



THE OHIO STATE UNIVERSITY

KIRWAN INSTITUTE FOR THE
STUDY OF RACE AND ETHNICITY

OVERVIEW OF THE OHIO 2022–2023

USR Opportunity Index

A new form-based, user-friendly framework for incentivizing economically stable and socially equitable housing development.



This publication was produced by the Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University. As a university-wide, interdisciplinary research institute, the Kirwan Institute works to deepen understanding of the causes of—and solutions to—racial and ethnic disparities worldwide and to bring about a society that is fair and just for all people.

Kirwan Institute research is designed to be actively used to solve problems in society. Its research and staff expertise are shared through an extensive network of colleagues and partners—ranging from other researchers, grassroots social justice advocates, policymakers, and community leaders nationally and globally, who can quickly put ideas into action.

For More Information

The Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University is known and respected nationally and deeply engaged in social issues. We are focused on projects that are integrated with sound research, strategic communication, and advocacy. To learn more, visit www.kirwaninstitute.osu.edu.



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INTRODUCTION

Defining Opportunity

What would motivate people to move across town, across the country, or across the world?

Opportunity is a set of conditions that place people in positions to be more likely to succeed or excel. Opportunity is not something that an individual can possess; rather, it is something that a person can experience. All people want access to economic and social opportunity structures. At The Kirwan Institute, we have worked for over a decade to measure and understand the structural drivers of opportunity-rich communities and have quantified opportunity through our Opportunity Mapping Framework.

Because opportunity is a set of conditions, housing and neighborhoods are at the forefront of most people's minds when considering housing choice. Ohioans seeking social opportunity want meaningful human connections, access to education, and a stable social network. Ohioans seeking economic opportunity want access to living wage jobs, a strong housing market, and desire to benefit from national economic growth. Affordable housing in areas of opportunity is critical to building opportunity-rich communities for all and for sustaining, enlarging, and strengthening America's middle class. Affordable family housing in areas of opportunity increases economic and social mobility. Communities that invest in building opportunity structures have a competitive edge for attracting residents and investment compared to other communities. Developers and advocates making investments in opportunity-building structures like affordable family housing are making Ohioans and Ohio regions more competitive in economic and social markets.

Op-por-tu-ni-ty

(aper't(y)oonede) *noun*

A situation or condition that places an individual in a position to be more likely to succeed or excel.



What does it mean to visualize opportunity?

The Kirwan Institute developed our Opportunity Mapping Framework more than a decade ago to understand how opportunity is distributed spatially; or, to visualize opportunity. Opportunity Mapping illustrates markets of opportunity for all communities—urban, suburban, and rural communities. Building on the Ohio Housing Finance Agency (OHFA) and Kirwan Institute six-county pilot project, the 2018–2019 and 2020–2021 USR Opportunity Indices, the updated 2022–2023 USR Opportunity Index refines the definitions of Urban, Suburban, and Rural areas and allows developers and advocates to play a role in caring for current and future generations of Ohioans by targeting place-based family housing Low-Income Housing Tax Credit (LIHTC) investment.

By targeting family housing investment, advocates and developers can build and promote Ohio's middle class by enabling housing choice. The updated 2022–2023 USR Opportunity Index considers developer and advocate feedback from the previous Opportunity Index versions, to better illustrate differences in opportunity across and between places like Cleveland and Chillicothe, Blue Ash and Bexley, and Maumee and Marietta. The updated 2022–2023 USR Opportunity Index is a state-wide, comprehensive framework, designed (a) to be fair, equitable, inclusive, and stable and (b) to reduce a complexity in measuring opportunity and empower developers and advocates.

FOUNDATIONS

Opportunity Mapping

An Infographic Explainer

The Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University (Kirwan Institute) pioneered ‘Opportunity Mapping’ to support the efforts of the National Association for the Advancement of Colored People’s (NAACP) US Supreme Court Case, Thompson v. US Department of Housing and Urban Development (HUD) in 2005. In Thompson v. HUD, the Supreme Court decided that the Federal Government, including HUD, must consider regional opportunity when allocating fair housing money. The Kirwan Institute has continuously refined Opportunity Mapping. This infographic explains the basics of Opportunity Mapping in a step-by-step process, and answers many of the frequently asked questions Kirwan Institute receives.

THE OPPORTUNITY MAPPING PROCESS



STEP 1: A stakeholder asks, "What does Opportunity look like in *my* community?"



STEP 2: Kirwan Institute Digs for *data*...

While Kirwan Institute prefers data from the US Census like the American Community Survey for Statewide mapping, we are also able to incorporate local data into the **2022–2023 USR Opportunity Index**. Data from The Ohio Department of Health, HUD, and The Ohio Department of Education provide granular data to inform our health, education, and housing sub-indices.

Kirwan Institute prefers using government sourced data, such as information from the US Census Bureau’s American Community Survey (ACS). As a core dataset of most Opportunity indices’s, Kirwan Institute prefers the 5-Year ACS Estimates, because of its scale advantages.

Ohio | Department of Education
 Kirwan Institute also uses data from state governments, like the **Ohio Department of Education**.

	1 Year ACS Estimates	3 Year ACS Estimates	5 Year ACS Estimates
Data Collected	12 Months	36 Months	60 Months
Best Scale	Areas of 65,000+	Areas 20,000+	Areas 1,000+
Best Geographic Application	Nation, State, & County	Nation, State, County, & Cities	Nation, State, County, Cities, & Neighborhood
Advantages	Most Current Data	Somewhat Current Data Moderately Reliable	Best Geographic Scale High Reliability
Disadvantages	Low Reliability Collected for Large Communities	Collected for Mid-Sized Communities	Least Current Data

STEP 3:

Kirwan Institute

Collects and Cleans the *data* to create *indicators*.

Informed by research, Kirwan Institute selects data. The, working in partnership with local stakeholders, Kirwan Institute selects and sorts the data into categories. Kirwan then sorts and cleans data to turn data into indicators at the US Census Tract level. Some typical categories include:

Typical Indicator Categories



Housing



Education



Transportation



Employment



Health



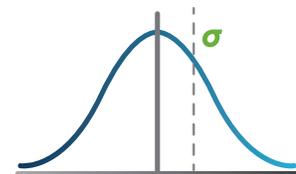
You could call this a *data deep dive*... This is the most time intensive part of creating an Opportunity Index

STEP 4:

Kirwan Institute

Normalize the *indicators* to create *z-scores*.

After data selection, sorting, and cleaning, Kirwan Institute normalizes the indicators, by measuring how far away each individual data point is from the mean, or average, of all data points. This measurement is either positive (+) or negative (-) and is a measurement of the number of standard deviations (or the data spread of all data points) between that data point and the average and is referred to as the **z-score**.



Indicators with a **'normal distribution'** of data work best for Opportunity Mapping.

STEP 5:

Kirwan Institute

Averages *z-scores* to create a category *sub-index*.

The z-scores for each indicator within each category are then averaged. These categorical sub-indices help stakeholders see the cumulative impact of inequality in specific categories.



Sub-Indices reveal **spatial inequalities** in neighborhoods.

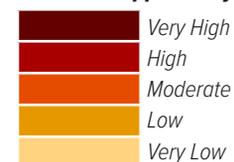
STEP 6:

Kirwan Institute

Averages all *sub-indices* to create an *Opportunity Index*. Then we map it!

Each sub-index is averaged together. This does two things; 1) it ensures that no component is more important than another, and 2) it allows Kirwan Institute to map Comprehensive Opportunity. Kirwan Institute uses the 'Quintile' approach to equally portion the total number of neighborhoods, or US Census Tracts into Very High, High, Moderate, Low, and Very Low Opportunity. For example: if there is a city with 101 neighborhoods, or Census Tracts, 20 would be Very High; 20 would be High, 21 would be Moderate, 20 would be Low, and 20 would be very low. For odd breaks, uneven tracts are included in the Moderate Opportunity classification.

Shades of Opportunity



The above colors are the official Kirwan Institute color palette for Opportunity Mapping; they represent the shades of Opportunity in American cities.

Overview

This new data tool helps developers and advocates strategize their housing investments by exploring opportunity at a statewide level.

The 2022–2023 USR Opportunity Index is an updated data tool developed by The Kirwan Institute in partnership with the Ohio Housing Finance Agency (OHFA) to help advocates and developers using Low-Income Housing Tax Credits (LIHTC) in their application processes. The 2022–2023 USR Opportunity Index refines the definitions of urban, suburban, and rural typology to better align these markets with state and federal datasets. Additionally, the 2022–2023 USR Opportunity Index builds on applied lessons and stakeholder feedback, and throughout each version of the Opportunity Index developed for OHFA. Changes in the 2022–2023 USR Opportunity Index are consistent with OHFA and The Kirwan Institute’s mission to ensure academic rigor, address community concerns, and affirmatively further fair housing into areas of High Opportunity.

Kirwan Institute updated the 2020–2021 USR Opportunity Index with the understanding that Ohio’s housing needs and priorities seek to “expand and preserve affordable housing opportunities,” and “focus on customer-driven, sustainable multi-sector solutions to promote public health, welfare, and prosperity of the people of the State.” (OHFA, 2017, pp. 5). In doing so, OHFA and The Kirwan Institute believes that the 2022–2023 updated USR Opportunity Index is an applied tool that responds to differences between urban, suburban, and rural market areas.

This short report details the approach, inputs, methods, and indicators developed to build the 2022–2023 USR Opportunity Index.

A 'User' Friendly Opportunity Index
When talking about the USR Opportunity Index you can refer to it quickly by calling it the 'User' Opportunity Index. Kirwan Institute has taken an extensive amount of time to design the USR Opportunity Index to be more user friendly.

To Access the 2022–2023 USR Opportunity Index scan the QR Code or visit:

go.osu.edu/USROpportunityIndex



Background

Lessons learned and differences between the 2016–2017 pilot, and previous statewide USR Opportunity Indices.

Prior to the 2016–2017 Opportunity Index, OHFA emphasized the placement of LIHTC into Qualified Census Tracts (QCTs) or Difficult Development Areas (DDA's). QCT's are neighborhoods where more than half of households are under 60% of the Area Median Income or have a poverty rate of 25% or more. DDA's are areas with high construction, land, and utility costs relative to the Area Median Gross Income. These census tracts were historically prioritized to encourage development. In late 2014, OHFA contracted with Kirwan Institute to develop a pilot data mapping tool for a new policy-based approach that considered the opportunity of local neighborhoods. Rolled out for the 2016–2017 process, the 2016–2017 Opportunity Index was a pilot program that classified Census Tracts in Ohio's six largest counties: Cuyahoga (Cleveland), Franklin (Columbus), Hamilton (Cincinnati), Lucas (Toledo), Montgomery (Dayton), and Summit (Akron).

Available as a mapping and data tool on OHFA's website, the Opportunity index scores Composite Opportunity in Census Tracts on a five-tier scale: Very High, High, Moderate, Low, and Very Low. Composite Opportunity, per the index, is a combination of three smaller indices that quantify educational, economic, and environmental opportunity: each responding to different portions of social and economic opportunity. OHFA awards points to development proposals based on their location in areas of Moderate, High, and Very High Opportunity.

In applying the pilot 2016–2017 Opportunity Index to the process, OHFA and Kirwan Institute learned lessons about how developers and advocates use and understand Opportunity Mapping. One of the key limitations of the pilot 2016–2017 Opportunity Index was that it only accounted for the largest counties in the state, leaving the rest of the State of Ohio unmapped. Additionally, the pilot 2016–2017 Opportunity Index mapped opportunity across each county, and did not consider the urban, suburban, or rural nature of market areas. To address these limitations, OHFA contracted Kirwan Institute in Fall 2016 to conduct stakeholder engagement and develop a statewide model to map opportunity. The result of this work was the first 2018–2019 USR Opportunity Index.

In the 2022–2023 USR Opportunity Index, we replaced four of the fifteen indicators used in the previous 2020–2021 USR Opportunity Index. Changes were made primarily due to the availability of data and to reduce redundancy between the Opportunity Index and the Change Index. The number of indicators within each subindex has remained constant from the 2020–2021 USR Opportunity Index to ensure each subindex has equal representation. The 2022–2023 USR Opportunity Index refines the USR Typology indices to better reflect Federal and State sources and definitions. These refinements have affected about 10% of tracts Statewide. In summary, these improvements to the 2020–2021 USR Opportunity Index better capture the social and economic structures of Opportunity and USR Typology throughout Ohio, enabling new prospects for developers and advocates to engage in their common mission.

Measuring Opportunity

To measure opportunity, Kirwan Institute calculates a common statistical derivative known as a 'z-score.' In laymens terms, it is the distance away from the average; or, z-scores are measured in standard deviations from the average. The greater the number away from 0 (ex. +4 or -4) the more unique that tract is. By combining factors, a comprehensive opportunity model is developed.

Development Process

Or, how Kirwan Institute built the original 2018–2019 USR Opportunity Index.

To improve the 2020–2021 USR Opportunity Index, OHFA and Kirwan Institute built on lessons learned, sought stakeholder feedback, and researched the most innovative methods to ensure Ohio's competitiveness among other states. One important piece of feedback OHFA and Kirwan Institute received was that stakeholders wanted a clearer picture of the development process behind the 2020–2021 USR Opportunity Index. Below is a short sketch of steps required to create the new index.

Learning From the 2020–2021 Opportunity Index

Process Matters

Another key piece of stakeholder feedback was that developers and advocates wanted to see what the process for developing the 2018–2019 USR Opportunity Index looked like.

- January 2021* OHFA reaches out to The Kirwan Institute to discuss updates to the USR Opportunity Index Methodology and data.
- February 2021* Kirwan Institute reflects on developer feedback and comments from previous USR Opportunity Index. Develops recommendations to address the feedback.
- March 2021* Kirwan Institute conducts literature review on USR Opportunity Indicators to find replacements for data variables that are too old or no longer exist.

Building the 2022–2023 USR Opportunity Index

- April 2021* Kirwan Institute reviews literature on USR Component of the Opportunity Index.
- May 2021* Kirwan Institute refines the USR component of the Opportunity Index and develops methodology consistent with Federal and State sources.
- June 2021* Kirwan Institute conducts the USR Opportunity Index Analysis.
- July 2021* Kirwan Institute finalizes the USR Opportunity Index. Constructs the Online Opportunity Index Tool.

Approval Process

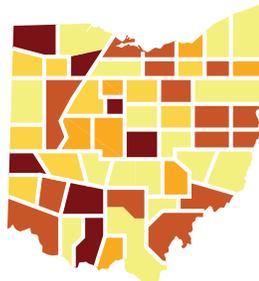
- August 2021* OHFA circulates 2022–2023 USR Opportunity Index for stakeholder feedback and comment. Results from the survey regarding indicators are evaluated and considered for future USR Opportunity Indices. OHFA feedback and comment period end.

Opportunity Index Layers

The 2020–2021 USR Opportunity Index uses three layers to explore the contours of opportunity in Ohio.



Layer 1:
USR INDEX



Layer 2:
OPPORTUNITY
INDEX



Layer 3:
COMMUNITY
CHANGE INDEX

Layer 1: USR Index

At the core of the 2022–2023 USR Opportunity Index is the delineation of differences between urban (U), suburban (S), and rural (R) markets. Using advanced methods, better aligned with Federal and State methodologies, The Kirwan Institute built the USR index to simply illustrate differences in the built form; which include differences in housing types and development patterns. This component’s methodology has been redesigned but only affect 10% of Census tracts statewide.

Layer 2: Opportunity Index

There are five categories with 15 total indicators in the 2022–2023 USR Opportunity Index. The five categories of indicators are: Transportation Opportunity, Educational Opportunity, Employment Opportunity, Housing Opportunity, and Health Opportunity.

Layer 3: Community Change Index

There are two components of the Neighborhood Change Index: Housing Market Change and Demographic/Social Change. The Housing Market Change indicators contain four indicators. The Demographic / Social Change indicators contain three. Selected indicators are grounded in professional and academic literature related to neighborhood change and community development.

LAYER 1:

USR Index

Separating Built Form

Differentiating Urban, Suburban, and Rural built form by using elements of built form such as Road Network Density, Urbanized Area, Housing Density and Age, and Population Density enables separation of market areas. The previous methodology was revised to align the index better with classification methods from the USDA, US Census, and academic methods like the Airgood-Obrycki Index.ⁱ

Using a two-step K-Means clustering algorithm looking at density and connectivity indicators, census tracts across the state were categorized into 14 cluster groups which have rural, suburban, and urban characteristics in built form together. Relying on an existing classification system, the Airgood-Obrycki Index, we refine the clusters by looking at the era of housing construction and density with neighborhoods having a high density of prewar (before 1939) housing stock being more urban. Further refinement of the criteria involves classifying tracts as Urban or Suburban if they are located within an urbanized area. Tracts with urban or suburban characteristics were classified as town core, town, or small town (part of the rural classification) if they were in an urbanized cluster. This is a key distinction from the previous USR Index as places like Lancaster, Marion, and Sandusky are now consider towns instead or suburban or urban. Below are characteristics used in the clustering algorithm or part of the classification tree afterwards.

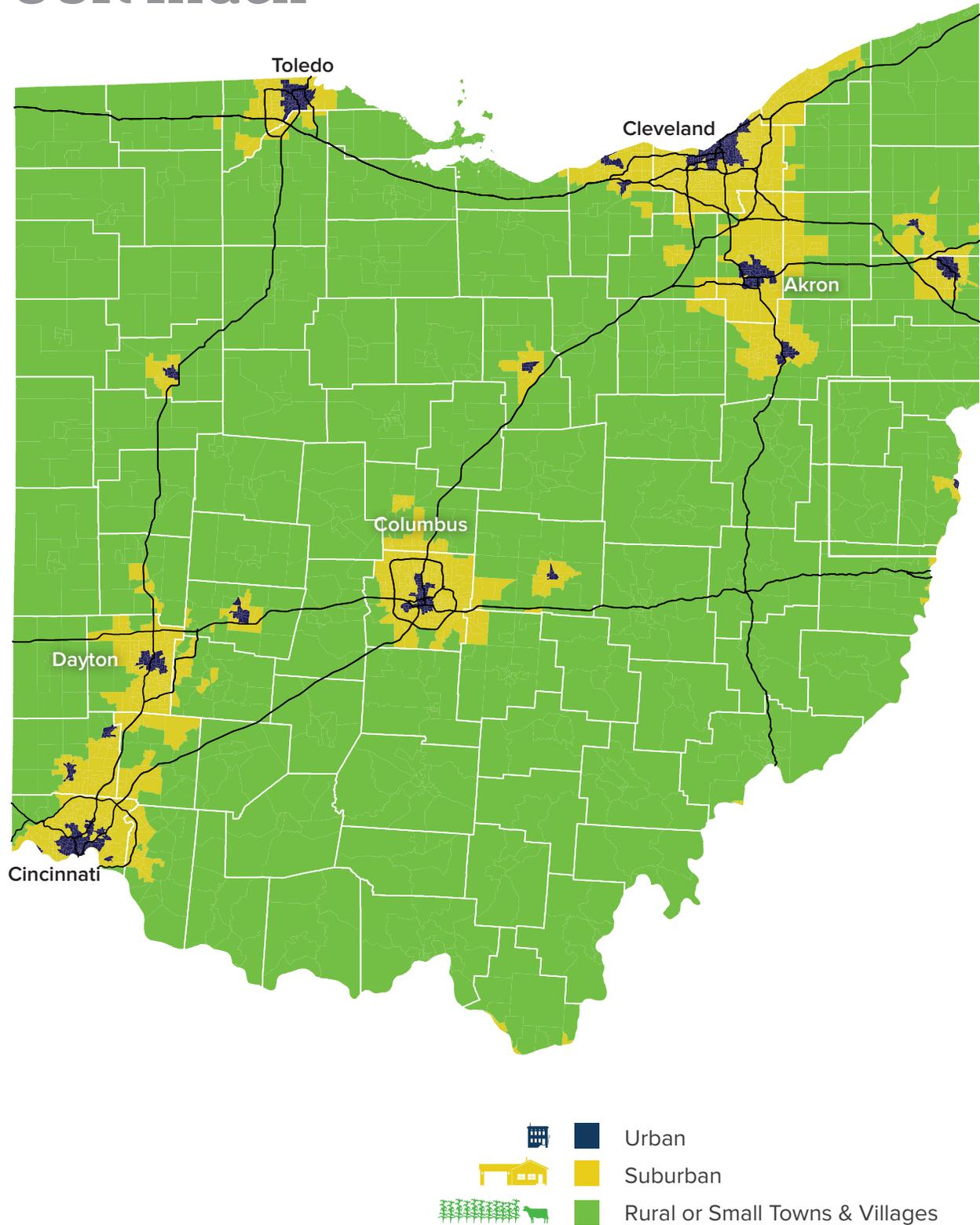
Index Component	Index Component Description
<i>Road Network Density</i>	Dense road networks exist in urban and suburban areas, forming networks between neighborhoods within a community. Using road network density helps capture areas at the edges of communities, allowing Kirwan Institute to carefully separate suburban areas from rural.
<i>Cul De Sac Density</i>	A high density of disconnected streets is a key design characteristic of suburban neighborhoods.
<i>Intersection Density</i>	A high density of connected streets is a traditional characteristic of urban areas prior to the 1960's before subdivision regulations incorporated elements to discourage through traffic.
<i>Urbanized Area</i>	Despite the advantages of using road network density to separate urban and suburban form from rural, small pockets of dense road networks create urban outliers far from central cities. Using the US Census definition of urbanized area, rural areas were further distinguished from urban and suburban forms.
<i>Housing Density & Age</i>	To separate urban from suburban areas, Kirwan Institute built on methods utilized by Cooke & Marchant (2006) ⁱⁱ and Airgood-Obrycki (2017) that examine the age density of housing units to assess differences between urban and suburban built form.
<i>Population Density</i>	Lastly, by using population density, Kirwan Institute was able to further refine urban, suburban, and rural classifications.

i Airgood-Obrycki, W., Hanlon, B., & Rieger, S. (2020). Delineate the US suburb: An examination of how different definitions of the suburbs matter. *Journal of Urban Affairs*, 1-22.

ii Cooke, T., & Marchant, S. (2006). The changing intra-metropolitan location of high-poverty neighborhoods in the US, 1990-2000. *Urban Studies*, 43(11), 1971-1989.

MAP 1:

USR Index



LAYER 2:

Opportunity Index

Transportation Opportunity

Access to transportation is a fundamental requirement to access social and economic opportunities. Assessing the varied forms of transportation, along with the time it takes to get to employment, is a core component of the 2022–2023 USR Opportunity Index. The public transit index was replaced with the connectivity index due to route changes and cuts expected to public transit agencies because of the COVID-19 pandemic.

Index Component	Index Component Description
<i>Connectivity Index</i>	This index loosely based on the EPA's Walkability Index looks at job, worker, and road network density as proxies to walkability. Areas with denser road networks are more walkable and easier to traverse. Likewise, locations with higher job and worker densities are also more walkable in nature as a mixture of both indicates mixed use locations and zoning.
<i>Average Commute Time</i>	The time required to commute to economic and social opportunities directly impacts quality of life. Higher commute times are less desirable than shorter commute times.
<i>Automotive Access</i>	Access to a car for transportation increases economic and social opportunities by expanding the potential reach of households.

Educational Opportunity

Educational quality is a core component of the 2022–2023 USR Opportunity Index because of its links to social and economic opportunities. Proximity to high quality schools that have value added and low poverty rates, combined with existing educational attainment are stable indicators of educational quality.

Index Component	Index Component Description
<i>Educational Attainment</i>	Neighborhoods with high educational attainment attract social and economic opportunities.
<i>School Performance</i>	Neighborhoods with high performing schools provide more opportunities for social and economic mobility.
<i>Closing Gaps to Access</i>	Schools that do a better job of closing the achievement gap between traditional students and those with more challenges and disadvantages provide the best opportunities for those in disadvantaged positions. Gifted programs and resources for special needs students add value to the performance of a school.

Employment Opportunity

A stable, meaningful job is a ticket to the middle class. As a core component of the 2020–2021 USR Opportunity Index, Employment is key to social and economic mobility. Neighborhoods with low unemployment and access to employment opportunities are desirable. Additionally, having access to childcare has benefits for working families with young children.

Index Component	Index Component Description
<i>Entry Level Job Access by Educational Attainment</i>	Expanding access to economic and social opportunities requires jobs. This indicator considers job competition for entry level employment by the relative education of those in a neighborhood.
<i>Certified Childcare Center Access</i>	Neighborhood-level accredited childcare access is one condition or structure of opportunity that is crucial for working families.
<i>Unemployment Rate</i>	High unemployment rates are an indicator of low economic and social opportunities, while areas with low unemployment have high economic and social opportunities.

Housing Opportunity

Housing considerations are a core component of the 2022–2023 USR Opportunity Index because where you live affects household social and economic opportunity. The 2022–2023 USR Opportunity Index replaces housing cost burden and average net wealth with median rent and median home value. Median rents and home values signify the health of the local housing market and economic health of those living within those housing markets. Median home values are correlated with wealth and median rents are correlated with income levels in each geography. In addition, making sure that affordable housing units are not overly concentrated enables housing choice.

Index Component	Index Component Description
<i>Median Rent</i>	Higher median rents indicate high income levels and are locations where housing developers are building or acquiring more expensive housing stock.
<i>Median Home Value</i>	Having neighborhoods with high home values indicates a strong housing market.
<i>Existing Affordable Housing Concentration</i>	Concentrating affordable housing options in certain places and not in others limits consumer housing choice; Distributing affordable housing in urban, suburban, and rural areas, expands economic and social mobility throughout the state and prevents poaching from existing affordable housing investment.

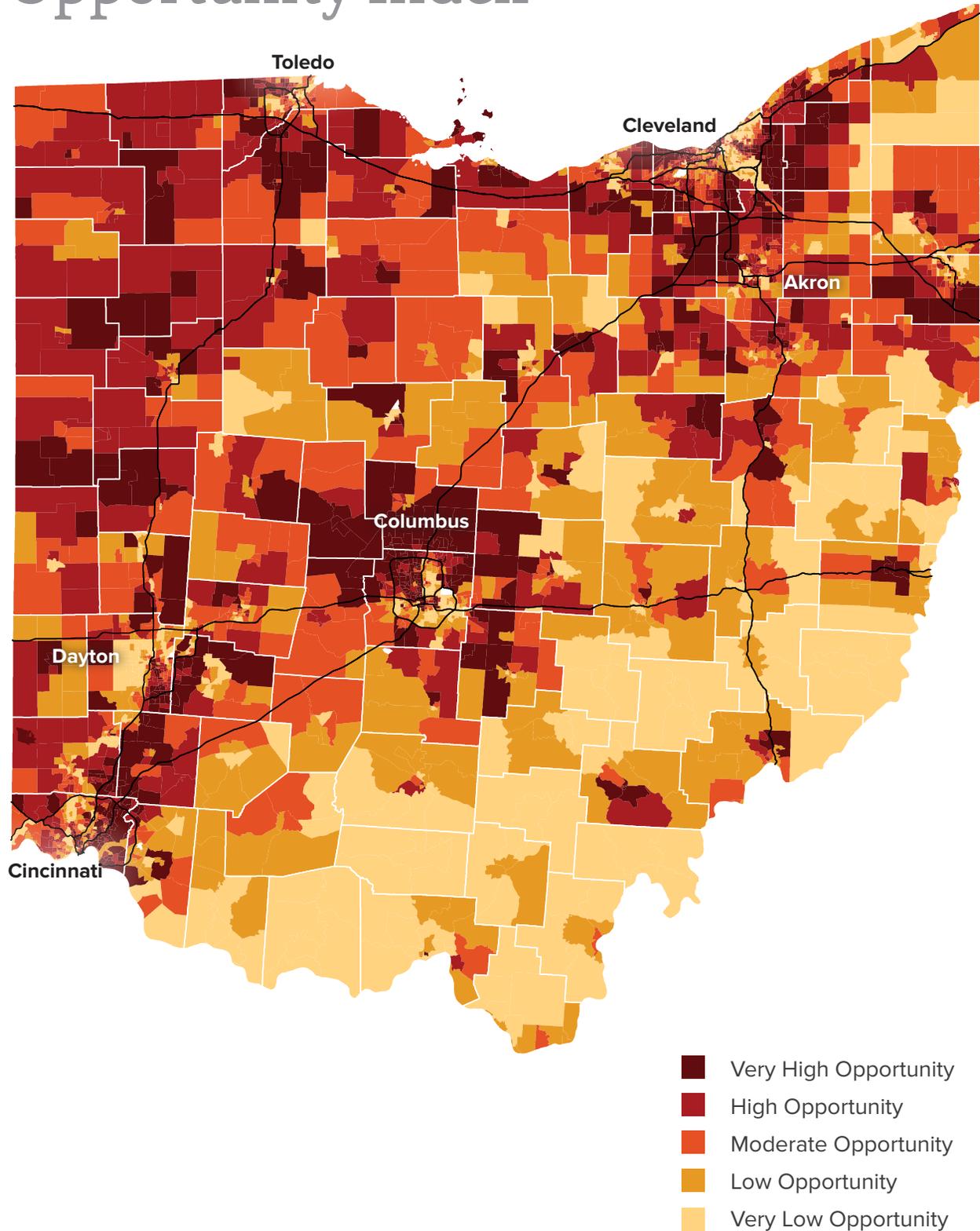
Health Opportunity

Health is a core component of the 2022–2023 USR Opportunity Index because healthy people have higher economic and social mobility. Indicators of good neighborhood health include areas with comparatively high life expectancy rates, low family poverty rates, and high rates of socioeconomic diversity.

Index Component	Index Component Description
<i>Life Expectancy</i>	Having a higher average life expectancy in each area is an overall indicator of health in a community. Lower life expectancies are indicative of poorer health outcomes in each area.
<i>Family Poverty Rate</i>	High concentrations of family poverty create stressful environments for households. Neighborhoods with low concentrations of family poverty have less social and economic stress, and higher mobility.
<i>Segregation Index</i>	Locations integrated economically and racially benefit affordable housing residents economically. Such locations also improve social mobility as social networks are more diverse and promote mixed income communities

MAP 2:

Opportunity Index



LAYER 3:

Community Change Index

Housing Market Change

Housing markets are a core component of community change. By measuring housing market change in terms of median home values, gross rents, owner occupancy rates, and vacancy rates. The Kirwan Institute was able to carefully detail market dynamics.

Index Component	Index Component Description
<i>Median Home Value</i>	Collected by the US Census Bureau, Median Home Value is an indicator of the accumulated wealth in each tract.
<i>Median Gross Rent</i>	Median Gross Rents are the market values associated with housing units; areas with increasing gross rents, relative to other areas, are experiencing neighborhood change.
<i>Owner Occupancy</i>	Changes in owner occupancy rates are a primary driver of neighborhood and community change.
<i>Vacancy</i>	Changes to the proportion of vacant units within neighborhoods, cities, and regions affect other variables, such as home values, rents, and occupancy rates.

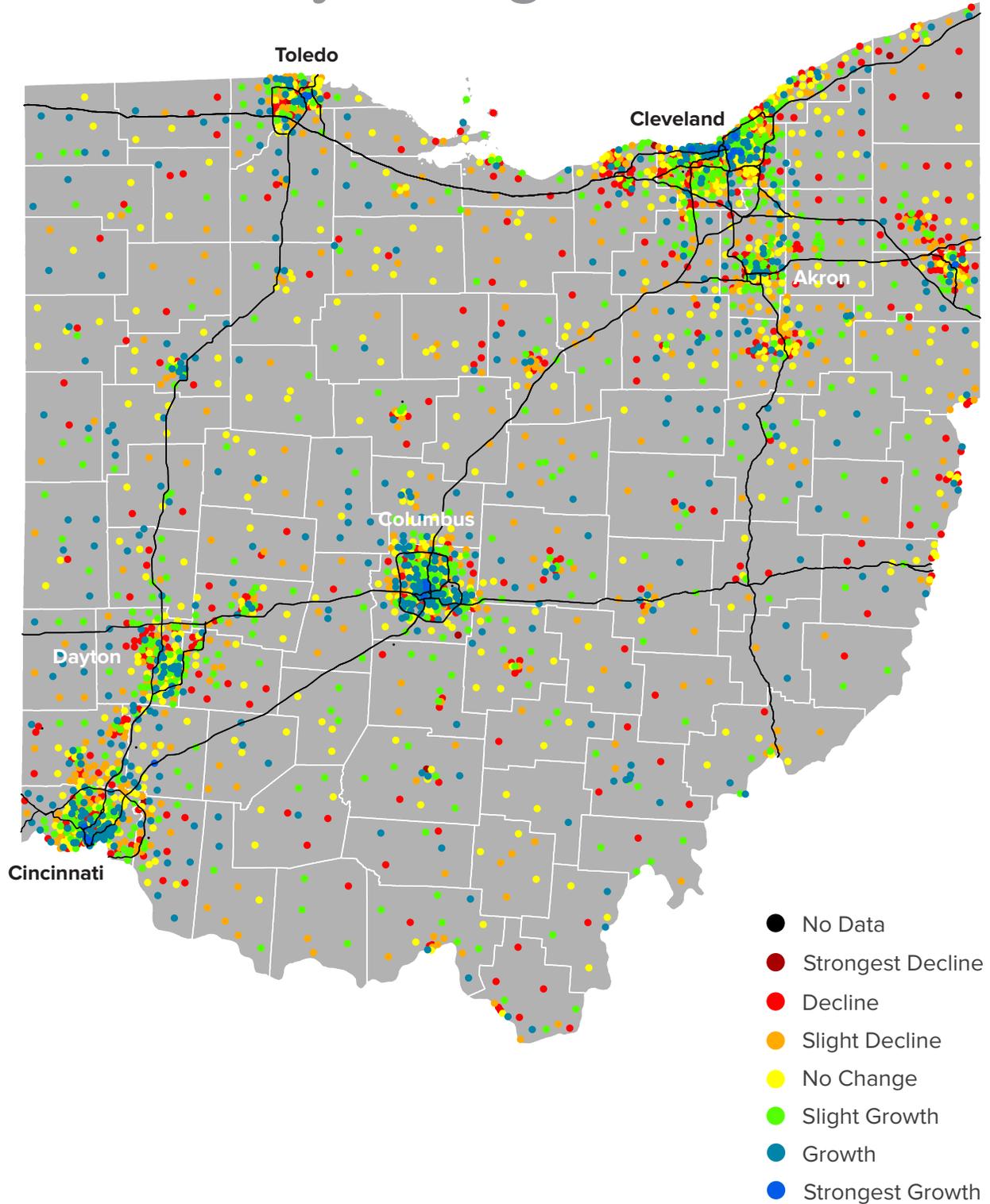
Demographic & Social Change

Demographics and social characteristics are useful in understanding community change. The Kirwan Institute is assessing changes in markets by examining key social factors such as median household income, college attainment, and poverty.

Index Component	Index Component Description
<i>Median Household Income</i>	Median Household Incomes drive spending power. By in using Median Household Income as a component of Demographic and Social Change, The Kirwan Institute can examine what portions of the community are more likely to change in terms of wealth.
<i>College Attainment</i>	Education is one of the most significant predictors of economic and social mobility. My measuring college attainment, the change index predicts what areas and communities have an opportunity to improve.
<i>Family Poverty</i>	Including changes in the Family Poverty rate in the demographic and social change component enables the change index to assess growing needs for social services.

MAP 3:

Community Change Index





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Endnotes