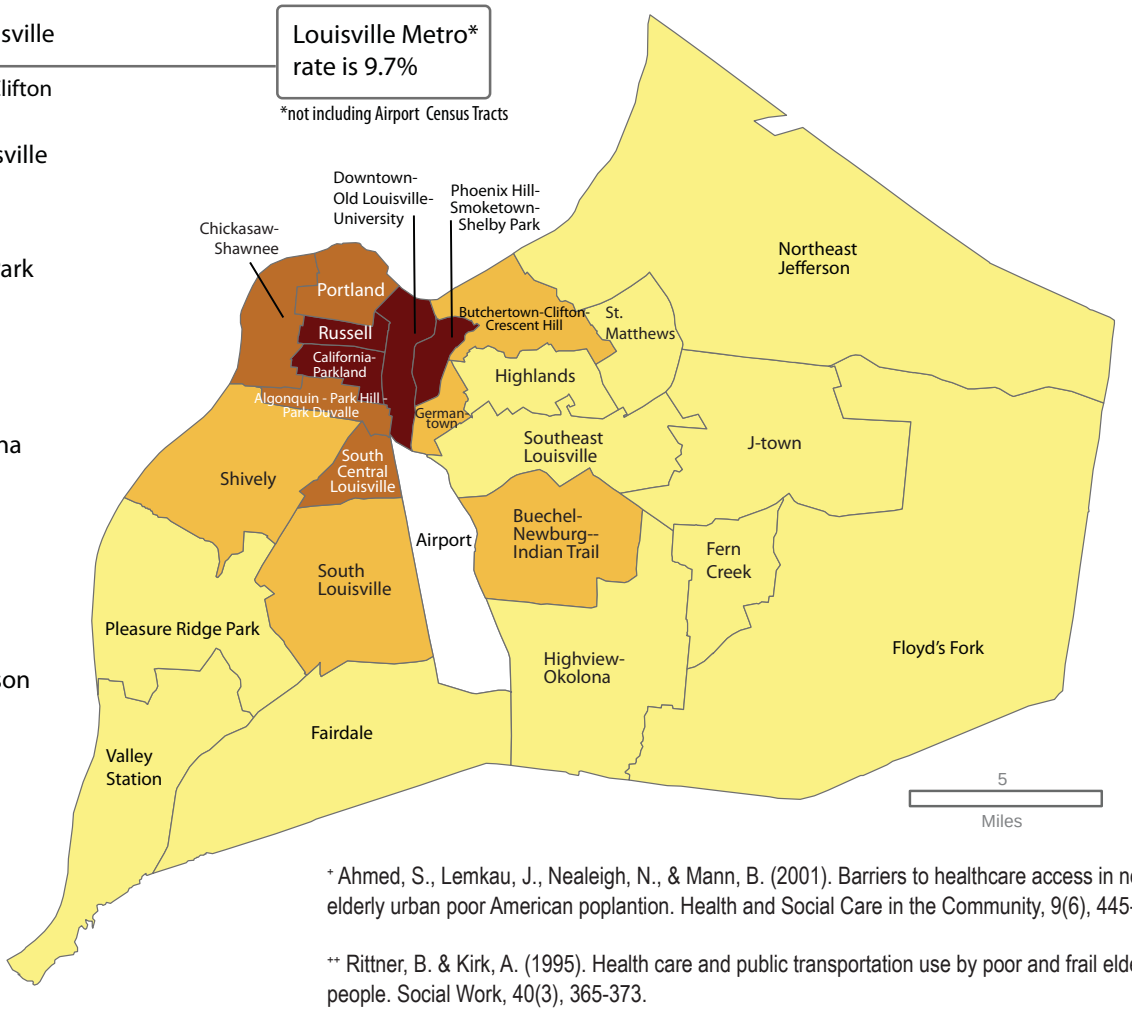


NO VEHICLES AVAILABLE (as a Determinant of Health Care Access)
Occupied Housing Units with No Vehicles
2005-2009 ACS ESTIMATE



• A door-to-door survey of the non-elderly urban poor showed that 30% of respondents had a transportation barrier to health care.[+]

• Research finds that public transportation barriers have adverse effects on the populations that depend most on them for health services access, namely the poor and older persons.[++]



[+] Ahmed, S., Lemkau, J., Nealeigh, N., & Mann, B. (2001). Barriers to healthcare access in non-elderly urban poor American poplantion. Health and Social Care in the Community, 9(6), 445-453.

[++] Rittner, B. & Kirk, A. (1995). Health care and public transportation use by poor and frail elderly people. Social Work, 40(3), 365-373.

COMMUNITY SAFETY

Crime, Insecurity, and Health

Crime is a public health issue, and has implications for the victims and their social networks, as well as the perpetrators and their families. Crime can directly affect health, through physical harm and emotional trauma; and the fear of violent crime can indirectly affect health, through increased rates of anxiety and stress.[1] Threatened by crime or other forms of insecurity, our bodies react in the form of fear, anxiety, depression, dizziness, chest pains, trouble breathing, nausea, upset stomach, and weakness, which all come together to contribute to poor health.[2] The fear of crime can also lead to social isolation, and loss of opportunities for exercise within a crime threatened environment.

Research also has documented that criminal victimization can affect the victim's self perception of their own health.[3] Even after the physical wounds have healed, and even when there is no physical evidence of injury remaining, victims can believe themselves to be "damaged goods". This perception can affect self esteem and be a trigger for depression.

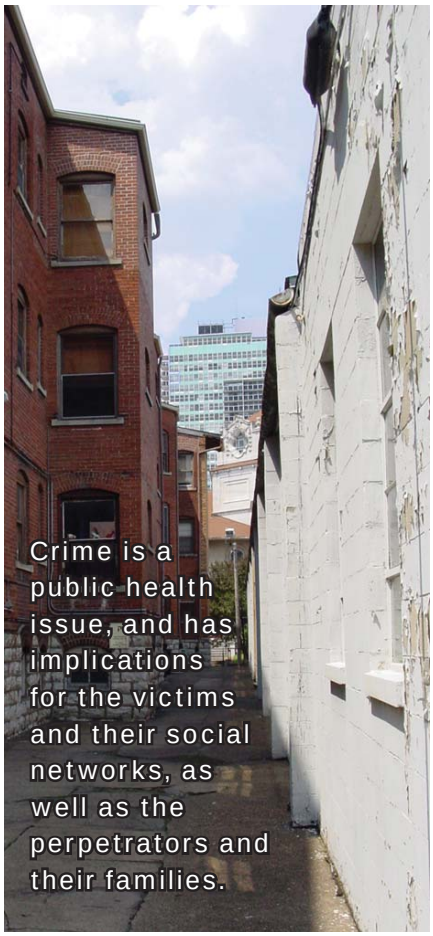
The impact of crime and the criminal justice system can also have health implications for the perpetrator and for the neighborhoods into which they return. Individuals involved in the criminal justice system often have poor health and numerous health risks before the commission of the crime. These risks can include poverty, lower levels of education, limited job prospects, inadequate housing, and higher incidences of substance abuse. Once incarcerated, they are exposed to a population with significantly higher rates of HIV, tuberculosis, and other infectious diseases.[4] And, once released, they may bring these conditions back to their families and their neighborhoods.

The Role of the Built Environment

The physical condition of the properties in a neighborhood along with the types of businesses within a neighborhood can play a role in community safety. A study conducted by the Baltimore City Health Department (2010) found that negative health and safety outcomes are associated with pockets of vacant properties, including assault-related injuries, homicide, and fire-related injuries.[5] In a study on the impact of home foreclosures on public health (Alameda County, California), researchers summarized the problem with the following statement: "In addition to being an eyesore and visual reminder of neighborhood instability, vacant properties can attract rodents and mosquitos, vandalism, trespassing, drug dealing, and other illegal activities."[6] Researchers also have found that the presence of abandoned buildings, overgrown lots, and graffiti, often associated with vacant properties, can lead to an increase in perceived crime, and the fears associated with that perception.[7] Ultimately, the presence of vacant homes can contribute to a loss of neighborhood cohesion and a decrease in property values, particularly in neighborhoods that may already have low levels of investment.[8] This loss in home values diminishes wealth and contributes to the poverty that is associated with poor health and poor access to health care.

A high density of liquor outlets in a neighborhood presents particular risks. Research in this area has found:

• *The higher density of liquor outlets found in low-income communities has implications for health and quality of life in these neighborhoods.*[9]

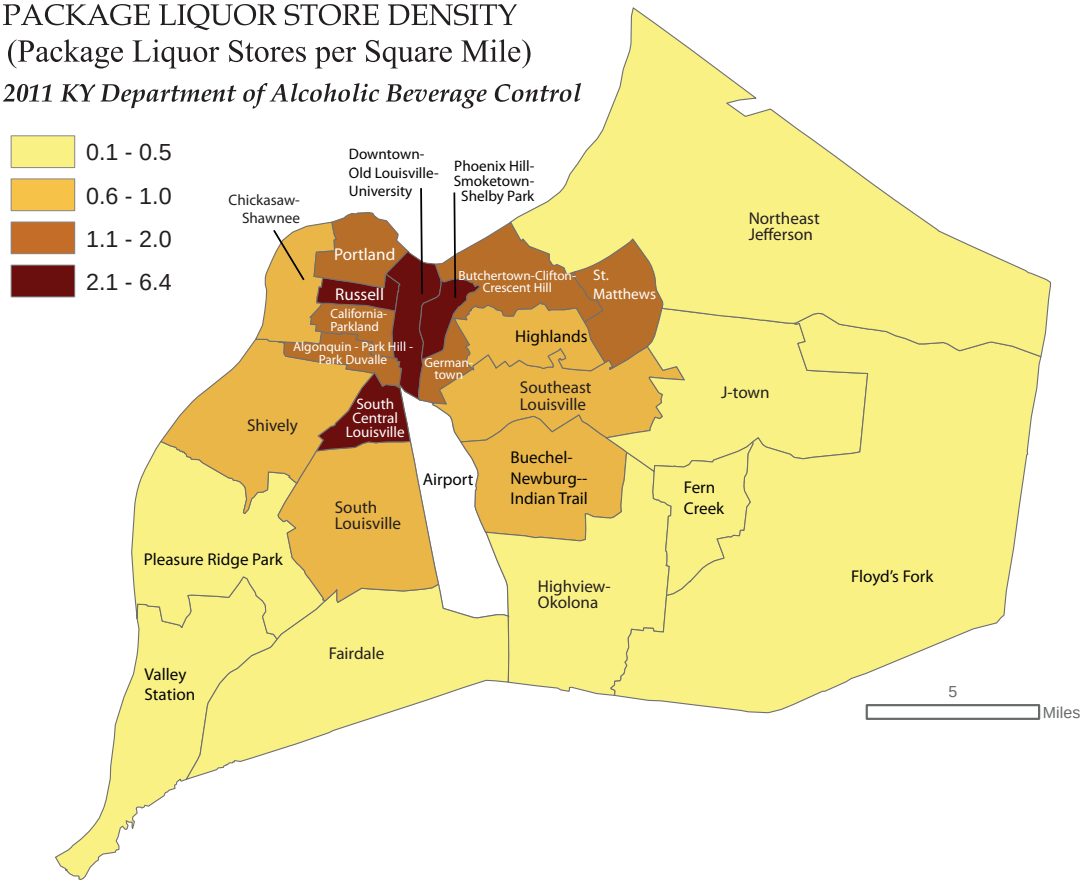


•*Higher concentrations of liquor stores are associated with higher levels of crime.*[10] *A study by Gruenewald and Remer (2006) found that "each six (6) additional liquor outlets accounted for one additional violent assault that resulted in at least one overnight stay at a hospital".*[11]

•*Higher rates of liquor outlets in a neighborhood are associated with higher rates of motor vehicle accidents.*[12]

•*Higher concentrations of liquor outlets are associated with increased perceptions of insecurity and limited walkability, contributing to lower levels of physical activity.*[13]

PACKAGE LIQUOR STORE DENSITY
(Package Liquor Stores per Square Mile)
2011 KY Department of Alcoholic Beverage Control



Safety of Young People

Safety concerns for children and youth can cover a wide range of threats, and include child abuse, dating violence, youth-on-youth violence, and other forms of harm by adults. According to the Centers for Disease Control and Prevention (CDC), one in every four teens self-report physical, verbal, emotional or sexual abuse every year.[14] A second report from research conducted under the auspices of the CDC found that one in eleven (1 in 11) adolescents reported having been the victim of physical dating violence.[15] The effects on victims are serious, not only including the immediate physical injuries, but the longer term health problems like post traumatic stress disorder (PTSD), depression, anxiety, and substance abuse.[16]

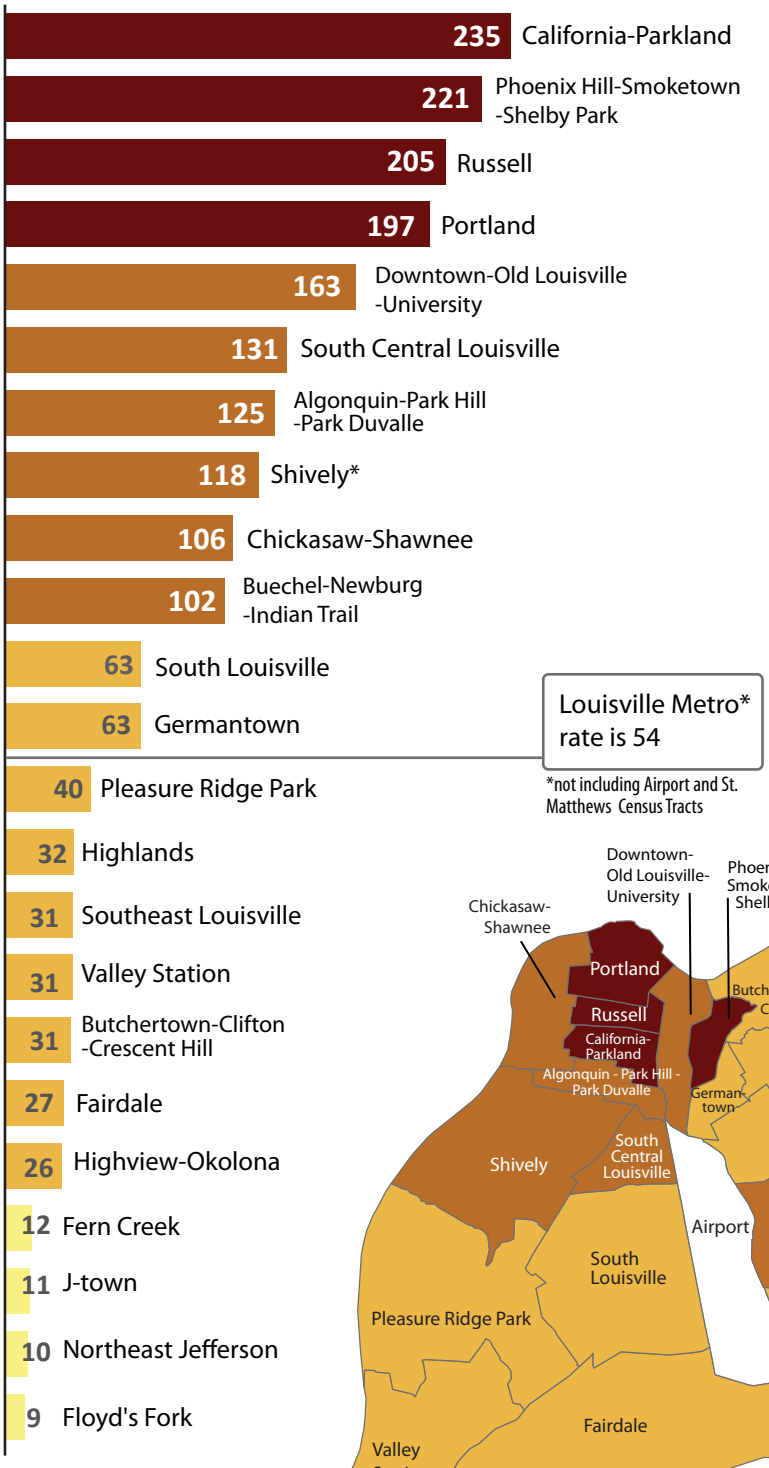
As with most other social determinants of health, the impact of crime and insecurity can have a devastating effect on the biological, psychological and social development of children and adolescents.

Even when researchers control for socioeconomic status, children living in urban communities who are exposed to violence are more likely than other children to become victims or perpetrators of the same kind of violence later in life.[17] One study found that being a victim of violence during adolescence carried a 38% higher likelihood that the young person affected would have worse employment experiences, be more likely to commit a crime, and be less likely to have a positive support network.[18]

This exposure to violence and the concern about safety also impact a child's ability to engage in outdoor, physical activities in their neighborhood.[19] Unless exercise and the Vitamin D that comes through sunshine is obtained in other ways, restricted outdoor play time can contribute to obesity and to the problems associated with vitamin D deficiencies, including loss of bone strength and diminished immunity to a host of chronic diseases.

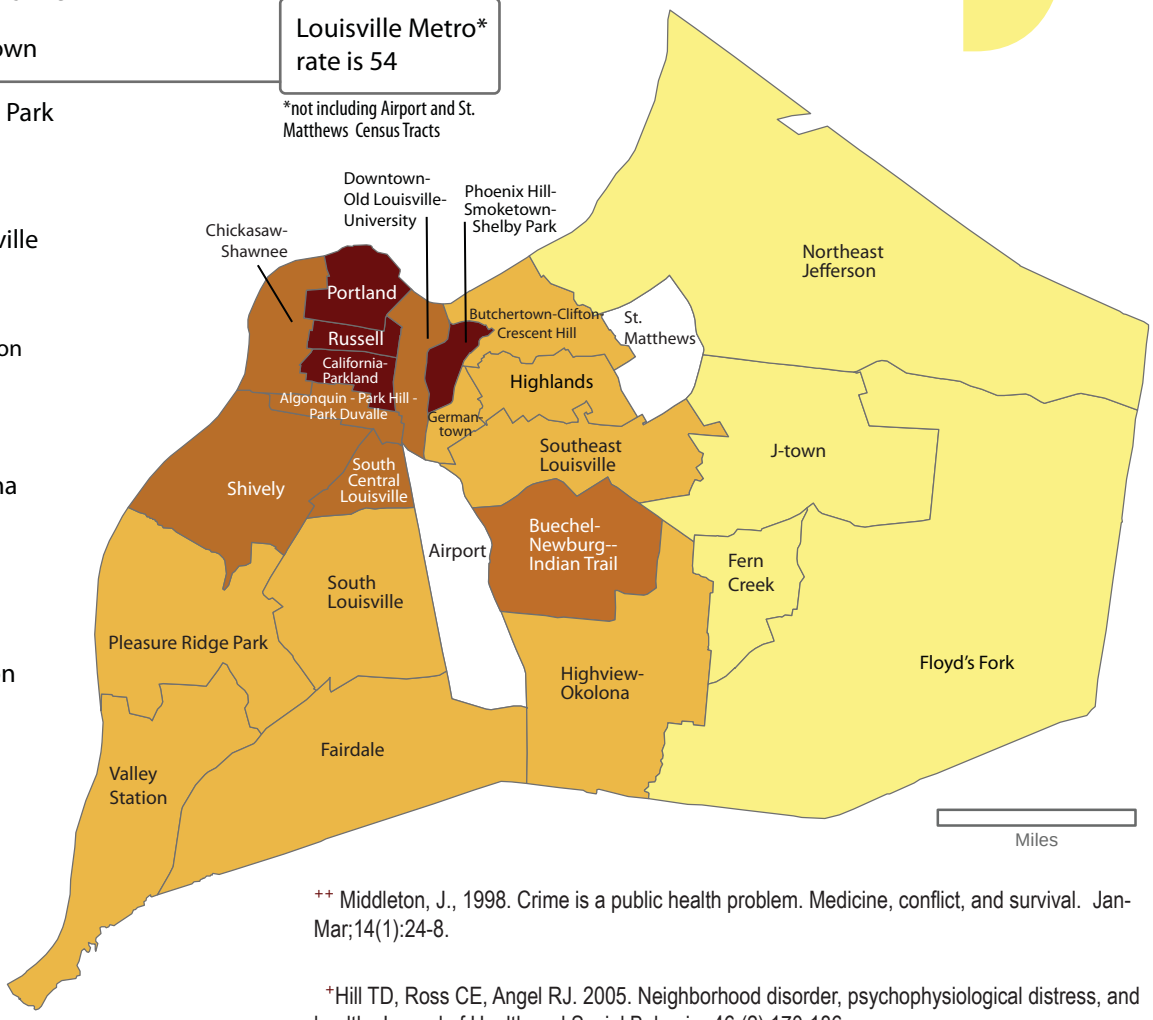
While children may suffer from child abuse and are the indirect victims of other crimes, the concern about youth-on-youth violence extends to both perpetrators and victims. In 2008, the national Conference of Mayors and the Prevention Institute called for youth violence to be treated as a public health crisis. The reasons for their concern were present in data on emergency room utilization and criminal justice involvement. In 2007, over 696,000 young people in the U.S. ages 10 to 24 years were treated in emergency rooms for injuries sustained as a result of violence.[20] In some cases, these injuries lead to death. The U. S. Bureau of Justice Statistics cites that homicide is among the leading causes of death among youth between the ages of 10 and 24; and, for every homicide, there are close to 1,000 nonfatal violent assaults involving young people.[21]

SERIOUS CRIMES, RATE PER 10,000*
Number of Assaults, Burglaries, and Homicides/ ACS 2005-2009 Population
2010 Louisville Metro Police Data



Crime can directly affect health, through physical harm and emotional trauma; and the fear of violent crime can indirectly affect health, through increased rates of anxiety and stress.[+]

Threatened by crime or other forms of insecurity, our bodies react in the form of fear, anxiety, depression, dizziness, chest pains, trouble breathing, nausea, upset stomach, and weakness, which all come together to contribute to poor health.[++]

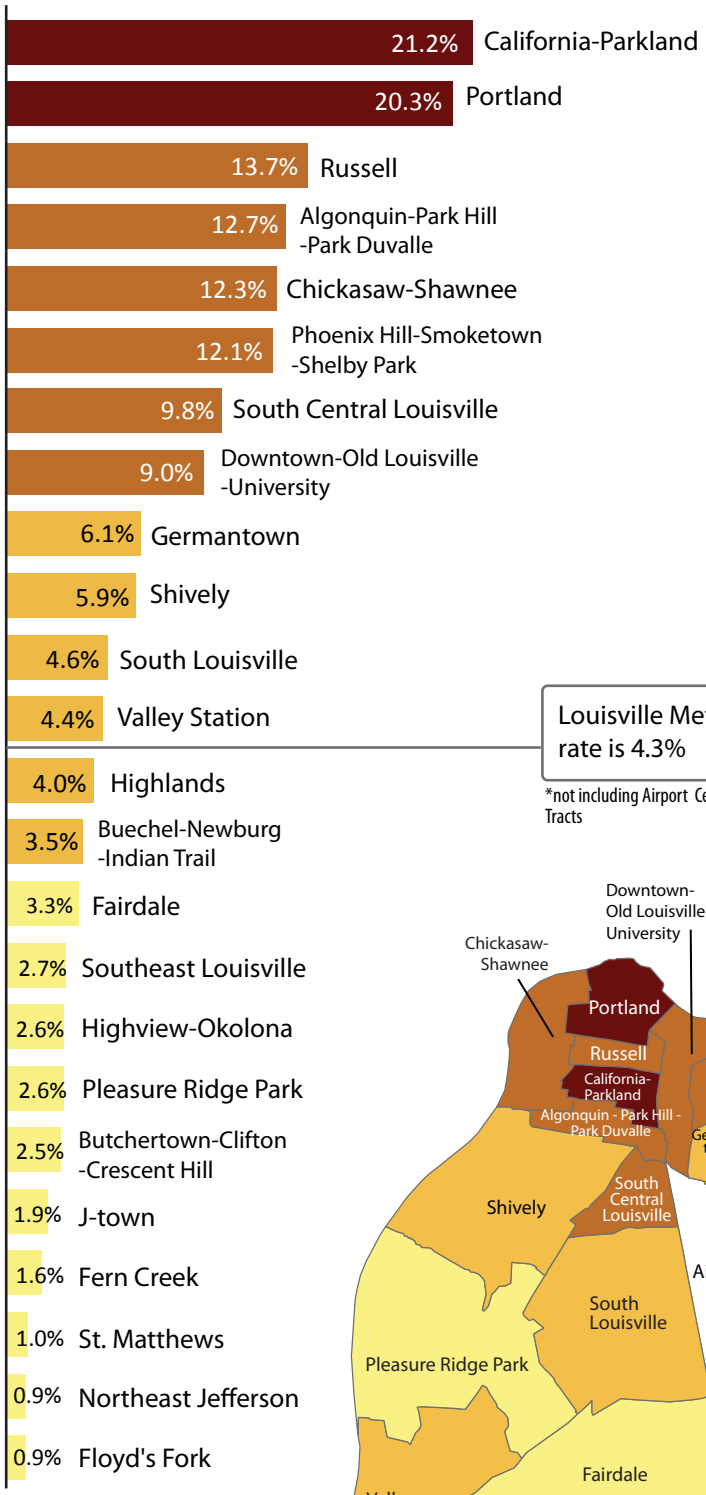


[++] Middleton, J., 1998. Crime is a public health problem. Medicine, conflict, and survival. Jan-Mar;14(1):24-8.

[+]Hill TD, Ross CE, Angel RJ. 2005. Neighborhood disorder, psychophysiological distress, and health. Journal of Health and Social Behavior 46 (2):170-186.

VACANCY RATES (as a Determinant of Neighborhood Safety)
Residential Vacancies/Total Residences

2010 USPS ESTIMATES

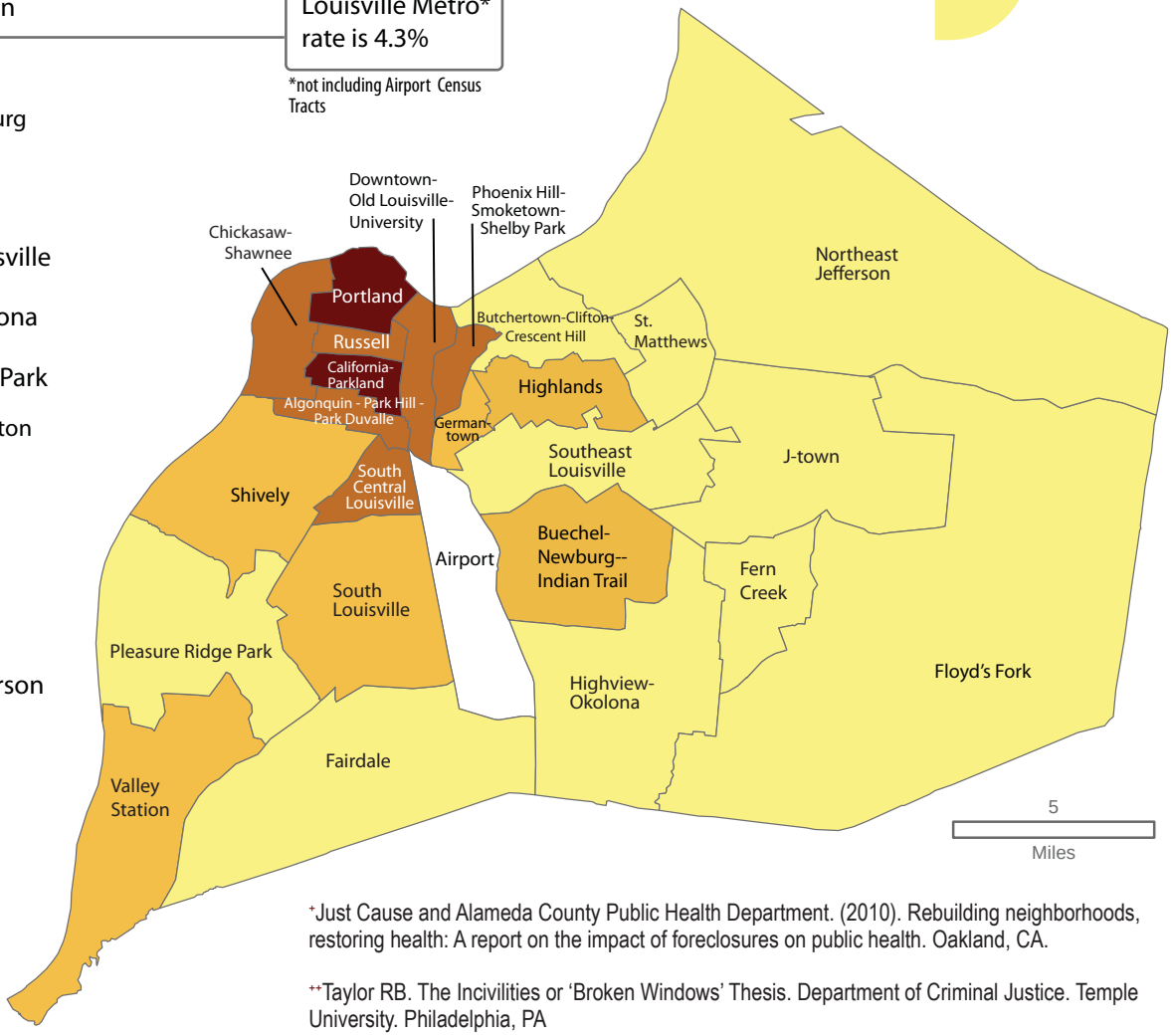


Louisville Metro* rate is 4.3%

*not including Airport Census Tracts

In addition to being an eyesore and visual reminder of neighborhood instability, vacant properties can attract rodents and mosquitos, vandalism, trespassing, drug dealing, and other illegal activities.[+]

Researchers also have found that the presence of abandoned buildings, overgrown lots, and graffiti, often associated with vacant properties, can lead to an increase in perceived crime, and the fears associated with that perception.[++]



[+]Just Cause and Alameda County Public Health Department. (2010). Rebuilding neighborhoods, restoring health: A report on the impact of foreclosures on public health. Oakland, CA.

[++]Taylor RB. The Incivilities or 'Broken Windows' Thesis. Department of Criminal Justice. Temple University. Philadelphia, PA

PARKS & PHYSICAL ACTIVITY

Physical Activity and Health

The physical characteristics of a neighborhood, the presence of sidewalks, parks, and houses with front porches, can encourage physical activity and neighbor to neighbor relationships. Parks and public spaces provide affordable opportunities for physical activity and they function as places to socialize and build community. They are places for scheduled and supervised activities for youth, and they can be places of refuge to enjoy nature.[1]

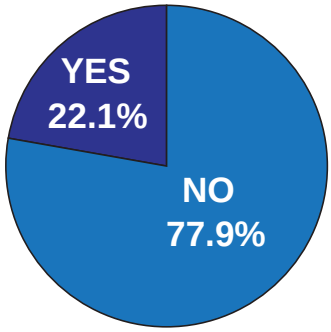
Historically, physical activity was a greater part of the day-to-day routine. People worked in jobs that demanded physical exertion, they often lived near their workplace and could walk to work, and they had less access to private transportation. Today, people have to be more intentional about exercise; and for those who cannot afford gym memberships or team registration fees; public parks can be an excellent option. For these venues to be used, they must be perceived as attractive, clean, and safe.[2] When park space becomes neglected, and is either overgrown or strewn with trash and broken glass, and when it becomes a haven for crime or for people perceived as threatening to others, then it is less likely to be used.

The research base related to the connection between physical activity and health is considerable. Selected findings from that research are provided below. These are just a few examples of the myriad of implications of physical activity and exercise on health:

- Physical activity is associated with reductions in premature mortality, the prevention of chronic diseases and improvements in mental health.[3]

Adults with 20+ minutes of vigorous physical activity three or more days per week

Louisville Metro BRFSS, 2009



- Not getting enough exercise is a contributing cause of coronary heart disease, colon cancer, and diabetes, and modest increases in physical activity are associated with substantial reductions in the negative health outcomes related to these conditions.[4]

- Physical activity levels are highly related to obesity, one of the fastest rising public health problems. In 2008, over 16% of children were obese (12 million are overweight); and the majority of adults (66%) are overweight or obese.[5]

- Parks provide opportunities for physically active lifestyles by providing relatively inexpensive options for exercise and recreation.[6]

- According to a study conducted by the CDC, enhanced access to spaces for physical activity resulted in 25% more people exercising three or more days per week.[7]

- Having a place to be physically active, combined with outreach and education, can produce a 48% increase in frequency of physical activity.[8]

- Without outdoor places to play, children are less likely to get regular exercise and may face elevated risks for diabetes and obesity.[9]

- A study included in the American Journal of Preventative Medicine found that access to a place to exercise results in a 5.1 percent median increase in aerobic capacity, along with a reduction in body fat, weight loss, improvements in flexibility, and an increase in perceived energy.[10]

- Spending time in a natural environment and green space can have a positive effect on health and wellbeing. It can reduce stress and fatigue and improve mental health.[11]

While the health benefits of physical activity are far ranging, many people find it difficult to maintain a routine that includes the recommended amount of activity. A study published in 2003, in the journal of Physical Activity and Public Health, found that more than half of U.S. adults are not physically active on a regular basis; and that 1 in 4 adults report no leisure-time activity at all.[12]

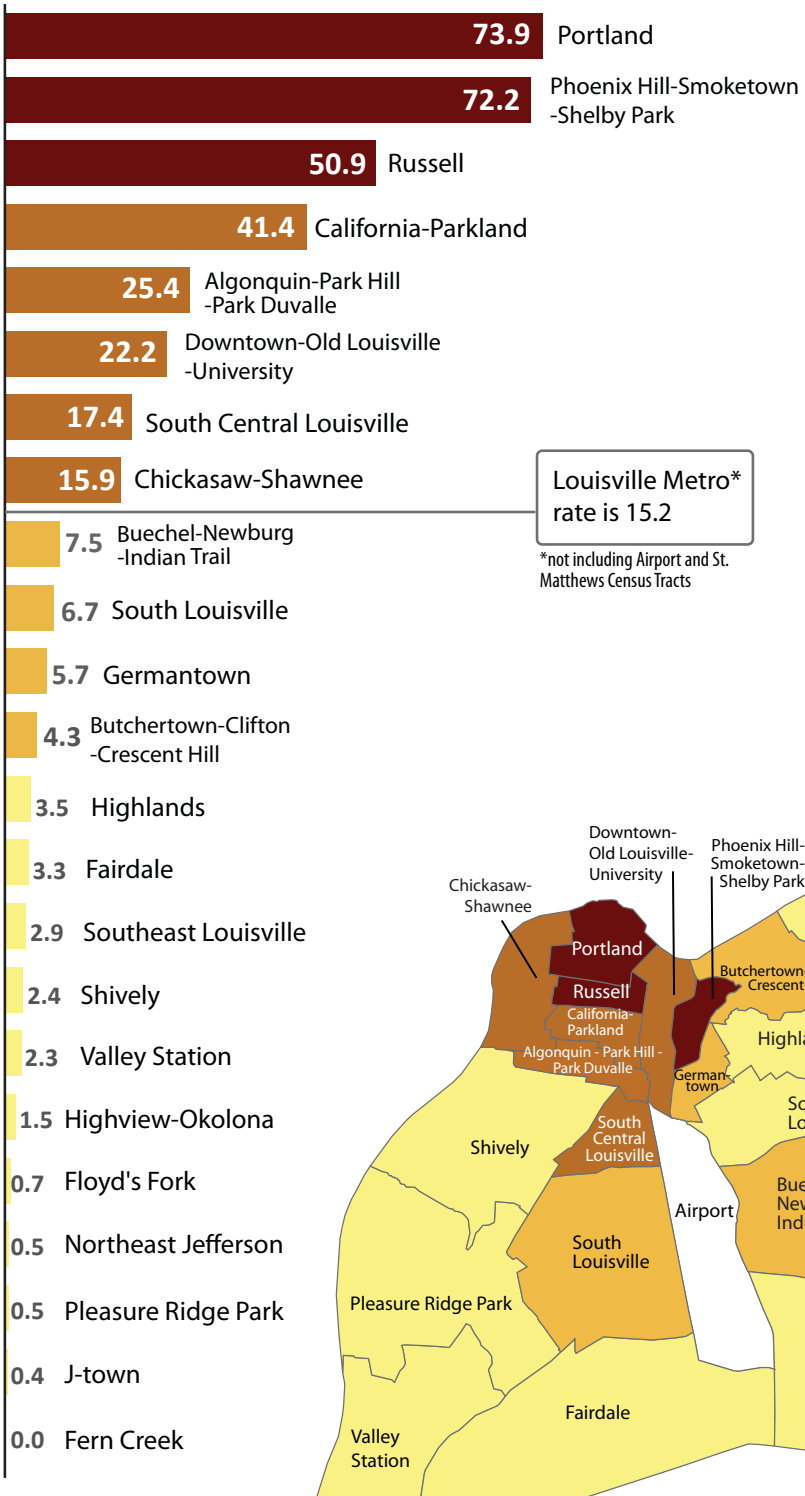
Access to Opportunities for Physical Activity

Parks, recreational facilities, and other public spaces in low-income neighborhoods are often underutilized because of a fear of crime or a lack of adequate maintenance.[13] Many communities with high densities of people of color have fewer physical activity facilities and a decreased number of facilities has been associated with lower rates of moderate to vigorous physical activity.[14]

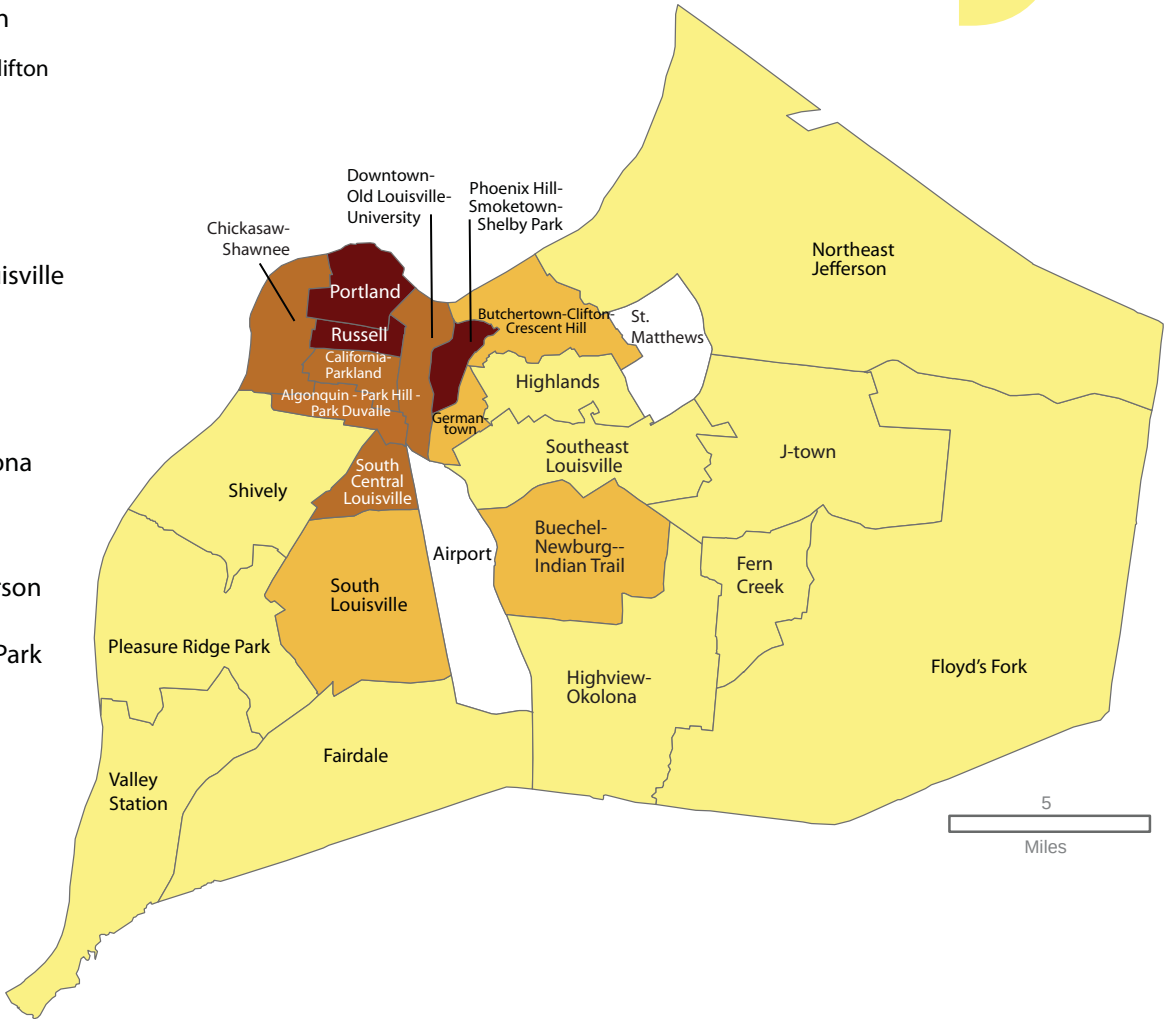
ASSAULTS NEAR PARKS

Assaults within 1000 ft of Metro Parks,
(Rate per 10,000 people)

2010 Louisville Metro Police Data



Crime can serve as a very serious to barrier to the accessibility of parks, even if parks are nearby and contain quality exercise amenities. While many poorer neighborhoods may have a greater proximity-based access than people in suburban or rural Louisville, overall access is likely limited by perceptions of safety in parks.



CONCLUSION

Like their fellow Americans, Louisvillians born at the beginning of the 21st century can expect to live, on average, 30 years longer than people born at the beginning of the 20th century. The introduction of antibiotics, vaccines and other medical advances have been important, but the majority of the increase in life expectancy can be attributed to improvements in our physical and social environments. Clean water, clean air, effective sewer systems, safe food production, workplace and traffic safety, restrictions on the sale and use of tobacco products and improvements in housing conditions have yielded the greatest benefits. Yet, these benefits have not been uniformly distributed across neighborhoods, races, and socioeconomic lines.

Healthy People 2020 Charge

'Create social and physical environments that promote good health for all'

Healthy People 2020 charges us to 'Create social and physical environments that promote good health for all' as one of four overarching goals for the decade. It is clear from the information and analysis presented in this report that in order to ensure all Louisvillians have the opportunity for good health, advances are needed well beyond health care and the traditional health sectors. As shown, population health to a large extent is determined by living conditions and other social and economic factors, and are therefore often best influenced by policies and actions in fields such as education, childcare, housing, business, law, media, community planning, transportation and agriculture. Making these advances, therefore requires working together to explore how programs, practices and policies in these areas affect the health of individuals, families, and communities. Our embrace of a "health in all policies" approach would facilitate common goals, complimentary roles, and ongoing constructive relationships between public health, health care and other critical sectors.

The Center for Health Equity works to eliminate social and economic barriers to good health. As a catalyst for collaboration between communities, organizations and government entities, The Center commissioned this report as a starting point for community-wide conversations to reshape the public health landscape. As a starter 'health equity lens', the determinants of health underscore the need for an explicit concern for health and equity in all areas of policy. The focus of this approach extends beyond individual factors and lifestyles, to addressing how these can be influenced by complimentary policy-related strategies contributing to improved population health.

Going forward, community participation and insight are critical as we actively seek to create the social and physical environments that will promote good health for all Louisvillians.

Join the conversation!

REFERENCES

INTRODUCTION

[1] Brennan-Ramirez, Baker & Metzler, (2008), "Promoting Health Equity: A resource to help communities address social determinants of health" Atlanta, US Department of Health & Human Services, CDC.

[2] Retrieved 8/24/2011 from: http://www.healthypeople.gov/hp2020/advisory/PhaseI/sec4.htm#_Toc211942917.

[3] Ibid.

[4] Iton, A., Witt, S., Desautels, A., Schaff, K., Luluquisen, M., Maker, L., Horsley, K., & Beyers, M. (2010). Tackling the root causes of health disparities through community capacity building. In R. Hofrichter & R. Bhatia (Eds.), Tackling health inequities through public health practice: Theory to action (2nd ed.). New York: Oxford University Press.

[5] Public Engagement Campaign and the Joint Center for Political and Economic Studies Health Policy Institute. (2008). Unnatural Causes…Is inequality making us sick? San Francisco, CA.

[6] Center for Health Improvement. (2009). Targeting root causes to address inequities and improve health: Implications for health reform. Sacramento, CA.

[7] Iton, A., Witt, S., Desautels, A., Schaff, K., Luluquisen, M., Maker, L., Horsley, K., & Beyers, M. (2010). Tackling the root causes of health disparities through community capacity building. In R. Hofrichter & R. Bhatia (Eds.), Tackling health inequities through public health practice: Theory to action (2nd ed.). New York: Oxford University Press.

[8] Wilkinson, R., & Marmot, M. (Eds.). (2003). Social determinants of health: The solid facts. World Health Organization.

[9] Iton, A. (2006). Tackling the root causes of health disparities through community capacity building. In R. Hofrichter (Ed.), Tackling health inequities through public health practice: A handbook for action. The National Association of County & City Health Officials, Washington D.C. and the Ingham County Health Department, Lansing Michigan.

[10] Virginia Department of Health (2008). Virginia health equity report: Unequal health across the commonwealth. Office of Minority Health & Public Health Policy, Virginia Department of Health.

[11] Wilkinson, R., & Marmot, M. (Eds.). (2003). Social determinants of health: The solid facts. World Health Organization.

[12] Corburn, J. (2009). Toward the healthy city: People, places, and the politics of urban planning. Boston: The MIT Press.

[13] Kentucky Population Research. (2000). Making connections: Neighborhood profiles of child & family well-being in Louisville & Jefferson County, Kentucky. Urban Studies Institute, University of Louisville.

[14] Iton, A. (2006). Tackling the root causes of health disparities through community capacity building. In R. Hofrichter (Ed.), Tackling health inequities through public health practice: A handbook for action.. The National Association of County & City Health Officials, Washington D.C. and the Ingham County Health Department, Lansing Michigan.

INCOME & EMPLOYMENT

[1] Huie, B., Patrick, S. A., Krueger, M., Rogers, R. G., & Hummer, R. A. (2003). Wealth, race, and mortality. Social Science Quarterly, 84(3), 667-684.

[2] Skodova, Z., Nagyova, I., vanDijk, J. P., Sudzinova A., Vargova, H., Studencan, M., Reijneveld, S. A. (2008). Socioeconomic differences in psychosocial factors contributing to coronary heart disease: A review. Journal of Clinical Psychology in Medical Settings, 15(3), 204-213.

[3] Adler, N. & Stewart, J. (2008). Reaching for a healthier life: Facts on socioeconomic status and health in the U.S. The John D. and Catherine T. MacArthur Foundation Research Network on Socioeconomic Status and Health.

[4] Anderson, R. et al. (1997). Mortality effects of community socioeconomic status. Epidemiology, 8, 42-47.

[5] Hofrichter, R. (2003). The politics of health inequities: Contested terrain. Health and social Justice: A reader on ideology, and inequity in the distribution of disease. San Francisco, CA: Jossey Bass.

[6] Adler, N. & Stewart, J. (2008). Reaching for a healthier life: Facts on socioeconomic status and health in the U.S. The John D. and Catherine T. MacArthur Foundation Research Network on Socioeconomic Status and Health.

[7] US Census Bureau. (2010). American Community Survey, 2005-2009, 5-year estimates. Washington, DC: Government Printing Office.

[8] Kawachi, I. & Kennedy, B. (1999). Income, inequality, and health: Pathways and mechanisms. Health Services Research, 34(1 Pt. 2), 215-227.
Kawachi, I. (2000). Income, inequality, and health. In Berkman, L. F. & Kawachi, I. (Eds.) Social Epidemiology, 76-94. New York, NY: Oxford University Press.

Muller, A. (2002). Education, income inequality, and mortality: A multiple regression analysis. British Medical Journal, 324(23).

Subramanian, S. & Kawachi, I. (2004). Income inequality and health: What have we learned so far? Epidemiol Rev, 26(1), 78-91.

Wilkinson, R. (1992). Income distribution and life expectancy. British Medical Journal, 304(6280), 165-168.

[9] Subramanian, S. & Kawachi, I. (2004). Income inequality and health: What have we learned so far? Epidemiol Rev, 26(1), 78-91.

[10] Economic Policy Institute/Center on Budget and Policy Priorities. (2007). Pulling apart: A state-by state analysis of income trends.

[11] Alameda County Food Bank. (2006). Hunger: The faces and the facts. Oakland, CA: Alameda County Food Bank.

[12] Austin, A. (2010). Uneven pain: Unemployment by metropolitan area and race. Economic Policy Institute, Issue Brief #278.

[13] Ibid.

[14] Cornwall, A. & Gaventa, J. (2001). Users and choosers to makers and shapers: Repositioning participation in social policy. Working Paper 127 Sussex. East Sussex, UK: Institute of Development Studies, University of Sussex.

[15] Wilkinson, R. & Marmot, M. (Eds.) (2003). Social determinants of health: the solid facts. 2nd edition. Geneva, Switzerland: World Health Organization.

[16] National Employment Law Project. (2011). Interview with George Wentworth. Retrieved from: http://www.huffingtonpost.com/2011/02/10/staffing-agencies-careful_n_821457.html.

[17] Wilkinson, R. & Marmot, M. (Eds.) (2003). Social determinants of health: the solid facts. 2nd edition. Geneva, Switzerland: World Health Organization.

[18] Ibid.

[19] Presser, H. B. (2003). Race-ethnic and gender differences in nonstandard work shifts. Work and Occupations, 30(4), 412–439.

[20] Louisville Metro Department of Public Health and Wellness. (2009). Louisville Metro Health Status Report. Louisville, KY: Louisville Metro Department of Public Health and Wellness.

[21] Committee on the Consequences of Uninsurance. Board on Health Care Services, Institute of Medicine. (2001). Who goes without health insurance? Who is most likely to be uninsured? Coverage matters: Insurance and health care (58-99). Retrieved from: http://www.nap.edu/openbook.php?record_id=10188&page=1.

[22] Committee on the Consequences of Uninsurance. Board on Health Care Services, Institute of Medicine. (2004). Insuring America's health: Principles and recommendations. Retrieved from: http://www.iom.edu/Object.File/Master/17/736/0.pdf .

[23] U.S. Census Bureau. (2010). American Community

Survey, 2009, 1-year estimates. Washington, DC: Government Printing Office.

[24] Robert Wood Johnson Foundation. (2011). State of the states: Laying the foundation for health reform. Princeton, NJ: Robert Wood Johnson Foundation. Retrieved from: http://www.rwjf.org/coverage/product.jsp?id=71835.

HOUSING

[1] Center for Quality Growth and Regional Development, Georgia Institute of Technology. (2006). Healthy housing: Forging the economic and empirical foundation. Atlanta, GA: Georgia Institute of Technology.

[2] Sundquist, J., & Johansson, S.E. (1997). Indicators of socioeconomic position and their relation to mortality in Sweden. Social Science and Medicine, 45(12), 1757-1766.

[3] Pollack, C., Griffin, B., & Lynch, J. (2010). Housing affordability and health among homeowners and renters. American Journal of Preventive Medicine, 39(6), 515-521.

[4] Ibid.

[5] Matthews, K.A., Kiefe, C.I., Lewis, C.E., Liu, K., Sidney, S., & Yunis, C. (2002). Socioeconomic trajectories and incident hypertension in a biracial cohort of young adults. Hypertension, 39, 772-776.

Nettleton, S., & Burrows, R. (1998). Mortgage debt, insecure home ownership and health: an exploratory analysis. Sociology of Health and Illness, 20(5), 731-753.

[6] Pollack, C., Griffin, B., & Lynch, J, (2010). Housing affordability and health among homeowners and renters. American Journal of Preventive Medicine, 39(6), 515-521.

[7] Sharfstein, J., Sandel, M., Kahn, R., & Bauchner, H. (2001). Is child health at risk while families wait for housing vouchers? American Journal of Public Health, 91, 1191–1192.

[8] Bashir, S.A. (2002). Home is where the harm is: inadequate housing as a public health crisis. American Journal of Public Health, 92(5), 733-738.

[9] Huie, B., Patrick, S.A., Krueger, M., Rogers, R.G., & Hummer, R.A. (2008). Wealth, race, and mortality. Social Science Quarterly, 84(3), 667-684. Wenzlow, A.T, Mullahy, J., Robert, S.A., & Wolfe, B.L.

An empirical investigation of the relationship between wealth and health using the survey of consumer finances. (Working Paper). New York, NY: Russell Sage Foundation. Retrieved July 7, 2009, from http://www.russellsage.org/publications/workingpapers.

[10] Metropolitan Housing Coalition. (2010). State of metropolitan housing report. Louisville, KY.

[11] Vissa, P. (2011). New data, old worries on homeownership. Retrieved March 3, 2011 from http://www.huffingtonpost.com/preeti-vissa/new-data-old-worries-on-h_b_818285.html.

[12] Ibid.

[13] Gonzalez-Rivera, C. (2009). People of color hardest hit by the foreclosure crisis. The Greenlining Institute, Berkeley, CA.

[14] Ibid.

[15] Just Cause and Alameda County Public Health Department. (2010). Rebuilding neighborhoods, restoring health: A report on the impact of foreclosures on public health. Oakland, CA.

[16] Ibid.

[17] Metropolitan Housing Coalition. (2008). Housing insecurity: Neighborhood conversations on health care costs. Louisville, KY.

[18] Rivera, A., Cotto Escalera, B., Desai, A., Huezo, J., Muhammad, D. (2008). State of the dream 2008: Foreclosed. United for a Fair Economy.

[19] Wilson, W.J. (1987). The truly disadvantaged: The inner city, the underclass, and public policy. Chicago: University of Chicago Press.

[20] Rusk, D. (2001). The 'segregation tax': The cost of racial segregation to black homeowners. Washington, D.C.: Brookings Institution.

[21] Metropolitan Housing Coalition. (2010). The state of fair housing in Louisville: Impediments and improvements. Louisville, KY.

[22] Nettleton, S., & Burrows, R. (1998). Mortgage debt, insecure home ownership and health: an exploratory analysis. Sociology of Health and Illness, 20(5), 731-753.

[23] Gonzalez-Rivera, C. (2009). People of color hardest hit by the foreclosure crisis. The Greenlining Institute, Berkeley, CA.

[24] Ibid.

[25] Pollack, C., Griffin, B., & Lynch, J. (2010). Housing affordability and health among homeowners and renters. American Journal of Preventive Medicine, 39(6), 515-521.

[26] Bhatia, R. & Guzman, C. (2004). The case for housing impacts assessment: The human health and social impacts of inadequate housing and their consideration in CEQA policy and practice. San Francisco, CA: Department of Public Health.

[27] Guzman C, Bhatia R, and Durazo C., 2005. Anticipated effects of residential displacement on health: results from qualitative research. San Francisco, CA: Department of Public Health.

[28] Bures, R.M. (2003). Childhood residential stability and health at midlife. American Journal of Public Health, 93, 1144-1148.

ENVIRONMENTAL QUALITY

[1] US Environmental Protection Agency. Lead in paint dust and soil. Retrieved from: http://www.epa.gov/lead/pubs/leadinfo.htm#facts. Accessed July 1, 2009.

US Environmental Protection Agency. (1990). Asbestos. Retrieved from: http://www.epa.gov/asbestos/pubs/help.html#Info. Accessed July 1, 2009.

[2] Ibid.

[3] Healthy Building Network. Issues: pressure treated wood. Retrieved from: http://www.healthybuilding.net/arsenic/index.html. Accessed July 1, 2009.

Landrigan, P. J., Claudio, L., Markowitz, S. B., Berkowitz, G. S., Brenner, B. L., Romero, H., Wolff, M. S. (1999). Pesticides and inner-city children: exposures, risks, and prevention. Environmental Health Perspectives, 107, Suppl: 431-437

[4] Eggleston, P.A., Butz, A., Rand, C., Curtin-Brosnan, J., Kanchanaraksa, S., Swartz, L., … Krishnan, J. A. (2005). Home environmental intervention in inner-city asthma: A randomized controlled trial. Ann Allergy Asthma Immunol, 95(6), 496-497.

Kercsmar, C. M., Dearborn, D. G., Schluchter, M., Xue, L., Kirchner, H. L., Sobolewski, J., Allan, T. (2006). Reduction in asthma morbidity in children as a result of home remediation aimed at moisture sources. Environmental Health Perspectives, 114(10),1574-1580.

Bradman, A., Chevrier, J., Tager, I., Lipsett, M., Sedqwick, J., Macher, J., … Eskenazi, B. (2005). Association of housing disrepair indicators with cockroach and rodent infestation in a cohort of pregnant Latina women and their children. Environmental Health Perspectives,113(2),1795-1801.

[5] Ibid.

[6] Healthy Building Network. Issues: pressure treated wood. Retrieved from: http://www.healthybuilding.net/arsenic/index.html. Accessed July 1, 2009.

Landrigan, P. J., Claudio, L., Markowitz, S. B., Berkowitz, G. S., Brenner, B. L., Romero, H., Wolff, M. S. (1999). Pesticides and inner-city children: exposures, risks, and prevention. Environmental Health Perspectives, 107, Suppl: 431-437

[7] Metropolitan Housing Coalition. (2010). The state of fair housing in Louisville: Impediments and improvements. Louisville, KY: Metropolitan Housing Coalition.

[8] Ibid.

[9] California Air Resources Board. (2007). Recent research findings: Health effects of particulate matter and ozone air pollution. Retrieved from: http://www.arb.ca.gov/research/health/fs/pm_ozone-fs.pdf. Accessed March 9, 2011.

[10] US Environmental Protection Agency. (2008). Effects of common air pollutants. Retrieved from: http://www.epa.gov/airnow/health-prof/EPAposter2008_LR.pdf. Accessed March 10, 2010.

[11] National Association of Local Boards of Health. (2003). NALBOH environmental health primer. Retrieved from: http://www.cdc.gov/nceh/ehs/NALBOH/NALBOH_EH_Primer.htm. Accessed March 11, 2011.

[12] Center for Quality Growth and Regional Development, Georgia Institute of Technology. (2006). Healthy housing: Forging the economic and empirical foundation. Atlanta, GA: Georgia Institute of Technology.

[13] US Environmental Protection Agency. (2001). Our built and natural environments: A technical review of the interactions between land use, transportation, and environmental quality. Retrieved from: www.epa.gov/dced/pdf/built.pdf. Accessed March 10, 2011.

[14] California Environmental Protection Agency. (2005). Air quality and land use handbook: A community health perspective. Sacramento, CA: California Air Resources Board.

[15] Ibid.

[16] Sciences International, Inc. (2003). West Louisville air toxics study: Risk assessment. Prepared for Louisville Metro Air Pollution Control District and West Jefferson County Community Task Force, Louisville, KY.

[17] Bullard, R. (2000). Dumping in dixie: Race, class, and environmental quality. 3rd edition. Boulder: Westview.

Pastor, M. (2007). Environmental justice: Reflections from the United States. In Boyce, J. K., Narain, S., & Stanton, E. A. (Eds.), Reclaiming Nature: Environmental Justice and Ecological Restoration. London: Anthem Press.

[18] Center for Quality Growth and Regional Development, Georgia Institute of Technology. (2006). Healthy housing: Forging the economic and empirical foundation. Atlanta, GA: Georgia Institute of Technology.

[19] Shihadeh, E.S. & Flynn N. (1996). Segregation and crime: the effect of black isolation on the rates of black urban violence. Soc For., 74, 1325-1352.

[20] Bouwes, N., Hassur, S., & Shapiro, M. (2003). Information for empowerment: The EPA's risk-screening environmental indicators project. In Boyce, J. K. & Shelley, B. G. (Eds.), Natural assets: Democratizing environmental ownership. Washington, DC: Island Press.

[21] Opp, S. & Hollis, S. (2005). Contaminated properties: History, regulations, and resources for community members: Practice guide #9. Center for Environmental Policy and Management. University of Louisville.

[22] US Environmental Protection Agency. (2006). Brownfields Public Health and Health Monitoring. Washington, DC: Government Printing Office. Retrieved from: http://www.epa.gov/oswer/tribal/pdfs/finalphandbffact.pdf. Accessed March 10, 2011.

EDUCATION

[1] U.S. Department of Health and Human Services. (2010). Healthy people 2010: A systematic approach to health improvement.Washington, DC: Government Printing Office.

[2] Ibid.

[3] Lleras-Muney, A. (2005). The relationship between education and adult mortality in the United States. Review of Economics Studies, 72, 189-221.

[4] Ross, C. & Wu, C. (1996). Education, age, and the cumulative advantage in health. J Health Soc Behav, 37, 104-120.

[5] Freudenberg, N., Ruglis, J. (2007). Reframing school dropout as a public health issue. Prev Chronic Dis, 4(4). Retrieved from: http://www.cdc.gov/pcd/issues/2007/oct/07_0063.htm. Accessed February 19, 2011.

Ross, C. & Mirowsky, J. (1999). Refining the association between education and health: the effects of quantity, credential, and selectivity. Demography, 36(4), 445-460.

[6] Cutler, D. M. (2006). Education and health: Evaluating theories and evidence. National Bureau of Economic Research Working Paper 12352.

[7] Muller, A. (2002). Education, income inequality, and mortality: A multiple regression analysis. British Medical Journal, 324(23).

[8] Ibid.

[9] Freudenberg, N. & Ruglis, J. (2007). Reframing school dropout as a public health issue. Prev Chronic Dis, 4(4). Retrieved from: http://www.cdc.gov/pcd/issues/2007/oct/07_0063.htm. Accessed February 19, 2011.

[10] Winkelby, M., Jatulis, D., Frank, E., & Fortmann, S. (1992). Socieconomic status and health: How education, income and occupation contribute to risk factors for cardiovascular disease. Am J Public Health, 82, 816-820.

[11] Centers for Disease Disease Control and Prevention. (2007). Fruit and vegetable consumption among adults. United States 2005. MMWR, 56(10), 213-217.

[12] Currie, J. & Moretti, E. (2003). Mother's education and the intergenerational transmission of human capital: Evidence from college openings. Quarterly Journal of Economics, VCXVIII(4),1495-1532.

[13] Vermont Department of Health. (2010). The health disparities of Vermonters. Burlington, VT: Vermont Department of Health.

[14] Chen, Y. & Li, H. (2009). Mother's education and child health: Is there a nurturing effect? Journal of Health Economics, 28(2), 413-426.

[15] Lamerz, A., Kuepper-Nybelen, J., Wehle, C., Bruning, N., Trost-Brinkhues, G., Brenner, H., Hebebrand, J., & Herpertz-Dahlmann, B. (2005). Social class, parental education, and obesity prevalence in a study of six-year-old children. Germany, 29(4), 373-380.

[16] Karoly, L. A., Greenwood, P. W., Everingham, S. S., Hoube, J., Kilburn, M. R., Rydell, C. P., … Chiesa, J. (1998). Investing in our children: What we know and don't know about the costs of early childhood interventions. Santa Monica, CA: RAND

[17] Alameda County Public Health Department. (2008). Life and death from unnatural causes: Health and social inequity in Alameda County. Oakland, CA: Alameda County Public Health Department.

[18] McCartney, K., Dearing, E., Taylor, B., & Bub, K. (2007). Quality child care supports the achievement of low-income children: Direct and indirect pathways through caregiving and the home environment. Journal of Applied Developmental Psychology (28), 411–426.

[19] Campbell, F. & Pungello, E. (2000). High quality child care has long-term benefits for poor children. Paper presented at the 5th Head Start National Research Conference, Washington DC. June 28-July 1, 2000.

[20] Freudenberg, N. & Ruglis, J. (2007). Reframing school dropout as a public health issue. Prev Chronic Dis, 4(4). Retrieved from: http://www.cdc.gov/pcd/issues/2007/oct/07_0063.htm. Accessed February 19, 2011.

[21] U.S. Department of Health and Human Services. (2010). Healthy people 2010: A systematic approach to health improvement. Washington, DC: Government Printing Office.

[22] Turley, R. (2003). When do neighborhoods matter? The role of race and neighborhood peers. Social Science Research, 32(1).

TRANSPORTATION

[1] Centers for Disease Control and Prevention. (2010). CDC recommendations for improving health through transportation policy. Retrieved February 12, 2011, from http://www.cdc.gov/transportation/docs/FINAL%20CDC%20Transportation%20Recommendations-4-28-2010.pdf.

[2] American Public Health Association. At the intersection of public health and transportation: Promoting healthy transportation policy. Retrieved February 12, 2011, from http://www.apha.org/NR/rdonlyres/43F10382-FB68-4112-8C75-49DCB10F8ECF/0/TransportationBrief.pdf. Accessed February 12, 2011.

[3] Transportation for America. Transportation, public health and safety. Retrieved February 12, 2011, from t4america.org/policybriefs/t4_policybrief_health.pdf.

Frumkin, H., Frank, L., & Jackson, R. J. (2004). Urban sprawl and public health: Designing, planning and building for healthy communities. Washington DC: Island Press.

American Public Health Association. (2007). American public health association policy statement 2007-9. Building a public health infrastructure for physical activity promotion. Washington, DC: American Public Health Association. Retrieved October 10, 2010, from: www.apha.org/advocacy/policy/policysearch/default.htm?id=1358.

American Public Health Association. (2007). American public health association policy statement 2007-8. Addressing the urgent threat of global climate change to public health and the environment. Washington, DC: American Public Health Association.

Surface Transportation Policy Project. Transportation and social equity. Retrieved October 11, 2010, from: www.transact.org/library/factsheets/equity.asp.

[4] Lipman, B. (2006). Heavy load: The combined housing and transportation burdens of working Families. Center for Housing Policy.

[5] Ibid.

[6] Surface Transportation Policy Project. Transportation and Health. Retrieved February 13, 2011, from: http://www.transact.org/library/factsheets/health.asp.

[7] Lipman, B. (2005). Something's Gotta Give: Working Families and the Cost of Housing. Center for Housing Policy.

[8] Lipman, B. (2006). Heavy load: The combined housing and transportation burdens of working Families. Center for Housing Policy.

[9] Center for Quality Growth and Regional Development, Georgia Institute of Technology. (2006). Healthy Housing: Forging the Economic and Empirical Foundation. Atlanta, GA: Georgia Institute of Technology.

[10] Litman, T. (2009). Transportation costs & benefits: resources for measuring transportation costs and benefits. Victoria, BC: Victoria Transport Policy Institute.

[11] Kawabata, M. (2002). Job accessibility by travel mode in US metropolitan areas. Papers and proceedings of the Geographic Information Systems Association, 11, 115-120.

Ong P. & Houson, D. (2002). Transit, employment, and women on welfare. Urban Geography, 23, 344-364.

[12] Ong P. & Houson, D. (2002). Transit, employment, and women on welfare. Urban Geography, 23, 344-364.

[13] Center for Quality Growth and Regional Development, Georgia Institute of Technology. (2006). Healthy Housing: Forging the Economic and Empirical Foundation. Atlanta, GA: Georgia Institute of Technology.

[14] Fassinger, P. & Adams G. (2006). A place to call home: housing in the San Francisco Bay Area. Oakland, CA: Association of Bay Area Governments.

[15] Frank, L., Andresen, M., & Schmid, T. (2004). Obesity relationships with community design, physical activity, and time spent in cars. American Journal of Preventive Medicine, 27(2), 87-96.

[16] Lachapelle, U. & Frank, L. (2009). Transit and health: Mode of transport, employer-sponsored public transit pass programs, and physical activity. Journal of Public Health Policy, 30, S73–S94.

[17] Litman, T. (2003). Integrating public health objectives in transportation decision-making. Victoria Transportation Policy Institute.

[18] Centers for Disease Control and Prevention. CDC Recommendations for Improving Health through Transportation Policy. Retrieved February 12, 2011, from http://www.cdc.gov/transportation/docs/FINAL%20CDC%20Transportation%20Recommendations-4-28-2010.pdf.

[19] LaScala, E., Gerber, D., & Gruenewald, P. (2000). Demographic and environmental correlates of pedestrian injury collisions: A spatial analysis. Accident Analysis and Prevention, 32, 651-658.

Ewing, R., Frank, L., & Kreutzer, R. (2006). Understanding the relationship between public health and the built environment: A report to the LEED-ND Core Committee.

[20] Leden, L. (2002). Pedestrian risk decreases with pedestrian flow: A case study based on data from signalized intersections in Hamilton, Ontaria. Accident Analysis and Prevention, 34, 457-464.
Geyer, J., Raford, N., Ragland, D., & Pham, T. (2005). The continuing debate about safety in numbers – data from Oakland, CA. UC Berkeley Traffic Safety Center: UCB-TSC-RR-TRB3.

[21] Jacobsen, P. L. (2003). Safety in numbers: More walkers and bicyclists, safer walking and bicycling. Injury Prevention, 9, 205-209.

[22] Pedsafe. Pedestrian safety guide and countermeasure selection system. Retrieved from: http://www.walkinginfo.org/pedsafe/crashstats.cfm.

[23] World Health Organization. (2004). World Report on road traffic injury prevention. Edited by Margie Penden, Richard Scurfield, David Sleet, et al.

[24] McCann, B. (2005). Complete the streets! Planning, 5, 18-23.

Thunderhead Alliance. (2006). Guide to complete streets campaigns. Washington, DC: Thunderhead Alliance.

FOOD ACCESS

[1] US Department of Health and Human Services. (2001). The Surgeon General's call to action to prevent and decrease overweight and obesity. Washington, DC: Government Printing Office. Retrieved from: http://www.surgeongeneral.gov/topics/obesity. Accessed March 18, 2011.

[2] Christopher, G. (2005). Let them eat cake or fat… Trend Letter Health Report (May/June 2005), Joint Center for Political and Economic Studies.

[3] Morland, K., Wing, S., Diez, R. A. & Poole, C. (2002). Neighborhood characteristics associated with the location of food stores and food service places. American Journal of Preventive Medicine, 22(1), 23-29.

Vallianatos, M., Shaffer, A., & Gottlieb, R. (2002). Transportation and food: the importance of access. Center for Food and Justice, Urban and Environmental Policy Institute. Retrieved from: http://departments.oxy.edu/uepi/cfj/publications/transportation_and_food.pdf. Accessed April 8, 2011.

[4] Christopher, G. (2005). Let them eat cake or fat… Trend Letter Health Report (May/June 2005), Joint Center for Political and Economic Studies.

[5] Drewnowski A. (2009). Obesity, diets, and social inequalities. Nutrition Reviews, 67(5), S36-S39.

[6] Larson, N., Story, M., & Nelson, M. (2009). Neighborhood environments: Disparities in access to healthy foods in the U.S. American Journal of Preventive Medicine, 36(1), 74-81.

[7] United States Department of Agriculture. (2009). Access to affordable and nutritious food: Measuring and understanding food deserts and their consequences. Washington, DC: Government Printing Office.

[8] Gallagher, M. (2007). Key sections of central Louisville are "food imbalanced". Chicago, IL: Mari Gallagher Research & Consulting.

[9] Ibid.

[10] Community Farm Alliance/ West Louisville Food Working Group. (2007). Bridging the divide: Growing self-sufficiency in our food supply. Louisville, KY: Community Farm Alliance/West Louisville Food Working Group.

[11] Ibid.

[12] Ibid.

[13] Mayor's Healthy Hometown Movement. (2010). The state of food: A snapshot of food access in Louisville. Louisville, KY: Mayor's Healthy Hometown Movement, Food in Neighborhoods Committee.

[14] Morland, K., Wing, S., Diez Roux, A., & Poole, C. (2002). Neighborhood characteristics associated with the location of food stores and food service places. American Journal of Preventive Medicine, 22(1), 23-29.

Eisenhauer, E. (2001). In poor health: Supermarket redlining and urban nutrition. GeoJournal, 53(2), 125-133.

[15] D.C. Hunger Solutions. (2006). Healthy food, healthy communities: An assessment and scorecard of community food security in the District of Columbia. D.C. Hunger Solutions/ Food Research and Action Center.

[16] Williams, D. & Collins, C. (2001). Racial residential segregation: A fundamental cause of racial disparitites in health. ASPH Public Health Reports, 116, 404-416. US Dept of Agriculture, Economic Research Service. 2002. U.S. Food Marketing System; Agriculture Marketing Report No. 811.

[17] Christopher, G. (2005). Let them eat cake or fat… Trend Letter Health Report (May/June 2005), Joint Center for

Political and Economic Studies.

[18] Morland, K., Wing, S., Diez Roux, A., & Poole, C. (2002). Neighborhood characteristics associated with the location of food stores and food service places. American Journal of Preventive Medicine, 22(1), 23-29.

[19] Wilkinson, R. & Marmot, M. (Eds.) (2003). Social determinants of health: The solid facts. Second edition. Denmark: World Health Organization.

[20] Community Farm Alliance/ West Louisville Food Working Group. (2007). Bridging the divide: Growing self-sufficiency in our food supply. Louisville, KY: Community Farm Alliance.

Block, J., Scribner, R., & DeSalvo, K. (2004). Fast food, race/ethnicity, and income: A geographical analysis. Am J Prev Med, 27(3), 211-217.

[21] United States Department of Agriculture. (2009). Access to affordable and nutritious food: Measuring and understanding food deserts and their consequences. Washington, DC: Government Printing Office.

[22] Morland K., Wing, S., Diez Roux, A., & Poole, C. (2002). Neighborhood characteristics associated with the location of food stores and food service places. American Journal of Preventive Medicine, 22(1), 23-29.

[23] Wilkinson, R. & Marmot, M. (Eds.) (2003). Social determinants of health: The solid facts. Second edition. Denmark: World Health Organization.

[24] Community Farm Alliance/ West Louisville Food Working Group. (2007). Bridging the divide: Growing self-sufficiency in our food supply. Louisville, KY: Community Farm Alliance.

[25] Ibid.

HEALTH CARE ACCESS

[1] Bindman, A., Grumback, K., & Osmond, D. (1995). Preventable hospitalizations and access to care. Journal of the American Medical Association, 274(4), 305-311.

[2] Clancy, C. & Stryker, D. (2001). Racial and ethnic disparities and the primary care experience. Health Services Research, 36, 979-986.

[3] Robert Wood Johnson Foundation. (2010). Report: America's middle class shouldering the brunt of health insurance crisis. Princeton, NJ: Robert Wood Johnson Foundation.

[4] Ibid.

[5] Kaiser Family Foundation. (2010). Kaiser commission on key facts: The uninsured and the difference health insurance makes. Washington, DC: Kaiser Family Foundation.

[6] Ibid.

[7] Kaiser Family Foundation. (2010). Medicaire at a glance. Washington, DC: Kaiser Family Foundation.

[8] Ibid.

[9] Centers for Disease Control and Prevention. (2009). Nationwide (States and DC) – 2009 Health Care Access/Coverage.

[10] Louisville Metro Department of Public and Health and Wellness. (2009). Louisville Metro Health Status Report. Louisville, KY: Louisville Metro Department of Public and Health and Wellness.

[11] Prentice, J. C. (2006). Neighborhood effects on primary care access in Los Angeles. Social Science & Medicine, 62, 1291-1303.

[12] Kirby J. and Kaneda T. (2005). If neighborhood socioeconomic disadvantage and access to health care. Journal of Health and Social Behavior, 46(1), 15-31.

[13] Marmot, M., Shipley, M., & Rose, G. (1984). Inequalities in death-specific explanations of a general pattern? Lancet, 1(8384), 1003-1006.

[14] Kirby, J. & Kaneda, T. (2005). If neighborhood socioeconomic disadvantage and access to health care. Journal of Health and Social Behavior, 46(1), 15-31.

[15] Shook, M. (2005). Transportation barriers and health access for patients attending a community health center. (Field Area Paper). Retrieved from: http://web.pdx.edu/~jdill/Files/Shook_access_transportation_chc.pdf. Accessed March 2, 2011.

[16] Okoro, C., Strine, T., Young, S., & Balluz, S. (2005). Access to health care among older adults and receipt of preventative services. Results from the Behavioral Risk Factor Surveillance System, 2002. Preventative Medicine, 40, 337-343.

[17] Ahmed, S., Lemkau, J., Nealeigh, N., & Mann, B. (2001). Barriers to healthcare access in non-elderly urban poor American poplantion. Health and Social Care in the Community, 9(6), 445-453.

[18] Rittner, B. & Kirk, A. (1995). Health care and public transportation use by poor and frail elderly people. Social Work, 40(3), 365-373.

[19] Pheley, A. (1999). Mass transity strike effects on access to medical care. Journal of Health Care for the Poor and Uninsured, 10(4), 389-396.

[20] Ibid.

[21] Phelps, L. (2004). Cultural competency and Haitian immigrants. Retrieved from: www.salisbury.edu/nursing/haitiancultcomp/health_care_practpg3.htm. Accessed April 2, 2011.

[22] Health and Health Care for Chinese-American Elders. Department of Geriatric Medicine, John A. Burns School of Medicine, University of Hawaii. Retrieved from: http://www.stanford.edu/group/ethnoger/chinese.html. . Accessed March 31, 2011.

[23] Minnesota's Children's Hospital. (2003). Somali culture and medical traditions. Retrieved from: http://www.mbali.info/doc326.htm. Accessed March 31, 2011.

[24] National Network of Libraries of Medicine http://nnlm.gov/outreach/consumer/hlthlit.html
(Originally produced by Penny Glassman, former Technology Coordinator, National Network of Libraries of Medicine New England Region, Shrewsbury, MA).

COMMUNITY SAFETY

[1] Middleton, J. (1998). Crime is a public health problem. Medicine, Conflict, and Survival, 14(1), 24-8.

[2] Hill, T.D., Ross C.E., & Angel R.J. (2005). Neighborhood disorder, psychophysiological distress, and health. Journal of Health and Social Behavior, 46 (2), 170-186.

[3] Britt, C. (2001). Health consequences of criminal victimization. International Review of Victomology, 8(1), 63-73.

[4] Williams, N. (2007). Prison health and the health of the public: Ties that bind. Journal of Correctional Health Care, 13(2), 80-92.

[5] Baltimore City Health Department. (2010). 2010 Health Disparities Report Card. Baltimore City Health Department.

[6] Just Cause and Alameda County Public Health Department. (2010). Rebuilding neighborhoods, restoring health: A report on the impact of foreclosures on public health. Oakland, CA.

[7] Taylor R. (2005). The incivilities or 'broken windows' thesis. Department of Criminal Justice, Temple University. Philadelphia, PA.

[8] Gonzalez-Rivera, C. (2009). People of color hardest hit by the foreclosure crisis. The Greenlining Institute, Berkeley, CA.

[9] Gorman, D., & Speer, P. (1997). The concentration of liquor outlets in an economically disadvantaged city in the northeastern United States. Substance Use and Misuse. 32, 2033-2046.

Stewart, K. How alcohol outlets affect neighborhood violence. Pacific Institute for Research and Evaluation. Retrieved March 3, 2011, from http://resources.prev.org/documents/AlcoholViolenceGruenewald.pdf.

[10] Alameda County Public Health Department, (2008). Life and death from unnatural causes: Health and social inequity in Alameda County. Alameda County Public Health Department, Oakland, CA.

[11] Gruenewald, P., & Remer, L. (2006). Changes in outlet densities affect violence rates. Alcoholism:

Clinical and Experimental Research, 30 (7), 1184-1193.

[12] Scribner, R., MacKinnon, D., & Dwyer, J. (2004). Alcohol outlet density and motor vehicle crashes in Los Angeles County cities. Journal of Studies on Alcohol, 55 (4), 447-453.

[13] Alameda County Public Health Department, (2008). Life and death from unnatural causes: Health and social inequity in Alameda County. Alameda County Public Health Department, Oakland, CA.

[14] Centers for Disease Control and Prevention, (2009). National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

[15] Ibid.

[16] Lynch, M. (2003). Consequences of children's exposure to community violence. Clinical Child and Family Psychology Review, 6 (4), 265-74.

[17] Bingenheimer, J., Brennan, R., & Earls, F. (2005). Firearm violence exposure and serious violent behavior. Science, 308, 1323-1326.

[18] Office of Justice Programs. (2002). Overview of the research literature on consequences of criminal victimization. National Criminal Justice Referral Service. US. Dept. of Justice. Retrieved March 7, 2011, from http://www.ncjrs.gov/html/ojjdp/yv_2002_2_1/page1.html.

[19] Prevention Institute, (2009). A public health approach to preventing violence: FAQ. UNITY.

[20] Ibid.

[21] Bureau of Justice Statistics. Criminal Victimization in the United States, 2003: Statistical Tables.

PARKS & PHYSICAL ACTIVITY

[1] Cohen, D., McKenzie, T., Sehgal, A., Williamson, S., Golinelli, D., & Lurie, N. (2007). Contribution of public parks to physical activity. Am J Public Health, 97(3), 509-514.

Center for Quality Growth and Regional Development, Georgia Institute of Technology. (2006). Healthy housing: Forging the economic and empirical foundation. Atlanta, GA: George Institute of Technology.

[2] Frumkin, H., Frank, L., & Jackson, R. (2004). Urban sprawl and public health. Designing, planning, and building for healthy communities. Washington, DC: Island Press.

[3] Powell, K., Martin, L., & Chowdhury, P. (2003). Places to walk: Convenience and regular physical activity. American Journal of Public Health, 93(9),1519-1521.

[4] Centers for Disease Control and Prevention. (2010). CDC recommendations for improving health through transportation policy. Retrieved from: http://www.cdc.gov/transportation/docs/FINAL%20CDC%20Transportation%20Recommendations-4-28-2010.pdf. Accessed February 12, 2011.

[5] Centers for Disease Control and Prevention. (2008). Overweight and obesity. Retrieved from: www.cdc.gov/nccdphp/dnpa/obesity/index.htm. Accessed February 1, 2011.

[6] Transportation Research Board of the National Academies. (2005). Does the built environment influence physical activity? Examining the evidence. TR News, Issue 237, 31-33. Washington, DC: Transportation Research Board.

[7] Centers for Disease Control and Prevention. (2001). Increasing physical activity: A report on recommendations of the task force on community preventive services. Retrieved from: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5018a1.htm. Accessed March 8, 2011.

[8] Kahn, E. (2002). The effectiveness of interventions to increase physical activity. American Journal of Preventative Medicine, 22, 87-88.

[9] The Trust for Public Land. (2004). No place to play: a comparative analysis of park access in seven major cities. San Francisco, CA: The Trust for Public Land.

[10] The Trust for Public Land. (2005). The benefits of parks: Why America needs more city parks and open space. San Francisco, CA: The Trust for Public Land.

[11] Groenewegen, P., van den Berg, A., de Vries, S., & Verheij, R. (2006). Vitamin G: effects of green space on health, well-being, and social safety. BMC Public Health, 6, 149.

[12] Frank, L., Engelke, P., & Schmid, T. (2003). Physical activity and public health. In health and community design: The impact of the built environment on physical activity. Washington, DC: Island Press.

[13] Center for Quality Growth and Regional Development, Georgia Institute of Technology. (2006). Healthy housing: Forging the economic and empirical foundation. Atlanta, GA: Georgia Institute of Technology.

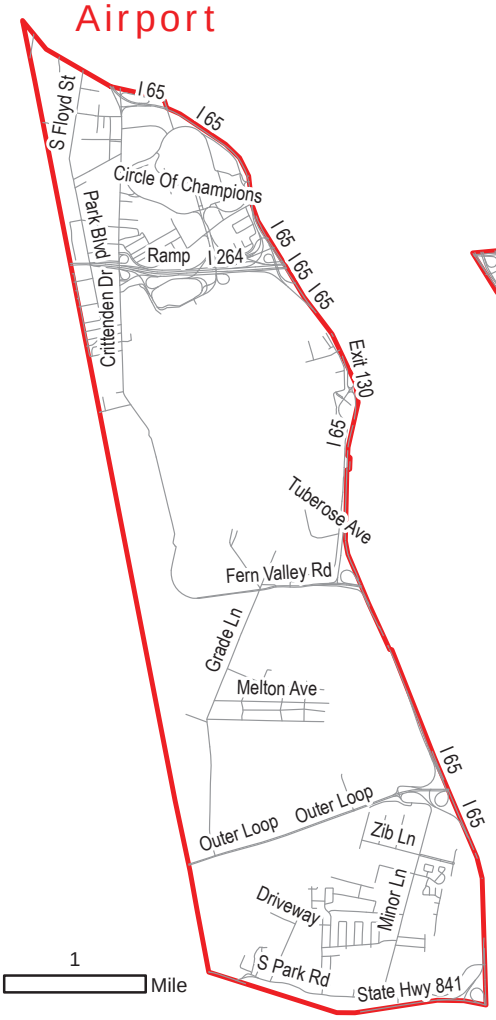
[14] Gordon-Larsen, P, Nelson, M. C., Page, P., & Popkin, B. (2006). Inequality in the built environment underlies key health disparities in physical activity and obesity. Pediatrics, 117, 417-424.

CONCLUSION

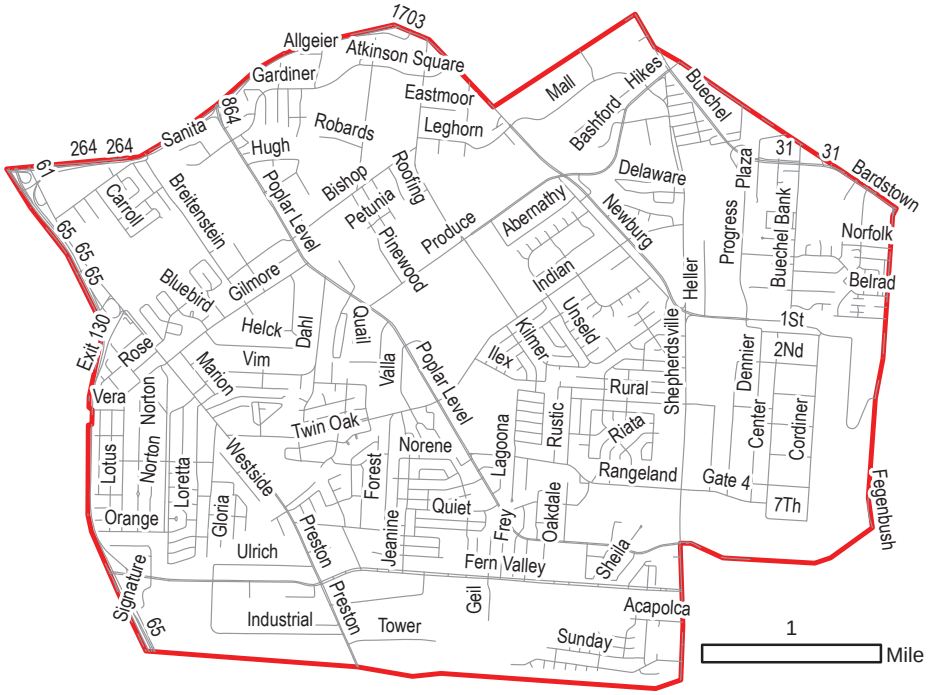
[1] Woolf SH, Johnson RE, Fryer GE, Rust G, Satcher D, The Health Impact of Resolving Racial Disparities: An Analysis of US Mortality Data, American Journal of Public Health, December 2004: 94 (12); 2078-2081.

Appendix A: Neighborhood Area Maps

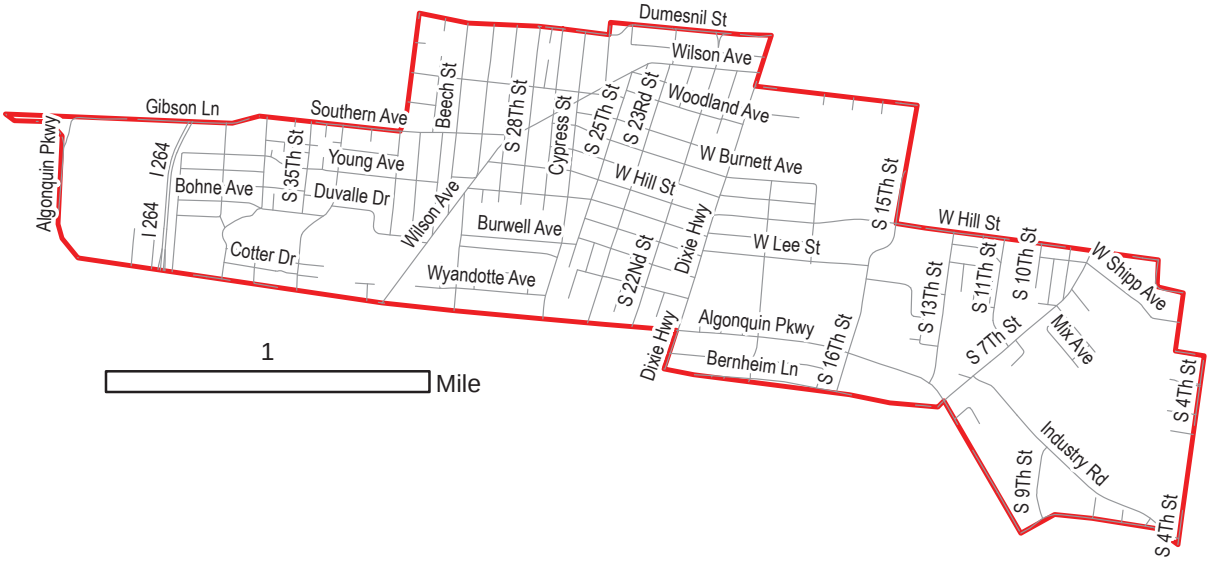
Airport



Buechel-Newburg-Indian Trail

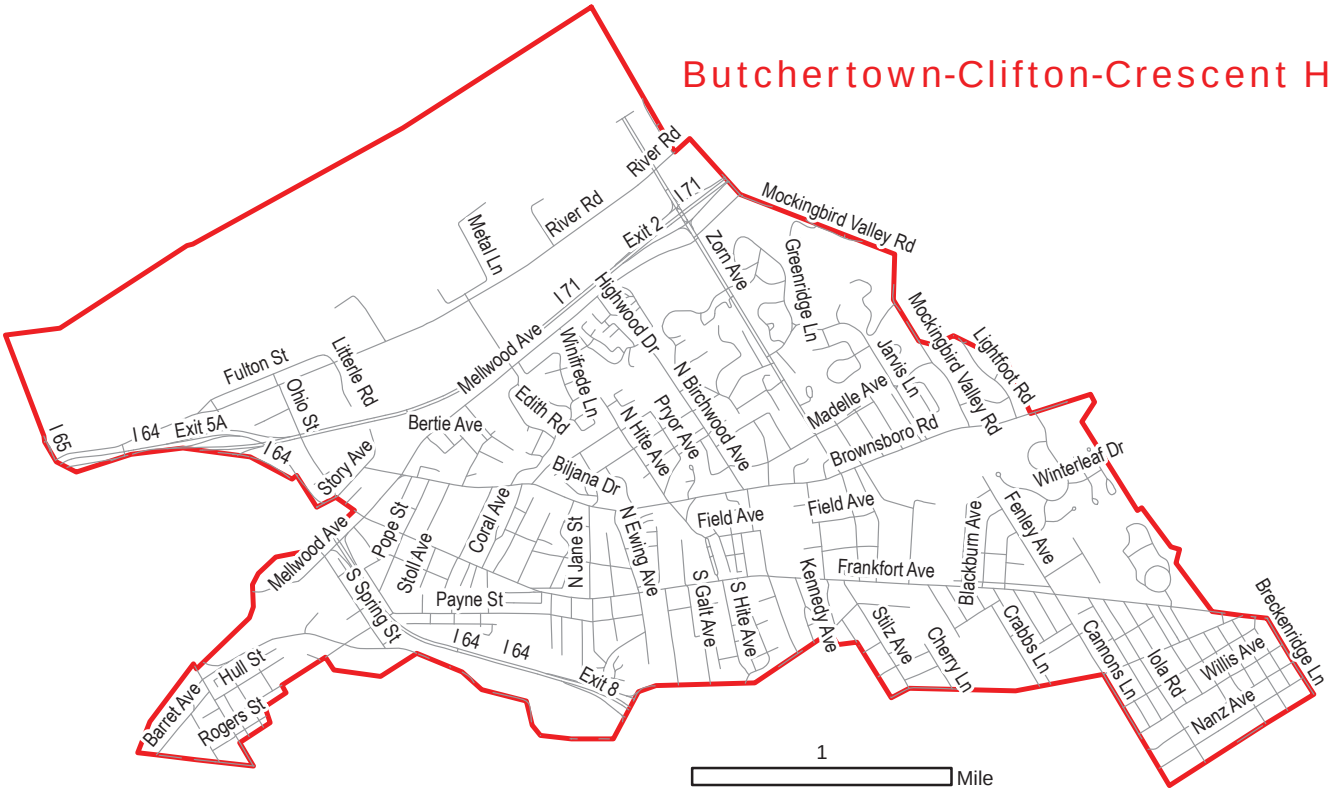


Algonquin-Park Hill-Park Duvalle



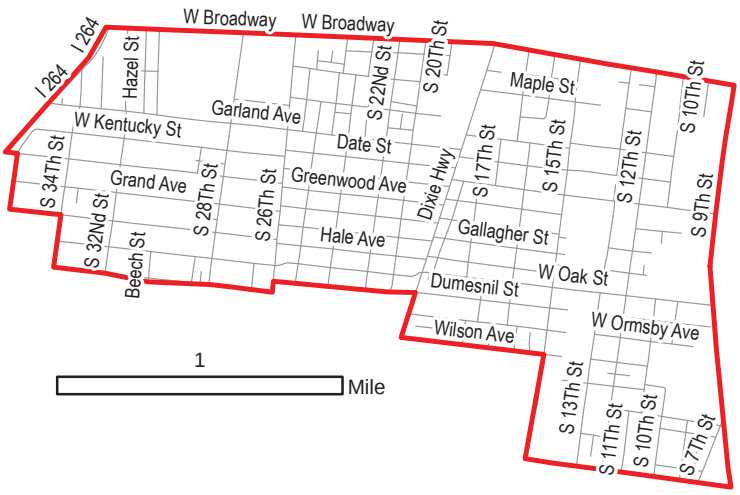
Map Data Sources: U.S. Census Bureau and ESRI

Butchertown-Clifton-Crescent Hill

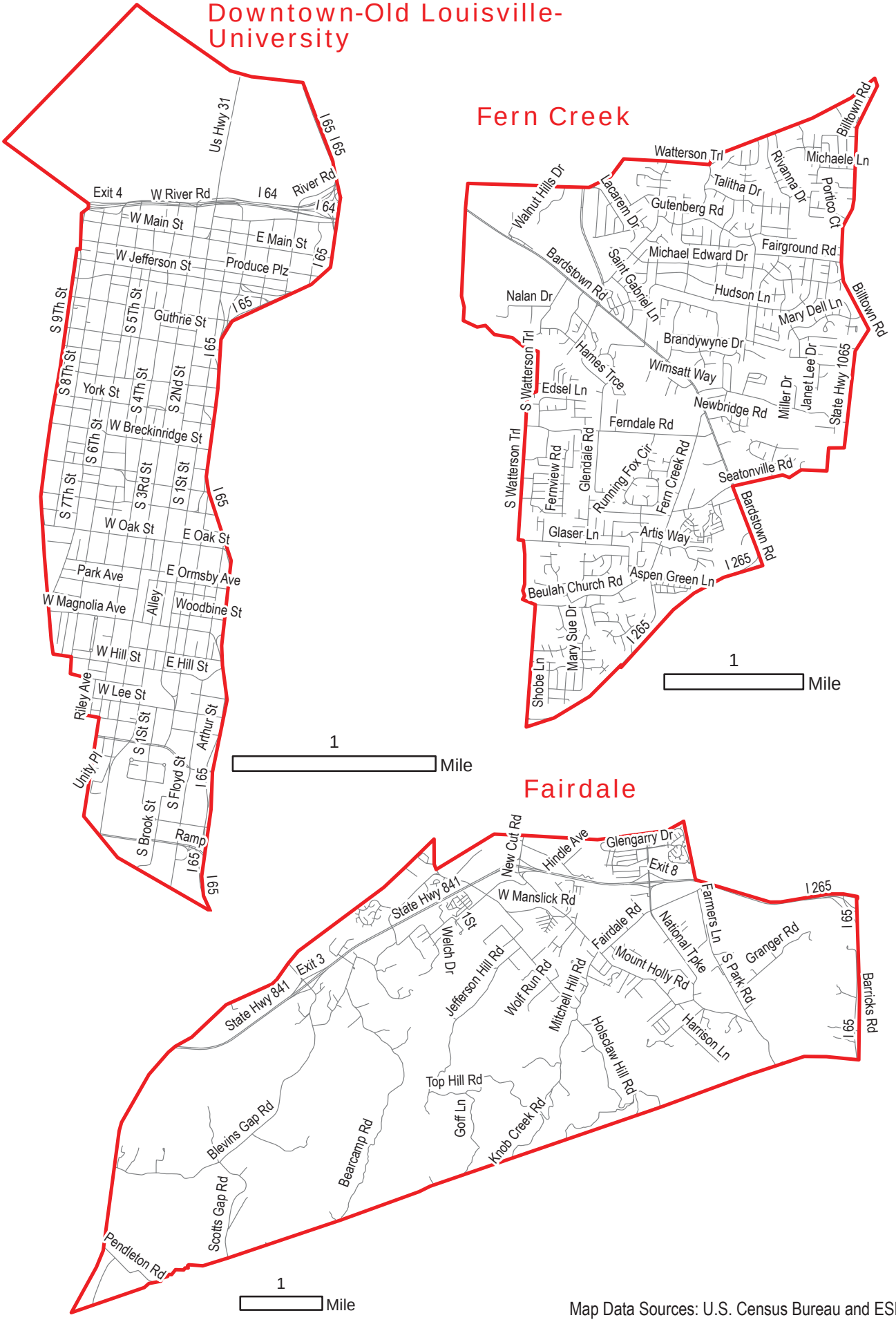


Chickasaw-Shawnee

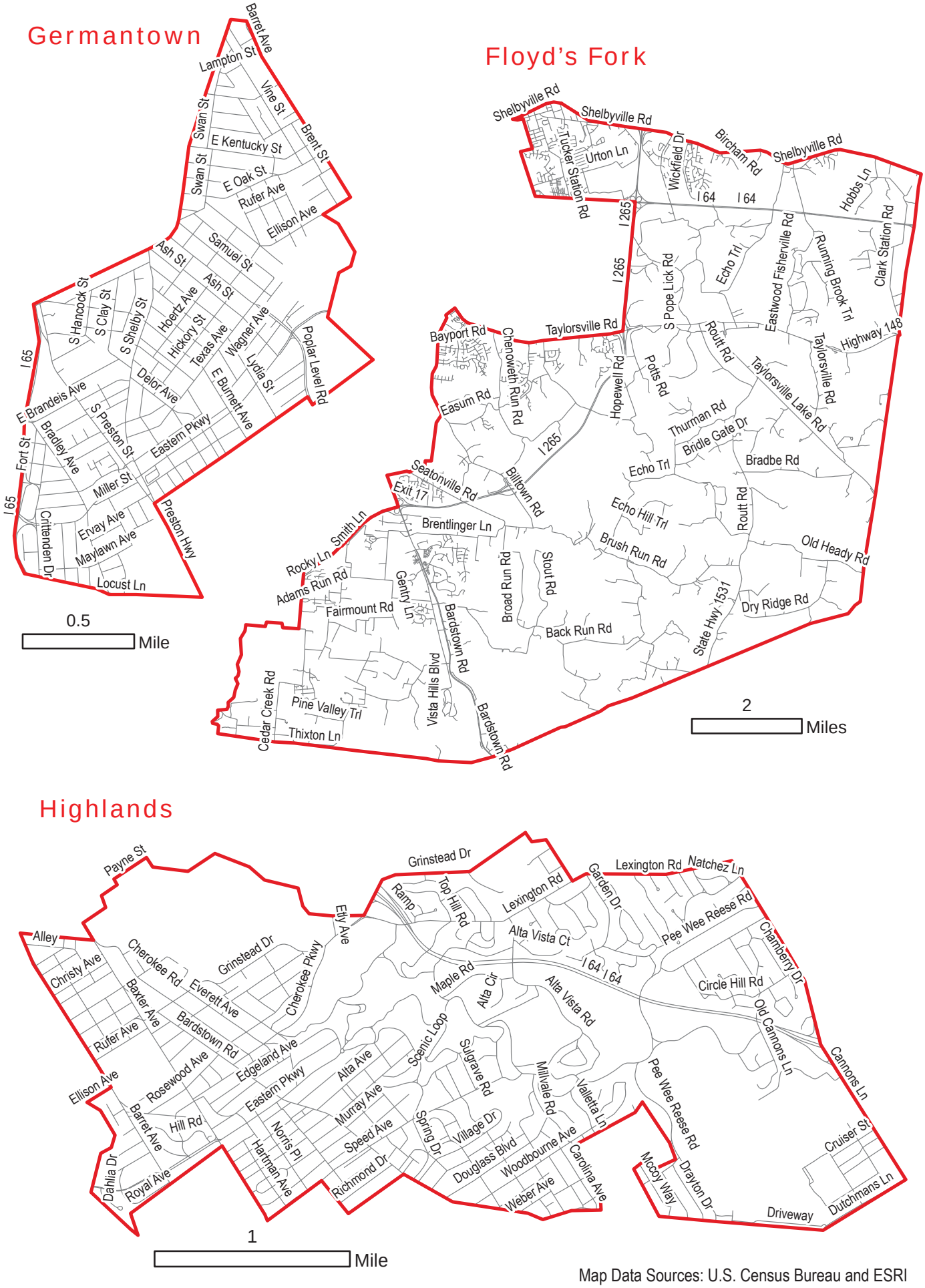
California-Parkland



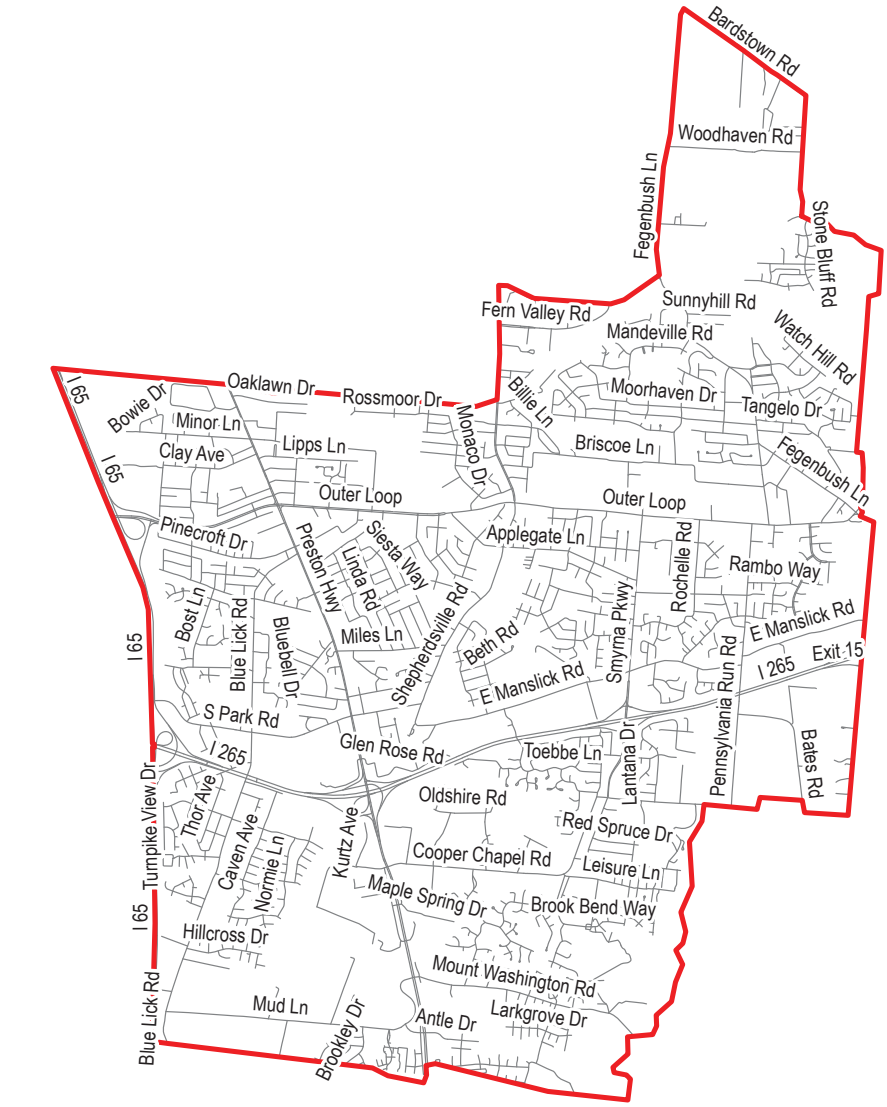
Map Data Sources: U.S. Census Bureau and ESRI

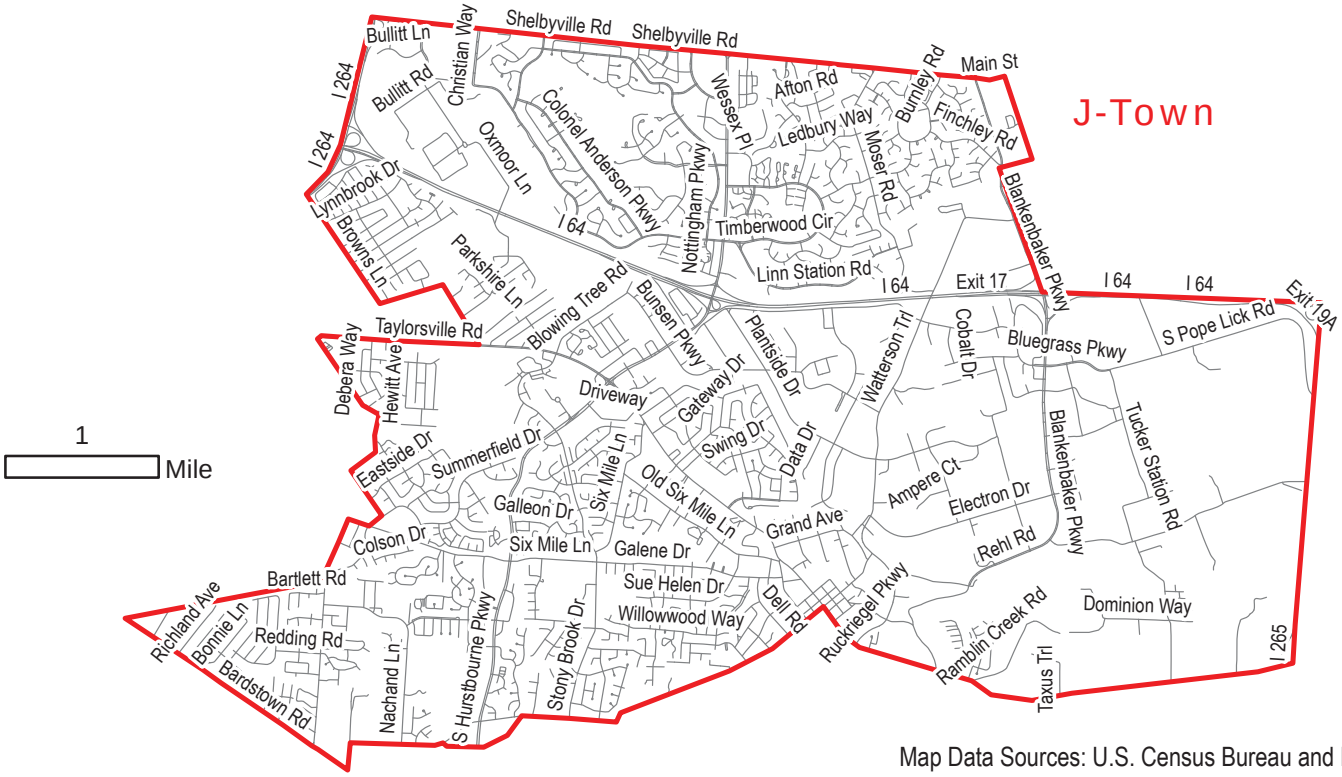


Map Data Sources: U.S. Census Bureau and ESRI

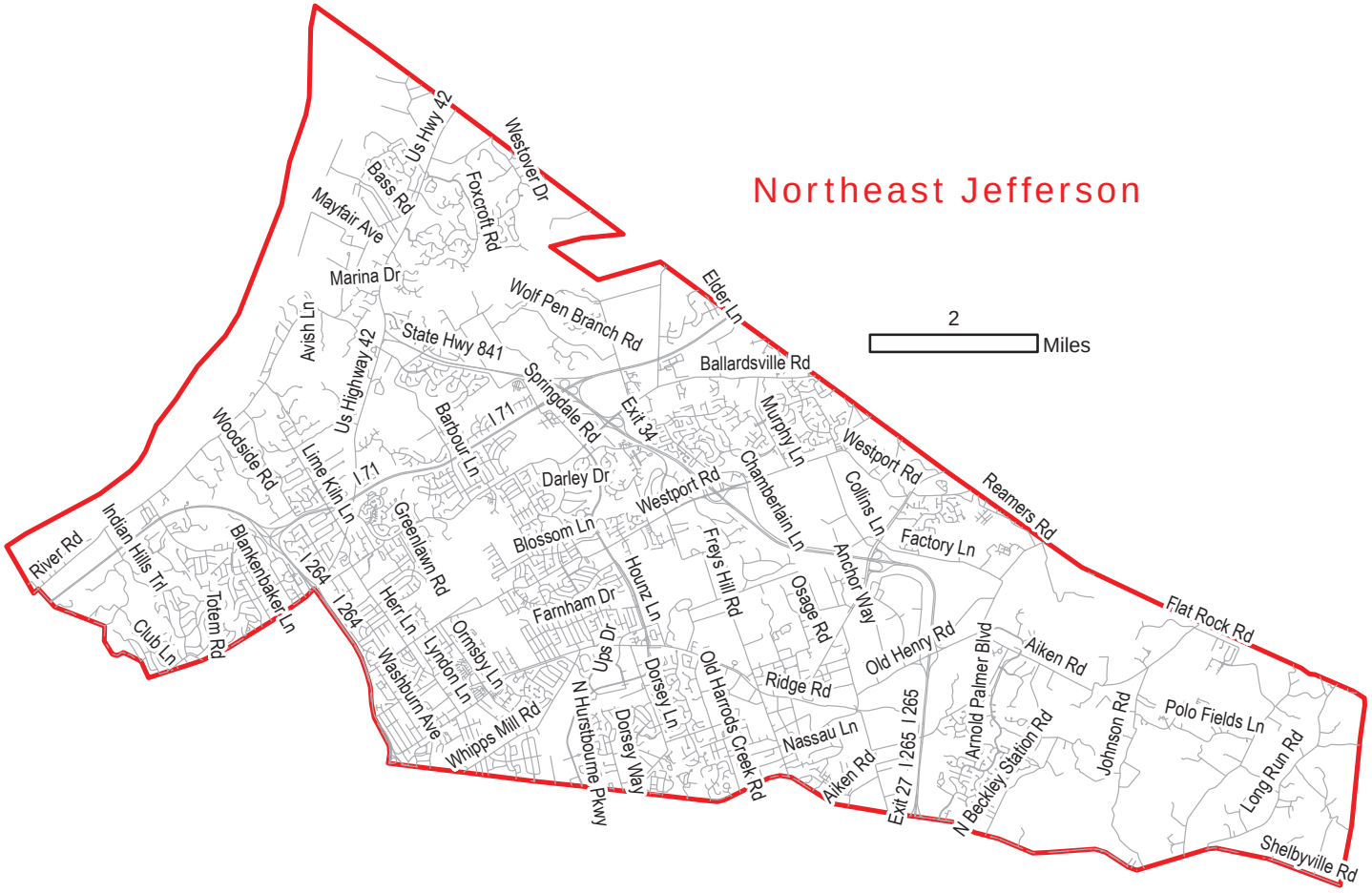


Map Data Sources: U.S. Census Bureau and ESRI



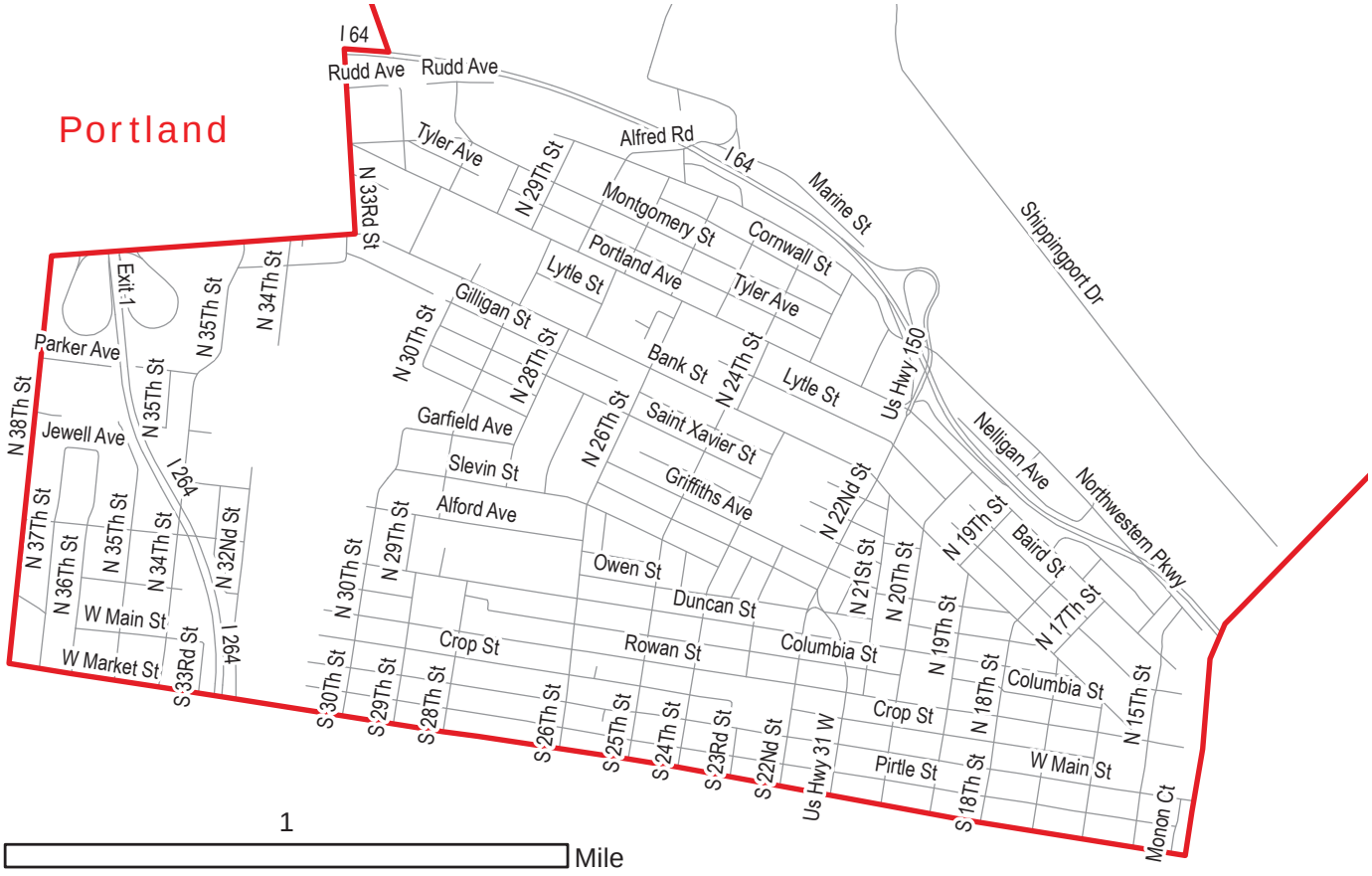


Map Data Sources: U.S. Census Bureau and ESRI

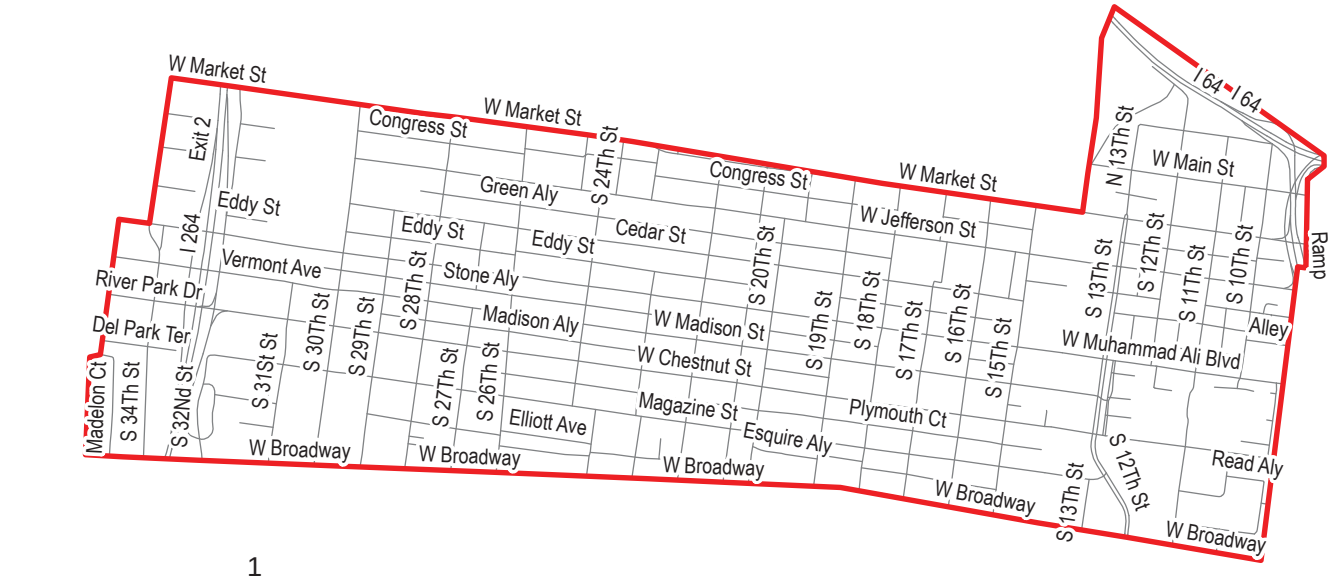


Map Data Sources: U.S. Census Bureau and ESRI

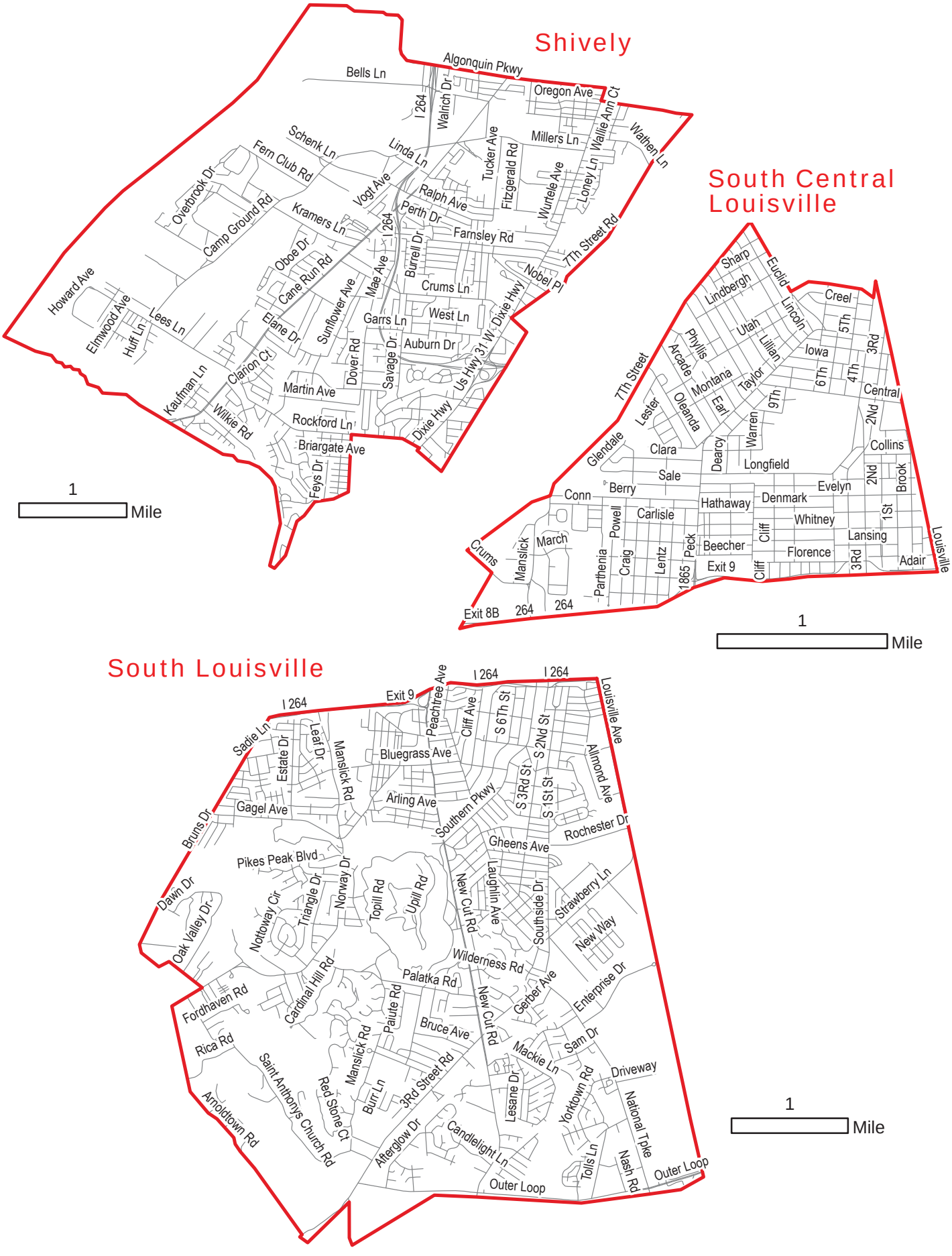
Portland



Russell

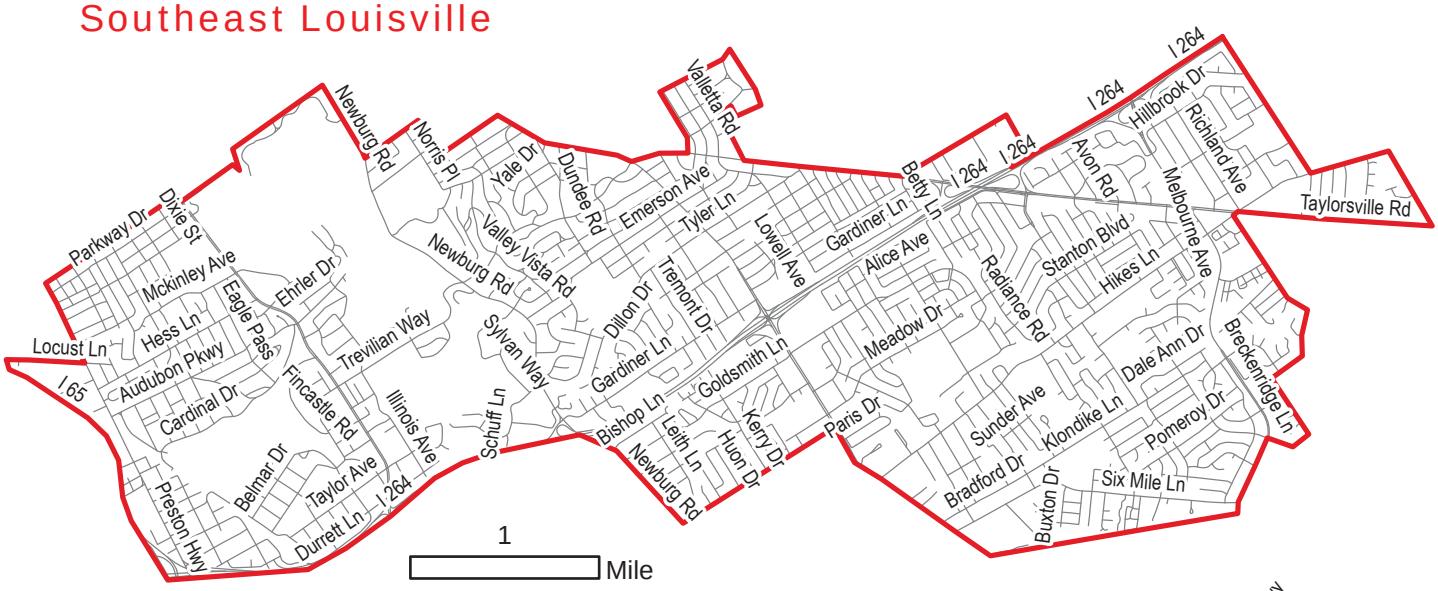


Map Data Sources: U.S. Census Bureau and ESRI



Map Data Sources: U.S. Census Bureau and ESRI

Southeast Louisville



Valley Station

St. Matthews

Map Data Sources: U.S. Census Bureau and ESRI

Appendix B: Work Group Listings

Local Work Group

The local Work Group was made up of key local agency and community organization representatives. This group provided critical advice and assistance in the development of the Health Equity Report, and was involved in developing and refining report content, assistance in raw data acquisition, and in thinking about utilization of the report.

Special thanks to Ray Yeager, MPH for analysis on age-adjusted life expectancy and mortality rates by cause for Neighborhood Areas in Louisville Metro.

Special thanks to Catherine Fosl, PhD for writing and research for the section on the historical context.

Emily Beauregard	Family Health Centers, Inc.
Sasha Belenky	YMCA of Greater Louisville
Mike Bramer	YMCA of Greater Louisville
Luther Brown	Communtiy Activist
Nancy Carrington	Center for Neighborhoods
Khalilah Collins	Kentucky Health Justice Network
Karen Cost	Louisville Metro Board of Health
Angelique David	Louisville Urban League
Michael Dean	California Collaborative
Catherine Fosl	Anne Braden Institute for Social Justice, Univeristy of Louisville
Rus Funk	Community Organizer
Tiffany Gonzales	Center for Health Equity
Tom Gurucharri	Hispanic-Latino Coalition of Louisville
Makeda Harris	Louisville Metro Public Health & Wellness
Tina Hembree	Norton Cancer Institute
Rodney Martin	YMCA of Greater Louisville
Carolyn Miller-Cooper	Louisville Metro Human Relations Commission
Regina Moore	Louisville Metro Public Health & Wellness
Ebony O'Rea	Center for Health Equity (Contractor)
Chris Owens	Louisville Metro Office for Women
Haritha Pallum	Louisville Metro Public Health & Wellness
Kendria Rice-Lockett	Louisville Metro Parks & Recreation
Angel Rubio	Center for Health Equity (Contractor)
Shalonda Samuels	Center for Health Equity
Judy Schroeder	Metro United Way
Lavonne White	Louisville Metro Public Health & Wellness
Anthony Williams	Louisville Metro Parks & Recreation
Deonna Williams	University of Louisville Dental School
Ray Yeager	Louisville Metro Public Health & Wellness (Contractor)

National Work Group

As a part of the Health Equity Report process a national-level Work Group was organized to provide direction for the project. A series of conference calls were conducted with agency representatives from communities that have produced Health Equity Reports in their communities. Through the series of conference calls the participants discussed what these communities had learned in their own Health Equity Report processes, and provided key input in the conceptualization of a framework for the Louisville Health Equity Report.

Ashely Bowen	National Association of County and City Health Officials (NACCHO)
Karen Cost	Louisville Metro Board of Health
Helen Deines	Race, Community and Child Welfare Initiative
Amber Duke	Anne Braden Institute for Social Justice, Univeristy of Louisville
Cate Fosl	Anne Braden Institute for Social Justice, Univeristy of Louisville
Sharon Mierzwa	Connecticut Association of Directors of Health, Inc.
Carolyn Miller-Cooper	Louisville Metro Human Relations Commission
Neba Noyan	Social Compact Inc.
Ebony O'Rea	Center for Health Equity (Contractor)
Haritha Pallum	Louisville Metro Public Health & Wellness
Bob Prentice	Bay Area Regional Health Inequities Initiative (BARHII)
Michael Royster	Virginia Department of Health
Lisa Tobe	Center for Health Equity
Carolina Valencia	Social Compact Inc.
Ray Yeager	Louisville Metro Public Health & Wellness (Contractor)
Ianita Zlateva	Connecticut Association of Directors of Health, Inc.