

# Ohio Opportunity Index Measures

*Note: This document is a preliminary draft. Content is subject to review, revision, and further development.*

The tables below provide a detailed breakdown of each component of the index, including the specific data sources utilized, precise measurement definitions, and evidence-based rationale explaining why each indicator was selected.

## General Occupancy Housing Opportunity Index

TABLE 1 DEFINITION AND RATIONALE FOR GENERAL OCCUPANCY HOUSING OPPORTUNITY INDEX

Opportunity Dimension	Measure (Source)	Definition, Rationale, and Usage
Opportunity-Rich & Inclusive Neighborhoods	Median income compared to state average (American Community Survey (ACS))	<b>Definition:</b> Ratio of local median household income to the state median household income <b>Rationale:</b> Areas with higher relative incomes have greater consumer spending power, supporting more diverse businesses and creating a cycle of economic growth and opportunity. Higher values of this measure <b>increase</b> the opportunity index score.
	Poverty rate (ACS)	<b>Definition:</b> Percentage of population with income below the federal poverty threshold. <b>Rationale:</b> Higher poverty rates indicate structural barriers to economic mobility and fewer resources available for community investment. Higher values of this measure <b>decrease</b> the opportunity index score.
	Commute time (ACS)	<b>Definition:</b> Average travel time to work for workers aged 16 years and older. <b>Rationale:</b> Shorter commutes increase quality of life, reduce transportation costs, and allow more time for education, family, and community engagement. Higher values of this measure <b>decrease</b> the opportunity index score.
	Transportation cost as a share of income (Center for Neighborhood Technology Housing + Transportation Index)	<b>Definition:</b> Transportation cost as a share of income for the regional typical household. The Typical Household assumes a household income that is the median income for the region, the average household size for the region, and the average commuters per household for the region. Regions refers to OMB Core Based Statistical Areas (CBSAs). <b>Rationale:</b> Neighborhoods with affordable transportation options relative to local incomes enable greater economic mobility by

		reducing a significant household expense burden. Lower values of this measure <b>increase</b> the opportunity index score.
	Number of jobs accessed through transit (Center for Neighborhood Technology Housing + Transportation Index)	<p><b>Definition:</b> Employment Access Index. It is calculated using an inverse-square law to model total access to jobs in the area by using the sum of the number of jobs divided by the square of the distance to those jobs.</p> <p><b>Rationale:</b> Access to greater numbers of jobs via transit increases economic opportunity for households without vehicles. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Proximity to closest park (ESRI)	<p><b>Definition:</b> Distance to nearest public park or recreational area.</p> <p><b>Rationale:</b> Areas with nearby parks attract more residents, increase property values, and provide venues for community cohesion and local economic activity. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>
	Proximity to closest library (National Library Survey)	<p><b>Definition:</b> Distance to nearest public library.</p> <p><b>Rationale:</b> Libraries provide resources for skill development, job searching, and provide venues for community cohesion and local economic activity. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>
High-Quality Education	Percentage of 3–4-year-olds enrolled in school (ACS)	<p><b>Definition:</b> Share of children ages 3-4 participating in formal early education programs.</p> <p><b>Rationale:</b> Early education builds foundational skills for future academic success and enables parental workforce participation, generating immediate and long-term economic benefits. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	High school graduation rate (Ohio School Report Card)	<p><b>Definition:</b> Percentage of students who complete high school within expected timeframe (4 years).</p> <p><b>Rationale:</b> Higher graduation rates indicate stronger education systems that produce more qualified workers, attracting employers and supporting higher local wages. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Share of households with broadband subscription (ACS)	<p><b>Definition:</b> Percentage of households with broadband internet subscription.</p> <p><b>Rationale:</b> Broadband enables access to online learning resources, virtual classrooms, and educational applications, creating pathways to quality education regardless of geographic location. Additionally, broadband enables remote work, entrepreneurship, and skills development, creating pathways to higher-wage jobs and new business formation. Higher values of this measure <b>increase</b> the opportunity index score.</p>
Rewarding Work	Share of 18- to 64-year-olds in the labor force (ACS)	<p><b>Definition:</b> Percentage of working-age adults (18-64) either employed or actively seeking employment.</p>

		<p><b>Rationale:</b> Higher labor force participation indicates fewer barriers to employment and greater economic vitality, supporting business growth and tax revenue. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Ratio of entry level jobs to total persons unemployed within a census tract (ACS, Longitudinal Employer-Household Dynamics (LEHD))	<p><b>Definition:</b> Number of entry-level positions divided by number of unemployed residents.</p> <p><b>Rationale:</b> A higher ratio of entry-level jobs to unemployed people indicates greater job availability and more accessible pathways to economic advancement, particularly for disadvantaged populations. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Median earnings in the past 12 months (ACS)	<p><b>Definition:</b> Median earnings for workers aged 16 and over during the previous 12-month period.</p> <p><b>Rationale:</b> Higher earnings indicate stronger local labor markets with better wages, attracting and retaining skilled workers while supporting higher living standards. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Proximity to closest childcare centers (Ohio Department of Children & Youth)	<p><b>Definition:</b> Distance to nearest childcare centers.</p> <p><b>Rationale:</b> Greater childcare accessibility enables parent workforce participation and career advancement, particularly benefiting women's economic opportunity. Higher values of this measure <b>increase</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>
Healthy Environment & Access to Good Health Care	Index of environmental burden (pm2.5) (Environmental Justice Screening and Mapping Tool (EJ Screen))	<p><b>Definition:</b> Potential exposure to inhalable particles 2.5 microns or smaller (about 30 times smaller than the width of human hair) in terms of annual average concentration.</p> <p><b>Rationale:</b> Exposure to fine particulate matter (PM2.5) is linked to respiratory and cardiovascular diseases that can affect overall community health. Higher values of this measure <b>decrease</b> the opportunity index score.</p>
	Index of environmental burden (drinking water non-compliance) (EJ Screen)	<p><b>Definition:</b> Populations served by community water systems that have challenges complying with Safe Drinking Water Act requirement.</p> <p><b>Rationale:</b> Safe drinking water is fundamental to health, with violations indicating potential exposure to contaminants that can cause acute and chronic health effects for residents of all ages, placing strain on healthcare systems and reducing productivity through preventable illness. Higher values of this measure <b>decrease</b> the opportunity index score.</p>
	Proximity to closest primary health care centers (Health Resources and Services Administration)	<p><b>Definition:</b> Distance to nearest primary healthcare facility.</p> <p><b>Rationale:</b> Closer healthcare access supports a healthier workforce with fewer sick days and lower healthcare costs, creating a more productive local economy. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>

	Physician office employees per capita (National Neighborhood Data Archive)	<p><b>Definition:</b> Number of employees in offices or clinics of physicians per 1,000 population.</p> <p><b>Rationale:</b> Higher ratio indicates stronger healthcare infrastructure that supports population health, worker productivity, and healthcare sector jobs. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Share of households who don't have access to grocery store (United States Department of Agriculture (USDA) Economic Research Service)	<p><b>Definition:</b> Share of population without access to grocery store beyond 1 mile for urban areas or 10 miles for rural areas.</p> <p><b>Rationale:</b> Limited access to grocery stores reduces consumption of fresh foods and increases reliance on processed options, leading to poorer health outcomes, higher healthcare costs, and reduced community vitality and productivity. Higher values of this measure <b>decrease</b> the opportunity index score.</p>
	Proximity to closet farmer's market (USDA)	<p><b>Definition:</b> Distance to nearest farmer's market.</p> <p><b>Rationale:</b> Closer farmer's markets increase access to fresh, nutritious foods that support community health, while also serving as social hubs that strengthen neighborhood cohesion and resident wellbeing. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>

## Senior Occupancy Housing Opportunity Index

TABLE 2. DEFINITION AND RATIONALE FOR SENIOR HOUSING OPPORTUNITY INDEX

Opportunity Dimension	Measure (Source)	Definition, Rationale, and Usage
Opportunity-Rich & Inclusive Neighborhoods	Median income compared to state average (ACS)	<p><b>Definition:</b> Ratio of local median household income to the state median household income.</p> <p><b>Rationale:</b> Areas with higher relative incomes have greater consumer spending power, supporting more diverse businesses and creating a cycle of economic growth and opportunity. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Poverty rate (ACS)	<p><b>Definition:</b> Percentage of population with income below the federal poverty threshold.</p> <p><b>Rationale:</b> Higher poverty rates indicate structural barriers to economic mobility and fewer resources available for community investment. Higher values of this measure <b>decrease</b> the opportunity index score.</p>

	<p>Transportation cost as a share of income (Center for Neighborhood Technology Housing + Transportation Index)</p>	<p><b>Definition:</b> Transportation cost as a share of income for the regional typical household. The Typical Household assumes a household income that is the median income for the region, the average household size for the region, and the average commuters per household for the region. Regions refers to OMB Core Based Statistical Areas (CBSAs).</p> <p><b>Rationale:</b> Neighborhoods with affordable transportation options relative to local incomes enable greater economic mobility by reducing a significant household expense burden. Lower values of this measure <b>increase</b> the opportunity index score.</p>
	<p>Number of jobs accessed through transit (Center for Neighborhood Technology Housing + Transportation Index)</p>	<p><b>Definition:</b> Employment Access Index. It is calculated using an inverse-square law to model total access to jobs in the area by using the sum of the number of jobs divided by the square of the distance to those jobs.</p> <p><b>Rationale:</b> Access to greater numbers of jobs via transit increases economic opportunity for households without vehicles. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	<p>Proximity to closest park (ESRI)</p>	<p><b>Definition:</b> Distance to nearest public park or recreational area.</p> <p><b>Rationale:</b> Areas with nearby parks attract more residents, increase property values, and provide venues for community cohesion and local economic activity. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>

	Proximity to closest library (National Library Survey)	<p><b>Definition:</b> Distance to nearest public library.</p> <p><b>Rationale:</b> Libraries provide resources for skill development, job searching, and provide venues for community cohesion and local economic activity. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>
Rewarding Work	Share of 55 and older adults in the labor force (ACS)	<p><b>Definition:</b> Percentage of senior adults (55 and over) either employed or actively seeking employment.</p> <p><b>Rationale:</b> Higher labor force participation indicates fewer barriers to employment and greater economic vitality, supporting business growth and tax revenue. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Share of 55 and older in labor force and unemployed (ACS)	<p><b>Definition:</b> Percentage of senior adults (55 and over) in labor force and unemployed.</p> <p><b>Rationale:</b> unemployment rate for seniors indicates the ability of seniors to maintain financial stability through continued employment when desired or necessary. Higher values of this measure <b>increase</b> the opportunity index score.</p>
Healthy Environment & Access to Good Health Care	Index of environmental burden (pm2.5, drinking water non-compliance) (EJ Screen)	<p><b>Definition:</b> Potential exposure to inhalable particles 2.5 microns or smaller (about 30 times smaller than the width of human hair) in terms of annual average concentration; populations served by community water systems that have challenges complying with Safe Drinking Water Act requirement.</p>

		<p><b>Rationale:</b> Lower environmental burdens can increase overall community health. Higher values of this measure <b>decrease</b> the opportunity index score.</p>
	Proximity to closest primary health care centers (HRSA)	<p><b>Definition:</b> Distance to nearest primary healthcare facility.</p> <p><b>Rationale:</b> Closer healthcare access supports a healthier workforce with fewer sick days and lower healthcare costs, creating a more productive local economy. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic groups</b>.</p>
	Physician office employees per capita (National Neighborhood Data Archive)	<p><b>Definition:</b> Number of employees in offices or clinics of physicians per 1,000 population.</p> <p><b>Rationale:</b> Higher ratio indicates stronger healthcare infrastructure that supports population health, worker productivity, and healthcare sector jobs. Higher values of this measure <b>increase</b> the opportunity index score.</p>
	Share of households who don't have access to grocery store (USDA ERS)	<p><b>Definition:</b> Share of population without access to grocery store beyond 1 mile for urban areas or 10 miles for rural areas.</p> <p><b>Rationale:</b> Limited access to grocery stores reduces consumption of fresh foods and increases reliance on processed options, leading to poorer health outcomes, higher healthcare costs, and reduced community vitality and productivity. Higher values of this measure <b>decrease</b> the opportunity index score.</p>

	Proximity to closet farmer's market (USDA)	<p><b>Definition:</b> Distance to nearest farmer's market.</p> <p><b>Rationale:</b> Closer farmer's markets increase access to fresh, nutritious foods that support community health, while also serving as social hubs that strengthen neighborhood cohesion and resident wellbeing. Higher values of this measure <b>decrease</b> the opportunity index score. Z-scores for this measure are calculated <b>within geographic group</b></p>

## Housing Need Index

TABLE 3. DEFINITION AND RATIONALE FOR HOUSING NEEDS INDEX

Housing Needs Dimension	Measure (Source)	Definition, Rationale, and Usage
Housing Supply	Residential vacancy rate (United States Department of Housing and Urban Development United States Postal Service (USPS) Data)	<p><b>Definition:</b> Percentage of residential addresses that are vacant.</p> <p><b>Rationale:</b> Very low vacancy rates signal housing shortages. Higher values of this measure <b>decrease</b> the housing needs index score.</p>
Affordable Housing Stock	Share of housing stock receiving federal housing subsidy (NHPD)	<p><b>Definition:</b> Percentage of housing units supported by federal subsidy programs.</p> <p><b>Rationale:</b> Areas with low subsidized housing stock may lack housing options for lower-income residents. Higher values of this measure <b>decrease</b> the housing needs index score.</p>
Affordability	Share of renters who are cost burdened (ACS)	<p><b>Definition:</b> Percentage of renter households spending more than 30% of income on housing costs</p> <p><b>Rationale:</b> High housing cost burden reduces household spending on other needs and indicates insufficient housing supply at appropriate price points for local income levels. Higher values of this measure <b>increase</b> the housing needs index score.</p>
Affordability	Number of affordable housing units per number of VLI households (NHPD)	



		<p><b>Definition:</b> Ratio of affordable units to very low-income (VLI) households, defined by households earning less than 50 percent State AMI for 2 person households.</p> <p><b>Rationale:</b> A low ratio reveals housing supply gaps where VLI households face extreme cost burdens or displacement risk, highlighting areas with significant housing needs. Higher values of this measure <b>decrease</b> the housing needs index score.</p>
--	--	--

## Neighborhood Change

TABLE 4. DEFINITION AND RATIONALE FOR NEIGHBORHOOD CHANGE INDEX

Neighborhood Change Dimension	Measure (Source)	Definition, Rationale, and Usage
Opportunity Change (5-year period of change)	Change in General Opportunity Index (OHFA)	<p><b>Note:</b> This measure is not currently included in the draft neighborhood change index and will be added to the final version.</p> <p><b>Definition:</b> Difference in the general occupancy housing index.</p> <p><b>Rationale:</b> Provides overall measure of whether opportunity is increasing or decreasing in a tract relative to other tracts in the geography subgroup. Positive change indicates <b>increasing</b> opportunity.</p>
Growth (5-year period of change)	Population Change (ACS)	<p><b>Definition:</b> Difference in total tract population calculated by taking difference between non-overlapping ACS 5-year survey estimates.</p> <p><b>Rationale:</b> Population growth suggests dynamic neighborhoods while population loss may indicate decline. Positive change indicates <b>increasing</b> opportunity.</p>
	Residential Address Growth (USPS)	<p><b>Definition:</b> Difference in the total residential addresses. We first calculate the average residential addresses in the tract for the comparison years by averaging the quarterly USPS address counts for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in the number of residential addresses suggests population growth and dynamism in a tract. Positive change indicates <b>increasing</b> opportunity.</p>
	Business Address Growth (USPS)	<p><b>Definition:</b> Difference in the total business addresses. We first calculate the average business addresses in the tract for the comparison years by averaging the quarterly USPS address counts for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in the number of business addresses suggests economic growth and dynamism in a tract. Positive change indicates <b>increasing</b> opportunity.</p>

	Job Growth (LEHD)	<p><b>Definition:</b> Difference in the total jobs in a tract, calculated by taking the difference between estimates in the comparison years.</p> <p><b>Rationale:</b> An increase in the number of jobs in a tract suggests economic growth and dynamism in a tract. Positive change indicates <b>increasing</b> opportunity.</p>
Housing Value (5-year period of change)	Change in median home loan amount (Home Mortgage Disclosure Act)	<p><b>Definition:</b> Difference in the median home loan amount for a given tract as measured by the Home Mortgage Disclosure Act (HMDA) data<sup>i</sup>. Home loan values will be adjusted to the later comparison year's dollar values to adjust for inflation prior to comparison.</p> <p><b>Rationale:</b> An increase in the median home loan amount indicates an increase in home values in a given tract, which indicates growing opportunity. Positive change indicates <b>increasing</b> opportunity.</p>
	Change in share of housing units built before 1960 (ACS)	<p><b>Definition:</b> Difference in the share of all housing units in a given tract that were built before 1960.</p> <p><b>Rationale:</b> A decrease in the share of housing units built before 1960 suggests redevelopment of housing or new housing construction, both of which indicate opportunity growth. Positive change indicates <b>decreasing</b> opportunity.</p>
	Change in median housing cost (ACS)	<p><b>Definition:</b> Difference in the median monthly housing cost in a given tract as measured by the ACS. Median monthly cost is calculated from occupied housing units with monthly housing costs, including mortgages or other property debts, rent, real estate taxes, property insurance, utilities, fuels, mobile home costs or condominium fees.<sup>ii</sup> The ACS reports data adjusted to the latest survey year's dollar values.<sup>iii</sup> We will adjust the earlier comparison year to the latter year by applying an inflation multiplier.</p> <p><b>Rationale:</b> An increase in median housing costs indicates an increase in housing value in a given tract, which indicates growing opportunity. We include median housing cost and home loan amount because they capture different segments of the housing market. Median housing cost includes all costs for renters and owners. Home loans capture new home purchases, which could be more sensitive to price change than housing as a whole. Positive change indicates <b>increasing</b> opportunity.</p>
Economic Base (5-year period of change)	Change in median household income (ACS)	<p><b>Definition:</b> Difference in median household income in a given tract as measured by the ACS. We will adjust the earlier comparison year to the latter year by applying an inflation multiplier.</p> <p><b>Rationale:</b> An increase in median household income suggests a growth in the economic base of a tract, which indicates growing opportunity. Positive change indicates <b>increasing</b> opportunity.</p>

	Change in residential vacancy rate (USPS)	<p><b>Definition:</b> Change in the share of total residential addresses that are vacant as measured by the USPS. We first calculate the average vacancy rate in the tract for the comparison years by averaging the quarterly USPS vacancy rate for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in the residential vacancy rate indicates a contracting economic base in a tract. Positive change indicates <b>decreasing</b> opportunity.</p>
	Change in business vacancy rate (USPS)	<p><b>Definition:</b> Change in the share of total business addresses that are vacant as measured by the USPS. We first calculate the average vacancy rate in the tract for the comparison years by averaging the quarterly USPS vacancy rate for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in the business vacancy rate indicates a contracting economic base in a tract. Positive change indicates <b>decreasing</b> opportunity.</p>
Early Signs of Change (1-year period of change)	Change in short-term residential vacancy (USPS)	<p><b>Definition:</b> Count of residential addresses identified as vacant 6-months or less as measured by the USPS. We first calculate the average short-term vacant residential addresses in the tract for the comparison years by averaging the quarterly USPS short-term vacant residential address counts for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in short-term vacancies suggests a rise in residential addresses that have newly become vacant. This suggests that opportunity may begin to decline in the tract. Positive change indicates <b>decreasing</b> opportunity.</p>
	Change in short-term business vacancy (USPS)	<p><b>Definition:</b> Count of business addresses identified as vacant for 6-months or less as measured by the USPS. We first calculate the average short-term vacant business addresses in the tract for comparison years by averaging the quarterly USPS short-term vacant business address counts for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in short-term vacancies suggests a rise in business addresses that have newly become vacant. This suggests that opportunity may begin to decline in the tract. Positive change indicates <b>decreasing</b> opportunity.</p>
	Residential Address Growth (USPS)	<p><b>Definition:</b> Difference in the total residential addresses. We first calculate the average residential addresses in the tract for the comparison years by averaging the quarterly USPS address counts for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in the number of residential addresses suggests population growth and dynamism in a tract. Positive change indicates <b>increasing</b> opportunity.</p>

	Business Address Growth (USPS)	<p><b>Definition:</b> Difference in the total business addresses. We first calculate the average business addresses in the tract for the comparison years by averaging the quarterly USPS address counts for each year, then take the difference between the two averages.</p> <p><b>Rationale:</b> An increase in the number of business addresses suggests economic growth and dynamism in a tract. Positive change indicates <b>increasing</b> opportunity.</p>
	Zillow Home Value Index (Zillow)	<p><b>Definition:</b> Change in the Zillow Home Value Index, which aims to measure the “typical” home value in a Zip Code. We use the ZHVI for all home types (including single-family residences, condos, and co-ops).<sup>iv</sup> We recognize that the composition of home types varies significantly across zip codes. Because we are comparing each geography to itself, we avoid issues of comparability across geographies. ZHVI is reported monthly. We will first average the months in the comparison years for each zip code. We will then crosswalk zip codes to census tracts, imputing missing values with the corresponding ZHVI for the county. We will then take the difference of the two tract-level values.</p> <p><b>Rationale:</b> An increase in home values suggests increasing opportunity and increasing affordable housing need in a tract. Positive change indicates <b>increasing</b> opportunity.</p>

<sup>i</sup> HMDA data is pulled from the Urban Institute Data Catalog’s tract-level aggregates.  
<https://datacatalog.urban.org/dataset/home-mortgage-disclosure-act-neighborhood-summary-files-census-tract-level>

<sup>ii</sup> <https://www.neighborhoodexplorer.org/sources/80ZRMpWm/>

<sup>iii</sup> [https://www2.census.gov/programs-surveys/acs/tech\\_docs/subject\\_definitions/2022\\_ACSSubjectDefinitions.pdf](https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2022_ACSSubjectDefinitions.pdf)

<sup>iv</sup> We select ZHVI All Homes (SFR, Condo/Co-op) Time Series, Smoothed, Seasonally Adjusted from  
<https://www.zillow.com/research/data/>