KIRWAN INSTITUTE
for the Study of Race and Ethnicity

The Geography of Opportunity

Austin Region

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The **Central Texas Opportunity** initiative was initiated by **Community Partnership for the Homeless**

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The Geography of Opportunity in the Austin Region:

Key Findings

- As seen in **Map 1**, higher opportunity areas in the region are primarily concentrated west of I-35, with the highest opportunity communities found directly west of I-35 in the Travis County area. The lowest opportunity areas are primarily concentrated in southeastern Travis County and in the region's eastern counties (Caldwell and Bastrop). The largest concentration of high-opportunity communities are found in the portions of the City of Austin west of I-35 and most of the suburban communities adjacent to Austin west of I-35.
- The east-west divide along I-35 is evident in educational conditions in the region, with all high-opportunity areas found west of I-35. Areas of low educational opportunity are concentrated east of I-35, but centered around Travis County. Most areas in Caldwell and Bastrop Counties scored as "moderate" areas of educational opportunity.
- **Map 6** presents the distribution of census tracts based on the public health and environmental analysis. The highest performing areas in the region are concentrated west of I-35, including parts of western Travis County and portions of Williamson County.
- The distribution of high- and low-opportunity census tracts based on the housing and neighborhood quality analysis is seen in **Map 7**. The highest opportunity areas in the neighborhood analysis are located west of I-35, spreading from Hays to Williamson County. Most of the high-opportunity tracts in Travis County are west of Route 183. The lowest opportunity tracts in this analysis are located in the center of Travis County, directly east of I-35.
- Latino and African American populations are concentrated in the region's low- and moderate-opportunity communities. While 39% of Whites in the region are in very low- or low-opportunity census tracts, 60% of Latinos and African Americans are concentrated in these tracts (**See Table 1**). The proportion of the White population found in the region's high- and very high-opportunity census tracts is 39%, nearly double the proportion of the Latino population (20%) and African American population (18%) located in high-opportunity areas. Linguistically isolated populations are also more likely to be concentrated in low-opportunity areas (**See Map 8**), with 56% of all linguistically isolated people located in very low- or low-opportunity census tracts.
- Latino and African American children are much more likely to be located in the region's low-opportunity areas, with 2 out of 3 African American and Latino children found in these communities. For children in poverty, this isolation from opportunity is more pronounced, with 69% of children in poverty in the region found in the region's low-opportunity census tracts (**See Table 1**).
- Subsidized housing sites are almost non-existent in high-opportunity areas (**See Map 9**). Approximately 1 out of 10 subsidized housing sites identified in the HUD database are found in high-opportunity census tracts, while 2 out of 3 sites are concentrated in the region's low-opportunity communities (**See Table 2**).
- Opportunity mapping data provides a wealth of detailed information relevant to community concerns. Several examples are provided in this report, focusing on the identification of gaps in public transit service and health care facilities, and identifying areas with potential affordable food challenges. As seen in **Map 11A and Map 11B**, public transit lines are well connected to public health resources in the City of Austin, but transit access gaps exist with regard to health care resources directly to the west and north of the City of Austin. **Map 12** identifies zones with high expenditures for food and concentrations of low-income residents (red areas). These

areas represent potential locations for establishing lower-cost food offerings to meet local need. Several areas in the Austin region meet this criterion, with most in the center of the City of Austin and in southern Hays and Caldwell Counties.

- The disconnect between African American and Latino children and neighborhoods of opportunity is evident in **Map 10A** and **Map 10B**. This segregation from opportunity is also apparent when focusing on the distribution of high-performing schools in the region. Communities who performed best on the educational opportunity analysis are primarily located west of I-35, while most African American and Latino children are concentrated just east of I-35 and south of route 290 in the center of Travis County.
- Growing opportunity areas (**Map 13**) are directly west of the City of Austin, throughout much of Williamson County, and in western Hays County. Slower growth has occurred in many neighborhoods in the core of the City of Austin and portions of Bastrop County. At this time, the data does not capture the most recent changes affecting the region (most notably, the dynamics since the 2000 Census). Future assessment of these trends will more comprehensively capture this current data, providing insight into how opportunity is shifting in the region.

1. Introduction

Fair access to opportunity is critical to promoting well-being and advancement in any society. Accessing opportunity to better our lives and our children's lives motivates us to move across town, across the country or across the world for better jobs, a quality education, a healthy environment, or safety from violence. Fair access to opportunity is also essential to produce a truly democratic society.

In our metropolitan regions, opportunities are not equally distributed. Opportunities are often geographically clustered in a few communities, while they are lacking or insufficient in others, creating a web of high- and low-opportunity neighborhoods across metropolitan regions. Due to geographic variation, not everyone has access to the critical opportunities needed to excel or advance in life. Many low-income communities, particularly communities of color, are often spatially isolated and segregated from critical opportunities such as high-performing schools, sustainable employment, health care and safe communities. This spatial segregation from opportunity not only limits the creative potential for individuals, but also reduces the creative capacity of the entire region's most important asset, its people. This cumulative effect harms the health of the entire region, impacting everyone.

Mapping the geographic distribution of opportunity helps evaluate where these opportunity mismatches exist in a community. The following report presents the findings of an opportunity analysis or "opportunity mapping" exercise conducted for the Austin metropolitan region. The opportunity maps for Austin provoke critical questions about access to opportunity in the region, and provide insight into what action steps could connect more of Austin's residents to the region's opportunities. Promoting and assuring access to opportunity provides benefits not only to individuals, but makes Austin an economically stronger and more sustainable metropolitan region.

a. Opportunity Matters: Space, Place and Life Outcomes

Opportunity is broadly defined as a situation or condition which is conducive to meeting a goal or objective, placing an individual in a position to be more likely to succeed or excel.[1] Environment is often the determining factor in producing conditions in which people are more likely to succeed or fail in their endeavors. In the context of regional development or community development, neighborhoods are the primary environments in which we access key opportunity structures. Neighborhoods often determine access to critical opportunities needed to excel in our society, such as high-performing schools, sustainable employment, stable housing, safe neighborhoods and health care.

Decades of social science research support the finding that neighborhood conditions play a substantial role in the life outcomes of inhabitants.[2] Although individual characteristics play a role in determining who excels in our society, neighborhood conditions are critical in promoting or impeding people, even for the most motivated individuals. For many low-income communities, particularly communities of color, neighborhood conditions limit access to opportunity and advancement. Residents concentrated in highly impoverished communities lack access to steady employment, essential services, and good schools, and often live in unsafe environments. In these neighborhoods, under-resourced schools struggle to meet the myriad needs of children in poverty; parents shop at grocery stores with overpriced and low-quality food;

[1] Adapted from *Dictionary.com* Unabridged (v 1.1) and the *Random House Unabridged Dictionary*, © Random House, Inc. 2006.

[2] See **Appendix C** for a review of literature supporting the importance of neighborhoods in predicting life outcomes.

and people motivated to work lack connection to meaningful, sustainable employment. This geographic isolation from opportunity creates artificial barriers to improvement for these residents and significantly diminishes their quality of life. The impact of this opportunity isolation is profound for both the individual and the entire community.

How do we remedy this opportunity isolation? One model which has gained acceptance in recent years is the "Communities of Opportunity" model. The Communities of Opportunity model is a fair housing and community development framework that attempts to remedy these disparities while growing opportunity for all people in the region. The model is based on the premises that everyone should have fair access to the critical opportunity structures needed to succeed in life; and that affirmatively connecting people to opportunity creates positive, transformative change in communities.

The Communities of Opportunity model has two goals: to bring opportunities to opportunity-deprived areas; and to connect people to existing opportunities throughout the metropolitan region. To do this, the model emphasizes investments in people, places and linkages. The approach is based on a strong foundation of research and fair housing experience. We need to build human capital through improved wealth-building, educational achievement, and social and political empowerment. We must invest in places by supporting neighborhood development initiatives, attracting jobs with living wages and advancement opportunities, and demanding high-quality local services for all neighborhoods, such as local public schools that perform. We must also encourage better links among people and places, fostering mobility through high-quality public transportation services and region-wide housing mobility programs. In addition, the model advocates for managing sprawling growth, in order to reduce the drain of jobs and resources from existing communities. The Communities of Opportunity model advocates for a fair investment in all of a region's people and neighborhoods -- to improve the life outcomes of all citizens, and to improve the health of the entire region.

b. What is Opportunity Mapping?

The first step in applying the Communities of Opportunity framework is a critical one, and it is to use opportunity mapping to better understand and represent the dynamics of opportunity within a region. The Communities of Opportunity framework is inherently spatial. It recognizes that inequality has a geographic footprint, and that maps can visually track the history and presence of discriminatory and exclusionary policies that spatially segregate people. Schools, doctors, jobs and the like are unequally geographically distributed across a region, often clustered in areas of "high" opportunity neighborhoods. To address the need for equitable opportunity and improved living conditions for all residents, we need to assess the geographic differences in resources and opportunities across a region to make informed, affirmative interventions into failures and gaps in "free market" opportunities. In order to direct investment into under-resourced and struggling areas, and in order to proactively connect people to jobs, stable housing, and good schools for their children, we need to be able to quantitatively model opportunities throughout our regions.

To map opportunity in the region, we use variables that are indicative of high and low opportunity. High-opportunity indicators include the availability of sustainable employment, high-performing schools, a safe environment, access to high-quality health care, adequate transportation, quality childcare and safe neighborhoods. These multiple indicators of opportunity are assessed at the same geographic scale, thus enabling the production of a comprehensive opportunity map for the region.

This rigorous exercise allows communities to measure opportunity comprehensively and comparatively; to communicate who has access to opportunity-rich areas and who does not; and to understand what needs to be remedied in opportunity-poor communities. Opportunity mapping harnesses sophisticated mapping software and detailed data sets, enabling people to identify

proactively where policy interventions are needed to remedy conditions of inequality. The Kirwan Institute for the Study for Race and Ethnicity has completed opportunity mapping in a dozen metropolitan areas across the U.S., often at the request of community groups and advocacy organizations interested in community development and fair housing. The following describes some of these opportunity mapping initiatives and the utilization of these maps:

- **Chicago:** The Kirwan Institute worked with the Leadership Council for Metropolitan Open Communities and the Institute of Race and Poverty to conduct an opportunity mapping analysis in the Chicago region. The opportunity maps produced as part of the Chicago research were utilized by the Leadership Council for advising inner-city voucher holders looking to relocate to higher opportunity neighborhoods in Chicago. In addition, the research was utilized to inform inclusionary housing advocacy in the Chicago region, focusing on inclusionary zoning advocacy and to assess the impacts of the Low Income Housing Tax Credit program on expanding access to opportunity in the Chicago region.
- **Baltimore:** Opportunity mapping in the Baltimore region was conducted as part of the *Thompson v. HUD* fair housing litigation. Plaintiffs used opportunity mapping to frame their remedial proposal, in response to a liability ruling that found the U.S. Department of Housing and Urban Development in violation of the Fair Housing Act. The plaintiffs have proposed establishing 7,000 affordable housing units in the region's high- opportunity communities, available to volunteers who wish to relocate out of the City of Baltimore's public housing. In response, an umbrella organization of seven social justice organizations (known as the Baltimore Regional Housing Campaign) has adopted the opportunity-based approach and is actively working outside of the Court's remedial action to develop affordable housing options in Baltimore's high-opportunity communities, as well as counseling those who desire to leave Baltimore's public housing for new opportunities. The Institute is playing a role in these activities, using our expertise in Geographic Information Systems to identify areas of secure, affordable housing in Baltimore's high-opportunity areas.
- **Cleveland:** Opportunity mapping and GIS analysis were used in the Cleveland region to assess economic opportunities in the region, in relation to Minority Business concentrations. Most MBEs in the region were clustered in neighborhoods with declining economic opportunity, producing potential impediments to business networking and access to markets. Additional opportunity analysis was used to inform regional growth and development policy recommendations formulated by the Presidents' Council of Cleveland, a committee of leading political, civic and business leaders in the African American community.

c. Mapping Opportunity in Austin

The Central Texas Opportunity initiative was initiated by Community Partnership for the Homeless and involved a steering committee representing a diverse array of organizations in the Central Texas region. The committee included representatives from PeopleFund, a regional community development financial institution; Envision Central Texas, a regional planning body; Capital Metro, the region's public transit authority; the Indigent Care Collaborative, a non-profit health organization focused on public health issues for the poor; Capitol Area Council of Governments; United Way Capital Area; Habitat for Humanity; and several professors from the University of Texas' Community & Regional Planning and Public Health Departments. The committee worked collaboratively with Kirwan Institute to identify indicators of opportunity in the region.

The broader goal of the opportunity mapping initiative is to provide a data resource for policy makers, community development practitioners, social service providers, and the public to support actions to remedy socioeconomic inequity issues highlighted by the map, such as providing access to health care or addressing affordable housing.

2. Indicators of Opportunity

The first step in mapping opportunity in the Austin region was to identify potential indicators of high and low opportunity. This process involved input from the Kirwan Institute and direction from the local steering committee. The selection of indicators was based on input regarding issues or concerns in the region, as well as research literature validating the connection between indicators and opportunity. Twenty-two indicator areas were selected for the analysis, covering education, economic conditions, mobility and transportation, public health and the environment, and neighborhood quality. These indicator areas are identified in **Figure 1**. For each issue area, data was gathered for the Austin region at the smallest geographic scale and analyzed at the census tract level. Special Geographic Information Systems analytical methods were used to re-aggregate non-census based data (e.g. local school performance or jobs data recorded by zip code) to the census tract level. Indicators were analyzed in each sector area (e.g. education, economic health), and the comprehensive opportunity map represents the composite of all sector area maps. No indicators were weighted, but future analysis could weight specific indicators based on local input and community priorities. Detailed information regarding the methods utilized in the analysis, the source of data, and data details are provided in **Appendixes A and B**.

A central requirement of indicator selection was a clear connection between the indicator and opportunity. What is opportunity? For this analysis, opportunity is defined as environmental conditions or resources that are conducive to healthier, vibrant communities and are more likely to be conducive to helping residents in a community succeed. Indicators could either be impediments to opportunity (which are analyzed as negative neighborhood factors, e.g. high neighborhood poverty) or conduits to opportunity (which are analyzed as positive factors, e.g. an abundance of jobs). The connection or correlation between each indicator and opportunity is provided in **Appendix A** of this report.

EDUCATION	ECONOMIC	MOBILITY & TRANSPORTATION	HEALTH & ENVIRONMENT	NEIGHBORHOOD QUALITY
School Poverty	Unemployment	Commute Time	Proximity to toxic waste	Neighborhood poverty rates
Teacher Experience	Dependence on Public Assistance	Access to public transit stops	Access to parks and open space	Housing vacancy rates
Student/ Teacher Ratio	Proximity to Employment	Frequency of public transit service	Proximity to health care facilities and physicians	Crime rates
Math & Reading Scores	Ratio of jobs to residents		Access to grocery stores	Home ownership
Student Retention	Job growth trends		Insurance access	Median income
				Home values

Figure 1: Opportunity indicators used in the Austin analysis

3. The Opportunity Maps: Findings and Analysis

Maps 1 through 7 present the findings of this opportunity analysis for the Austin region. The comprehensive opportunity map displays the composite of all opportunity indicators for the region. Identification as high opportunity in these maps indicates neighborhoods that generally

performed well on all of the sectors identified in **Figure 1** (education, neighborhood quality, employment, mobility, health and environment and neighborhood quality). Some communities, which scored very well in some sub-areas (such as portions of Williamson County that performed well in education and neighborhood quality), may still not appear as high opportunity, due to deficiencies in other areas (in the case of Williamson County, due to fewer employment opportunities and poor public transit mobility).

a. Comprehensive Opportunity Map

As seen in **Map 1**, higher opportunity areas in the region are primarily concentrated west of I-35, with the highest opportunity communities found directly west of I-35 in the Travis County area. The lowest opportunity areas are primarily concentrated in southeastern Travis County and in the region's eastern counties (Caldwell and Bastrop). **Map 2** provides a more detailed view of the distribution of high- and low-opportunity areas in and around the City of Austin. The distinct spatial divide between high- and low- opportunity areas at the I-35 corridor is evident in this more detailed map. The largest concentrations of high-opportunity communities are found in the portions of the City of Austin west of I-35 and most of the suburban communities adjacent to Austin west of I-35.

b. Educational Opportunity

Educational opportunity in the region was measured by assessing conditions and performance in local public schools. Assessments of teacher experience, student socio-economic status, student/teacher ratios, test score results and student retention were used to assess high- and low-opportunity schools. Data was collected for local elementary schools to capture the smallest scale of education data available. **Map 3** presents the result of this analysis. The east-west divide along I-35 is evident in educational conditions in the region, with all high-opportunity areas found west of I-35. Areas of low educational opportunity are concentrated east of I-35, but centered around Travis County. Most areas in Caldwell and Bastrop Counties scored as "moderate" areas of educational opportunity (indicating their performance was near the average of all schools in the region).

c. Economic Opportunity

Economic opportunities were measured by assessing the distribution of jobs, recent job trends, the ratio of jobs to residents, and measures of unemployment and public assistance. Economic opportunities in the region are generally centralized, but are more concentrated to the west of I-35 (**as seen in Map 4**). Much of the centralized distribution of economic opportunity is due to the large concentration of jobs found in and around the City of Austin. The poorest performing tracts for the economic opportunity analysis are in the southeastern portion of Travis County and in many of the counties outside of Travis County.

d. Mobility-Related Opportunity

Indicators of mobility are related to access and frequency of public transit service and commute times. As seen in **Map 5**, mobility-related opportunity in the region is highly concentrated, reflecting the centralized nature of the public transportation system and lower commute times for urban workers (also related to the general concentration of jobs near the City of Austin). All high-opportunity census tracts in the mobility analysis are in Travis County, with most in the City of Austin. Due to the relative lack of public transportation in the region's exterior counties, most census tracts in these counties performed poorly in the mobility analysis.

e. Public Health and Environmental Quality

Indicators of public health and environmental quality evaluated access to parks and open space, proximity to toxic waste, access to grocery stores, health insurance access and proximity to health

care resources, such as physicians and medical facilities. **Map 6** presents the distribution of census tracts based on the public health and environmental analysis. The highest performing areas in the region are concentrated west of I-35, including parts of western Travis County and portions of Williamson County.

f. Housing and Neighborhood Quality

Measures of housing and neighborhood quality assessed neighborhood economic status, housing vacancy, crime and home ownership. The distribution of high- and low- opportunity census tracts, based on the housing and neighborhood quality analysis, is seen in **Map 7**. The highest opportunity areas in the neighborhood analysis are west of I-35, spreading from Hays to Williamson County. Most of the high-opportunity tracts in Travis County are west of Route 183. The lowest opportunity tracts in this analysis are located in the center of Travis County, directly east of I-35.

4. Access to Opportunity: Who has access to opportunity?

Understanding the geography of opportunity in the region raises questions about who has access to high-opportunity areas in the region. Often racial and ethnic populations and low-income children are clustered in primarily low-opportunity areas. The following assesses the socioeconomic conditions in the region's high- and low-opportunity census tracts using 2000 Census data. Initial results indicate that opportunity in the Austin region is spatially segregated from many non-White populations, especially the Latino and African American populations. This segregation is more prominent for Latino and African American children, especially for children in poverty.

i. Race, Ethnicity and Opportunity

Latino and African American populations in the region are concentrated in the region's low- and moderate-opportunity communities. While 39% of Whites in the region are in very low- or low-opportunity census tracts, 60% of Latinos and African Americans are concentrated in these tracts (**See Table 1**). The proportion of the White population found in the region's high- and very high-opportunity census tracts is 39%, nearly double the proportion of the Latino population (20%) and African American population (18%) located in high-opportunity areas. Linguistically isolated populations are also more likely to be concentrated in low-opportunity areas (**See Map 9**), with 56% of all linguistically isolated people located in very low- or low-opportunity census tracts. Less than 1 out of 4 linguistically isolated residents are found in high-opportunity census tracts in the region (**Table 1**).

ii. Children and Opportunity

Surprisingly high concentrations of children are found in the region's low-opportunity census tracts. Nearly half (47%) of the children in the region are in very low- or low- opportunity census tracts compared to 42% of the adult population. Latino and African American children are much more likely to be located in the region's low-opportunity areas, with 2 out of 3 African American and Latino children found in these communities. For children in poverty, this isolation from opportunity is more pronounced, with 69% of children in poverty in the region found in the region's low-opportunity census tracts (**See Table 1**).

Table 1: General Population Figures for Opportunity Areas from the 2000 Census						
Opportunity Level	Total Population	Total White	Total Non-White	Hispanic/Latino	African American	Liguistic Isolation
Low or Very Low	43.5%	39.4%	55.4%	59.9%	59.8%	56.4%
Moderate	21.9%	22.1%	21.0%	20.4%	22.2%	19.9%
High or Very High	34.5%	38.5%	23.6%	19.7%	17.9%	23.7%

Opportunity Level	Total Children	Non-White Children	Hispanic Children	Afr. Amer Children	Children in Poverty	Seniors (Over 65)
Low or Very Low	47.1%	58.8%	62.6%	62.1%	68.6%	45.7%
Moderate	24.2%	22.1%	21.1%	23.6%	17.2%	21.1%
High or Very High	28.7%	19.1%	16.3%	14.3%	14.3%	33.2%

Opportunity Level	Low Income HH's	Moderate Inc. HH's	High Income HH's
Low or Very Low	50.0%	44.3%	30.0%
Moderate	15.9%	20.9%	25.1%
High or Very High	34.1%	34.9%	44.9%

5. Other Analysis

Opportunity mapping provides valuable information, but needs to be linked to policy reform and action. How might the opportunity maps be used? The maps (and data used to produce the maps) have a number of potential uses. Opportunity mapping can potentially assist neighborhoods, community organizations, service providers (e.g. education, housing, and transportation), businesses or government agencies in identify critical questions and potential solutions to the challenges of specific neighborhoods or populations. Some applied examples to probe community development questions are provided in the following section. These examples are illustrative of how opportunity mapping and GIS can inform and raise questions regarding key community concerns.

a. Affordable Housing and Opportunity

Affordable housing is a primary mechanism for connecting isolated populations to high-opportunity neighborhoods. Without affordable housing options, low-income families face significant challenges accessing opportunities in these communities (such as good schools, health care resources or new jobs). One way to utilize the opportunity maps is to assess the availability of affordable housing in high-opportunity areas. This assessment can inform initiatives to develop affordable housing in these communities. Our analysis of the Austin region finds rental housing to be evenly distributed in the region's low- and high-opportunity areas, but subsidized housing (taken from the U.S. Department of Housing and Urban Development's 2000 Picture of Subsidized Housing) is almost non-existent in high-opportunity areas (**See Map 9**). Approximately 1 out of 10 subsidized housing sites identified in the HUD database can be found in high-opportunity census tracts, while 2 out of 3 sites are concentrated in the region's low-opportunity communities (**See Table 2**). Future analysis will expand upon this assessment and look at the availability of low-cost rental housing and affordable homeownership in these communities.

Table 2: Housing Analysis for Opportunity Areas from 2000 HUD Picture of Subsidized Housing and 2000 Census of Population and Housing		
	Subsidized Housing Sites	Rental Housing Units
Low or Very Low	62.6%	40.0%
Moderate	25.1%	17.4%
High or Very High	12.3%	42.6%

b. Educational Opportunity and Children

Understanding the educational opportunities available to various racial and ethnic groups helps target resources to expand educational opportunity and direct families of color to high-performing schools in the region. The disconnect between African American and Latino children and neighborhoods of opportunity, as seen in **Map 10A** and **Map 10B**, is also apparent when focusing on the distribution of high-performing schools in the region. Communities who performed best on the educational opportunity analysis are primarily located west of I-35, while most African American and Latino children are concentrated just east of I-35 and south of route 290 in the center of Travis County.

c. Health Care and Mobility

Opportunity mapping data can also illuminate the interaction between services and resources in the region. **Map 11A and Map 11B** illustrate the relationship between the region's health care facilities and hospitals and the public transportation network. Public transportation access to health care is critical for transit-dependent populations. As seen in **Map 11A and Map 11B**, public transit lines are well connected to public health resources in the City of Austin, but transit access gaps exist with regard to health care resources directly to the west and north of the City of Austin. Future assessment of this data will analyze the relationship between the extent of transit service and the region's health care infrastructure.

d. Affordable Food and Low-Income Families

Map 12 utilizes opportunity mapping data to explore the relationship between grocery expenditures and neighborhood income. Many low-income communities have limited food vendors to choose from, and may pay relatively higher prices for food purchases. This scenario presents both economic and health challenges to low-income families. **Map 12** identifies zones with high expenditures for food and concentrations of low-income residents (red areas). These areas represent potential locations for establishing lower-cost food offerings to meet local need. In the Austin region, several areas meet this criterion; most are in the center of the City of Austin and in southern Hays and Caldwell Counties.

e. The Dynamics of Opportunity

Opportunity is not static and is constantly moving throughout the region. Job centers shift and grow in certain communities while retreating elsewhere. New housing production, suburban and exurban development, and sprawl produce new high- opportunity neighborhoods outside of the city, while disinvestment and flight plague other neighborhoods. It is imperative to track these opportunity dynamics and try to understand how opportunity is shifting across the region. Ideally, this assessment is linked to policy initiatives to mitigate the movement of opportunity out of one community, or to help connect marginalized residents to growing areas of opportunity. The Austin opportunity mapping initiative will continue to track data and assess these changes over time. **Map 13** captures our initial attempt to track where opportunities are moving in the region.

The red and orange areas of **Map 14** indicate where the most rapid growth in home values and population is occurring in the Austin region; the blue areas represent where growth and appreciation have been slower. Growing opportunity areas are found directly to the west of the City of Austin, throughout much of Williamson County and in western Hays County. Slower growth has occurred in many neighborhoods in the core of the City of Austin and portions of Bastrop County. At this time, this data does not capture the most recent changes impacting the region (most notably the dynamics since the 2000 Census). Future assessment of these trends will more comprehensively capture this current data, provide insight into how opportunity is shifting in the region, and identify initiatives needed to facilitate (or mitigate) shifts in opportunity in the region.

f. Future Directions

To be a productive resource for the community, opportunity mapping data must be widely available. To support this goal, the Kirwan Institute will be providing all opportunity maps and opportunity mapping data on-line and accessible through the Kirwan Institute website at http://www.kirwaninstitute.org. Future goals include the refinement and updating of data to reflect the changing conditions in the region. Consistently updated data is essential to adequately capture how change is impacting the region. Additional goals also include making the opportunity mapping data interactive and allowing users to prioritize and remap the indicators of opportunity based on their interests and concerns.

Map 1: Comprehensive Opportunity Map, Austin MSA

This map displays the spatial pattern of distribution of opportunity in Austin region based on Economic, Mobility, Education, Public Health and Neighborhood Indicators.

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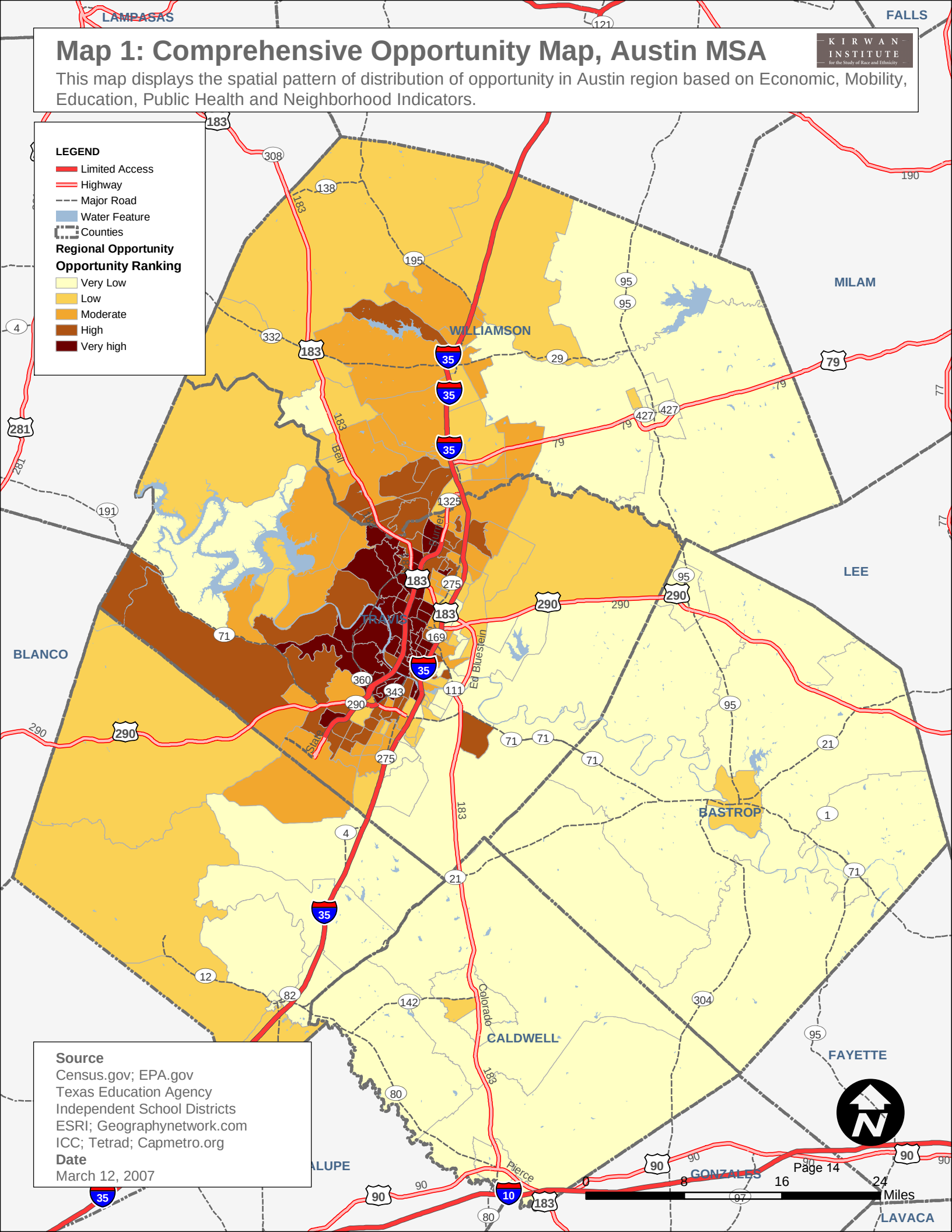

Source
Census.gov; EPA.gov
Texas Education Agency
Independent School Districts
ESRI; Geographynetwork.com
ICC; Tetrad; Capmetro.org

Date
March 12, 2007

Map 2: Comprehensive Opportunity Map, City of Austin

This map displays the spatial pattern of distribution of opportunity in City of Austin based on Economic, Mobility, Education, Public Health and Neighborhood Indicators.

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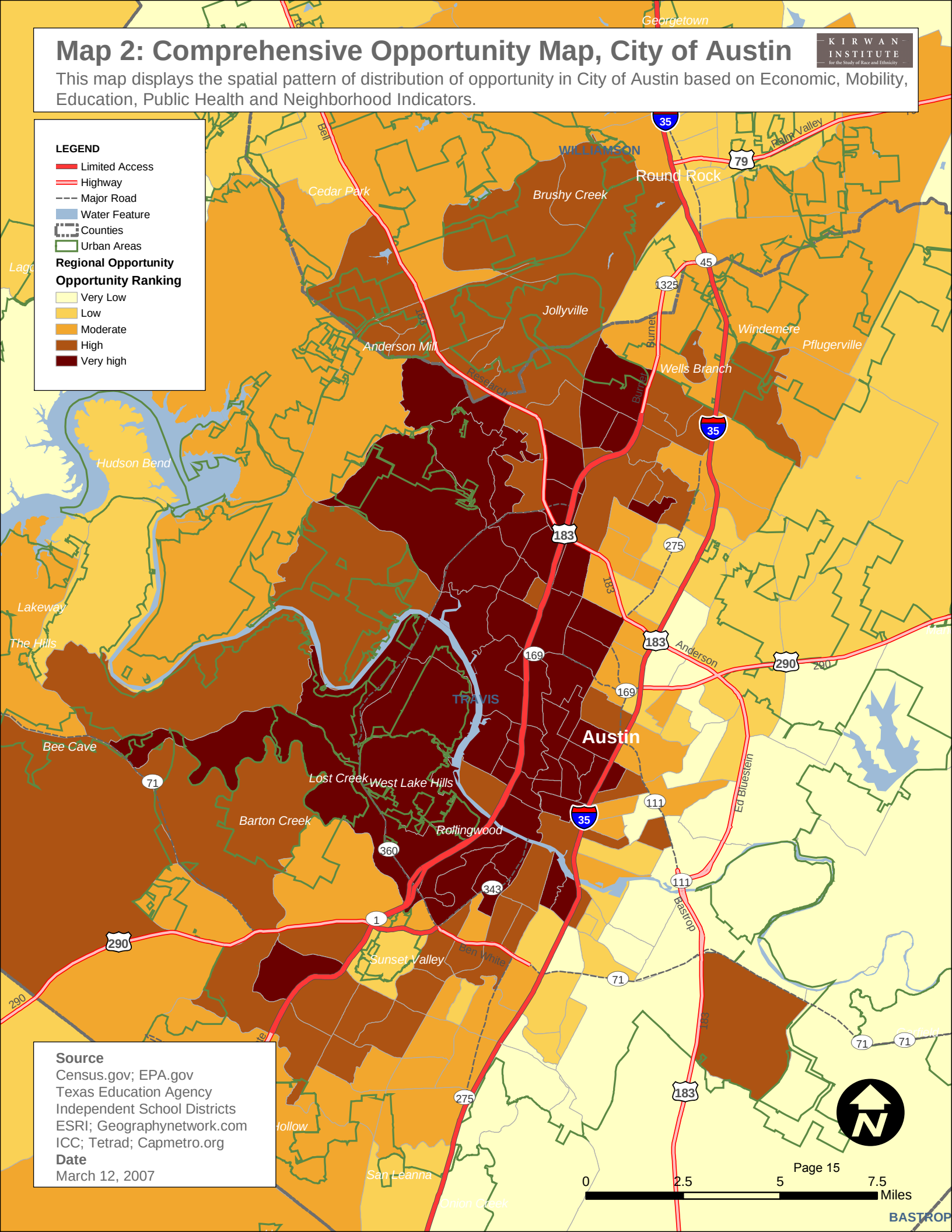

Source
Census.gov; EPA.gov
Texas Education Agency
Independent School Districts
ESRI; Geographynetwork.com
ICC; Tetrad; Capmetro.org

Date
March 12, 2007

0 2.5 5 7.5 Miles

Map 3: Education Opportunity Map, Austin MSA

This map displays the spatial pattern of distribution of opportunity in Austin region based on Education Indicators

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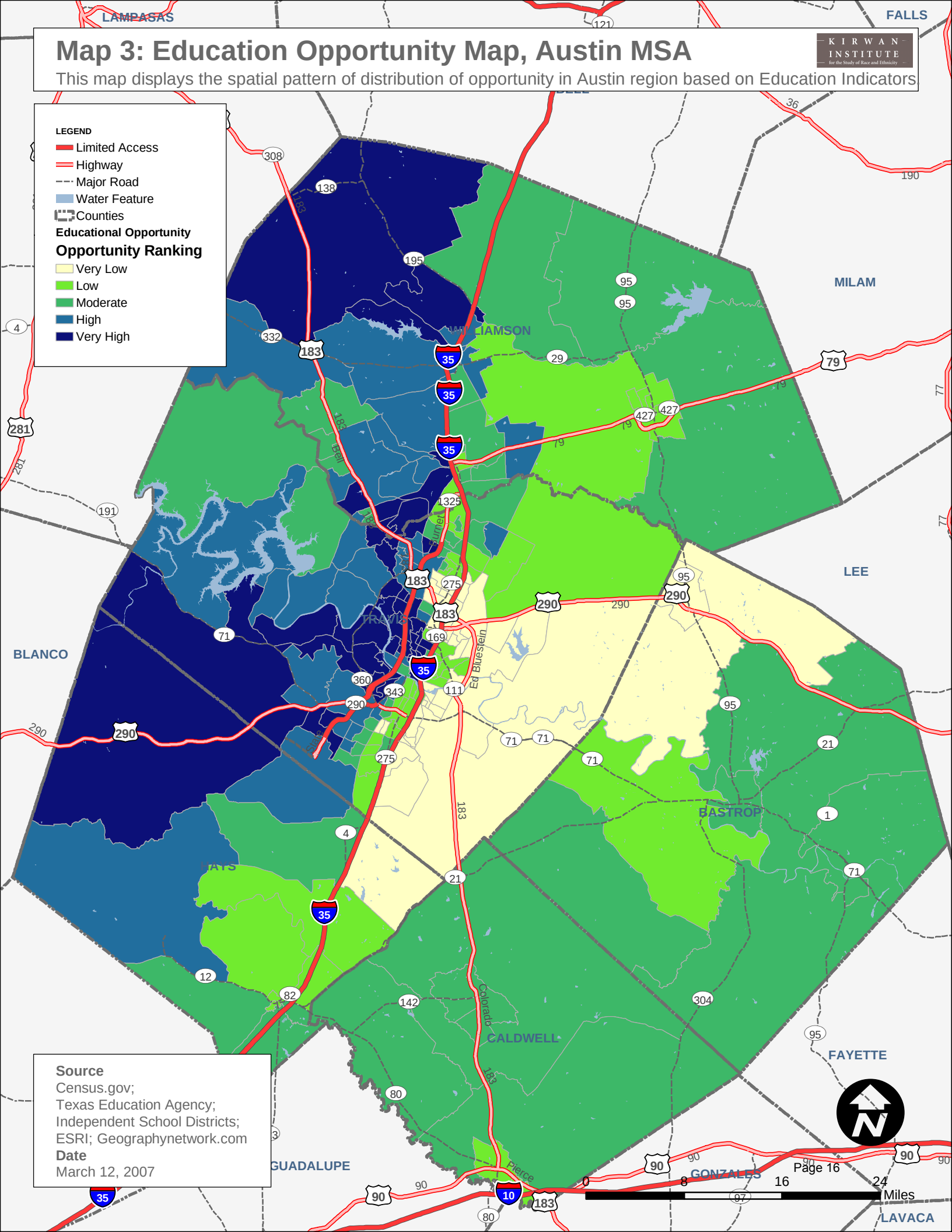

Map 4: Economic Opportunity Map, Austin MSA

This map displays the spatial pattern of distribution of opportunity in Austin region based on Economic Indicators.

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LAMPASAS
FALLS
MILAM
WILLIAMSON
LEE
TRAVIS
BLANCO
HAYS
BASTROP
CALDWELL
FAYETTE
GUADALUPE
GONZALES
LAVACA

Source
Census.gov;
ESRI; Geographynetwork.com;
Date
March 12, 2007

0 8 16 24 Miles

Map 5: Mobility related Opportunity Map, Austin MSA

This map displays the spatial pattern of distribution of opportunity in Austin region based on Mobility related Indicators.

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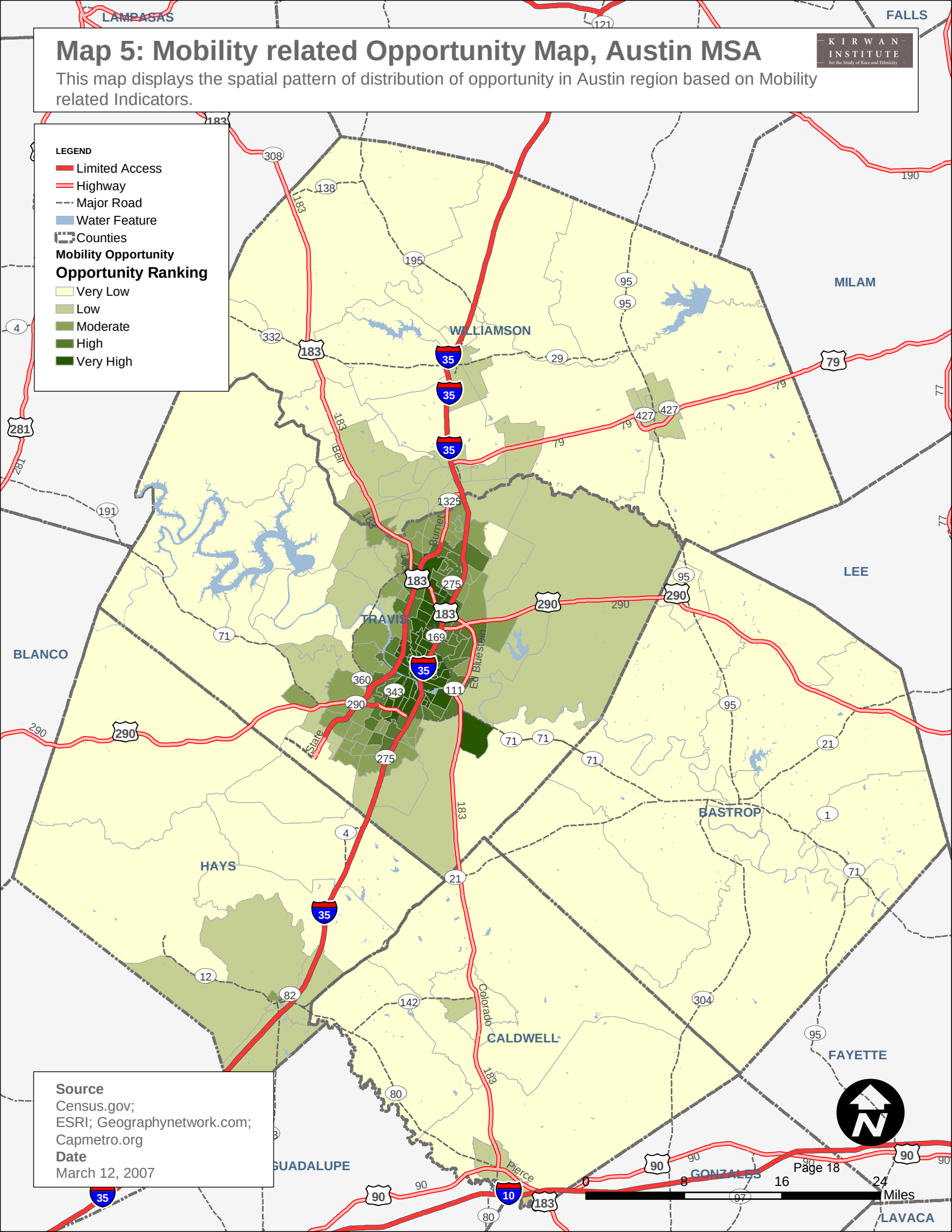

Source
Census.gov;
ESRI; Geographynetwork.com;
Capmetro.org
Date
March 12, 2007

Map 6: Public Health Opportunity Map, Austin MSA

This map displays the spatial pattern of distribution of opportunity in Austin region based on Public Health Indicators.

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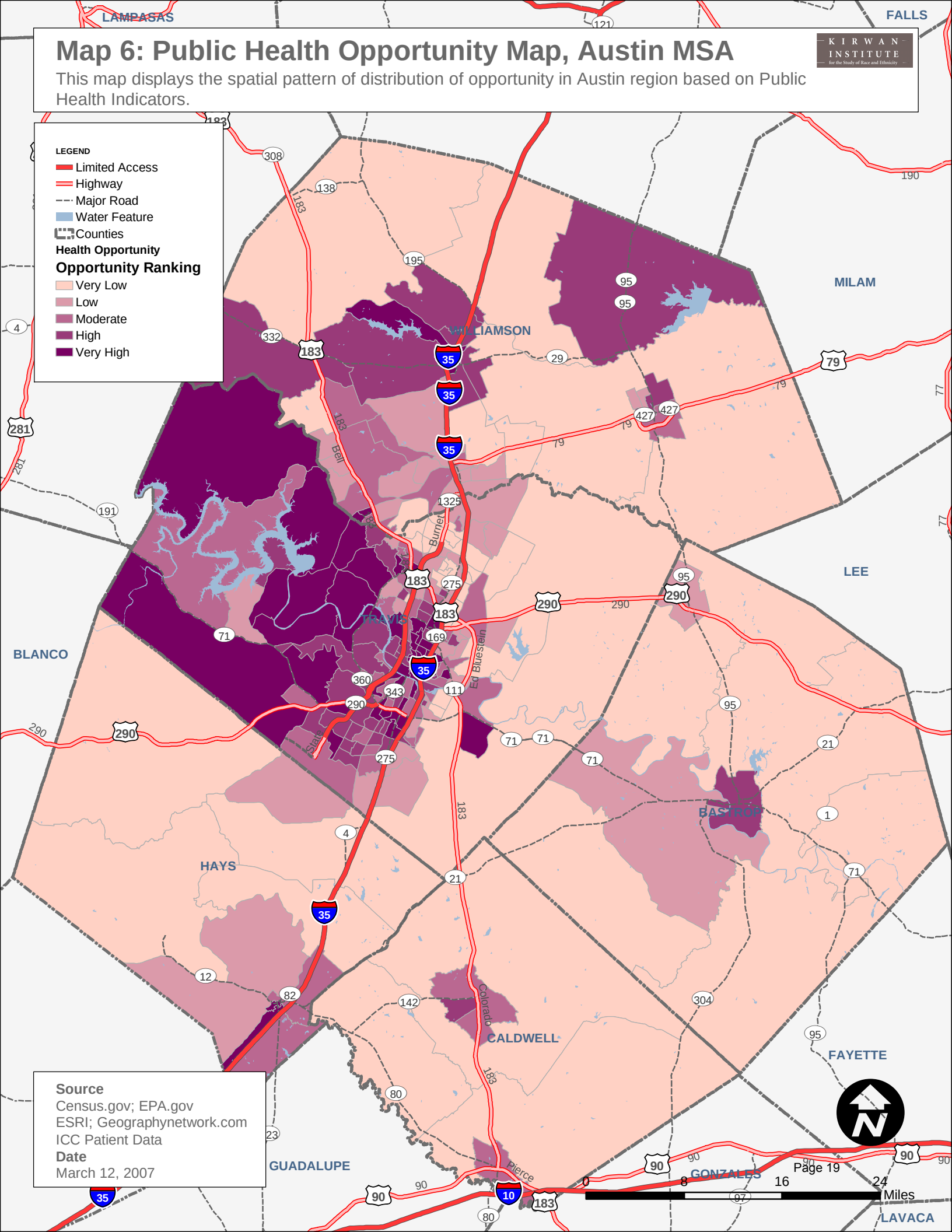

Source
Census.gov; EPA.gov
ESRI; Geographynetwork.com
ICC Patient Data
Date
March 12, 2007

Map 7: Housing and Neigh. Quality Opportunity Map
Austin MSA

This map displays the spatial pattern of distribution of opportunity in Austin region based on Housing and Neighborhood Quality Indicators.

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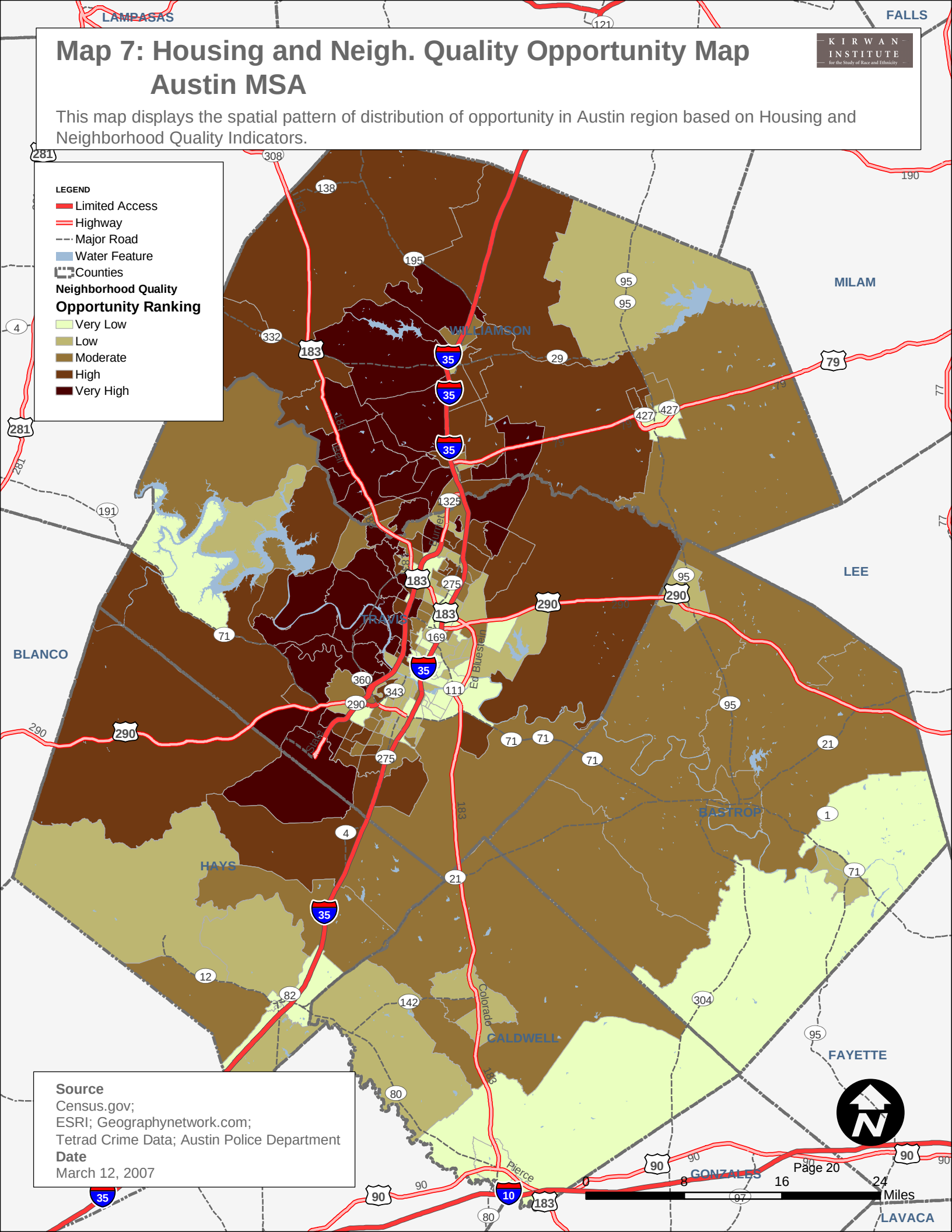

Source
Census.gov;
ESRI; Geographynetwork.com;
Tetrad Crime Data; Austin Police Department
Date
March 12, 2007

Map 8: Opportunity and Linguistic Isolation

This map displays the spatial pattern of distribution of opportunity in Austin region overlaid with households which are linguistically isolated in 2000.

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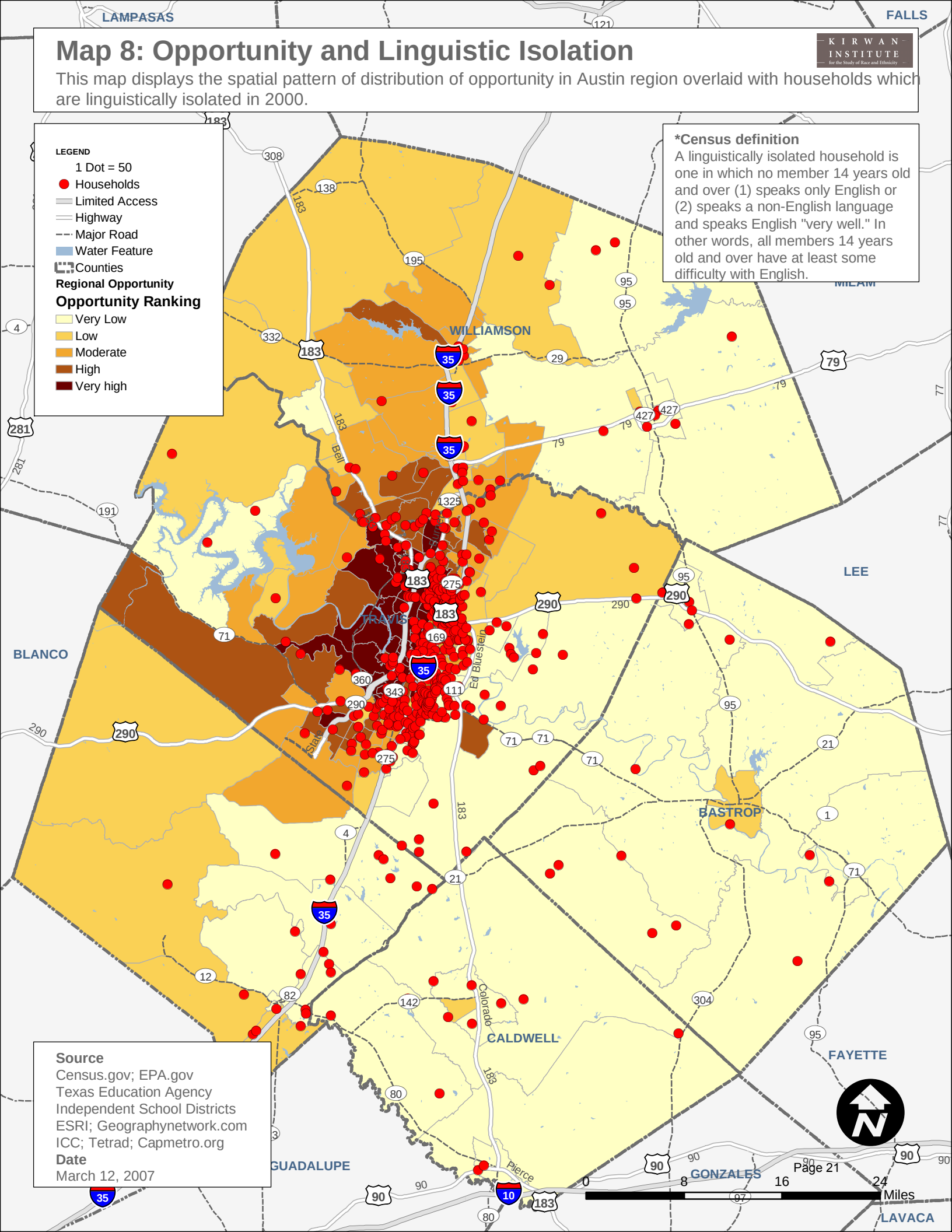

***Census definition**

A linguistically isolated household is one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well." In other words, all members 14 years old and over have at least some difficulty with English.

Source

Census.gov; EPA.gov
Texas Education Agency
Independent School Districts
ESRI; Geographynetwork.com
ICC; Tetrad; Capmetro.org

Date

March 12, 2007

Map 9: Opportunity and Subsidized Housing, Austin MSA

This map displays the spatial pattern of distribution of opportunity in Austin region overlaid with location of subsidized housing from HUD Picture of Subsidized Housing 2000.

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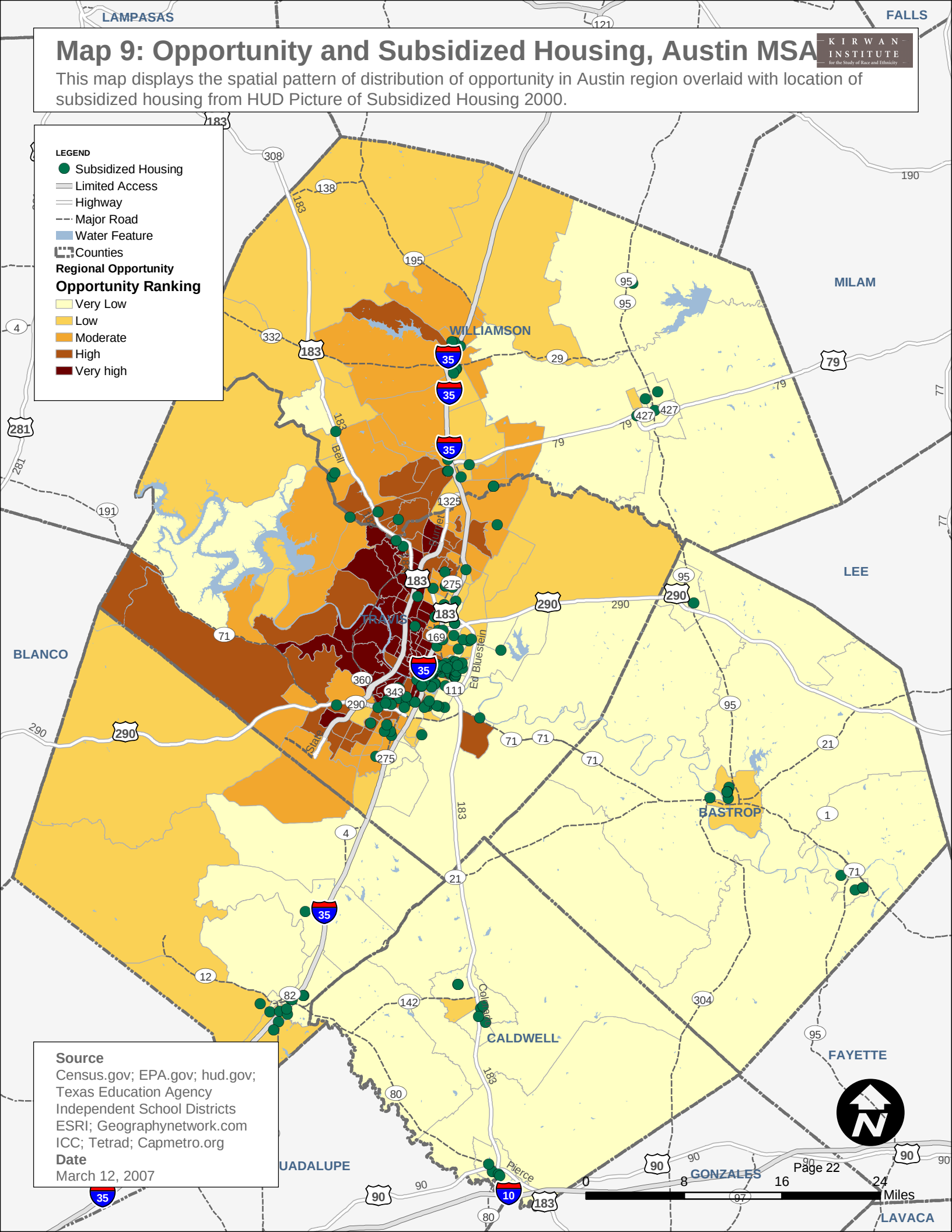

Map 10A: Education Opportunity and Hispanic Children
Austin MSA

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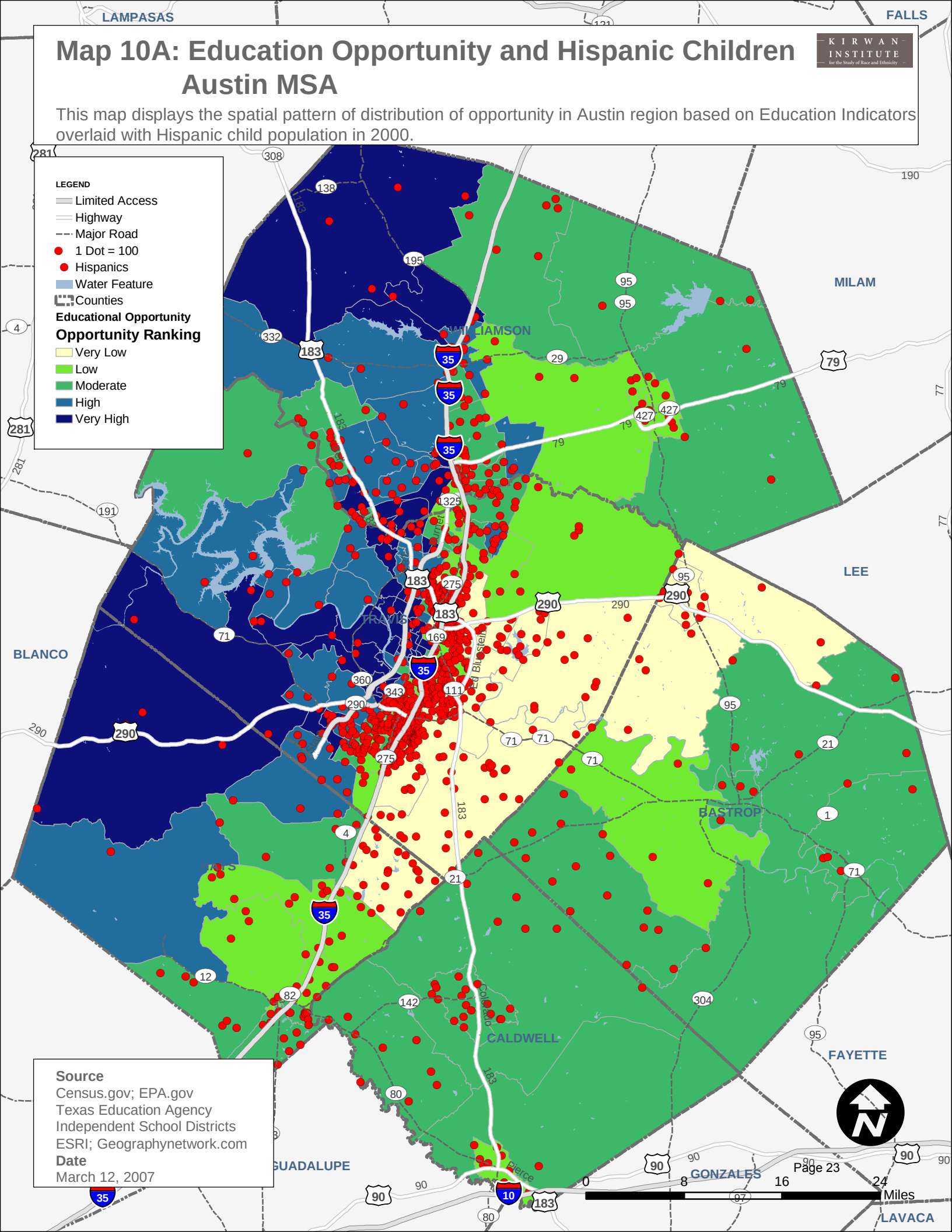
This map displays the spatial pattern of distribution of opportunity in Austin region based on Education Indicators overlaid with Hispanic child population in 2000.



Map 10B: Education Opportunity and African American Children, Austin MSA

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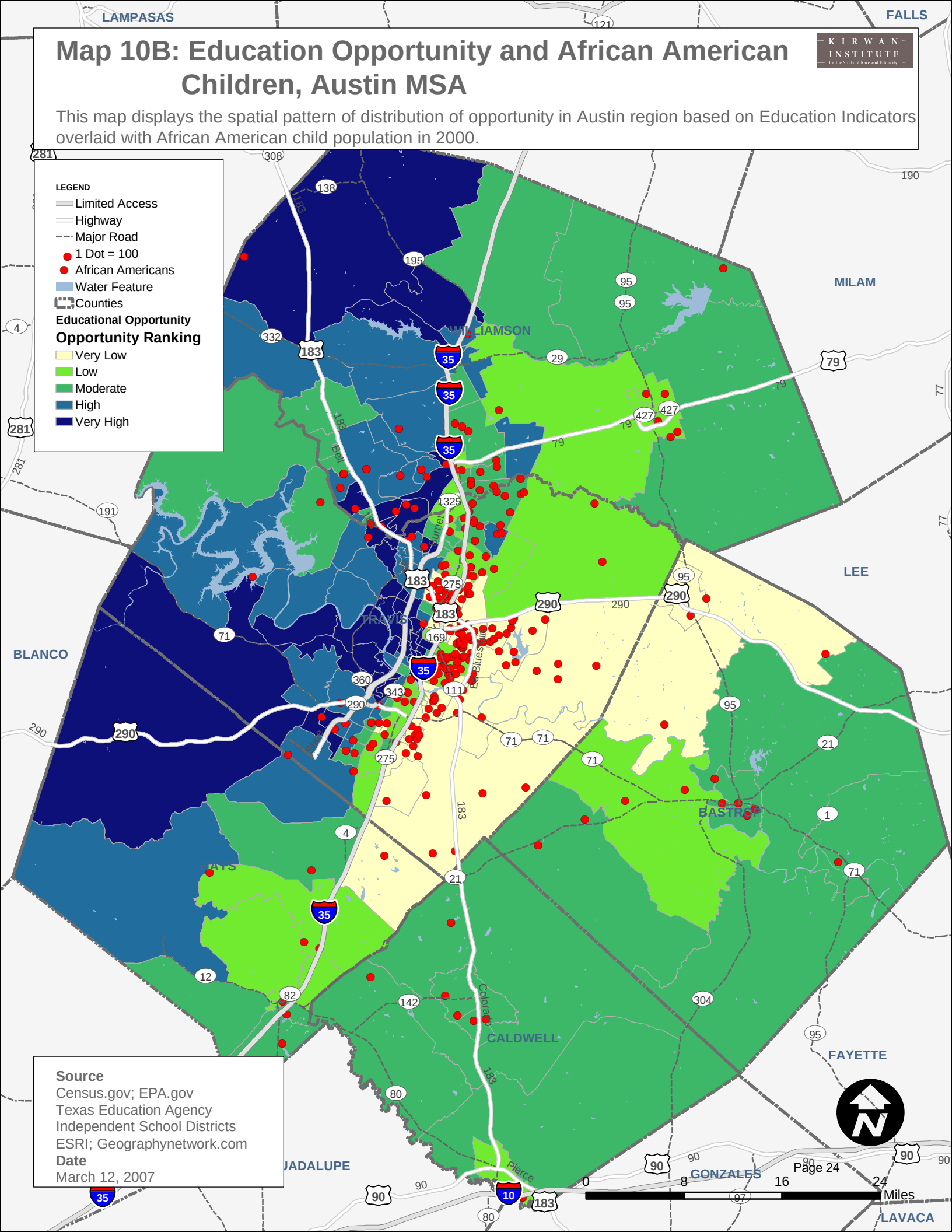
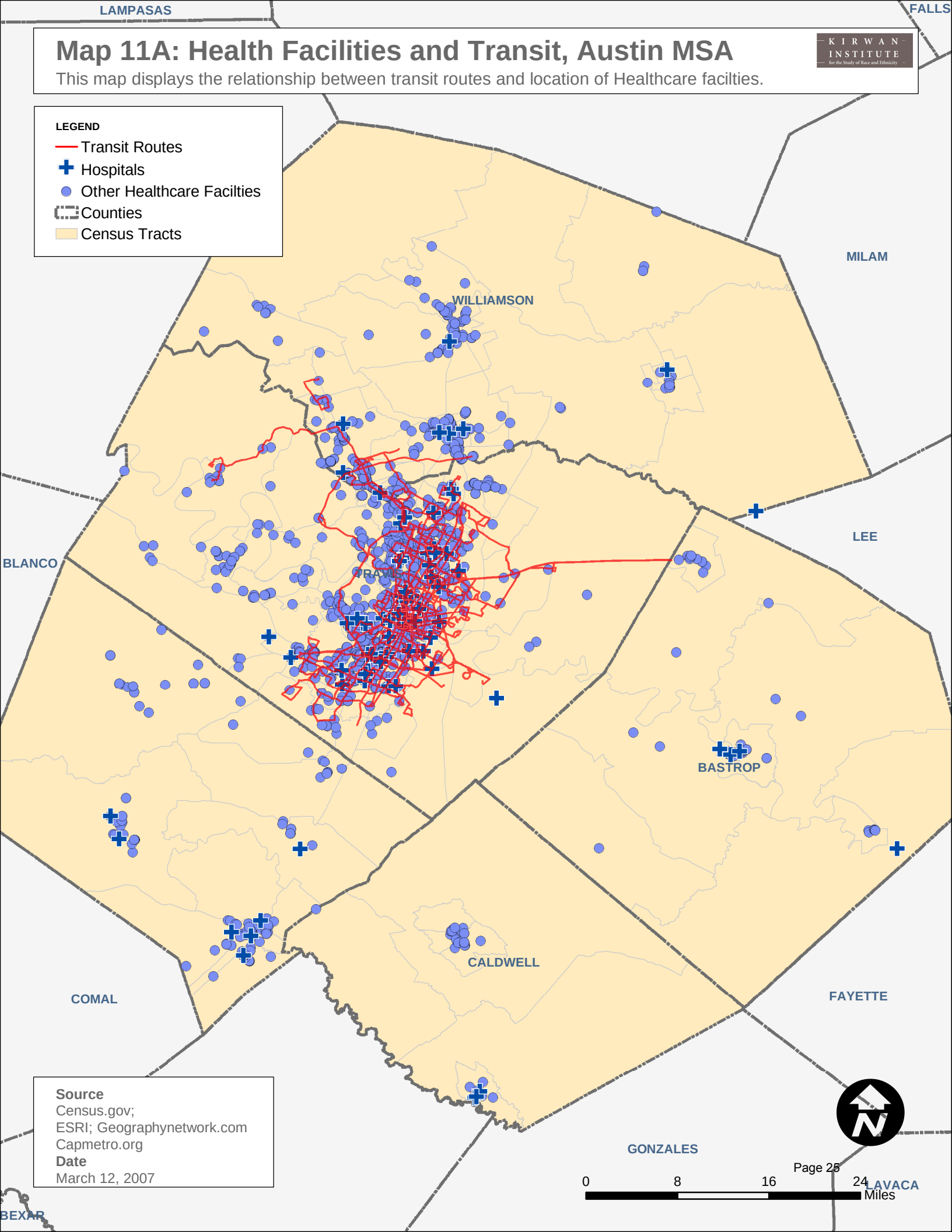
This map displays the spatial pattern of distribution of opportunity in Austin region based on Education Indicators overlaid with African American child population in 2000.

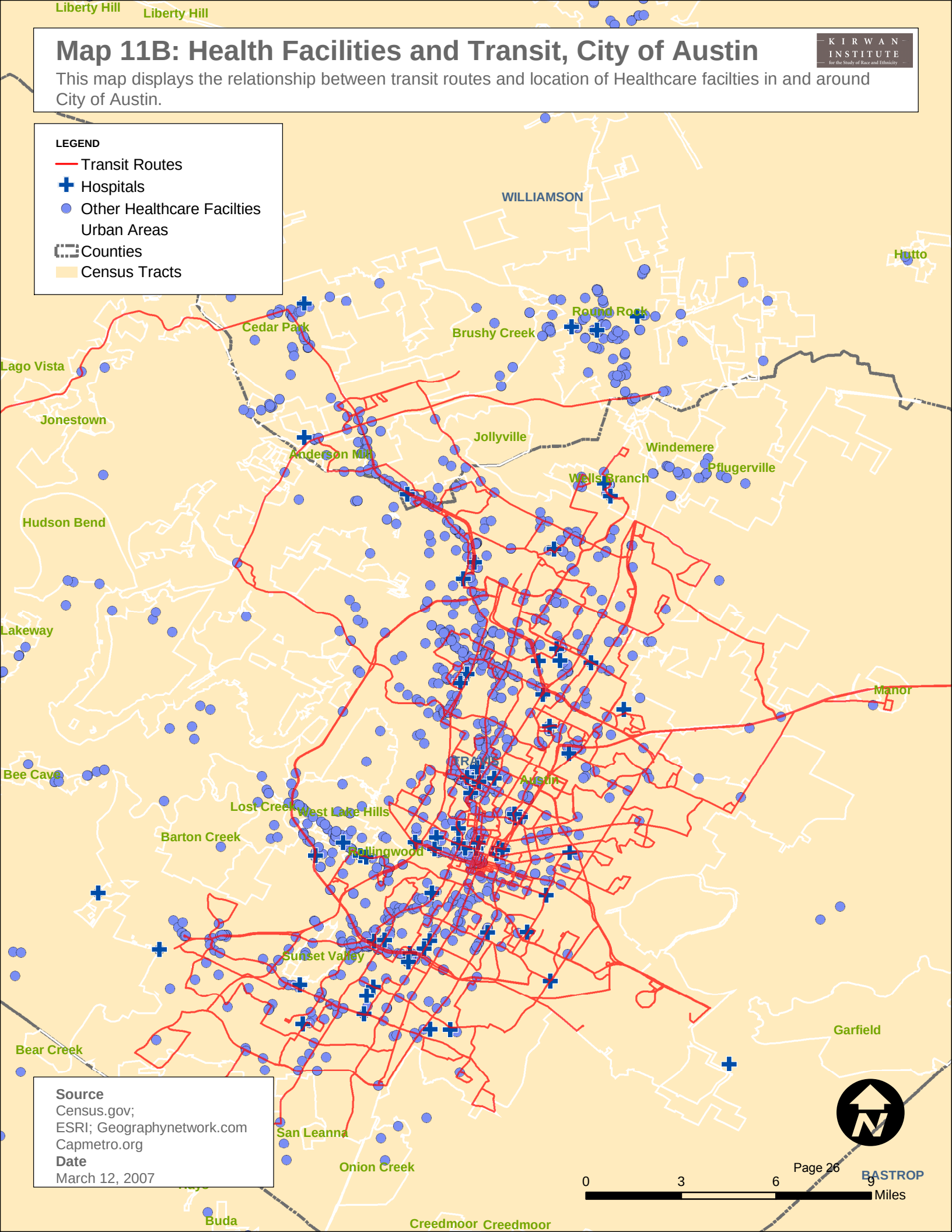



LAMPASAS
FALLS
Map 11A: Health Facilities and Transit, Austin MSA
This map displays the relationship between transit routes and location of Healthcare facilties.
KIRWAN INSTITUTE for the Study of Race and Ethnicity
LEGEND
Transit Routes
Hospitals
Other Healthcare Facilties
Counties
Census Tracts
MILAM
WILLIAMSON
LEE
BLANCO
TRAVIS
BASTROP
CALDWELL
COMAL
FAYETTE
GONZALES
LAVACA
BEXAR
Source
Census.gov;
ESRI; Geographynetwork.com
Capmetro.org
Date
March 12, 2007
0
8
16
24
Miles

Map 11B: Health Facilities and Transit, City of Austin

This map displays the relationship between transit routes and location of Healthcare facilties in and around City of Austin.

KIRWAN INSTITUTE for the Study of Race and Ethnicity



Source
Census.gov;
ESRI; Geographynetwork.com
Capmetro.org
Date
March 12, 2007

Map 12: Food Expenditure and Income, Austin MSA

This map displays the relationship between aggregated food expenditure and median household income by census tract.

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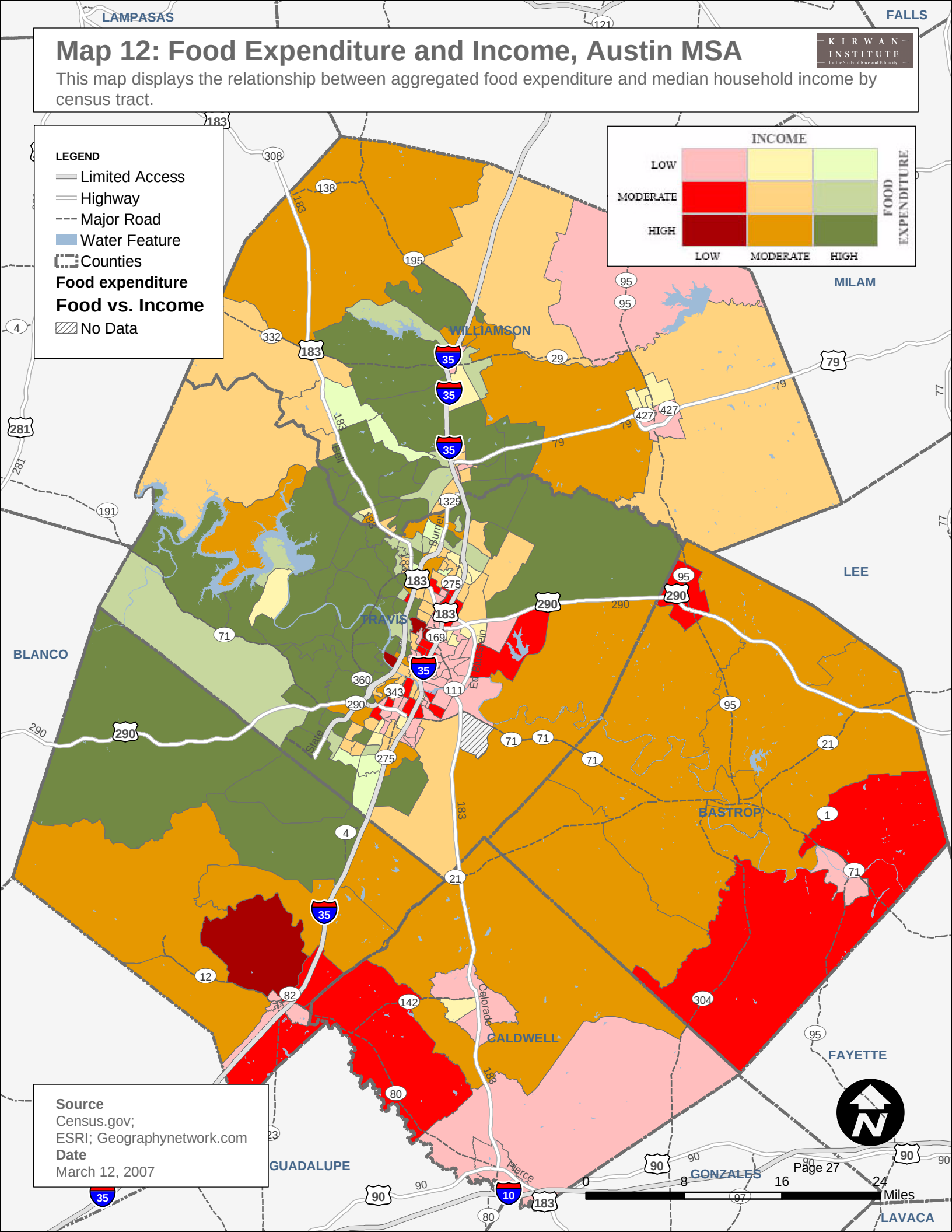
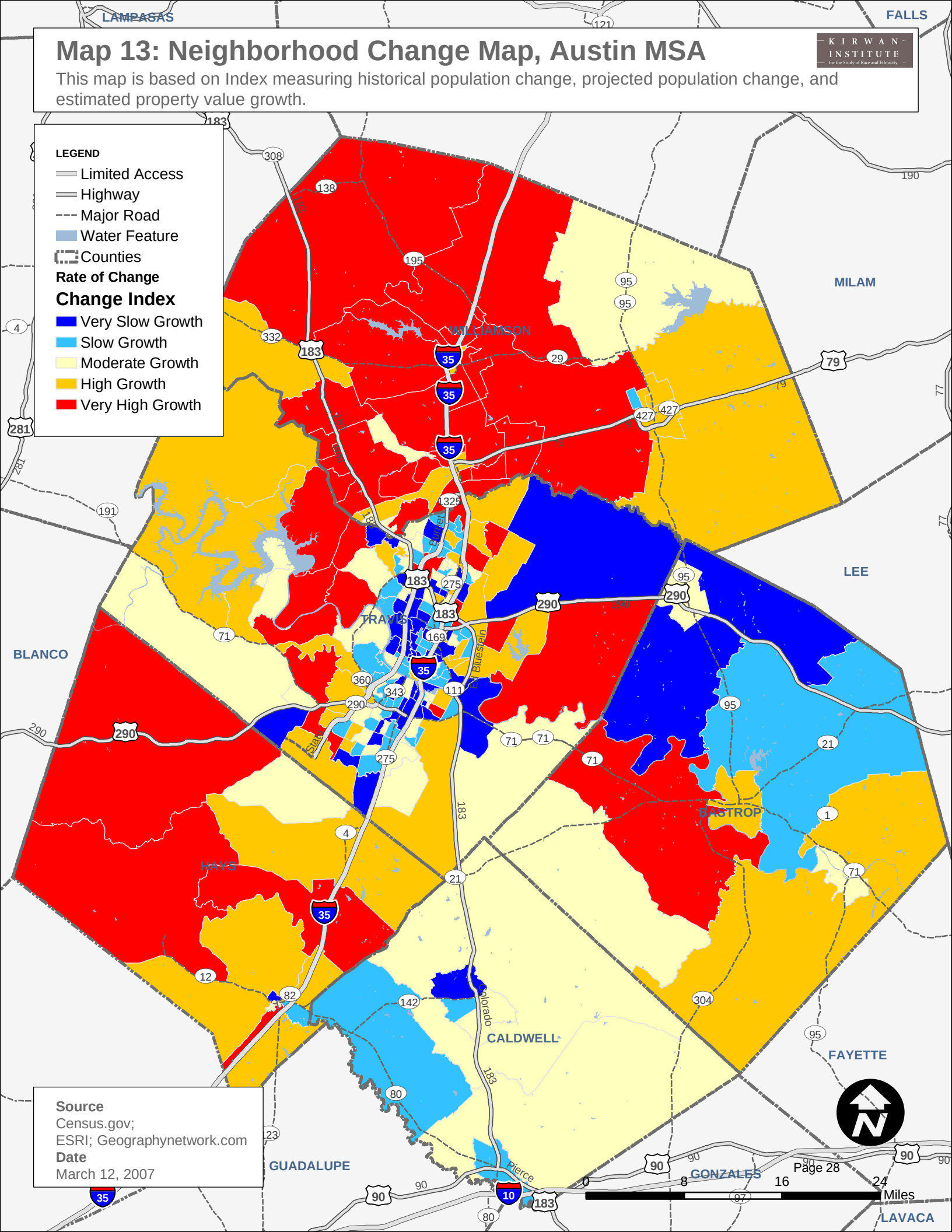


Map 13: Neighborhood Change Map, Austin MSA

This map is based on Index measuring historical population change, projected population change, and estimated property value growth.

KIRWAN INSTITUTE for the Study of Race and Ethnicity



Appendix A:

Notes and Supportive Information for Opportunity Indicators

The following notes and source information pertain to the indicators utilized in the opportunity index. Discussion of the relationship between each indicator and high or low opportunity is included in the body of the report.

Indicators of Educational Opportunity:

Note: All data pertaining to school quality was collected and analyzed for elementary schools only, the larger number of elementary schools (and smaller catchment areas) enabled a more precise geographic analysis of opportunity than high schools or middle schools which have larger catchment areas.

1. School Poverty (Economically Disadvantaged Students):

   This data represents the percentage of students qualified as economically disadvantaged in 2006. This is the most common indicator traditionally used to identify student poverty. School quality and the economic status of its student body have been shown to have a significant relationship to student performance.[3] Higher poverty schools have been proven to negatively impact student performance, regardless of the individual student's economic status. Also, teachers in higher poverty schools must spend more time to address the additional needs of high-poverty students and as a result have less time to focus on teaching course work. Lower test scores, coupled with other indicators of low socioeconomic status, provide fewer opportunities for higher education and eventually, fewer job opportunities.[4] A higher value for this indicator has a **negative** effect on opportunity.
   Data Source: Texas Education Agency 2006

2. Teacher Qualifications (Teacher Years of Experience):

   This data represents the percentage of teachers with 6 years of teaching experience or more. Teacher qualifications are important in assessing whether students receive high quality instruction.[5] According to a study by The Brookings Institution, data suggests that poor kids are generally in classrooms staffed by least experienced teachers compared to higher quality schools.[6] Teacher qualifications and experience are an important factor in providing better educational opportunity. Thus, higher values for this indicator have a **positive** effect on opportunity.
   Data Source: Texas Education Agency 2006

3. Student/Teacher Ratio:

   This data represents the average number of students assigned to each teacher for each elementary school. This indicator reflects teacher workload and the availability of teachers' services to their students.[7] Lower values for this indicator suggest better service to students. Thus, a higher value for this indicator has a **negative** effect on opportunity.
   Data Source: Texas Education Agency 2006

4. TAKS Scores (Math and Reading scores):

   This data represents the proportion of 3rd graders proficient in Math and Reading. The percentage of students meeting or exceeding the state standards is used as an indicator of school performance. Although test scores are not perfect tools to measure student proficiency and may be discriminatory, given the central role that they play in determining advancement and the opportunities available to students, and the importance of scores in the federal No Child Left

[3] The Century Foundation, CAN SEPARATE BE EQUAL? THE OVERLOOKED FLAW OF AT THE CENTER OF NO CHILD LEFT BEHIND (2004). Available on-line at: http://www.equaleducation.org/publications.asp?pubid=468
[4] Patricia M. McDonough, Choosing Colleges: How Social Class and Schools Structure Opportunity, SUNY Press, 1997
[5] L. Darling-Hammond and B. Berry, Recruiting Teachers for the 21st Century: The Foundation for Educational Equity, 68 (3) THE JOURNAL OF NEGRO EDUCATION 254-279 (1999).
[6] Brookings Papers on Education Policy 2004, http://muse.jhu.edu/journals/brookings_papers_on_education_policy/toc/pep2004.1.html
[7] Education Indicators: An international perspective, National Center for Education Statistics, http://nces.ed.gov/pubs/eiip/eiipid39.asp

Behind legislation, they must be acknowledged as important measures. A higher percentage would mean better quality education and greater opportunity for these students to pursue higher education. Thus, a higher value for this indicator has a **positive** effect on opportunity.
Data Source: Texas Education Agency 2006

5. Student Mobility:

   This data represents the proportion of students who have been in membership at the school for less than 83% of the school year (i.e. have missed six or more weeks at a particular school).[8] Research by the Texas Education Agency in 1997 found that the performance gap between mobile and stable students is higher on campuses with high student turnover rates.[9] A high value (corresponding to more student absence) for this indicator has a **negative** effect on the overall opportunity.
   Data Source: Texas Education Agency 2006

Indicators of Economic Opportunity:

1. Unemployment Rates:

   This data represents the estimated unemployment rate of workers 16 years and above for the year 2005. A growing body of research has found that social networks are the primary mechanisms for accessing employment opportunity.[10] Living in a neighborhood with significant unemployment suggests that local and neighborhood social networks are not well connected to employment opportunities. Higher rates suggest lower economic opportunity in the area.
   Data Source: ESRI Business Analyst Data

2. Population on Public Assistance:

   This data represents the percentage of population receiving public assistance. Census tracts with higher percentages suggest low economic opportunity, fewer jobs, thus more people depending on public subsidy to survive. Living in a neighborhood with significant populations on public assistance suggests that local and neighborhood social networks are not well connected to employment opportunities.[11] Thus, higher values for this indicator have a **negative** effect on the overall economic opportunity.
   Data Source: Census 2000 data

3. Proximity to Employment (Jobs within 5 miles):

   This data represents the number of jobs available within a 5 mile radius of census tract, called a 5-mile buffer. This data is calculated by analyzing the number of estimated jobs in 2005 using TAZ employment data from ESRI within 5 miles of the center of each census tract. The data is interpolated to the 5-mile buffer and assigned to the respective census tract. Spatial isolation contributes to the job employment gap between central city residents and suburban residents, as indicated by a recent survey of spatial mismatch research. [12]

   The higher values of this data set suggest better access to job opportunity, especially for transit-dependent populations or lower-income populations with less dependable private transportation. Thus, more local jobs would have a **positive** effect on the overall economic opportunity.

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[8] Glossary 2005-2006 report, Texas Education Agency
[9] A Study of Student Mobility in Texas Public Schools (TEA, 1997)
[10] Karen Chapple, "Overcoming Mismatch: Beyond Dispersal, Mobility, and Development Strategies," *Journal of the American Planning Association* 72.3 (2006): 322-36. and Social Networks and the Employment Problem of the Urban Poor, David A. Reingold, *Urban Studies, Vol. 36, No. 11, 1907± 1932, 1999 and* The Effects of Social Networks on Employment and Inequality *By* ANTONI CALVO´-ARMENGOL AND MATTHEW O. JACKSON, American Economic Review, 2004
[11] Karen Chapple, "Overcoming Mismatch: Beyond Dispersal, Mobility, and Development Strategies," *Journal of the American Planning Association* 72.3 (2006): 322-36.
[12] K. Ihlanfeldt, K. & D. Sjoquist, The Spatial Mismatch Hypothesis: A Review of Recent Studies and Their Implications for Welfare Reform. 9 HOUSING POLICY DEBATE 881 (1998). *See also* H.J. Holzer, The spatial mismatch hypothesis: what has the evidence shown? 28 URBAN STUDIES 118 (1991). Page 118 ("The preponderance of evidence from data of the last decade shows that spatial mismatch has a significant effect on black employment").

Data Source: ESRI Business Analyst Data, ESRI Info USA Data

4. Employment Competition (Ratio of Jobs to Labor Force within 5 miles):

   This data represents the average number of jobs available to each person within a 5-mile radius of the census tract. This data is calculated by dividing the 'Proximity of Jobs' data (Indicator #3 above) by the total number of people in civilian labor force in each census tract. This measure helps to determine locations with relatively high demand for workers. Although low-wage jobs may be found in inner-city areas, there are also many low-income workers nearby competing for these jobs. Therefore, jobs located near concentrations of low-income households may be less accessible to potential employees than jobs outside the urban core. Previous researchers have also utilized a method of "weighting" job accessibility measurements to account for this competition for available jobs.[13] Since this ratio displays the employment competitiveness of the region, the higher the ratio the better is its effect on economic opportunity. Thus, this indicator has a **positive** effect on the overall opportunity.
   Data Source: County Business Pattern, US Census Bureau; ESRI Business Analyst Data.

5. Economic Climate (Change in number of jobs within 5 miles):

   This data represents the change in number of jobs in a five-year period (1999 – 2004). County Business Pattern zip code data is used to interpolate job change at census tract level. County Business Patterns (CBP) data contains information for all business establishments with one or more paid employees by zip codes. Available jobs for each zip code within the study area are calculated for both years. These values are interpolated to the 5-mile buffer of the center of each census tract. Based on these values, the difference of jobs is calculated for each record. A positive change suggests growth in number of jobs and vice versa. This indicator is included in the analysis to identify areas of increasing employment opportunity. Thus, this indicator has a **positive** effect on economic opportunity.
   Data Source: County Business Pattern, US Census Bureau.

Indicators of Mobility:

1. Mean Commute Time:

   This data represents the mean commute time for each worker who works outside home. Census 2000 data provides aggregate commute time to work and total workers who do not work at home. Commute time is a general measure commonly utilized to assess the proximity to regional employment opportunities or transportation time needed to reach employment. The purpose of including this measure was to identify areas that are the most accessible (in respect to travel time) to the region's employment opportunities. Higher commute times are an indicator of long distances from job markets. Higher values for this data set also mean that workers have relatively less time to attend to their personal needs compared to workers who spend less time traveling.[14] A higher value for this indicator has a **negative** effect on the overall mobility.
   Data Source: Census 2000 data.

2. Public Transit Access (Access to Service):

   This data represents the access to transit service within the MSA region. Existing transit lines in the City of Austin and its vicinity are used to determine the access based on the location of these lines. The annualized number of vehicular miles traveled on each transit route is aggregated for each tract using a spatial join and the data is appended to respective tracts. This aggregated value is the utilized measure for this indicator. The lack of viable transit options in most metropolitan areas limits options for those without cars and it prevents central city residents from accessing jobs

[13] Gary Barnes, TRANSPORTATION & REGIONAL GROWTH STUDY EXAMINES JOB ACCESS FOR LOW-INCOME HOUSEHOLDS, Center for Transportation Studies, University of Minnesota (November 2000). Available on-line at: http://www.cts.umn.edu/trg/news/2000/jobaccess.html.
[14] By Laura Leete, Neil Bania and Claudia Coulton, Distance and Commute Times to Work for Welfare Exiters, Center on Urban Poverty and Social Change, http://povertycenter.cwru.edu/urban_poverty/dev/pdf/BR9908.pdf

located in the suburbs.[15] A higher value for this indicator represents better access to transit services.[16] Thus, this indicator has a **positive** effect on the overall mobility.
Data Source: Capital Metro Transit, Austin, Texas

3. Public Transit Access (Availability of active bus-stops):

   This data represents the number of active bus-stops within each census tract as a proxy for availability of transit service. Individual bus-stops and all Park & Ride facilities are included in a combined data set and number of stops within each census tract is calculated. A higher number of stops indicate greater availability of transit service. This indicator has a **positive** effect on mobility.
   Data Source: Capital Metro Transit, Austin, Texas

4. Public Transit Access (Accessibility of active bus-stops):

   This data represents the percentage of each census tract covered by a 1-mile buffer of each active bus-stop and Park & Ride facility as a proxy for accessibility of transit service. The 1-mile buffer is calculated for all bus-stops and all Park & Ride facilities in the combined data set. A higher percentage of land accessible to transit stops in a census tract, suggests greater accessibility of transit service. Thus, this indicator has a **positive** effect on the overall mobility.
   Data Source: Capital Metro Transit, Austin, Texas

Indicators of Public Health and Environmental Quality:

1. Proximity to Toxic Waste Release Sites:

   This data represents the number of toxic waste release sites within each census tract. Toxic Waste release site data is extracted from the EPA website. The number of sites within each census tract is calculated. Studies have shown the correlation between proximity to such sites and health effects. Research has also shown the adverse effect of the location of these sites on home values. Taking these externalities into account, this indicator has a **negative** effect on public health and environmental quality. This measure is inversely related to opportunity.
   Data Source: Environmental Protection Agency, 2004

2. Toxic waste release:

   This data represents the amount of waste released by these toxic sites aggregated by census tracts. A 2-mile buffer is created for each of these sites to represent the amount of toxins released. The proportion of waste released near the toxic site is aggregated by census tract. Based on the negative effects of toxic waste, higher values of this measure suggest a **negative** effect on overall opportunity, public health and environmental quality.
   Data Source: Environmental Protection Agency, 2004

3. Proximity to parks and open spaces (Proximity):

   This data represents the area in sq. miles of the parks and open areas available within each census tract (represented as a percentage). Availability of open space and park land has environmental, health and social benefits.[17] Thus, higher values of this indicator suggest better availability of parks and open spaces within the census tracts. This indicator has a **positive** effect on the overall opportunity.

4. Proximity to parks and open spaces (Accessibility):

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[15] Robert D. Bullard, Addressing Urban Transportation Equity in the United States, 31 FORDHAM URBAN LAW JOURNAL 1183 (October 2004). And The Challenge of Job Access, Moving Toward a Solution, USDOT, http://www.fhwa.dot.gov/reports/challeng.htm

[16] Facts on Public Transportation, American Public Transportation Association, http://www.publictransportation.org/facts/

[17] The significance of parks to physical activity and public health - A conceptual model, Ariane L. Bedimo-Rung PhD, Andrew J.Mowen PhD and Deborah A. Cohen MD, American Journal of Preventive Medicine, Volume 28, Issue 2, Supplement 2, February 2005, Pages 159-168; and Places to Walk: Convenience and Regular Physical Activity, Kenneth E. Powell, MD, MPH, Linda M. Martin, MS and Pranesh P. Chowdhury, MBBS, MPH, September 2003, Vol 93, No. 9 | American Journal of Public Health 1519-1521.

This data represents the area in sq. miles of the parks and open areas available within a 5-mile radius of the center of each census tract relative to local population. Though some of the parks and open spaces attract people from far away places, such as Big Bend National Park, most of the parks have local clientele. Accessibility to parks and open space is as important as the availability. A higher value for this indicator suggests better levels of accessibility to parks and open spaces.[18] Thus, this indicator has a **positive** effect on the overall opportunity.

5. Proximity to Health Care Facilities:

   This data represents the availability and accessibility to health care facilities in proximity to the neighborhood. Access to health care facilities is critical to preventative health care. Hospitals are also included in this calculation due to their provision of clinic services and the clustering of external health care clinics in close proximity to hospitals. A higher value for this indicator suggests better proximity to these facilities. Thus, this indicator has a **positive** effect on overall opportunity.
   Data Source: CBP 2004; ESRI Business Analyst Data 2005

6. Health professionals working within neighborhood:

   This data represents the number of physicians working in the neighborhood relative to the population. Data has been extracted from CBP zip code data for year 2004. Data has been aggregated to census tract level. Estimated population for the year 2005 has been used from ESRI Business Analyst to calculate the ratio. A higher value for this indicator suggests better access to local health care due to the abundance health professionals working within the neighborhood. Thus, this indicator has a **positive** effect on the overall opportunity.
   Data Source: CBP 2004 data; ESRI Business Analyst Data 2005

7. Access to Affordable food (Availability):

   This data represents the number of grocery and food stores per 1000 people within each census tract. A larger number represents a higher availability of grocery stores to the local population. Grocery access was included in this analysis to assess the availability of affordable and more nutritious food. Thus, this indicator has a **positive** effect on the overall opportunity.
   Data Source: ESRI Business Analyst Data 2005

8. Asthma rates:

   This data represents the number of asthma patients relative to the local population. Higher incidences of asthma suggest the neighborhood could contain more air pollution. This data is based on ICC Patient data for years 2005 and 2006. Since this data reports the numbers based on the patient encounters, it does not fully capture the actual number of people suffering from asthma in the region. Thus, this data should be used carefully. Based on the values, this indicator has a **negative** effect on the overall opportunity.
   Data Source: ICC Patient Data 2005-2006

9. Health Insurance rates:

   This data represents the percentage of uninsured or underinsured patients relative to the local population. Health insurance is essential to accessing high quality health care. The number of such patients is divided by estimated population of 2005. This data is based on ICC Patient data for years 2005 and 2006. Since this data reports the numbers based on the patient encounters, it does not fully capture the actual number of people lacking health insurance in the region. Thus. this data should be used carefully. A higher value represents more uninsured or underinsured people. This indicator has a **negative** effect on the overall opportunity.
   Data Source: ESRI Business Analyst Data; ICC Patient Data 2005-2006

[18] Increasing walking - How important is distance to, attractiveness, and size of public open space?, Billie Giles-Corti PhD, Melissa H. Broomhall MPH, Matthew Knuiman PhD, Catherine Collins MBBS, Kate Douglas MBBS, Kevin Ng MBBS, Andrea Lange BA (Hon) and Robert J. Donovan PhD, American Journal of Preventive Medicine, Volume 28, Issue 2, Supplement 2 , February 2005, Pages 169-176.

Indicators of Neighborhood Quality:

1. Poverty rates:

   This data represents the proportion of the population meeting Census Bureau poverty criteria in 2000. Higher percentages mean more concentrations of people at or below poverty level. Concentrated poverty is defined as a neighborhood where more than 40% of the population lives in poverty. Neighborhoods with extremely high poverty rates manifest community-wide problems due to the concentration of social issues associated with poverty. Concentrated poverty creates hostile environments, where all residents are prone to be impacted by violence and emotional or psychological stress.[19] Thus, this indicator has a **negative** effect on the overall opportunity.
   Data Source: Census 2000 Data

2. Median Owner Occupied Home Values:

   This data represents the median home values in 2005. Housing prices and neighborhood quality are highly correlated, and housing prices are influenced by many factors, including proximity to jobs and commercial establishments, access to environmental amenities, quality of public services, and the income in the neighborhood.[20] Thus, this indicator has a **positive** effect on the overall opportunity.
   Data Source: Census 2000 Data

3. Housing Vacancy Rates:

   This data represents the percentage of estimated vacant houses in 2005 in relation to overall housing stock. This data is calculated by dividing the number of vacant housing units by the total number of housing units in each census tract. Vacant properties are associated with many detrimental impacts to the surrounding neighborhood, including higher crime and greater public safety risk to children. Vacant properties have also been shown to lead to property value decline and population loss in the surrounding neighborhood.[21] Thus, this indicator has a **negative** effect on the overall opportunity.
   Data Source: ESRI Business Analyst Data

4. Home Ownership Rates:

   This data represents the percentage of estimated owner occupied houses in 2005 in relation to overall housing stock. This data is calculated by dividing the number of owner occupied housing units by the total number of housing units in each census tract. A higher value of this indicator suggests a more stable neighborhood with less resident turnover and problems associated with absentee landlords.[22] Thus, this indicator has a **positive** effect on the overall opportunity.
   Data Source: ESRI Business Analyst Data

5. Crime Rates:

   This data represents the crime rate of census tracts summarized by local police jurisdiction in the region (or neighborhood-based crime rates in Austin). Crime rates were calculated using jurisdictional crime rates reported by the State of Texas and neighborhood-based crime data reported by the City of Austin. Crime is often identified by residents as one of the most critical elements impacting neighborhood quality.[23] Since high crime rates are associated with poor, unstable neighborhoods and indicate risk for crime victimization, this indicator has a **negative** effect on the overall opportunity.

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[19] Paul Jargowsky, STUNNING PROGRESS, HIDDEN PROBLEMS: THE DRAMATIC DECLINE OF CONCENTRATED POVERTY IN THE 1990s (May 2003). The Brookings Institute. Available on-line at: http://www.brookings.edu/es/urban/publications/jargowskypoverty.htm. See Page 2.

[20] Chengri Ding and Gerrit-Jan Knaap, Property Values in Inner-City Neighborhoods: The Effects of Homeownership, Housing Investment, and Economic Development, 13 (4) HOUSING POLICY DEBATE 701-727 (2003).

[21] For more information on the impacts of vacant and abandoned properties visit the resource page of the National Vacant Property Campaign. Located on-line at: http://www.vacantproperties.org/facts.html

[22] Chengri Ding and Gerrit-Jan Knaap, Property Values in Inner-City Neighborhoods: The Effects of Homeownership, Housing Investment, and Economic Development, 13 (4) HOUSING POLICY DEBATE 701-727 (2003).

[23] M. R. Greenberg, Improving Neighborhood Quality: A Hierarchy of Needs 10 (3) HOUSING POLICY DEBATE 601-624 (1999).

Appendix B:

Notes on Geographic Information Systems (GIS) Techniques and Statistical Methods Used to Calculate the Opportunity Index Score

Calculating the Opportunity Index:

The various opportunity indicators were analyzed relative to the other census tracts within the region by standardizing through the use of z scores. A z score is a statistical measure that quantifies the distance (measured in standard deviations) a data point is from the mean of a data set. The use of z scores allows data for a census tract to be measured based on their relative distance from the average for the entire region. The final "opportunity index" for each census tract is based on the average z score for all indicators by category. The corresponding level of opportunity (very low, low, moderate, high, very high) is determined by sorting all census tracts into quintiles based on their opportunity index scores. Thus, the census tracts identified as "very high" opportunity represent the top 20% of scores among census tracts. Conversely, census tracts identified as "very low" opportunity represent the lowest scoring 20% of census tracts.

Z scores are helpful in the interpretation of raw score performance, since they take into account both the mean of the distribution and the amount of variability, the standard deviation. The z score indicates how far the raw score is from the mean, either above it or below in standard deviation units. A positive z score is always above the median (upper 50%). A negative z score is always below the median (lower 50%) and a z score of zero is always exactly on the median or equal to 50% of the cases. Thus, when trying to understand the overall comparative performance of different groups with respect to a certain variable, we can assess how a certain group (of individuals, tracts, etc.) is performing with respect to the median performance for the certain variable. No weighting was applied to the various indicators; all indicators were treated as equal in importance.

Notes on Geographic Information Systems (GIS) Techniques:

1. Due to geographical inconsistencies with the various sources of data, specific geographic information systems techniques were applied to analyze the data at the census tract level. An "area aggregation" or "area weighting" was used to redistribute data for conflicting boundary files. This analysis was done using the "Areal Interpolator" script for ArcGIS 9.1. This is a very traditional approach to transforming geographic attribute data. This technique aggregates data based on the proportional area shared by overlapping polygons. This technique was used in all analysis of zip code employment data.
2. GIS boundary files were gathered from the following sources: U.S. Census Bureau and ESRI. All maps and GIS analysis were produced in the following projection: NAD_1983_StatePlane_Texas_Central_FIPS_4203_Feet.
3. Educational opportunity scores were calculated by analyzing the characteristics of elementary schools only. School indicator data was gathered for individual school "catchment" areas for elementary schools within the region. This catchment area data was then transferred to the corresponding census tracts within each catchment area for analysis. For districts with no elementary catchment area (e.g. Wimberly ISD), enrollment and other school-related data is aggregated for all the elementary schools in the district. School attendance zone boundaries for future elementary schools have been merged with the existing and adjacent elementary school attendance zone boundary, e.g. Rooster springs in Dripping Springs ISD is slated to open in fall 2007. Thus, the proposed attendance zone has been merged with Dripping Springs EL.

4. When calculating final z scores for the neighborhood health indicators, census tracts with missing data were given z scores of 0 (analyzed as being equivalent to the mean for the region).
5. A small number of zip codes in the Census Business Patterns database contain only employment ranges for confidentiality purposes. For these zip codes, the median value of the employment range was used to estimate the number of employees in that zip code.
6. The comprehensive opportunity index score represents the average score of the four subcategories (economic opportunity and mobility, educational opportunity, neighborhood health and Housing & Neighborhood Conditions) for each census tract. Thus, the impact from the difference in the number of indicators in each subcategory is eliminated in the comprehensive analysis.

Appendix C:

The Impact of Neighborhood Conditions – Additional Literature and Resources

For general information, see:

George C. Galster, "A Cumulative Causation Model of the Underclass: Implications for Urban Economic Development Policy," in *The Metropolis in Black and White: Place, Power, and Polarization*, eds. G.C. Galster and E.W. Hill. Center for Urban Policy Research, Rutgers University, 1992.and Jurgen Friedrichs, George Galster, and Sako Musterd, "Neighborhood Effects on Social Opportunities: The European and American Research and Policy Context," *Housing Studies* 18.6. 2003 and 797-806; George Galster and Sean P. Killen, "The Geography of Metropolitan Opportunity: A Reconnaissance and Conceptual Framework" *Housing Policy Debate* 6.1.1995. Pages 7-43; Margery Austin Turner and Dolores Acevedo-Garcia. "Why Housing Mobility? The Research Evidence Today." *PRRAC Newsletter* January/February 2005. Paul Jargowsky, *Stunning Progress, Hidden Problems: The Dramatic Decline of Concentrated Poverty in the 1990's* (May 2003). The Brookings Institute. Available on-line at: http://www.brookings.edu/es/urban/publications/jargowskypoverty.htm

For examples of education impacts, see:

Gary Orfield and Susan Eaton, "Dismantling Desegregation: The Quiet Reversal of Brown v. Board of Education." New York: New Press. 1996 and "Quality Counts '98: The Urban Challenge," *Education Week*, January 8, 1998, p. 6. See also Stephanie Stullich, Brenda Donly, and Simeon Stolzberg, "Targeting Schools: Study of Title I Allocations within School Districts" Department of Education. 1999 and Mary M. Kennedy, Richard K. Jung, and M. E. Orland, *Poverty*, "Achievement, and the Distribution of Compensatory Education Services: An Interim Report from the National Assessment of Chapter 1." Washington, D.C.: U.S. Department of Education. 1986. and Stephen Schellenberg, "Concentration of Poverty and Ongoing Need for Title I," in Gary Orfield and Elizabeth DeBray, eds., *Hard Work for Good Schools: Facts Not Fads in Title I Reform.* Cambridge, MA. The Civil Rights Project. Harvard University. 1999 and Orfield, G., & Lee, C. (2004, January). "Brown at 50: King's dream or Plessy's nightmare?" Cambridge, MA: The Civil Rights Project. Harvard University. January 2004. Available on-line at: http://www.civilrightsproject.harvard.edu/research/reseg04/brown50.pdf

For examples of economic and employment impacts, see:

Richard Price and Edwin S. Mills, "Race and Residence in Earnings Determination," *J. Urb. Econ.* 17 (1985): 1-18; Harry J. Holtzer, "The Spatial Mismatch Hypothesis: What has the Evidence Shown?" *Urb. Studies* 28 (1991): 105; J.F. Kain, "The Spatial Mismatch Hypothesis: Three Decades Later," 3.2 *Housing Pol'y Deb.* 3.2 (1992): 371; M. Stoll., *Job Sprawl And The Spatial Mismatch Between Blacks And Jobs* (2005). The Brookings Institute. Available on-line at: http://www.brookings.edu/dybdocroot/metro/pubs/20050214_jobsprawl.pdf; Harry Holzer, Keith Ihlanfeldt, and David Sjoquist, "Work, Search, and Travel among White and Black Youth," *Journal Of Urban Economics* 35 (1994): 320-345; K. Ihlanfeldt & D. Sjoquist, "The Spatial Mismatch Hypothesis: A Review of Recent Studies and Their Implications for Welfare Reform," *Housing Policy Debate* 9 (1998): 881; 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): 701-727; Karen Chapple, "Overcoming Mismatch: Beyond Dispersal, Mobility, and Development Strategies," *Journal of the American Planning Association* 72.3 (2006): 322-36.

For examples of health, environmental justice and transportation impacts, see:

David R. Williams and Chiquita Collins, "Racial Residential Segregation: A Fundamental Cause of Racial Disparities in Health," 116 *Public Health Reports* (Sept/Oct 2001): 404, 405; Benjamin J. Apelberg, Timothy J. Buckley and Ronald H. White, "Socioeconomic and Racial Disparities in Cancer Risk from Air Toxics in Maryland," *Environmental Health Perspectives* 113 (June 2005); Christopher R. Browning and Kathleen A. Cagney, "Moving Beyond Poverty: Neighborhood Structure, Social Processes and Health," *Journal Of Health And Social Behavior* 44 (2003): 552-571; Helen Epstein, "Enough To Make You Sick?," *The New York Times Magazine* (10/12/03); I.H. Yen and G.A. Kaplan, "Neighborhood social environment and risk of death: Multilevel evidence from the Alameda County Study," *American Journal of*

Epidemiology 149.10 (1999): 898-907; Robert D. Bullard, "Addressing Urban Transportation Equity in the United States," 31 *Fordham Urban Law Journal* 31 (2004): 1183; 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://www.civilrightsproject.harvard.edu/research/transportation/trans_paper03.php#fullreport.

For examples of crime and safety impacts, see:

For more information on the impacts of vacant and abandoned properties, visit the resource page of the National Vacant Property Campaign. Located on-line at: http://www.vacantproperties.org/facts.html; M. R. Greenberg, Improving Neighborhood Quality: A Hierarchy of Needs 10 (3) *Housing Policy Debate* 601-624 (1999); Robert J. Sampson, Stephen W. Raudenbush, and Felton Earls, "Neighborhoods and Violent Crime: A Multi-Level Study of Collective Efficacy," *Science* 277 (1997): 918-24 and *Youth and Violence: a Report of the Surgeon General* (January 2001). Available on-line at: http://www.surgeongeneral.gov/library/youthviolence/youvioreport.htm; The *Moving to Opportunity Interim Impacts Evaluation* found that "perhaps most notable from the perspective of the families themselves is the fact that they were successful in achieving the goal that loomed largest in their motivation to move out of their old neighborhoods: improvements in safety." 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). Page ix. Available on-line at: http://www.huduser.org/publications/fairhsg/mtoFinal.html