OPPORTUNITY METRICS
Resource of Data and Research
Opportunity mapping is a process that includes collecting, analyzing, and interpreting geographically referenced data in order to determine the landscape of opportunity in a region. The Kirwan Institute creates opportunity maps for regions and offers informed insight on their implications. Opportunity maps are used to identify which communities have access to infrastructure and services that create high-opportunity, in addition to identifying the lack of infrastructure and services which tend to create low-opportunity communities.

The metadata presented here is a collection of indicators the Kirwan Institute uses to determine the opportunity level of neighborhoods within a region. While this list is not exhaustive, it does offer a significant sample of those most commonly used by Kirwan. Each indicator in this list has its foundation in social science literature.

The title of each indicator is followed by the source of the data, and then by a brief summary of the research that supports the indicator’s role in determining opportunity. Indicators designated with a (+) positively affect opportunity, while indicators designated with a (-) negatively affect opportunity. Additionally, some signs change depending on the conditions of the particular region (e.g. although home ownership rates are usually a positive indicator of opportunity in most regions they may not be in some housing markets such as San Francisco).

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### I. Education Indicators

#### 1.1 Adult Education Attainment (+)

**Description:** Adults age 25 and older with an Associate’s degree or higher  
**Data Source:** American Community Survey (ACS)  
**Data Link/Location:** [http://factfinder.census.gov/home/saff/aff_transition.html](http://factfinder.census.gov/home/saff/aff_transition.html)  
**Geography:** Census Tract  
**Date:** 2006-2010  
**Methodology:** Join the ACS data to census tract boundary based on tract ID.

**How it Relates to Opportunity:**

- Social networks are one of the primary channels through which job seekers find employment. Neighborhoods with adults that have college degrees offer social networks that can lead to better jobs. (Karen Chapple, "Overcoming mismatch: Beyond dispersal, mobility, and development strategies," *Journal of the American Planning Association* 72.3 (2006))
“The presence of advantaged neighbors, in contrast, reinforces ‘the perception that education is meaningful, that steady employment is a viable alternative to welfare, and that family stability is the norm, not the exception.’” (Crowder, K., & South, S. J. (2011). Spatial and temporal dimensions of neighborhood effects on high school graduation. Social Science Research, 40(1), 87-106)

1.2 Promotion Rates (+)
Description: The percentage of students who graduated from elementary school on time
Data Source: State Department of Education
Data Link/Location:
Geography: Point, School locations
Date: Most recent data
Methodology: Each tract was assigned the graduation rate of the three elementary schools nearest the tract centroid (using “Near” tool in ArcMap). This process also considered school district boundaries, so as to assign data to tracts only according to the district in which the tract resides. (Delete schools from different school zones and sorting them depending on the distance between tract centroid and school, and then pick the nearest three schools).
How it Relates to Opportunity:
- “Students who repeat a grade prior to high school have a higher risk of dropping out of high school than do students who are continuously promoted.” (Stears, E., Moller, S., Blau, J., & Potochnick, S. (2007). Staying back and dropping out. Sociology of Education, 80(3), 210-240.)

1.3 Graduation Rates (+)
Description: The percentage of students who graduated from high school on time
Data Source: State Department of Education
Data Link/Location:
Geography: Point, School locations
Date: Most recent data
Methodology: Each tract was assigned the graduation rate of the three elementary schools nearest the tract centroid (using “Near” tool in ArcMap). This process also considered school district boundaries, so as to assign data to tracts only according to the district in which the tract resides. (Delete schools from different school zones and sorting them depending on the distance between tract centroid and school, and then pick the nearest three schools).
How it Relates to Opportunity:
- Workers without high school diplomas make less than high school graduates. “While in 1975, full-time, year-round workers without a high school diploma earned 0.9 times the earnings of workers with a high school diploma; by 1999, they were earning only 0.7 times the average earnings of high school graduates.” J. C. Day & E. C. Newburger, The big payoff: Educational attainment and synthetic estimates of work-life warnings (2002). http://www.census.gov/prod/2002pubs/p23-210.pdf
- “School achievement scores in many states and in the nation show a very strong relation between poverty concentrations and low achievement. This is because high poverty schools are unequal in
many ways that affect educational outcomes. The students’ parents are far less educated—a very powerful influence—and the child is much more likely to be living in a single parent home that is struggling with multiple problems. Children are much more likely to have serious developmental and untreated health problems. Children move much more often, often in the middle of a school year, losing continuity and denying schools sufficient time to make an impact on their learning.” Gary Orfield and John T. Yun, *Deepening segregation in American public schools* (1997), Harvard Project on School Desegregation. Available on-line at http://www.civilrightsproject.harvard.edu/research/deseg/Resegregation_American_Schools99.pdf

- “Dropout statistics are particularly alarming because jobs that pay living wages and benefits have virtually disappeared for youth without a high school diploma. For society, the costs of dropout are staggering, estimated in the billions of dollars in lost revenues, welfare programs, unemployment programs, underemployment, and crime prevention and prosecution.” (Christenson, Sinclair, Lehr, & Hurley, 2000).” Christenson, S. L., & Thurlow, M. L. (2004). School dropouts: Prevention considerations, interventions, and challenges. *Current Directions in Psychological Science, 13*(1), 36-39

1.4 School Proficiency Index (+)

**Description:** The school proficiency rate on mathematics and reading exam

**Data Source:** State Department of Education

**Data Link/Location:**

**Geography:** Point, School locations

**Date:** Most recent data

**Methodology:** Each tract was assigned the school proficiency rate of the three elementary schools nearest the tract centroid (using “Near” tool in ArcMap). This process also considered school district boundaries, so as to assign data to tracts only according to the district in which the tract resides. (Delete schools from different school zones and sorting them depending on the distance between tract centroid and school, and then pick the nearest three schools).

**How it Relates to Opportunity:**


1.5 Student Poverty Rates (-)

**Description:** The percentage of students receiving free or reduced-price lunches

**Data Source:** State Department of Education, Education Agency
How it Relates to Opportunity:


- Segregated schools that have a high percentage of students in poverty have “lower average test scores, fewer students in advanced placement courses, more limited curricula, less qualified teachers, less access to serious academic counseling, fewer connections with colleges and employers, more deteriorated buildings, higher levels of teen pregnancy, and higher dropout rates”. (David R. Williams and Chiquita Collins, “Racial residential segregation: A fundamental cause of racial disparities in health,” 116 Public Health Reports (Sept/Oct 2001))

- Those who live in poverty as children are at a higher risk of being violent and for experiencing health problems as adults. (Helen Epstein, “Enough to make you sick?,” The New York Times Magazine (10/12/03)); (Youth and violence: A report of the Surgeon General (January 2001))

- “The wealthiest 10% of school districts in the United States spend nearly 10 times more than the poorest 10%, and spending ratios of three-to-one across high and low-spending districts are common within states” (L. Darling-Hammond, “Recruiting teachers for the 21st century: The foundation for educational equity.” Journal of Negro Education 68: 254, 279 (2000))

- “Segregated, urban schools are not as effective in helping to raise even high-achieving African American students out of poverty because a diploma from an inner-city school will never get them as far in the college admissions process or job search as one from a wealthy suburban school.” (A. S. Wells, “The “consequences” of school desegregation: The mismatch between the research and the rationale,” Hastings Const’l L.Q. 28: 771, 773 (2001))

- “Low-income students who have an opportunity to go to middle-class schools are surrounded by peers who have bigger dreams and who are more academically engaged,” said Richard D. Kahlenberg, a senior fellow at the Century Foundation who has written about economic integration in schools. They are surrounded by parents who are more likely to be active in the school. And they are taught by teachers who more likely are highly qualified than the teachers in low-income schools.” (A. Finder, “As Test Scores Jump, Raleigh Credits Integration by Income.” The New York Times, September 25, 2005; Section 1.)

### 1.6 Student/Teacher Ratio (-)

**Description:** Number of students per teacher

**Data Source:** State Department of Education, National Center for Education Statistics (NCES)

**Data Link/Location:** [http://nces.ed.gov/](http://nces.ed.gov/)

**Geography:** Point, School locations

**Date:** 2010

**Methodology:** Each tract was assigned the student teacher ratio of the three elementary schools nearest the tract centroid (using “Near” tool in ArcMap). This process also considered school district boundaries, so as to assign data to tracts only according to the district in which the tract resides.
(Delete schools from different school zones and sorting them depending on the distance between tract centroid and school, and then pick the nearest three schools).

**How it Relates to Opportunity:**

1. The student/teacher ratio measures how many students a teacher is responsible for. This can show how burdened teachers might be. (Education Indicators: An international perspective, National Center for Education Statistics, http://nces.ed.gov/pubs/eiip/eiipid39.asp#Number of students per teacher.)


3. “Small class size has three main effects that lead to increased individualization: fewer discipline problems and more instruction, more knowledge of students, and more teacher enthusiasm for teaching.” (Zahorik, J. A. (1999). Reducing class size leads to individualized instruction. *Educational Leadership, 57*(1), 50-53)

4. Tennessee’s STAR study found that students in smaller classes in early grades performed better in English and math. Smaller class sizes positively affected all groups of students, but especially helped minorities. (Nye, B., Hedges, L. V., & Konstantopoulos, S. (2001). The long-term effects of small classes in early grades: Lasting benefits in mathematics achievement at grade 9. *Journal of Experimental Education, 69*(3), 245-257)

**1.7 High Quality Teachers (+)**

**Description:** Average number of teacher experience (years teaching) for all teachers per school/percentage of teachers who have obtained a certification

**Data Source:** State Education Agency

**Data Link/Location:**

**Geography:** Point, School locations

**Date:** 2010 – most recent data

**Methodology:** Each tract was assigned the percentage of high quality teachers of the three elementary schools nearest the tract centroid (using “Near” tool in ArcMap). This process also considered school district boundaries, so as to assign data to tracts only according to the district in which the tract resides. (Delete schools from different school zones and sorting them depending on the distance between tract centroid and school, and then pick the nearest three schools).

**How it Relates to Opportunity:**


- Teachers with higher qualifications improve student test scores in math and reading skills. (Darling-Hammond, L. (2000). Teacher quality and student achievement. *Education Policy Analysis Archives, 8*(1))

- Poor schools are more likely to have less qualified and less experienced teachers. (L. Darling-Hammond, “Recruiting teachers for the 21st Century: The foundation for educational equity.” *Journal of Negro Education* 68: 254, 279 (2000))

- “Many studies have found that teachers in schools serving poor and minority children in large cities are more likely to be inexperienced, less likely to be certified, and less likely to have graduated from competitive colleges than are suburban teachers. They also score lower on standardized exams and are more likely to be teaching subjects for which they are not certified.” (Jacob, B. A. (2007). The challenges of staffing urban schools with effective teachers. *The Future of Children, 17*(1), 129-153)
II. Economic Indicators

2.1 Economic Climate (change in number of jobs) (+)
   Description: Percentage change of jobs
   Data Source: County Business Pattern (CBP), ESRI Business Analyst
   Geography: Zip Code, Point Business Locations
   Date: 2000-2005, 2005-2010
   Methodology: Count businesses within a certain miles from Zip Codes’ centroids for each year and compare them.
   How it Relates to Opportunity:
   o Measuring the change in number of jobs shows whether an area has increasing or decreasing job opportunity. This is especially important for residents who do not have access to jobs outside of the local context due to a lack of transportation. Their access to jobs will be less if jobs in the immediate area are decreasing, even if the region as a whole is experiencing increased job growth. (Harry J. Holtzer, “The spatial mismatch hypothesis: What has the evidence shown?” Urb. Studies 28 (1991))
   o Job loss in segregated African American neighborhoods creates higher rates of unemployment for local African Americans even if jobs are increasing at the regional level. (Mouw, T. (2000). Job relocation and the racial gap in unemployment in Detroit and Chicago, 1980 to 1990. American Sociological Association, 65(5), 730-753.)

2.2 Employment Competition (ratio of jobs to labor force within a certain number of miles) (+)
   Description: Percentage of number of jobs over total labor force within a certain miles of each census tract’s centroid
   Data Source: Census (SF3)
   Data Link/Location: http://factfinder.census.gov/home/saff/aff_transition.html
   Geography: Census Tract
   Date: 2000
   Methodology: Count businesses within a certain number of miles from Zip Codes’ centroids for each year and compare them (County Business Pattern) or join the census SF3 data to census tract based on tract ID.
   How it Relates to Opportunity:
   o Too many unemployed residents and not enough job openings increases competition, lowering demand and wages for unskilled workers. This disproportionally affects workers in the inner-city where manufacturing jobs have been declining and moving to the suburbs. (Harry J. Holtzer, “The spatial mismatch hypothesis: What has the evidence shown?” Urb. Studies 28 (1991))
   o “Uneven spatial distributions are particularly striking for low-skill jobs and less educated people. White suburban areas contain 69.4 percent of the lowest-skill jobs but only 40.6 percent of the least educated people, while the black central city holds 10.2 percent of these jobs and 15.6 percent of the least-educated people.” (Michael Stoll, Harry Holtzer, and Keith Ihlanfeldt, WITHIN CITIES AND SUBURBS: RACIAL RESIDENTIAL CONCENTRATION AND THE SPATIAL DISTRIBUTION OF EMPLOYMENT OPPORTUNITIES ACROSS SUBMETROPOLITAN AREAS (1999), available on-line at: http://ideas.repec.org/PaperSeries.html.)
African American workers are less likely to make up for the jobs-to-population mismatch by increasing their commute times. (Harry Holzer, Keith Ihlanfeldt, and David Sjoquist, “Work, search, and travel among white and black youth,” *Journal Of Urban Economics* 35 (1994))

### 2.3 Proximity to Employment (+)

**Description:** The percentage of all regional jobs that are within 30 minutes of travel time by automobile and public transit or within a 5 mile radius of block group centroid OR Number of jobs within 5 miles of census tract centroids

- **Data Source:** State Regional Council, ESRI Business Analyst, County Business Pattern (CBP)
- **Data Link/Location:** www.esri.com, http://www.census.gov/econ/cbp/index.html
- **Geography:** Traffic Analysis Zone (TAZ), Zip Code (CBP)
- **Date:** 2010
- **Methodology:** Each tract was assigned a value based on the traffic analysis zones whose centroids are within the tract’s boundaries.

**How it Relates to Opportunity:**

- When considering whether an area has high employment opportunities it is important to factor in the surrounding areas. Residents living on the border of a census tract will have access to jobs in the neighboring tract. (J.F. Kain, “The Spatial Mismatch Hypothesis: Three Decades Later,” *3.2 Housing Pol’y Deb.* 3.2 (1992))
- The radius used to consider for employment opportunities must be somewhat limited. As commuting times increase, job seekers will require higher wages. (K. Ihlanfeldt & D. Sjoquist, “The spatial mismatch hypothesis: A review of recent studies and their implications for welfare reform,” *Housing Policy Debate* 9 (1998))
- When job opportunities are located close to where a job seeker lives there are more opportunities to find jobs that may not be advertised outside of the local community. (Karen Chapple, “Overcoming mismatch: Beyond dispersal, mobility, and development strategies,” *Journal of the American Planning Association* 72.3 (2006))
- Many job seekers may not have access to transportation and must rely on the local job market. (Richard Price and Edwin S. Mills, “Race and residence in earnings determination,” *J. Urb. Econ.* 17 (1985))
- “Metropolitan areas with higher levels of employment decentralization exhibit greater spatial mismatch between the relative locations of jobs and black residents”
- “Greater job sprawl is associated with higher spatial mismatch for blacks, but not for whites. The relationship between these measures also holds for Latinos but to a lesser extent. Overall, metropolitan job sprawl is nearly twice as important a factor affecting spatial mismatch for blacks as for Latinos.”
- “Blacks are more geographically isolated from jobs in high job-sprawl areas regardless of region, metropolitan area size, and their share of metropolitan population.”

### 2.4 Job Growth Trends (+)

**Description:** The change in number of jobs between 2000 and 2010

- **Data Source:** State Regional Council, ESRI Business Analyst
- **Data Link/Location:** www.esri.com
Geography: Census Tract (2000, 2010)
Date: 2000, 2010
Methodology: For the 2000 tracts, data was translated to its 2010 equivalency through the parent-child relationship of the tract names, and the areal proportion of the 2010 children to the 2000 parent.

How it Relates to Opportunity:

- When job growth is concentrated away from areas of high unemployment it increases the divide between areas of low and high opportunity. (Karen Chapple, "Overcoming mismatch: Beyond dispersal, mobility, and development strategies," *Journal of the American Planning Association* 72.3 (2006))
- “During routine ‘non-racial’ restructuring, relocation, and downsizing, employment facilities are systematically moved to suburban and rural areas where the proportions of African Americans in the labor force are low. For example, a Wall Street Journal analysis of more than 35,000 US companies found that African Americans were the only racial group that experienced a net job loss during the economic downturn of 1990-1991. African Americans had a net job loss of 59,000 jobs, while there was a net gain of 71,100 for whites, 55,100 for Asians, and 60,000 for Latina/o/s.” (David R. Williams and Chiquita Collins, Racial residential segregation: A fundamental cause of racial disparities in health, 116 PUBLIC HEALTH REPORTS 404, 405 (Sept.-Oct. 2001))

2.5 Population on Public Assistance (-)

Description: Percentage of people on public assistance
Data Source: Census (SF3), American Community Survey (ACS)
Data Link/Location: http://factfinder.census.gov/home/saff/aff_transition.html
Geography: Census Tract
Date: 2000
Methodology: Join the census SF3 data to the census tract boundary based on the tract ID.

How it Relates to Opportunity:

- Many job seekers get information about employment opportunities from their neighbors and other social contacts. If many of those contacts are on public assistance they will receive information on how to get public assistance as opposed to information about job openings that they would receive from employed neighbors. (George Galster and Sean P. Killen, “The geography of metropolitan opportunity: A reconnaissance and conceptual framework” *Housing Policy Debate*)
- In an experiment in Yonkers, New York families that moved from areas with high concentrations of poverty to areas with low concentrations of poverty experienced higher employment rates than those that stayed in the areas of highly concentrated poverty. (Fauth, R. C., Leventhal, T., & Brooks-Gunn, J. (2004). Short-term effects of moving from public housing in poor to middle-class neighborhoods on low-income, minority adults' outcomes. *Social Science & Medicine, 59*(11), 2271-2284.)
- “Socioeconomically disadvantaged adults fail to provide successful role models for neighborhood children.” (Crowder, K., & South, S. J. (2011). Spatial and temporal dimensions of neighborhood effects on high school graduation. *Social Science Research, 40*(1), 87-106.)
2.6 Unemployment Rate

Description: The percentage of the civilian labor force who are unemployed
Data Source: American Community Survey (ACS), ESRI Business Analyst
Geography: Census Tract (2000)
Date: 2005-2009 5-year estimates
Methodology: Data was translated to its 2010 equivalency through the parent-child relationship of the tract names, and the areal proportion of the 2010 children to the 2000 parent.

How it Relates to Opportunity:
- Unemployment can affect both mental and physical health. The effects tend to be greater among individuals with low levels of education. The effects of job loss are greater in regions that are experiencing high unemployment. (Turner, J. B. (1995). Economic context and the health effects of unemployment. *Journal of Health and Social Behavior, 36*(3), 213-229.)
- The chance that families will have to utilize public assistance increases when they experience job loss in an area of high unemployment as opposed to when experiencing job loss in an area of low unemployment. (Yeung, W. J., & Hofferth, S. L. (1998). Family adaptations to income and job loss in the U.S. *Journal of Family and Economic Issues, 19*(3))

III. Housing and Neighborhood Indicators

3.1 Affordable Housing

Description: Number of housing vouchers per tract
Data Source: HUD Picture of Subsidized Housing
Data Link/Location: http://www.huduser.org/portal/picture2008/index.html
Geography: Census Tract
Date: 2008
Methodology: Join the data to census tract boundary.

How it Relates to Opportunity:
- Housing vouchers are intended to move residents into areas of opportunity. However, many affordable housing units have been built in areas with high rates of poverty. (Freeman, Lance. “Siting affordable housing: Location and neighborhood trends of low income housing tax credit developments in the 1990’s”. Brookings Institute (2004))
- When affordable housing units are concentrated in the same area it only continues to concentrate poverty. “Stable housing in an unstable neighborhood does not necessarily allow for positive employment and child education outcomes”. (Millennial Housing Commission. “Meeting our nation’s housing challenges” (2002). Page. 11 The Millennial Housing Commission was a bi-partisan federal commission assessing national housing policy and needs. The commission released their final report in 2002. To access the Millennial Housing Commission report visit: http://www.mhc.gov/)

3.2 Foreclosure Rate

Description: The estimated foreclosure rate
Data Source: HUD User
Data Link/Location: http://www.huduser.org/datasets/usps.html
Geography: Census Tract (2010)
Date: Second Quarter, 2010
Methodology: Join the data to census tract boundary.
How it Relates to Opportunity:

- Once the number of foreclosures in a neighborhood reaches a certain point the value of surrounding homes is negatively affected. (Schuetz, Jenny, Been, Vicki and Ellen, Ingrid Gould, Neighborhood effects of concentrated mortgage foreclosures (September 18, 2008). NYU Law and Economics Research Paper No. 08-41. Available at SSRN: http://ssrn.com/abstract=1270121 or http://dx.doi.org/10.2139/ssrn.1270121)

- Increased foreclosure rates have been associated with an increase in violent crimes. (Immergluck, D., & Smith, G. (2006). The impact of single-family mortgage foreclosures on neighborhood crime. Housing Studies, 21(6), 851-866.)

- “Our key findings, based on loans that entered foreclosure between 2007 and 2011:
  - $1.95 trillion in property value has been lost or will be lost by residents who live in close proximity to foreclosures. These losses include both the spillover impact of homes that have completed the foreclosure process and future losses that will result from homes that have started but not yet completed the foreclosure process.
  - Over one-half of the spillover loss is associated with communities of color. These neighborhoods have lost or will lose $1 trillion in home equity as a result of spillover from homes that have started the foreclosure process, reflecting the high concentrations of foreclosures in neighborhoods of color.
  - On average, families affected by nearby foreclosures have already lost or will lose $21,077 in household wealth, representing 7.2 percent of their home value, by virtue of being in close proximity to foreclosures. Families impacted in minority neighborhoods have lost or will lose, on average, $37,084 or 13.1 percent of their home value.” (Bocian, D. G., Smith, P., & Li, W. (2012). Collateral damage: The spillover costs of foreclosures. Center for Responsible Lending, Retrieved from http://www.responsiblelending.org/mortgage-lending/research-analysis/collateral-damage.pdf)

3.3 High-cost loan rate (-)

Description: The estimated rate of all mortgage loans that are high cost, as defined by HUD and HMDA

Data Source: HUD User

Data Link/Location: http://www.huduser.org/datasets/usps.html

Geography: Census Tract (2010)

Date: Second Quarter, 2010

Methodology: Join the data to census tract boundary.

How it Relates to Opportunity:

- Mortgage lenders have a history of steering underserved and minority communities to subprime mortgages. This leads to increased foreclosures for inner-city residents. (Squires, G. D. (2007). Demobilization of the individualistic bias: Housing market discrimination as a contributor to labor market and economic inequality. The ANNALS of Political Social Science, 609(1), 292-321. doi: 10.1177/0002716206294953)

- “Even after accounting for a wide range of demand-side factors, African Americans and Latinas/Latinos approved for credit were still twice as likely as otherwise identical non-Hispanic whites to wind up with high-cost loans in 2006.” (Wyly, E., Moos, M., Hammel, D., & Kabahizi, E. (2009). Cartographies of race and class: Mapping the class-monopoly rents of American subprime mortgage capital. International Journal of Urban and Regional Planning Research, 33(2), 332-354.)
3.4 Housing Cost Burden (-)

Description: The percentage of all households that spent 30% or more of household income on housing costs.
Data Source: American Community Survey (ACS)
Data Link/Location: http://factfinder.census.gov/home/saff/aff_transition.html
Geography: Census Tract (2000)
Date: 2005-2009 (5-year estimates)
Methodology: Join the ACS data to census tract boundary.

How it Relates to Opportunity:
- Low income housing does not guarantee that residents will be able to afford their rent. Even though programs like the Low Income Housing Tax Credit (LIHTC) help to create reduced rents, many residents are still paying more than 30% of their income toward housing. (Williamson, A. R. (2011). Can they afford the rent? Resident cost burden in low income housing tax credit developments. Urban Affairs Review, 47(6), 775-799. doi: 10.1177/1078087411417078)
- In many communities even full-time workers can be priced out of the housing market. Families are forced to choose between a high housing cost burden and commuting distance. (Tim Sullivan, Putting the force in workforce housing, 70 PLANNING MAGAZINE 26 (2004))

3.5 Home Ownership (+)

Description: Percentage of owner occupied homes in the given housing stock.
Data Source: Census (SF3), ESRI Business Analyst
Geography: Census Tract
Date: 2000
Methodology: Join the census SF3 data to census tract boundary.

How it Relates to Opportunity:
- High homeownership rates result in greater neighborhood stability. This can lead to other benefits such as increased college graduation rates of children whose parents own their home. (George Galster, Dave E. Marcotte, Marvin B. Mandell, Hal Wolman & Nancy Augustine (2007): The impact of parental homeownership on children’s outcomes during early adulthood, Housing Policy Debate, 18:4, 785-827)

3.6 Housing Vacancy (-)

Description: The percent of all housing units which are vacant.
Data Source: Census (SF3), ESRI Business Analyst
Geography: Census Tract (2000)
Date: 2010
Methodology: Join the census SF3 data to census tract boundary.

How it Relates to Opportunity:
- Research suggests that vacant homes have a greater negative effect on the value of surrounding homes than do homes in extended foreclosure. (Kobie, T. F., & Sugie, L. (2011). The spatial-

- A study in Austin, Texas found that blocks with vacant homes have higher crime rates than blocks without them. (Spelman, W. (1993). Abandoned buildings: Magnets for crime?. *Journal of Criminal Justice*, 21(5), 481-495.)

- “Both theory and empirical evidence suggest that when several owners fail to maintain their properties, others nearby follow suit because their neighbors’ inaction undermines property values. Rundown and abandoned properties can have a contagious effect that accelerates neighborhood decline.” (Millennial Housing Commission. MEETING OUR NATION’S HOUSING CHALLENGES (2002). Page 11)

3.7 Mortgage Denials (-)

**Description:** Mortgage denial rate for each from Home Mortgage Disclosure Act (HMDA)

**Data Source:** Home Mortgage Disclosure Act (HMDA)

**Data Link/Location:** http://www.ffiec.gov/hmda/hmdaproducts.htm

**Geography:** Census Tract (2000)

**Date:** 2010

**Methodology:** Join the HMDA data to census tract boundary.

**How it Relates to Opportunity:**


- “Mortgage lenders systematically lend less mortgage money to African Americans and Latinos compared to whites of comparable income and background . . . These practices do not stop at central city borders, but also affect large parts of suburbia. A recent study of metropolitan Boston, for example, showed that nearly half of black homebuyers were concentrated in only 7 of 126 communities.” (M. Orfield and T. Luce, *Minority Suburbanization And Racial Change: Stable Integration, Neighborhood Transition, And The Need For Regional Approaches*. Report of Institute on Race and Poverty (presentation at the “Race and Regionalism Conference in Minneapolis, MN May 6-7, 2005.) Available on-line at: http://www.irpumn.org/website/projects/index.php?strWebAction=project_detail&intProjectID=15

3.8 Population Change 1990-2000 (+)

**Description:** Percentage change in population

**Data Source:** GeoLytics Neighborhood Change Database


**Geography:** Census Tract

**Date:** 1990, 2000

**Methodology:** None

**How it Relates to Opportunity:**

- When neighborhood populations decrease it lowers the values of the homes in the area. (Chengri Ding and Gerrit-Jan Knaap, “Property values in inner-city neighborhoods: The effects of

### 3.9 Poverty Rates

**Description:** Percentage of people below poverty for whom the poverty level has been determined by census tracts

**Data Source:** Census (SF3)

**Data Link/Location:** [http://factfinder.census.gov/home/saff/aff_transition.html](http://factfinder.census.gov/home/saff/aff_transition.html)

**Geography:** Census Tract

**Date:** 2000

**Methodology:** None

**How it Relates to Opportunity:**

- “Neighborhood affluence is a more powerful predictor of health status than poverty, above and beyond individual demographic background, socioeconomic status, health behaviors, and insurance coverage.” (Browning, Christopher R., and Kathleen A. Cagney, *Moving beyond poverty: Neighborhood structure, social processes and health*, 44 *JOURNAL OF HEALTH AND SOCIAL BEHAVIOR* 552-571 (December 2003))

- According to a study of the effects on the Moving to Opportunity program, residents that moved from areas of highly concentrated poverty to areas with low concentrations of poverty experienced improved psychological and physical health. (Orr, Feins, Jacob, and Beecroft (Abt Associates Inc.) and Sanbonmatsu, Katz, Liebman and Kling (NBER), U.S. Department of Housing and Urban Development Office of Policy Development and Research, *Executive Summary of MOVING TO OPPORTUNITY INTERIM IMPACTS EVALUATION* (September 2003))


- High school graduates are less likely to get a job after school if they are from a neighborhood with high poverty. (M. A. Turner and D. Acevedo-Garcia, *Why housing mobility? The research evidence today*, 14 *POVERTY & RACE RESEARCH ACTION COUNCIL NEWSLETTER* (January/February 2005).)


### 3.10 Property Appreciation and Tax Base

**Description:** Percentage increase in property value within the given time period

**Data Source:** Census (SF3), Auditor's office, ESRI Business Analyst Data

**Data Link/Location:** [http://factfinder.census.gov/home/saff/aff_transition.html](http://factfinder.census.gov/home/saff/aff_transition.html), [www.esri.com](http://www.esri.com)

**Geography:** Census Tract or Parcel

**Date:** 2000

**Methodology:** Join the census SF3 data to census tract boundary or parcel.

**How it Relates to Opportunity:**

- Homes are the primary source of wealth for most Americans. (1.1 David R. Williams and Chiquita Collins, “Racial residential segregation: A fundamental cause of racial disparities in health,” 116 *Public Health Reports* (Sept/Oct 2001))
Changing home values show whether residents’ wealth is increasing or decreasing. Increasing home values are associated with new investment in neighborhoods. (Chengri Ding and Gerrit-Jan Knaap, “Property values in inner-city neighborhoods: The effects of homeownership, housing investment, and economic development,” Housing Policy Debate 13.4 (2003))

Homes in segregated neighborhoods do not appreciate in value nearly as quickly as homes in other neighborhoods. This reduces the beneficial effect of homeownership for homeowners in segregated neighborhoods. (David R. Williams and Chiquita Collins, “Racial residential segregation: A fundamental cause of racial disparities in health,” 116 Public Health Reports (Sept/Oct 2001))

Homes in communities with primarily African American residents do not appreciate in value as quickly as homes in other communities. This is a major cause of the wealth gap between white and minority households. Communities with lower property values have lower tax bases, which results in less money for schools. Most states rely heavily on local property taxes for school funding, which creates inequality in education. (Squires, G. (2007). Demobilization of the individualistic bias: Housing market discrimination as a contributor to labor market and economic inequality. The ANNALS of the American Academy of Political and Social Science, 609(1), 200-214)

**3.11 Property Values (-)**

Description: Median home value  
Data Source: Census (SF3)  
Data Link/Location: http://factfinder.census.gov/home/saff/aff_transition.html  
Geography: Census Tract  
Date: 2000  
Methodology: Join the census SF3 data to census tract boundary.

How it Relates to Opportunity:

- Home values are an indicator of neighborhood quality. A resident’s income alone will not necessarily determine whether he or she lives in a home with a high property value, or in an area of high opportunity. (Woldoff, A., & Ovadia, S. (2008)).

**3.12 Sub-Prime Loans (-)**

Description: The number of high-cost HMDA loans  
Data Source: HUD User  
Data Link/Location: http://www.huduser.org/datasets/usps.html  
Geography: Census Tract  
Date: 2004-2006  
Methodology: Join the HUD data to census tract boundary.

How it Relates to Opportunity:

- Sub-Prime loans are more likely to lead to foreclosures than traditional loans. (Lee, S., Rosentraub, M. S., & Kobie, T. F. (2010). Race, class and spatial dimensions of mortgage lending practices and residential foreclosures. Journal of Urbanism, 3(1), 39-68.)
- “We estimate the total loss of wealth for people of color to be between $164 billion and $213 billion for subprime loans taken during the past eight years. We believe this represents the greatest loss of wealth for people of color in modern US history. . . The spillover effect of the subprime crisis affects whole communities negatively, in terms of abandoned houses, increased crime, devaluation of neighboring houses, and erosion of the tax base, causing revenue shortfalls that mandate service cuts. The crisis is having a negative impact on property owners, as well as neighborhoods, and local

3.13 Subsidized Housing (-)
Description: The number of housing vouchers and public housing units
Data Source: HUD User
Data Link/Location: http://www.huduser.org/datasets/usps.html
Geography: Census Tract
Date: 2008
Methodology: Join the HUD data to census tract boundary.
How it Relates to Opportunity:
- Housing vouchers are intended to move residents into areas of opportunity. However, many affordable housing units have been built in areas with high rates of poverty. (Freeman, Lance. “Siting affordable housing: Location and neighborhood trends of low income housing tax credit developments in the 1990’s” (2004))
- When affordable housing units are concentrated in the same area it only continues to concentrate poverty. “Stable housing in an unstable neighborhood does not necessarily allow for positive employment and child education outcomes”. (Millennial Housing Commission. “Meeting our nation’s housing challenges” (2002). Page. 11 The Millennial Housing Commission was a bi-partisan federal commission assessing national housing policy and needs. The commission released their final report in 2002. To access the Millennial Housing Commission report visit: http://www.mhc.gov/)

IV. Transportation and Mobility Indicators

4.1 Access to automobile (-)
Description: The percentage with no car at home
Data Source: American Community Survey (ACS)
Data Link/Location: http://factfinder.census.gov/home/saff/aff_transition.html
Geography: Census Tract
Date: 2005-2009 estimates
Methodology: Join the ACS data to the census tract boundary.
How it Relates to Opportunity:
- Without an automobile many families are unable to travel to areas with good employment prospects. (Richard Price and Edwin S. Mills, “Race and residence in earnings determination,” J. Urb. Econ. 17 (1985))
- Even if residents have access to public transportation, it may not take them to neighborhoods of high opportunity. The effects of this are longer in duration and higher in frequency during periods of unemployment for those without cars, and in low opportunity areas. (Harry Holzer, Keith Ihlafeldt, and David Sjoquist, “Work, search, and travel among white and black youth,” Journal Of Urban Economics 35 (1994))

4.2 Mean Commute Time (-)
Description: Average time to commute for the residents of census tracts
Data Source: Census (SF3)
Data Link/Location: http://factfinder.census.gov/home/saff/aff_transition.html
Geography: Census Tract
Date: 2000
Methodology: Join the ACS data to the census tract boundary.

How it Relates to Opportunity:
- This is partly due to jobs leaving the inner-city, and partly due to the low automobile ownership rates of inner-city residents. As commutes become longer residents require more compensation for the added commuting time. This means fewer jobs to choose from for those with limited means of transportation (such as an insufficient bus system). (Karen Chapple, "Overcoming mismatch: Beyond dispersal, mobility, and development strategies," *Journal of the American Planning Association* 72.3 (2006))

4.3 Public transit access (+)
Description: The percentage of the total area that is within 1/4-mile of an Express Bus stop
Data Source: State Regional Council
Data Link/Location:
Geography: Point, Bus Stop locations
Date: 2010
Methodology: Each tract was assigned a value based on the percentage of the tract’s total area that is within a .25-mile buffer of the public transit stops.

How it Relates to Opportunity:
- Because many residents of inner-cities do not own vehicles public transportation is the only way to reach areas of high opportunity. Although many bus systems are not adequate (many do not go to the outer suburbs) they are essential to those that depend on them. (K. Ihlanfeldt & D. Sjoquist, “The spatial mismatch hypothesis: A review of recent studies and their implications for welfare reform,” *Housing Policy Debate* 9 (1998))
- “Transportation is a basic ingredient for quality of life indicators such as health, education, employment, economic development, access to municipal services, residential mobility, and environmental quality.” (Bullard, D, Robert., Addressing urban transportation equity in the United States, 31FORDHAM URBAN LAW JOURNAL 1183 (October 2004))
- “Transportation policies not only have inequitable effects on the ability of low-income individuals and minorities to access places, but also have serious indirect effects such as encouraging and reinforcing residential segregation; restricting access to employment and other economic opportunities, housing, and education; and causing health disparities.” (Thomas W. Sanchez et. al., “Moving To Equity: Addressing Inequitable Effects of Transportation Policies on Minorities,” The Civil Rights Project and Center for Community Change, Harvard University (June 2003). Available at: http://civilrightsproject.ucla.edu/research/metro-and-regional-inequalities/transportation/moving-to-equity-addressing-inequitable-effects-of-transportation-policies-on-minorities/sanchez-moving-to-equity-transportation-policies.pdf.)

4.4 Transit Cost (-)
Description: The cost of the average transit fare
Data Source: State Regional Council
Data Link/Location:
Geography: Traffic Analysis Zone (TAZ)
Date: 2010
Methodology: Each tract was assigned a value based on the traffic analysis zones whose centroids are within the tract’s boundaries.

How it Relates to Opportunity:

- High travel costs discourage residents living in low opportunity areas from traveling outside of their neighborhoods to look for work. This results in longer and more frequent periods of unemployment. (Harry Holzer, Keith Ihlanfeldt, and David Sjoquist, “Work, search, and travel among white and black youth,” *Journal Of Urban Economics* 35 (1994))

4.5 Transit Dependency (-)

Description: Share of households (per tract) without access to a vehicle

Data Source: American Community Survey (ACS)

Data Link/Location: [http://factfinder.census.gov/home/saff/aff_transition.html](http://factfinder.census.gov/home/saff/aff_transition.html)

Geography: Census Tract

Date: 2005-2009 estimates

Methodology: Join the ACS data to the census tract boundary.

How it Relates to Opportunity:

- Not having a personal vehicle seriously limits what employment opportunities are available to residents. Most entry-level jobs are located beyond the limits of public transportation. Even when those jobs are accessible by public transportation, many require employees to work when public transit is not operating. (Sanchez, T.W. (2008). Poverty, policy, and public transportation. *Transportation Research Part A: Policy and Practice*, 42, 833-841.)


4.6 Transportation Cost (-)

Description: The cost of the average commute to work at $0.50 per mile

Data Source: State Regional Council

Data Link/Location:

Geography: Traffic Analysis Zone (TAZ)

Date: 2010

Methodology: Each tract was assigned a value based on the traffic analysis zones whose centroids are within the tract’s boundaries.

How it Relates to Opportunity:

- Commuting cost is one of the major contributors to the cost of living for low and moderate income families. When deciding where to live, families face a trade-off between housing costs and transportation costs. For some commuters transportation costs can exceed their housing costs. Measuring both transportation and housing costs provides a better picture of how financially burdened some families are. (Lipman, B. J. Center for Housing Policy, (2006). *A heavy load: The combined housing and transportation burdens of working families*. Retrieved from website: [http://www.cnt.org/repository/heavy_load_10_06.pdf](http://www.cnt.org/repository/heavy_load_10_06.pdf))

4.7 Walkability (+)

Description: The percentage of all commuters who walk to work

Data Source: American Community Survey (ACS)

Data Link/Location: [http://factfinder.census.gov/home/saff/aff_transition.html](http://factfinder.census.gov/home/saff/aff_transition.html)

Geography: Census Tract
Date: 2005-2009 (5-year estimates)
Methodology: Join the ACS data to the census tract boundary.

How it Relates to Opportunity:
- Walkable neighborhoods help improve the health of residents, especially with older adults, by providing opportunities for daily physical activity. The option of walking to work is important for residents that may not have access to an automobile. (Gallagher, N.A., Kimberlee, A., Gretebeck, J.C., Robinson, J.C., Torres, E.R., Murphy, S.L. & Marty, K.K. (2010). Neighborhood factors relevant for walking in older, urban, African American adults. Journal of Aging and Physical Activity, 2010, 18, 99-115.)

V. Health and Environmental Indicators

5.1 Amount of Toxic Waste Release (-)
Description: Pounds of toxic release emitted from toxic waste sites
Data Source: Environmental Protection Agency (EPA)
Data Link/Location: http://www.epa.gov/tri/tridata/
Geography: Point, Toxic Release Site locations
Date: 2010
Methodology: The indicator is based on the proportion of each site’s toxic release within a 2-mile area. Tracts received a value if they were within 2 miles of at least one toxic release site.

How it Relates to Opportunity:
- Areas with a high concentration of pollutants are health risks for the people that live nearby them. (Woodruff, T. J., Axelrod, D. A., Caldwell, J., Morello-Frosch, R., & Rosenbaum, A. (1998). Public health implications of 1990 air toxics concentrations across the United States. Environmental Health Perspectives, 106(5), 245-251.)

5.2 Crime Index (-)
Description: An estimated index based on all personal and property crimes relative to total population
Data Source: Tetrad Computer Applications, Inc. PCensus Dbx
Data Link/Location: http://www.tetrad.com/software/pcensus/
Geography: Census Tract (2010)
Date: 2010
Methodology: Data was translated to its 2010 equivalency through the parent-child relationship of the tract names, and the areal proportion of the 2010 children to the 2000 parent.

How it Relates to Opportunity:
- “Violence has been associated with the low socioeconomic status (SES) and residential instability of neighborhoods”. (Youth and violence: A report of the Surgeon General (January 2001))
- “Overall, higher levels of perceived neighborhood safety were associated with lower levels of physical inactivity” (Neighborhood safety and the prevalence of physical inactivity -- selected states, 1996. (1999, February 26). Morbidity and Mortality Weekly Report, 48(7), 143. Retrieved from http://go.galegroup.com/ps/i.do?id=GALE%7CA54068062&v=2.1&u=colu44332&it=r&p=AONE&sw=w)
- Greenberg found that controlling crime and blight were the highest priorities on residents’ list of concerns (in neighborhoods considered “low quality”). (M. R. Greenberg, Improving neighborhood quality: A hierarchy of needs 10 (3) Housing Policy Debate 601-624 (1999)).
5.3 Grocery Stores (+)
Description: Number of grocery stores within a block group centroid's buffer
Data Source: ESRI Business Analyst
Data Link/Location: www.esri.com
Geography:
Date: 2010
Methodology: Count grocery stores within a certain miles of buffer from block group centroids.
How it Relates to Opportunity:
- Living in an area without access to a grocery store has been linked to an increased likelihood of obesity for residents without automobiles. (Christian, T. J. (2010). Grocery store access and the food insecurity-obesity paradox. *Journal of Hunger & Environmental Nutrition, 5*(3), 360-369.)
- Research shows that predominantly African American communities have less access to grocery stores than white communities. (Morland, K., Wing, S., Roux, A. D., & Poole, C. (2001). Neighborhood characteristics associated with the location of food stores and food service places. *American Journal of Preventative Medicine, 2005*(96), 325-331.)
- Studies have also found that African Americans living in racially segregated regions pay more for food that is lower quality than white residents. (David R. Williams and Chiquita Collins, “Racial residential segregation: A fundamental cause of racial disparities in health,” 116 *Public Health Reports* (Sept/Oct 2001))

5.4 Parks and Open Space (+)
Description: The distance to the nearest park or open space or percentage of block group area containing a park or green space
Data Source: ESRI Business Analyst
Data Link/Location: www.esri.com
Geography: Point, Park and Open Space locations
Date: 2010
Methodology: Each tract was given a value based on the distance between the tract’s centroid and the nearest park’s centroid (or open space’s centroid).
How it Relates to Opportunity:
- “Insufficient physical activity contributes to obesity and the risk of complications from chronic conditions such as type 2 diabetes”. Children that have access to safe parks engage in more physical activity than those that do not. (Babey, S. H., Theresa, A. H., Hongjian, Y., & Brown, E. R. (2008). Physical activity among adolescents: When do parks matter?. *American Journal of Preventative Medicine, 34*(4), 345-348.)

5.5 Proximity to Toxic Waste Release Sites (-)
Description: Census tracts are ranked based on their distance from these facilities and the amount of toxic waste released
Data Source: Environmental Protection Agency (EPA)
Data Link/Location: http://www.epa.gov/tri/tridata/
Geography: Point-based, Facility locations
Date: 2009
**Methodology:** The indicator is based on the proportion of each site’s toxic release within a certain mile of area. Block group (or census tract) received a value if they were within a certain mile at least one toxic release site.

**How it Relates to Opportunity:**


- “These results provide evidence that cancer risk associated with air toxics exposure, particularly from on-road and area sources, disproportionately falls onto socioeconomically disadvantaged and African-American communities.” (Benjamin J. Apelberg, Timothy J. Buckley and Ronald H. White, “Socioeconomic and Racial Disparities in Cancer Risk from Air Toxins in Maryland,” *Environmental Health Perspectives 113* (June 2005))