



Smart Growth America  
Making Neighborhoods Great Together

# Measuring Sprawl 2014

April 2014

## Acknowledgments

**Smart Growth America** is the only national organization dedicated to researching, advocating for and leading coalitions to bring smart growth practices to more communities nationwide. From providing more sidewalks to ensuring more homes are built near public transportation or that productive farms remain a part of our communities, smart growth helps make sure people across the nation can live in great neighborhoods. Learn more at [www.smartgrowthamerica.org](http://www.smartgrowthamerica.org).

This report is based on original research published by the Metropolitan Research Center at the University of Utah, prepared for the National Cancer Institute at the National Institutes of Health, as well as the Ford Foundation.

**The Metropolitan Research Center** conducts basic and applied research on the built environment at the metropolitan scale, focusing on key forces shaping metropolitan form such as demographics, environment, technology, design, transportation, arts and culture and governance. It seeks to expand knowledge in city and metropolitan affairs to improve policy and practice and educate the general public on important issues facing communities. Learn more at [www.arch.utah.edu/cgi-bin/wordpress-metroresearch/](http://www.arch.utah.edu/cgi-bin/wordpress-metroresearch/).

This report was made possible with support from the National Institutes of Health and the Ford Foundation.

### Researchers

Reid Ewing, Professor of City and Metropolitan Planning, University of Utah  
Shima Hamidi, Graduate Research Assistant, University of Utah

### Project team

Sarah Absetz, Policy Associate, Smart Growth America  
Geoff Anderson, President and CEO, Smart Growth America  
David Berrigan, Applied Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute  
Craig Chester, Press Manager, Smart Growth America  
Alex Dodds, Deputy Director of Communications, Smart Growth America  
Ilana Preuss, Vice President and Chief of Staff, Smart Growth America  
Zaria Tatalovich, Health Statistician and Geospatial Scientist, National Cancer Institute

**Special thanks** to David Goldberg, Transportation for America; Chris Zimmerman, Smart Growth America; Gail Meakins, Martin Buchert, and Allison Spain, Metropolitan Research Center; Professor William Greene, New York University; and James B. Grace, U.S. Geological Survey.

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## Executive Summary

Some places in the United States are sprawling out and some places are building in compact, connected ways. The difference between these two strategies affects the lives of millions of Americans.

In 2002, Smart Growth America released *Measuring Sprawl and Its Impact*, a landmark study that has been widely used by researchers to examine the costs and benefits of sprawling development. In peer-reviewed research, sprawl has been linked to physical inactivity, obesity, traffic fatalities, poor air quality, residential energy use, emergency response times, teenage driving, lack of social capital and private-vehicle commute distances and times.

*Measuring Sprawl 2014* updates that research and analyzes development patterns in 221 metropolitan areas and 994 counties in the United States as of 2010, looking to see which communities are more compact and connected and which are more sprawling. Researchers used four primary factors—residential and employment density; neighborhood mix of homes, jobs and services; strength of activity centers and downtowns; and accessibility of the street network—to evaluate development in these areas and assign a Sprawl Index score to each. This report includes a list of the most compact and most sprawling metro areas in the country.

This report also examines how Sprawl Index scores relate to life in that community. The researchers found that several quality of life factors improve as index scores rise. Individuals in compact, connected metro areas have greater economic mobility. Individuals in these areas spend less on the combined cost of housing and transportation, and have greater options for the type of transportation to take. In addition, individuals in compact, connected metro areas tend to live longer, safer, healthier lives than their peers in metro areas with sprawl. Obesity is less prevalent in compact counties, and fatal car crashes are less common.

Finally, this report includes specific examples of how communities are building to be more connected and walkable, and how policymakers at all levels of government can support their efforts.

## Introduction

As regions grow and develop, residents and their elected leaders have many decisions to make. What kind of street network should they build, and how extensive should it be? Should neighborhoods have a mix of homes, shops and offices, or should different types of buildings be kept separate? Will people be able to walk, ride a bicycle or take public transportation through the community, or will driving be the only realistic way for people to get around?

Everyone experiences the outcomes associated with these development decisions. How much families pay for housing and transportation, how long workers spend commuting home, the economic opportunities in communities and even personal health are all connected to how neighborhoods and surrounding areas are built.

*Measuring Sprawl 2014* analyzes development in 221 metropolitan areas across the United States, as well as the relationship between development and quality of life indicators in those areas. This report includes a list of the most compact and most sprawling metro areas in the country.

## About the research

In 2002, Smart Growth America released *Measuring Sprawl and Its Impact*, a landmark study that has been widely used by researchers to examine the costs and benefits of sprawling development. That report was made available to researchers and has been used in peer-reviewed research in the years since. From that original analysis, sprawl has been linked to physical inactivity, obesity, traffic fatalities, poor air quality, residential energy use, emergency response times, teenage driving, lack of social capital, and commute distances and times.

*Measuring Sprawl 2014* is an update and refinement of that research. This report is based on research originally published in the Metropolitan Research Center at the University of Utah in April 2014. The University of Utah's report, titled *Measuring Urban Sprawl and Validating Sprawl Measures*, represents the most comprehensive effort yet undertaken to define, measure and evaluate metropolitan sprawl and its impacts. The first peer-reviewed article based on this research was published in October 2013 in the journal *Health & Place*.

The data from 2010 used in this analysis are the most recent available. The complete analysis, methodology and databases included in the University of Utah's research are available at <http://gis.cancer.gov/tools/urban-sprawl/>.

## Measuring “sprawl”

This study analyzed development in 193 census-defined Metropolitan Statistical Areas (MSAs)—or metro areas—as well as 28 census-defined Metropolitan Divisions, which comprise MSAs, in the largest 11 MSAs. All of the analyzed areas had at least 200,000 people in 2010. MSAs with populations less than 200,000 people were not included in the study.<sup>1</sup> This study also analyzed development in 994 metropolitan counties.

### The four factors

Development in both MSAs and metropolitan counties was evaluated using four main factors: 1) development density; 2) land use mix; 3) activity centering; and 4) street accessibility. These factors are briefly explained below.<sup>2</sup>

#### **Development density**

Development density is measured by combining six major factors: 1) total density of the urban and suburban census tracts; 2) percent of the population living in low-density suburban areas; 3) percent of the population living in medium- to high-density areas; 4) urban density within total built-upon land; 5) the relative concentration of density around the center of the MSA; and 6) employment density.

#### **Land use mix**

Land use mix is also measured through a combination of factors: the balance of jobs to total population and mix of job types within one mile of census block groups, plus the WalkScore of the center of each census tract.

#### **Activity centering**

The proportion of people and businesses located near each other is also a key variable to define an area. Activity centering is measured by looking at the range of population and employment size in different block groups. MSAs with greater variation (i.e., a wider difference between blocks with a high population and a low one) have greater centering. This factor also includes a measure of how quickly population density declines from the center of the MSA, and the proportion of jobs and people within the MSA’s central business district and other employment centers.

#### **Street accessibility**

Street accessibility is measured by combining a number of factors regarding the MSA’s street network. The factors are average length of street block; average block size; percent of blocks that are urban in size; density of street intersections; and percent of four-way or more intersections, which serves as a measure of street connectivity.

### Scoring

Researchers used these factors to evaluate development in all 221 MSAs and 994 counties. These four factors are combined in equal weight and controlled for population to calculate each area’s Sprawl Index score. The average index is 100, meaning areas with scores higher than 100 tend to be more compact and connected and areas with scores lower than 100 are more sprawling.

### **MSA versus county scales**

Census-defined MSAs and the Metropolitan Divisions within them include a wide variety of places within a given region. An MSA's boundaries may include one county (like the Detroit, MI Metropolitan Division, which includes only Wayne County) or many counties (like the Washington, DC MSA, which contains 16 counties).<sup>3</sup>

This difference has a significant impact on how a given region scores on the index, and it is important to note that these census-defined divisions create some counterintuitive outcomes. For example, the greater Washington, DC area ranks 91st on the index based on its MSA. Evaluated at the county level, however, Washington, DC ranks 6th. Many other communities face similar distinctions between scores at the MSA level versus the county level.

Our findings are presented at the MSA scale because much of the data, such as economic mobility, is only available at this level. Health data is available at the county level, so in those cases we provide analysis at that scale. Future versions of this analysis would benefit from economic mobility, transportation and housing costs and health databases available at more refined scales. For more information about index scores and findings at the county scale, see Appendix B. For information about the data sources available at different geographic scales, see Appendix C.

## The 2014 Sprawl Index rankings

Based on the index standards described in the previous section, we evaluated development in 221 metro areas in the United States.

The most compact, connected metro area in the United States is, perhaps not surprisingly, New York, NY, with an index score of 203.4. The country's most sprawling metro area is Hickory, NC, with an index score of 24.9.

To provide a more comprehensive look at how communities compare, we also present here the most compact and most sprawling MSAs by size. Among large metro areas (defined as having a population more than one million people), New York, the national leader, is the most compact and connected. Atlanta, GA, is the most sprawling, with a score of 41.0.

Of medium metro areas (defined as having a population between 500,000 and 1 million), Madison, WI, is the most compact and connected with a score of 136.7 and Baton Rouge, LA, is the most sprawling, with a score of 55.6. Of small metro areas (defined as having a population less than 500,000), Atlantic City, NJ, is the most compact and connected, with a score of 150.4, whereas Hickory, NC, is the most sprawling.<sup>4</sup>

### Most compact, connected metro areas

Tables 1–4 rank metro areas that are more compact and connected, with homes and jobs closer together.

TABLE 1

#### Most compact, connected metro areas, nationally

Rank	Metro area	Index score
1	New York/White Plains/Wayne, NY-NJ	203.4
2	San Francisco/San Mateo/Redwood City, CA	194.3
3	Atlantic City/Hammonton, NJ	150.4
4	Santa Barbara/Santa Maria/Goleta, CA	146.6
5	Champaign/Urbana, IL	145.2
6	Santa Cruz/Watsonville, CA	145.0
7	Trenton/Ewing, NJ	144.7
8	Miami/Miami Beach/Kendall, FL	144.1
9	Springfield, IL	142.2
10	Santa Ana/Anaheim/Irvine, CA	139.9



TABLE 2

**Most compact, connected large metro areas***Large metro areas are defined as having a population more than one million.*

<b>Rank</b>	<b>Metro area</b>	<b>Index score</b>
1	New York/White Plains/Wayne, NY-NJ	203.4
2	San Francisco/San Mateo-Redwood City, CA	194.3
8	Miami/Miami Beach/Kendall, FL	144.1
10	Santa Ana/Anaheim/Irvine, CA	139.9
12	Detroit/Livonia/Dearborn, MI	137.2
15	Milwaukee/Waukesha/West Allis, WI	134.2
21	Los Angeles/Long Beach/Glendale, CA	130.3
24	San Jose/Sunnyvale/Santa Clara, CA	128.8
25	Oakland/Fremont/Hayward, CA	127.2
26	Chicago/Joliet/Naperville, IL	125.9

TABLE 3

**Most compact, connected medium metro areas***Medium metro areas are defined as having a population between 500,000 and 1 million.*

<b>Rank</b>	<b>Metro area</b>	<b>Index score</b>
13	Madison, WI	136.7
28	Allentown/Bethlehem/Easton, PA-NJ	124.4
37	Bridgeport/Stamford/Norwalk, CT	121.7
41	Stockton, CA	120.3
52	New Haven/Milford, CT	116.3
54	Scranton/Wilkes-Barre, PA	115.8
64	Oxnard/Thousand Oaks/Ventura, CA	113.8
66	Modesto, CA	113.3
67	Wilmington, DE-MD-NJ	112.9
68	Lancaster, PA	112.6

TABLE 4

**Most compact, connected small metro areas***Small metro areas are defined as having a population less than 500,000.*

<b>Rank</b>	<b>Metro area</b>	<b>Index score</b>
3	Atlantic City/Hammonton, NJ	150.4
4	Santa Barbara/Santa Maria/Goleta, CA	146.6
5	Champaign/Urbana, IL	145.2
6	Santa Cruz/Watsonville, CA	145.0
7	Trenton/Ewing, NJ	144.7
9	Springfield, IL	142.2
11	Reading, PA	137.9
14	Burlington/South Burlington, VT	135.1
16	Boulder, CO	133.7
17	Appleton, WI	132.7

**Most sprawling metro areas**

Tables 5–8 rank communities that are the least dense, least connected and most likely to separate land uses.

TABLE 5

**Most sprawling metro areas, nationally**

<b>Rank</b>	<b>Metro area</b>	<b>Index score</b>
212	Kingsport/Bristol/Bristol, TN-VA	60.0
213	Augusta/Richmond County, GA-SC	59.2
214	Greenville/Mauldin-Easley, SC	59.0
215	Riverside-San Bernardino/Ontario, CA	56.2
216	Baton Rouge, LA	55.6
217	Nashville-Davidson/Murfreesboro/Franklin, TN	51.7
218	Prescott, AZ	49.0
219	Clarksville, TN-KY	41.5
220	Atlanta/Sandy Springs/Marietta, GA	41.0
221	Hickory/Lenoir/Morganton, NC	24.9

TABLE 6

**Most sprawling large metro areas***Large metro areas are defined as having a population more than one million.*

<b>Rank</b>	<b>Metro area</b>	<b>Index score</b>
182	Houston/Sugar Land/Baytown, TX	76.7
184	Richmond, VA	76.4
189	Rochester, NY	74.5
192	Birmingham-Hoover, AL	73.6
196	Memphis, TN-MS-AR	70.8
197	Charlotte/Gastonia-Rock Hill, NC-SC	70.5
201	Warren/Troy/Farmington Hills, MI	67.0
215	Riverside-San Bernardino/Ontario, CA	56.3
217	Nashville/Davidson/Murfreesboro/Franklin, TN	51.7
220	Atlanta-Sandy Springs/Marietta, GA	41.0

TABLE 7

**Most sprawling medium metro areas***Medium metro areas are defined as having a population between 500,000 and 1 million.*

<b>Rank</b>	<b>Metro area</b>	<b>Index score</b>
185	Little Rock/North Little Rock/Conway, AR	76.1
191	Durham/Chapel Hill, NC	73.8
195	Jackson, MS	72.3
199	Knoxville, TN	68.2
200	Columbia, SC	67.5
207	Chattanooga, TN-GA	63.6
208	Greensboro/High Point, NC	63.5
213	Augusta/Richmond County, GA-SC	59.1
214	Greenville/Mauldin-Easley, SC	59.0
216	Baton Rouge, LA	55.6

TABLE 8

**Most sprawling small metro areas***Small metro areas are defined as having a population less than 500,000.*

<b>Rank</b>	<b>Metro area</b>	<b>Index score</b>
204	Green Bay, WI	65.4
205	Fort Smith, AR-OK	64.8
206	Lynchburg, VA	64.0
209	Winston-Salem, NC	63.4
210	Florence, SC	61.1
211	Lake Havasu City-Kingman, AZ	60.1
212	Kingsport/Bristol/Bristol, TN-VA	60.0
218	Prescott, AZ	49.0
219	Clarksville, TN-KY	41.5
221	Hickory/Lenoir/Morganton, NC	24.9

## What sprawl means for everyday life

The researchers found that as Sprawl Index scores improved—that is, as areas became less sprawling—several quality of life factors improved along with them.<sup>5</sup>

- People have greater economic opportunity in compact and connected metro areas.
- People spend less of their household income on the combined cost of housing and transportation in these areas.
- People have a greater number of transportation options available to them.
- And people in compact, connected metro areas tend to be safer, healthier and live longer than their peers in more sprawling metro areas.

The researchers controlled for socioeconomic factors. Below is more information about each of these quality of life indicators.

### **People in more compact, connected metro areas have greater economic mobility.**

Could metro areas with homes and jobs far apart and limited connections between those areas directly affect the ability of low-income children to get ahead as adults?

The researchers compared the 2014 Sprawl Index scores to models of upward economic mobility from Harvard and the University of California at Berkeley.<sup>6</sup> They examined the probability of a child born to a family in the bottom quintile of the national income distribution reaching the top quintile of the national income distribution by age 30, and whether communities' index score was correlated with that probability.

### Compactness has a strong direct relationship to upward economic mobility.

The researchers found that compactness has a strong direct relationship to upward economic mobility. In fact, for every 10 percent increase in an index score, there is a 4.1 percent increase in the probability that a child born to a family in the bottom quintile of the national income distribution

reaches the top quintile of the national income distribution by age 30.

For example, the probability of an individual in the Baton Rouge, LA area (index score: 55.6) moving from the bottom income quintile to top quintile is 7.2 percent. In the Madison, WI area (index score: 136.7) that probability is 10.2 percent.

### **People in more compact, connected metro areas spend less on the combined expenses of housing and transportation.**

The cost of housing is often higher in compact areas compared with sprawling ones. However, families' transportation costs are often significantly lower in these places. Shorter distances to travel and a wider range of low-cost travel options means individuals and families in these places spend a smaller portion of their household budget on transportation. How do the two expense categories relate in compact areas versus sprawling ones?

The researchers found that the average percentage of income spent on housing is indeed greater in compact communities than in sprawling areas. Each 10 percent increase in an index score was associated with a 1.1 percent increase in housing costs relative to income.<sup>7</sup>

The researchers also found that the average percentage of income spent on transportation is smaller in compact areas than sprawling ones. Each 10 percent increase in an index score was associated with a 3.5 percent decrease in transportation costs relative to income.<sup>8</sup> For instance, households in the San Francisco, CA area (index score: 194.3) spend an average of 12.4 percent of their income on transportation. Households in the Tampa, FL metro area (index score: 98.5) spend an average of 21.5 percent of their income on transportation.<sup>9</sup>

Perhaps the most notable finding was that the combined cost of housing and transportation declines as an index score increases. As metropolitan compactness increases, transportation costs decline faster than housing costs rise, creating a net decline in household costs.<sup>10</sup> An average household in the San Francisco, CA metro area (index score: 194.3) spends 46.7 percent of its budget on housing and transportation, while an average household in the Tampa, FL metro area (index score: 98.5) spends 56.1 percent of its budget on the same items.<sup>11</sup>

The combined cost of housing and transportation declines as an index score increases.

**People in more compact, connected metro areas have more transportation options.**

Part of the reason transportation costs are lower in more compact areas is that these areas have a wider range of options for how to get around—nearly all of which cost less than driving or are even free.

The researchers found that people in metro areas with higher index scores walk more: For every 10 percent increase in an index score, the walk mode share (i.e., the portion of travelers who choose to walk) increases by 3.9 percent.

The researchers found that people in high-scoring metro areas take transit more: For every 10 percent increase in an index score, transit mode share (i.e., the portion of travelers who choose to use transit) increases by 11.5 percent. This means, for example, that a person in the Lincoln, NE metro area (index score: 132.0) is two and a half times more likely to choose transit for his or her transportation needs than a similar person in the Greenville, SC area (index score: 59.0).

The researchers also found that people in high-scoring metro areas own fewer cars and spend less time driving. For every 10 percent increase in an index score, vehicle ownership rates decline by 0.6 percent and drive time declines by 0.5 percent.<sup>12</sup>

Data about transportation options are even more compelling at the county level. See Appendix B for that information.

**People in more compact, connected areas have longer, healthier and safer lives.**

Health data are available at the county level; for this reason, health outcomes are assessed at this scale rather than the MSA level. At the county level, an area's compactness is also related to individuals' health.<sup>13</sup>

First and foremost, people in compact, connected counties tend to live longer. For every doubling in an index score, life expectancy increases by about four percent.<sup>14</sup> For the average American with a life expectancy of 78 years, this translates into a three-year difference in life expectancy between people in a less compact versus a more compact county.

Driving rates (and their associated risk of a fatal collision), body mass index (BMI), air quality and violent crime all contribute to this difference, albeit in different ways. Counties with less sprawl have more car crashes, but fewer of those crashes are fatal. For every 10 percent increase in an index score, fatal crashes decrease by almost 15 percent. That means a person in Walker County, GA, for example, has nearly three times the chance of being in a fatal crash as compared with a similar person in Denver County, CO.

The researchers found that BMI is strongly and negatively related to index scores. As a county's index score decrease (that is, as a metro area sprawls more), the BMI of its population increases, after accounting for sociodemographic differences. For example, a 5'10" man living in Arlington County, VA is likely to weigh four pounds less than the same man living in Charles County, MD.<sup>15</sup> Similarly, the likelihood of obesity increases. People in less sprawling counties also have significantly lower blood pressure and rates of diabetes.

## Seeking better quality of life

As this research shows, metro areas with more compact, connected neighborhoods are associated with better overall economic, health and safety outcomes—on average a better quality of life for everyone in that community. As residents and their elected leaders recognize the health, safety and economic benefits of better development strategies, many decisionmakers are re-examining their traditional zoning, economic development incentives, transportation decisions and other policies that have helped to create sprawling development patterns. Instead, they are choosing to create more connections, transportation choices and walkable neighborhoods in their communities.

The following are examples of cities in metro areas that performed well on each of the four index factors, as well as the local public policies that contributed to their success.

### LAND USE MIX

## Santa Barbara, CA

Santa Barbara, CA—the fourth most compact, connected metro area nationally—had the best score among small metro areas for its land use mix. Several public policies have contributed to Santa Barbara’s high land use mix score.

### **Forward-thinking zoning codes**

The City of Santa Barbara’s zoning codes allow residential uses in most commercial zones.<sup>16</sup> This is as a result of a public planning process in the 1990s that sought to create more affordable housing. The process resulted in amendments to the General Plan and Zoning Ordinance that encouraged mixed use developments in certain areas.<sup>17</sup> Now, mixed use is characteristic of Santa Barbara’s urban form.

### **Encouraging mixed use in the general plan**

The City of Santa Barbara also made this strategy a development priority by including it in the city’s 2011 General Plan Update. The update outlined three principles of development, one of which is to “encourage a mix of land uses to include strong retail and workplace centers, residential living in commercial centers with easy access to grocery stores and recreation, connectivity and civic engagement and public space for pedestrians.”<sup>18</sup>

### **County-level support**

Santa Barbara County, which encompasses the City of Santa Barbara, maintains community plans for unincorporated areas of the county. The county has established mixed use zones and encourages mixed use in many of the community plans in order to encourage a variety of uses throughout the county.<sup>19</sup>



## ACTIVITY CENTERING

### Madison, WI

The City of Madison, WI—the most compact, connected medium-sized metro area in the country—also had the highest score nationally for activity centering, meaning people and businesses are concentrated downtown and in subcenters. Several public policies have contributed to Madison’s high activity centering score.

#### **Homebuyer assistance programs**

Madison has several programs that help residents purchase homes, many of which encourage residency downtown and reinvestment in existing housing stock.<sup>20</sup> One example is the Mansion Hill—James Madison Park Neighborhood Small Cap TIF Loan Program.<sup>21</sup> This program provides zero percent interest, forgivable second mortgage loans to finance a portion of the purchase price and the rehabilitation costs of a residential property located in the Mansion Hill—James Madison Park neighborhood of downtown Madison.

#### **A comprehensive focus on downtown development**

In 1994, Madison adopted a series of strategic management system goals, which outlined ways for Madison to “share in the growth that is occurring in Dane County...in such a way to balance economic, social and environmental health.”<sup>22</sup> Directing new growth toward existing urban areas, increasing owner-occupied housing in the city and creating economic development areas were all among the strategies recommended to achieve these goals. The goals later influenced the city’s 2006 comprehensive plan.<sup>23</sup>

#### **Downtown Plan**

In 2012, the City of Madison adopted a new Downtown Plan, which aims to strengthen Madison’s downtown neighborhood. The plan includes nine strategies to guide the future growth of this core neighborhood while “sustaining the traditions, history and vitality that make Madison a model city.”

## STREET ACCESSIBILITY

### Trenton, NJ

The street connectivity factor examines average block sizes; percent of urban blocks that are small; density of intersections; and percent of intersections that are four-way or more.

Trenton, NJ—the seventh most compact, connected metro area nationally—had the highest score for street connectivity among all small- and medium-sized metro areas. A number of public policies helped Trenton achieve its high street connectivity score.

#### **A city designed for people**

Trenton is the historic center city of the larger metro area, and a number of small town centers surround it. This interconnected network of city and town centers encouraged reinvestment within the existing city grid.

## **Transportation Master Plan**

Trenton's Transportation Master Plan focuses on maintaining the existing transportation network, using investments to support downtown and supporting multimodal options for all the neighborhoods.<sup>24</sup> A walkable city, by definition, has small blocks and frequent intersections. The plan also places a high priority on key objectives to reach these goals, such as improve and maintain the city's transit infrastructure, encourage transit-supportive land uses and avoid increases in street capacity unless addressing a critical transportation problem.

## **Investing in transportation**

Greater Trenton has a long history of investing in transportation. In 1904, the state legislature appropriated \$2 million to improve roads when other states with similar programs spent less than one-third that amount. Today, the metro area predominantly uses county bonds to maintain its road network and make improvements to its rail and bus service.

## DEVELOPMENT DENSITY

### Los Angeles, CA

Los Angeles, CA, had the second-highest density score in the country, topped only by the New York metro area, an outlier nationally. Several public policies have contributed to Los Angeles's high development density score.

#### **A plan for development around transit stations**

In 2012, Los Angeles' Department of City Planning began an initiative to create detailed plans for development surrounding 10 light rail stations. The Los Angeles Transit Neighborhood Plans project "aims to support vibrant neighborhoods around transit stations, where people can live, work and shop or eat out, all within a safe and pleasant walk to transit stations."<sup>25</sup>

#### **Allowing higher density in exchange for affordable housing**

Los Angeles' Affordable Housing Incentives Ordinance gives developers the option to build up to 25 percent above the otherwise allowable residential density level if they include affordable housing in their project.<sup>26</sup> It also reduces parking requirements and expedites the development approval process.

#### **A zoning code for Los Angeles today and tomorrow**

In 2013, Los Angeles began a multi-year process to update its zoning code, which was first drafted in 1946. While this process is nascent, the city plans to have a new code in place by 2017. The new code will be web-based, easier to use and create a unified development code for projects downtown.

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These public policies have helped Santa Barbara, Madison, Trenton and Los Angeles achieve high index scores. These are by no means the only policies, however, that can improve how a community is built and the quality of life for the people who live there. For more ideas about local policy that can help your town grow in better ways visit [www.smartgrowthamerica.org](http://www.smartgrowthamerica.org).

## Conclusion

How we choose to build and develop affects everyone's day-to-day lives. How much we pay for housing and transportation, how long we spend commuting to and from work, economic opportunities in our communities and even personal health are all connected to how our neighborhoods and surrounding areas are built.

This study shows that life expectancy, economic mobility, transportation choices and personal health and safety all improve in less sprawling areas. As individuals and their elected leaders recognize these benefits, many decisionmakers choose to encourage this type of growth through changes to public regulations and incentives.

This report represents a rigorous statistical analysis of how communities have developed in the United States. It is not, however, a complete picture of every community across the country.

The analysis included in this research is an important part of understanding how communities have developed in the United States. We recognize that qualitative information—such as the design of the streets and buildings, the quality of park space and the types of businesses nearby, among many other factors—also has a significant impact on the quality of life within a neighborhood and a region.

Local elected officials, state leaders and federal lawmakers can all help communities as they seek to grow in ways that support these improved outcomes. Smart Growth America helps communities understand the long-term impact of their development decisions. We work with public and private sectors so local communities can achieve multiple outcomes such as increased economic mobility and improved personal health. By providing this type of research, alongside best practices used in many of these communities, we hope more places will closely consider development decisions as a key to long-term success.

This report is an opportunity to reflect on many communities' successes, and to highlight the places where we, as a country, can do better. Visit [www.smartgrowthamerica.org](http://www.smartgrowthamerica.org) to learn more about our work and how your community can grow in more compact, connected ways.

## Appendix A: Full 2014 metro area Sprawl Index rankings

Table 1A below contains the Sprawl Index scores for all 221 metro areas included in the 2014 analysis, as well as the score for each metro area in the four sprawl factors, based on 2010 data. All regions are census-defined Metropolitan Statistical Areas unless marked with an asterisk (\*). Those places with an asterisk are Metropolitan Divisions, which comprise MSAs. Composite scores are controlled for population.

TABLE A1  
Metropolitan Statistical Areas Sprawl Index Scores, 2014

Rank	Metro area	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
1	New York-White Plains-Wayne, NY-NJ*	384.29	159.34	213.49	193.80	<b>203.36</b>
2	San Francisco-San Mateo-Redwood City, CA*	185.97	167.17	230.92	162.83	<b>194.28</b>
3	Atlantic City-Hammonton, NJ	96.33	100.10	154.52	130.71	<b>150.36</b>
4	Santa Barbara-Santa Maria-Goleta, CA	112.28	148.85	109.48	122.05	<b>146.59</b>
5	Champaign-Urbana, IL	100.00	123.27	153.64	82.81	<b>145.16</b>
6	Santa Cruz-Watsonville, CA	98.88	146.15	107.90	112.18	<b>145.02</b>
7	Trenton-Ewing, NJ	115.88	128.00	97.36	139.06	<b>144.71</b>
8	Miami-Miami Beach-Kendall, FL*	160.18	136.41	117.91	166.90	<b>144.12</b>
9	Springfield, IL	90.39	100.51	160.03	96.74	<b>142.24</b>
10	Santa Ana-Anaheim-Irvine, CA*	161.91	155.02	79.64	181.81	<b>139.86</b>
11	Reading, PA	102.22	121.83	129.72	113.76	<b>137.90</b>
12	Detroit-Livonia-Dearborn, MI*	125.20	124.65	107.48	183.98	<b>137.17</b>
13	Madison, WI	101.00	115.83	168.11	94.85	<b>136.69</b>
14	Burlington-South Burlington, VT	88.32	102.21	168.79	70.68	<b>135.06</b>
15	Milwaukee-Waukesha-West Allis, WI	113.31	126.73	153.40	130.35	<b>134.18</b>
16	Boulder, CO	106.89	115.32	100.09	118.95	<b>133.68</b>
17	Appleton, WI	90.65	99.81	156.72	79.92	<b>132.69</b>
18	Lincoln, NE	111.55	132.99	96.74	96.78	<b>131.95</b>
19	Laredo, TX	104.20	117.12	99.89	106.87	<b>131.25</b>
20	Erie, PA	97.73	130.61	113.69	88.92	<b>130.39</b>
21	Los Angeles-Long Beach-Glendale, CA	187.39	160.18	115.66	154.40	<b>130.33</b>
22	Spokane, WA	98.98	115.82	108.57	128.26	<b>129.40</b>
23	Medford, OR	89.67	115.31	128.06	80.42	<b>128.86</b>
24	San Jose-Sunnyvale-Santa Clara, CA	149.50	148.76	86.80	131.45	<b>128.76</b>
25	Oakland-Fremont-Hayward, CA*	136.28	145.75	88.11	159.44	<b>127.24</b>
26	Chicago-Joliet-Naperville, IL*	145.50	140.09	143.24	160.21	<b>125.90</b>
27	Eugene-Springfield, OR	95.35	125.70	116.84	91.29	<b>125.63</b>
28	Allentown-Bethlehem-Easton, PA-NJ	98.76	128.59	101.10	135.97	<b>124.40</b>
29	Vallejo-Fairfield, CA	105.38	132.03	79.32	115.90	<b>124.16</b>
30	Salem, OR	93.11	123.48	113.50	98.10	<b>123.35</b>
31	Yakima, WA	90.95	117.91	133.08	65.81	<b>123.19</b>
32	Ann Arbor, MI	103.27	105.04	123.11	89.95	<b>122.76</b>
33	Philadelphia, PA*	141.01	142.25	115.95	140.06	<b>122.42</b>
34	Tuscaloosa, AL	85.85	68.60	154.72	92.03	<b>122.18</b>
35	Fargo, ND-MN	99.18	118.65	106.96	73.56	<b>121.82</b>
36	South Bend-Mishawaka, IN-MI	90.94	94.08	111.91	118.68	<b>121.71</b>
37	Bridgeport-Stamford-Norwalk, CT	110.63	132.86	118.02	100.81	<b>121.64</b>
38	Fort Lauderdale-Pompano Beach-Deerfield Beach, FL*	140.93	136.53	61.79	153.66	<b>121.41</b>
39	Las Vegas-Paradise, NV	142.12	105.02	136.42	114.29	<b>121.20</b>

Rank	Metro area	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
40	Reno-Sparks, NV	100.78	93.69	137.29	94.06	<b>120.85</b>
41	Stockton, CA	106.54	135.75	82.11	121.04	<b>120.28</b>
42	New Orleans-Metairie-Kenner, LA	104.84	117.83	96.09	149.94	<b>119.74</b>
43	Charlottesville, VA	91.16	86.08	141.81	71.77	<b>119.08</b>
44	San Luis Obispo-Paso Robles, CA	89.90	119.8	103.87	88.53	<b>118.90</b>
45	Huntington-Ashland, WV-KY-OH	84.25	67.73	142.77	108.91	<b>118.43</b>
46	Bellingham, WA	85.29	92.75	113.43	96.89	<b>118.01</b>
47	Corpus Christi, TX	98.68	118.31	90.15	110.41	<b>117.29</b>
48	Waco, TX	87.96	96.10	100.62	107.83	<b>117.11</b>
49	Nassau-Suffolk, NY*	123.33	144.75	81.01	155.85	<b>117.04</b>
50	Lexington-Fayette, KY	99.56	110.42	115.34	95.11	<b>116.76</b>
51	Saginaw-Saginaw Township North, MI	86.77	93.77	110.97	93.62	<b>116.62</b>
52	New Haven-Milford, CT	106.86	127.52	113.51	97.82	<b>116.29</b>
53	Seattle-Bellevue-Everett, WA*	121.27	123.99	121.68	131.86	<b>116.11</b>
54	Scranton--Wilkes-Barre, PA	91.28	116.46	95.07	123.01	<b>115.84</b>
55	Savannah, GA	90.08	84.94	115.36	115.03	<b>115.81</b>
56	Charleston, WV	83.81	67.01	136.8	112.05	<b>115.68</b>
57	Baltimore-Towson,*	115.97	123.21	123.12	136.35	<b>115.62</b>
58	Salinas, CA	101.65	116.00	102.94	90.70	<b>115.19</b>
59	Fort Collins-Loveland, CO	94.53	106.30	96.44	100.59	<b>115.15</b>
60	Rockford, IL	94.78	110.04	91.83	107.05	<b>114.98</b>
61	Bethesda-Rockville-Frederick, MD*	115.08	123.84	98.97	118.94	<b>114.66</b>
62	Olympia, WA	89.23	80.87	121.00	98.73	<b>114.63</b>
63	Santa Rosa-Petaluma, CA	93.70	132.31	91.91	96.82	<b>113.92</b>
64	Oxnard-Thousand Oaks-Ventura, CA	107.91	133.35	78.01	118.31	<b>113.87</b>
65	Lubbock, TX	97.23	116.70	87.56	90.44	<b>113.41</b>
66	Modesto, CA	109.91	140.69	62.32	102.89	<b>113.28</b>
67	Wilmington, DE-MD-NJ*	102.42	109.29	96.53	120.29	<b>112.94</b>
68	Lancaster, PA	95.61	110.05	124.31	84.74	<b>112.64</b>
69	Manchester-Nashua, NH	95.10	104.38	114.15	89.28	<b>112.19</b>
70	Cedar Rapids, IA	92.94	105.64	104.67	81.25	<b>111.81</b>
71	College Station-Bryan, TX	102.49	94.65	91.03	91.47	<b>111.72</b>
72	Lansing-East Lansing, MI	101.03	92.21	141.56	72.80	<b>111.61</b>
73	Beaumont-Port Arthur, TX	85.37	88.45	112.62	113.76	<b>111.54</b>
74	Lafayette, LA	90.03	87.35	115.90	92.72	<b>111.44</b>
75	Harrisburg-Carlisle, PA	93.54	102.14	99.29	119.17	<b>111.4</b>
76	Gainesville, FL	94.58	87.63	102.79	99.45	<b>111.36</b>
77	Tyler, TX	85.76	72.48	122.62	93.19	<b>110.66</b>
78	Peoria, IL	88.93	100.39	109.76	97.72	<b>110.49</b>
79	Chico, CA	91.18	114.46	88.79	79.93	<b>109.94</b>
80	Portland-Vancouver-Hillsboro, OR-WA	111.14	136.12	100.81	124.98	<b>109.85</b>
81	Newark-Union, NJ-PA*	126.86	139.67	90.43	113.76	<b>109.62</b>
82	Las Cruces, NM	89.33	84.27	108.16	89.06	<b>109.17</b>
83	Bremerton-Silverdale, WA	90.48	87.55	112.87	86.20	<b>108.86</b>
84	Norwich-New London, CT	87.22	84.71	137.44	71.04	<b>108.85</b>
85	Provo-Orem, UT	104.53	123.55	77.37	100.08	<b>108.45</b>
86	Omaha-Council Bluffs, NE-IA	102.64	120.53	99.67	103.54	<b>108.42</b>
87	Columbus, GA-AL	94.45	84.78	125.19	77.79	<b>108.38</b>
88	Portland-South Portland-Biddeford, ME	86.06	79.09	157.47	80.24	<b>107.72</b>
89	Amarillo, TX	96.16	109.27	76.98	91.56	<b>107.49</b>
90	Tacoma, WA*	103.62	105.56	92.25	119.05	<b>107.48</b>
91	Washington-Arlington-Alexandria, DC-VA-MD-WV*	122.35	117.61	133.16	125.91	<b>107.21</b>

Rank	Metro area	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
92	Denver-Aurora-Broomfield, CO	118.31	119.44	109.11	125.16	<b>107.10</b>
93	Canton-Massillon, OH	90.54	106.64	76.45	117.92	<b>106.99</b>
94	Salt Lake City, UT	117.77	125.49	93.32	97.63	<b>106.96</b>
95	Lafayette, IN	95.46	90.63	94.82	83.10	<b>106.55</b>
96	Flint, MI	89.57	90.58	114.82	97.49	<b>106.48</b>
97	Buffalo-Niagara Falls, NY	107.94	127.67	102.46	95.10	<b>106.36</b>
98	Colorado Springs, CO	102.94	108.37	75.94	121.76	<b>106.33</b>
99	Merced, CA	93.90	114.76	96.48	66.25	<b>105.86</b>
100	El Paso, TX	114.90	99.42	73.41	128.66	<b>105.64</b>
101	Davenport-Moline-Rock Island, IA-IL	91.78	121.21	70.03	102.95	<b>105.59</b>
102	North Port-Bradenton-Sarasota, FL	97.45	101.45	84.95	126.69	<b>105.49</b>
103	San Diego-Carlsbad-San Marcos, CA	125.08	130.37	100.90	119.95	<b>105.18</b>
104	York-Hanover, PA	90.92	95.83	113.20	90.32	<b>105.12</b>
105	Kennewick-Pasco-Richland, WA	92.84	108.63	81.96	85.86	<b>105.03</b>
106	Des Moines-West Des Moines, IA	97.68	120.63	99.46	82.83	<b>104.90</b>
107	Virginia Beach-Norfolk-Newport News, VA-NC	106.41	105.24	102.38	131.60	<b>104.45</b>
108	Providence-New Bedford-Fall River, RI-MA	105.40	83.28	112.77	141.95	<b>104.34</b>
109	Greeley, CO	87.33	99.05	94.05	85.82	<b>103.61</b>
110	Camden, NJ*	105.39	125.72	78.53	120.07	<b>103.22</b>
111	Akron, OH	94.55	113.13	90.69	106.81	<b>103.15</b>
112	Duluth, MN-WI	85.24	89.56	117.03	77.22	<b>103.14</b>
113	Lake County-Kenosha County, IL-WI*	101.65	112.39	67.78	132.08	<b>103.10</b>
114	Austin-Round Rock-San Marcos, TX	100.42	99.66	138.78	102.88	<b>102.44</b>
115	Sioux Falls, SD	97.68	104.85	95.96	60.16	<b>101.75</b>
116	Dayton, OH	93.65	114.40	95.13	105.55	<b>101.48</b>
117	Toledo, OH	95.30	120.34	85.46	95.85	<b>100.90</b>
118	Houma-Bayou Cane-Thibodaux, LA	83.73	75.47	106.77	86.11	<b>100.13</b>
119	Ogden-Clearfield, UT	100.96	120.39	62.22	103.52	<b>99.58</b>
120	Sacramento-Arden-Arcade-Roseville, CA	111.65	119.11	104.19	108.92	<b>99.27</b>
121	Cape Coral-Fort Myers, FL	91.87	81.41	91.52	126.34	<b>99.22</b>
122	Tallahassee, FL	91.64	68.25	130.77	79.80	<b>98.95</b>
123	Charleston-North Charleston-Summerville, SC	95.29	89.19	108.94	99.03	<b>98.53</b>
124	Tampa-St. Petersburg-Clearwater, FL	105.18	105.35	93.00	150.09	<b>98.49</b>
125	West Palm Beach-Boca Raton-Boynton Beach, FL*	110.73	121.02	69.66	118.46	<b>98.18</b>
126	Albuquerque, NM	103.60	102.57	99.36	97.51	<b>98.07</b>
127	Mobile, AL	92.43	88.23	78.79	112.30	<b>97.48</b>
128	Edison-New Brunswick, NJ*	109.41	125.05	69.02	137.91	<b>96.77</b>
129	Gary, IN*	94.53	107.73	82.31	106.33	<b>96.70</b>
130	Syracuse, NY	94.75	100.93	122.57	69.91	<b>96.65</b>
131	Binghamton, NY	89.70	88.92	102.07	69.84	<b>95.97</b>
132	Pittsburgh, PA	96.16	115.14	107.78	119.33	<b>95.45</b>
133	Albany-Schenectady-Troy, NY	95.40	105.96	108.19	86.04	<b>95.12</b>
134	Topeka, KS	88.98	83.12	102.18	71.38	<b>94.82</b>
135	Hagerstown-Martinsburg,*-WV	84.10	74.10	112.54	78.51	<b>94.13</b>
136	Roanoke, VA	90.65	85.88	83.67	93.21	<b>93.77</b>
137	Hartford-West Hartford-East Hartford, CT	100.12	113.10	119.54	72.59	<b>93.50</b>
138	Columbus, OH	101.58	112.24	95.56	112.19	<b>93.00</b>
139	Fresno, CA	101.75	126.18	81.45	82.42	<b>92.24</b>
140	Wichita, KS	95.63	107.27	88.57	83.65	<b>91.74</b>
141	Evansville, IN-KY	91.57	92.59	86.07	84.34	<b>91.67</b>
142	Visalia-Porterville, CA	91.94	106.37	79.64	83.98	<b>91.55</b>
143	Montgomery, AL	90.01	85.97	98.71	80.50	<b>91.20</b>

Rank	Metro area	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
144	Boise City-Nampa, ID	95.80	110.45	75.15	91.88	<b>91.06</b>
145	Deltona-Daytona Beach-Ormond Beach, FL	91.35	88.02	66.48	116.35	<b>89.68</b>
146	Myrtle Beach-North Myrtle Beach-Conway, SC	83.43	54.95	104.88	95.40	<b>88.70</b>
147	Minneapolis-St. Paul-Bloomington, MN-WI	105.92	110.34	111.41	108.60	<b>88.69</b>
148	Lakeland-Winter Haven, FL	87.51	54.24	95.32	128.15	<b>87.64</b>
149	Gulfport-Biloxi, MS	86.03	69.80	80.53	97.52	<b>87.61</b>
150	Fort Wayne, IN	92.42	93.70	89.90	73.85	<b>86.67</b>
151	Tulsa, OK	90.54	92.40	93.54	103.35	<b>86.65</b>
152	Dallas-Plano-Irving, TX*	111.46	105.90	94.21	129.74	<b>86.15</b>
153	Cleveland-Elyria-Mentor, OH	105.11	123.72	95.54	84.96	<b>85.62</b>
154	Utica-Rome, NY	90.87	83.53	98.35	61.91	<b>84.71</b>
155	Raleigh-Cary, NC	96.99	87.30	109.43	88.16	<b>84.25</b>
156	Orlando-Kissimmee-Sanford, FL	102.40	85.79	89.29	129.14	<b>83.97</b>
157	Springfield, MO	89.10	89.25	75.99	91.87	<b>83.96</b>
158	Indianapolis-Carmel, IN	98.11	99.65	98.42	102.31	<b>83.89</b>
159	McAllen-Edinburg-Mission, TX	94.43	76.78	90.99	104.60	<b>83.89</b>
160	Killeen-Temple-Fort Hood, TX	89.16	79.86	78.17	94.80	<b>83.12</b>
161	Louisville/Jefferson County, KY-IN	98.44	89.48	93.12	102.87	<b>82.92</b>
162	Oklahoma City, OK	94.64	96.26	89.86	100.38	<b>82.07</b>
163	St. Louis, MO-IL	97.68	108.29	93.86	113.80	<b>82.06</b>
164	Bakersfield-Delano, CA	101.29	114.13	76.82	73.14	<b>81.78</b>
165	Jacksonville, FL	96.81	82.50	90.17	111.76	<b>80.85</b>
166	Cincinnati-Middletown, OH-KY-IN	98.75	107.80	98.95	93.67	<b>80.75</b>
167	Port St. Lucie, FL	92.74	77.05	62.73	106.43	<b>80.75</b>
168	Macon, GA	84.72	71.90	86.32	74.47	<b>79.92</b>
169	Poughkeepsie-Newburgh-Middletown, NY	89.38	95.38	97.49	70.30	<b>79.51</b>
170	Grand Rapids-Wyoming, MI	91.39	91.78	99.15	74.75	<b>79.18</b>
171	Tucson, AZ	100.79	90.96	78.71	94.72	<b>78.92</b>
172	Fort Worth-Arlington, TX*	103.71	100.89	72.55	117.21	<b>78.56</b>
173	Phoenix-Mesa-Glendale, AZ	111.60	102.36	96.37	111.33	<b>78.32</b>
174	Holland-Grand Haven, MI	86.45	81.52	78.64	71.71	<b>78.17</b>
175	Youngstown-Warren-Boardman, OH-PA	87.36	100.76	74.10	81.52	<b>78.08</b>
176	Huntsville, AL	86.18	58.29	89.43	99.31	<b>78.02</b>
177	Palm Bay-Melbourne-Titusville, FL	96.94	79.64	60.02	105.42	<b>77.91</b>
178	Kansas City, MO-KS	96.84	109.49	80.45	103.52	<b>77.60</b>
179	San Antonio-New Braunfels, TX	100.67	93.56	95.15	102.43	<b>77.37</b>
180	Wilmington, NC	85.89	73.12	83.92	84.13	<b>77.27</b>
181	Pensacola-Ferry Pass-Brent, FL	88.54	81.12	75.12	88.65	<b>76.84</b>
182	Houston-Sugar Land-Baytown, TX	108.3	102.66	92.56	129.43	<b>76.74</b>
183	Asheville, NC	80.71	64.12	97.61	88.53	<b>76.52</b>
184	Richmond, VA	96.36	78.08	101.95	92.83	<b>76.41</b>
185	Little Rock-North Little Rock-Conway, AR	88.00	75.36	93.55	90.35	<b>76.08</b>
186	Naples-Marco Island, FL	91.57	81.95	55.19	90.69	<b>75.23</b>
187	Brownsville-Harlingen, TX	90.92	77.74	51.43	105.96	<b>74.69</b>
188	Ocala, FL	80.80	41.30	105.49	91.78	<b>74.67</b>
189	Rochester, NY	96.12	103.86	96.77	62.00	<b>74.50</b>
190	Spartanburg, SC	81.26	68.26	91.26	72.48	<b>74.00</b>
191	Durham-Chapel Hill, NC	91.59	74.84	80.27	84.98	<b>73.84</b>
192	Birmingham-Hoover, AL	86.67	67.88	99.52	105.21	<b>73.55</b>
193	Longview, TX	81.66	71.62	81.06	68.46	<b>73.06</b>
194	Shreveport-Bossier City, LA	87.79	76.94	72.39	84.53	<b>72.63</b>
195	Jackson, MS	87.35	64.41	105.46	73.8	<b>72.30</b>
196	Memphis, TN-MS-AR	96.6	77.76	94.23	90.62	<b>70.77</b>

Rank	Metro area	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
197	Charlotte-Gastonia-Rock Hill, NC-SC	94.55	84.71	103.05	86.93	<b>70.45</b>
198	Kalamazoo-Portage, MI	85.55	75.00	85.58	64.97	<b>70.32</b>
199	Knoxville, TN	88.10	60.62	100.77	82.53	<b>68.22</b>
200	Columbia, SC	89.63	69.14	108.38	66.63	<b>67.45</b>
201	Warren-Troy-Farmington Hills, MI*	97.88	110.33	70.54	96.17	<b>67.03</b>
202	Fayetteville-Springdale-Rogers, AR-MO	84.55	67.95	80.67	81.81	<b>66.26</b>
203	Fayetteville, NC	91.13	71.69	72.57	71.77	<b>66.02</b>
204	Green Bay, WI	89.90	90.49	66.77	53.34	<b>65.35</b>
205	Fort Smith, AR-OK	80.74	56.78	75.30	86.02	<b>64.84</b>
206	Lynchburg, VA	81.51	57.07	76.38	77.42	<b>63.97</b>
207	Chattanooga, TN-GA	86.14	61.15	94.27	72.90	<b>63.63</b>
208	Greensboro-High Point, NC	88.22	80.57	84.94	70.70	<b>63.50</b>
209	Winston-Salem, NC	86.43	68.62	87.42	68.47	<b>63.44</b>
210	Florence, SC	81.22	51.13	87.85	61.44	<b>61.06</b>
211	Lake Havasu City-Kingman, AZ	85.24	55.15	73.04	65.97	<b>60.13</b>
212	Kingsport-Bristol-Bristol, TN-VA	78.73	40.53	89.67	82.87	<b>60.00</b>
213	Augusta-Richmond County, GA-SC	85.25	60.69	88.47	73.85	<b>59.18</b>
214	Greenville-Mauldin-Easley, SC	86.69	72.89	81.15	71.40	<b>58.98</b>
215	Riverside-San Bernardino-Ontario, CA	103.72	111.18	77.03	80.33	<b>56.25</b>
216	Baton Rouge, LA	91.27	72.03	69.74	80.40	<b>55.60</b>
217	Nashville-Davidson-Murfreesboro-Franklin, TN	91.54	63.92	96.17	77.00	<b>51.74</b>
218	Prescott, AZ	82.33	53.19	58.15	69.96	<b>48.96</b>
219	Clarksville, TN-KY	84.48	39.67	74.47	60.83	<b>41.49</b>
220	Atlanta-Sandy Springs-Marietta, GA	97.80	85.47	89.89	75.92	<b>40.99</b>
221	Hickory-Lenoir-Morganton, NC	78.64	40.46	67.00	56.95	<b>24.86</b>

## Appendix B: County-level information

### County-level findings

Table B1 below shows Sprawl Index scores for all metropolitan counties. As discussed on page 10 of this report, this research shows that people in high-scoring metro areas have more transportation options than people in lower-scoring metro areas. In addition to conducting this analysis at the metro-area level, the researchers also examined this question at the county level, where the findings and their implications for everyday life are even more compelling.

High-scoring counties have lower rates of car ownership. For every 10 percent increase in an index score, car ownership decreases by 3.8 percent. High-scoring counties have higher rates of walking. For every 10 percent increase in an index score, the proportion of people who choose to walk as a mode of transportation increases by 6.6 percent. More people in high-scoring counties ride public transit. For every 10 percent increase in an index score, the proportion of transit users in the county increases by 24 percent. People in high-scoring counties spend less time driving. For every 10 percent increase in an index score at the county level, people spend on average 3.5 percent less time driving.

Data were not available for a limited number of counties. Factors are provided where available.



TABLE B1  
 County-level Sprawl Index Scores, 2014

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Blount County	AL	90.36	37.85	74.28	60.14	56.60
Calhoun County	AL	91.58	86.70	117.70	104.38	100.11
Chilton County	AL	89.98	52.55	81.61	62.37	64.14
Colbert County	AL	95.11	104.27	76.99	124.68	100.33
Elmore County	AL	91.59	60.63	86.59	85.71	76.15
Etowah County	AL	93.78	91.28	116.86	93.10	98.43
Houston County	AL	94.83	102.37	98.64	88.97	95.20
Jefferson County	AL	99.01	110.72	122.44	126.81	118.64
Lauderdale County	AL	94.46	84.43	105.63	88.50	91.48
Lawrence County	AL	89.38	51.74	86.98	66.67	66.75
Lee County	AL	96.48	87.90	104.17	84.55	91.50
Limestone County	AL	91.62	58.45	89.78	82.64	75.51
Madison County	AL	97.61	98.59	103.31	114.82	104.53
Mobile County	AL	99.06	108.17	93.94	113.78	104.72
Montgomery County	AL	102.14	120.67	118.34	105.98	114.89
Morgan County	AL	96.47	95.35	116.51	101.04	102.96
Russell County	AL	94.83	90.91	78.65	93.54	86.71
St. Clair County	AL	91.04	55.96	81.95	84.47	72.65
Shelby County	AL	94.43	91.33	88.20	92.91	89.53
Tuscaloosa County	AL	96.71	101.44	136.82	110.56	114.39
Walker County	AL	90.60	65.74	86.66	92.50	79.62
Coconino County	AZ	95.58	105.89	159.70	80.11	113.04
Maricopa County	AZ	110.50	118.07	118.48	118.04	120.56
Mohave County	AZ	96.20	90.76	97.35	95.37	93.58
Pima County	AZ	102.91	109.55	129.25	101.54	113.66
Pinal County	AZ	96.42	74.63	93.08	100.74	88.90
Yavapai County	AZ	96.00	89.71	88.28	86.40	87.49
Yuma County	AZ	99.68	105.56	142.91	107.38	117.54
Benton County	AR	95.22	95.05	104.81	89.33	95.07
Craighead County	AR	95.83	97.46	113.68	76.68	94.83
Crawford County	AR	92.25	90.19	82.88	80.03	82.74
Crittenden County	AR	96.93	115.43	79.24	89.18	93.93
Faulkner County	AR	95.11	92.10	83.67	74.78	82.83
Garland County	AR	92.69	89.51	116.53	103.18	100.60
Grant County	AR	89.11	79.34	77.98	60.72	70.67
Jefferson County	AR	94.66	97.82	96.55	113.66	100.85
Lincoln County	AR	88.97	51.59	72.47	62.71	60.74
Lonoke County	AR	91.76	79.64	91.84	75.65	80.69
Madison County	AR	88.44	61.16	73.67	72.44	67.05
Miller County	AR	97.29	106.83	82.03	115.58	100.54
Poinsett County	AR	89.31	105.78	77.99	71.03	82.34
Pulaski County	AR	100.95	111.48	116.72	127.01	117.74

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Saline County	AR	92.78	80.99	106.43	75.80	86.10
Sebastian County	AR	97.44	103.71	93.42	108.24	100.89
Washington County	AR	98.58	104.46	109.89	91.83	101.50
Alameda County	CA	137.65	143.40	115.28	151.09	146.57
Butte County	CA	99.20	121.87	106.28	91.90	106.08
Contra Costa County	CA	112.02	128.70	100.81	121.28	119.84
El Dorado County	CA	96.18	88.17	84.58	77.80	83.17
Fresno County	CA	103.35	127.85	104.03	94.25	109.31
Imperial County	CA	99.38	132.78	99.61	82.71	104.58
Kern County	CA	102.91	121.33	99.62	92.21	105.08
Kings County	CA	100.77	115.21	108.98	90.98	105.04
Los Angeles County	CA	152.55	145.20	121.62	141.02	150.67
Madera County	CA	96.68	110.34	104.67	69.69	94.12
Marin County	CA	109.25	141.52	96.85	111.15	118.57
Merced County	CA	100.54	122.04	112.80	85.94	106.74
Monterey County	CA	109.05	122.36	110.26	101.72	113.71
Napa County	CA	102.69	135.45	131.01	110.28	125.09
Orange County	CA	134.15	142.55	95.13	144.21	136.66
Placer County	CA	101.97	116.93	90.93	98.05	102.49
Riverside County	CA	105.36	117.55	108.49	98.38	109.41
Sacramento County	CA	115.28	128.54	135.70	129.68	134.50
San Benito County	CA	103.10	115.79	78.56	105.10	100.81
San Bernardino County	CA	106.82	122.13	95.87	92.42	105.45
San Diego County	CA	118.35	129.64	121.82	116.14	127.15
San Francisco County	CA	250.84	153.79	258.47	215.72	251.27
San Joaquin County	CA	106.50	132.92	104.79	118.62	119.85
San Luis Obispo County	CA	97.52	124.79	111.43	102.74	111.53
San Mateo County	CA	130.72	144.53	93.82	131.35	131.72
Santa Barbara County	CA	116.62	139.70	112.02	116.13	126.69
Santa Clara County	CA	131.02	139.68	107.58	132.85	135.11
Santa Cruz County	CA	104.20	138.71	114.16	107.34	120.35
Shasta County	CA	96.00	110.79	114.25	88.66	103.07
Solano County	CA	106.86	130.60	103.94	114.95	117.80
Sonoma County	CA	100.37	131.12	101.87	97.67	109.81
Stanislaus County	CA	107.86	135.71	94.54	107.84	114.52
Sutter County	CA	98.92	119.22	126.45	82.89	108.68
Tulare County	CA	100.44	117.82	102.53	93.41	104.49
Ventura County	CA	110.13	131.48	99.80	114.98	117.82
Yolo County	CA	107.3	126.92	98.50	110.10	113.53
Yuba County	CA	97.57	95.43	82.17	89.37	88.80
Adams County	CO	106.63	122.25	82.26	122.37	110.59
Arapahoe County	CO	114.44	124.30	102.43	134.20	123.81
Boulder County	CO	107.71	122.00	111.33	115.52	117.87
Broomfield County	CO	105.87	113.80	83.11	129.14	110.09
Clear Creek County	CO	90.58	67.38	-	117.81	-

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Denver County	CO	129.34	137.67	174.54	181.54	170.48
Douglas County	CO	102.77	97.61	92.17	97.77	96.94
Elbert County	CO	88.27	44.14	72.69	50.26	54.30
El Paso County	CO	104.62	119.18	95.89	123.96	113.79
Jefferson County	CO	106.94	125.25	90.89	112.99	111.40
Larimer County	CO	100.68	117.76	111.95	103.05	110.57
Mesa County	CO	101.69	113.73	124.35	107.33	114.88
Pueblo County	CO	100.43	112.15	112.96	121.67	114.91
Teller County	CO	94.68	82.25	81.88	108.04	89.53
Weld County	CO	97.29	114.35	111.18	95.06	105.65
Fairfield County	CT	110.88	131.47	125.41	101.99	122.04
Hartford County	CT	107.85	126.56	138.02	92.46	120.50
Middlesex County	CT	95.74	116.02	98.90	81.98	97.68
New Haven County	CT	107.16	128.91	137.15	102.88	124.04
New London County	CT	96.76	106.51	131.52	85.24	106.33
Tolland County	CT	96.05	89.61	97.77	63.29	83.17
Kent County	DE	94.72	97.37	102.26	89.82	95.00
New Castle County	DE	108.44	126.15	111.75	121.39	121.40
District of Columbia	DC	193.52	138.05	219.97	185.15	206.37
Alachua County	FL	100.66	110.17	115.43	107.74	110.74
Baker County	FL	89.21	63.21	89.68	61.02	69.39
Bay County	FL	99.21	105.55	93.70	115.16	104.31
Brevard County	FL	102.39	103.2	86.39	110.4	100.75
Broward County	FL	120.61	133.24	95.43	148.86	131.01
Charlotte County	FL	94.98	97.96	103.74	114.83	103.64
Clay County	FL	97.16	92.55	98.14	95.40	94.71
Collier County	FL	99.42	104.70	83.67	105.06	97.74
Duval County	FL	106.31	113.10	118.71	125.06	119.96
Escambia County	FL	99.94	109.08	100.14	116.67	108.16
Flagler County	FL	96.82	82.32	79.96	99.05	86.78
Gadsden County	FL	90.27	57.12	83.72	95.13	76.69
Hernando County	FL	96.20	80.29	108.25	102.08	95.84
Hillsborough County	FL	106.16	115.63	127.60	128.18	124.51
Indian River County	FL	97.10	101.81	112.72	132.01	113.79
Lake County	FL	95.53	87.32	121.33	116.84	106.64
Lee County	FL	98.87	104.60	119.36	121.83	114.11
Leon County	FL	102.05	106.83	149.96	99.11	118.31
Manatee County	FL	102.17	114.33	112.33	129.01	118.27
Marion County	FL	93.51	83.3	140.38	98.85	105.07
Martin County	FL	98.62	110.16	106.69	113.84	109.26
Miami-Dade County	FL	137.38	132.85	131.33	156.48	149.93
Nassau County	FL	93.25	78.04	98.01	97.21	89.42
Okaloosa County	FL	100.20	113.18	109.67	105.87	109.14
Orange County	FL	108.01	110.76	118.48	124.47	119.5
Osceola County	FL	98.45	86.64	87.23	114.77	95.92

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Palm Beach County	FL	107.77	125.08	107.06	118.32	118.40
Pasco County	FL	99.18	100.48	84.02	117.84	100.48
Pinellas County	FL	114.66	132.11	93.74	163.76	132.94
Polk County	FL	96.76	90.29	115.86	120.94	107.53
St. Johns County	FL	97.43	86.85	85.06	106.86	92.48
St. Lucie County	FL	100.74	97.46	102.45	120.07	106.54
Santa Rosa County	FL	92.28	93.99	81.78	80.59	83.78
Sarasota County	FL	101.61	116.04	113.62	124.42	117.59
Seminole County	FL	105.12	116.39	81.81	121.13	107.72
Volusia County	FL	99.33	107.91	100.70	115.72	107.47
Wakulla County	FL	89.66	45.54	78.68	79.41	66.29
Barrow County	GA	92.36	70.78	85.30	72.18	74.92
Bartow County	GA	90.76	77.69	86.60	80.47	79.63
Bibb County	GA	98.07	113.15	103.59	112.70	108.69
Bryan County	GA	89.84	61.04	81.95	71.54	69.79
Butts County	GA	91.10	82.26	87.09	67.51	77.24
Carroll County	GA	92.24	80.47	108.64	59.41	81.28
Catoosa County	GA	93.34	79.45	88.25	78.55	80.91
Chatham County	GA	99.64	117.03	126.17	126.88	122.03
Chattahoochee County	GA	97.14	100.48	70.87	98.62	89.61
Cherokee County	GA	97.06	94.58	80.91	83.44	86.10
Clarke County	GA	100.91	115.76	98.31	92.89	102.49
Clayton County	GA	106.35	106.15	84.62	98.10	98.49
Cobb County	GA	106.99	116.91	91.39	107.76	107.28
Columbia County	GA	96.83	95.43	80.24	72.04	82.48
Coweta County	GA	92.69	85.33	81.74	72.61	78.64
Dade County	GA	89.57	56.36	80.64	69.91	67.30
Dawson County	GA	89.94	63.53	86.08	69.43	71.24
DeKalb County	GA	111.99	120.73	96.18	100.65	109.34
Dougherty County	GA	97.65	109.27	95.60	107.90	103.30
Douglas County	GA	95.83	89.53	103.33	70.96	87.25
Effingham County	GA	91.03	60.74	84.13	75.90	72.13
Fayette County	GA	93.23	94.36	100.88	78.34	89.51
Floyd County	GA	92.92	90.67	103.37	89.35	92.52
Forsyth County	GA	96.31	91.93	97.11	68.48	85.41
Fulton County	GA	107.63	122.60	146.48	108.57	126.94
Glynn County	GA	92.87	102.00	95.73	111.38	100.62
Gwinnett County	GA	106.36	111.94	88.70	89.68	98.95
Hall County	GA	94.45	89.10	139.3	87.59	103.3
Haralson County	GA	90.08	73.41	78.3	82.15	75.97
Harris County	GA	89.51	34.28	71.89	62.25	55.12
Henry County	GA	95.26	81.75	86.07	74.28	80.21
Houston County	GA	99.67	97.7	89.66	91.56	93.23
Jones County	GA	90.26	80.32	81.59	59.82	72.19
Lamar County	GA	90.01	68.75	79.24	69.42	70.75

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Lee County	GA	90.74	63.81	80.13	67.38	69.06
Liberty County	GA	96.95	85.66	100.72	88.85	91.21
Lowndes County	GA	95.78	102.08	106.87	91.72	98.88
McDuffie County	GA	89.94	68.85	78.49	72.18	71.40
Madison County	GA	89.81	53.09	73.41	61.79	61.49
Meriwether County	GA	89.17	52.92	79.40	65.55	64.31
Monroe County	GA	89.72	49.47	77.43	66.44	63.06
Murray County	GA	90.63	57.18	84.75	68.86	68.85
Muscogee County	GA	103.92	119.01	133.98	108.41	120.64
Newton County	GA	94.48	61.24	123.65	77.77	86.46
Oconee County	GA	90.84	85.05	74.86	69.72	74.87
Oglethorpe County	GA	88.61	22.76	70.81	45.28	45.49
Paulding County	GA	93.49	68.19	83.49	74.96	74.76
Pickens County	GA	90.19	68.61	81.67	61.08	68.89
Richmond County	GA	99.09	111.4	124.13	104.91	112.49
Rockdale County	GA	95.92	93.91	82.64	86.78	87.13
Spalding County	GA	93.04	83.74	102.12	85.73	88.83
Terrell County	GA	88.84	78.95	78.22	74.53	74.90
Walker County	GA	91.84	77.95	88.88	75.62	79.24
Walton County	GA	91.96	71.8	87.33	54.96	70.32
Whitfield County	GA	94.64	87.29	115.72	88.51	95.63
Worth County	GA	88.76	52.25	84.69	68.22	66.48
Ada County	ID	103.58	124.60	102.02	108.68	112.28
Bannock County	ID	101.28	123.06	128.18	124.04	124.18
Bonneville County	ID	98.84	118.52	99.62	109.57	108.39
Canyon County	ID	98.64	112.28	90.60	106.10	102.41
Gem County	ID	92.23	83.41	76.44	113.29	89.06
Jefferson County	ID	89.10	69.82	83.29	88.98	78.26
Kootenai County	ID	97.55	113.96	122.32	101.44	111.14
Nez Perce County	ID	99.34	116.89	92.82	113.12	107.00
Alexander County	IL	89.05	-	70.12	121.33	-
Bond County	IL	91.76	87.79	129.58	109.49	105.89
Boone County	IL	96.36	95.37	81.63	85.74	87.08
Champaign County	IL	109.28	127.58	141.54	107.66	127.19
Clinton County	IL	89.17	87.01	82.04	94.50	85.06
Cook County	IL	151.40	141.34	155.66	170.12	169.04
DeKalb County	IL	99.94	111.36	84.27	93.39	96.51
DuPage County	IL	111.41	135.96	88.41	126.48	119.67
Ford County	IL	90.00	136.48	78.31	83.16	96.19
Grundy County	IL	92.99	101.16	86.63	110.27	97.17
Henry County	IL	90.62	116.08	84.59	81.22	91.31
Jersey County	IL	89.46	78.12	85.72	85.66	80.72
Kane County	IL	108.34	120.57	90.86	109.06	109.11
Kankakee County	IL	95.65	119.77	105.98	97.47	105.96
Kendall County	IL	94.30	90.54	82.01	95.42	88.08

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Lake County	IL	103.98	121.02	97.08	118.15	112.71
McHenry County	IL	98.53	105.24	83.23	95.57	94.49
McLean County	IL	104.94	120.63	110.85	102.41	112.27
Macon County	IL	95.56	114.15	112.75	97.28	106.24
Macoupin County	IL	92.20	111.71	78.10	115.16	99.10
Madison County	IL	96.83	119.34	103.17	114.28	110.62
Marshall County	IL	89.56	95.57	68.03	113.51	89.47
Menard County	IL	88.81	90.20	83.80	84.09	83.22
Mercer County	IL	88.81	97.30	71.15	95.19	84.98
Monroe County	IL	89.84	90.63	77.62	91.70	84.14
Peoria County	IL	100.95	120.84	143.87	112.87	124.81
Piatt County	IL	88.83	107.89	81.61	83.39	87.90
Rock Island County	IL	101.09	128.28	104.97	116.10	115.93
St. Clair County	IL	96.60	114.62	90.19	113.08	104.58
Sangamon County	IL	97.54	115.25	157.52	108.44	124.88
Tazewell County	IL	96.01	107.55	85.37	110.59	99.85
Vermilion County	IL	91.84	99.84	112.75	117.88	107.05
Will County	IL	101.35	114.01	92.55	100.58	102.68
Winnebago County	IL	100.8	123.79	117.91	120.01	119.75
Woodford County	IL	89.23	111.21	85.84	94.01	93.77
Allen County	IN	100.69	113.30	110.06	100.51	107.76
Bartholomew County	IN	96.38	101.42	108.25	114.65	106.54
Boone County	IN	94.39	103.90	79.83	90.61	90.12
Brown County	IN	92.73	36.11	76.30	63.42	58.47
Carroll County	IN	89.42	86.26	86.24	85.98	83.54
Clark County	IN	97.57	113.96	86.06	107.2	101.51
Clay County	IN	91.51	101.15	76.58	109.38	93.25
Dearborn County	IN	91.96	82.67	89.51	96.29	87.50
Delaware County	IN	103.15	118.8	91.63	109.13	107.18
Elkhart County	IN	94.95	104.81	89.66	114.82	101.34
Floyd County	IN	101.1	121.02	86.15	99.15	102.35
Franklin County	IN	90.85	54.82	78.33	95.48	74.56
Gibson County	IN	92.92	109.39	77.46	124.54	101.36
Greene County	IN	90.44	93.15	82.02	88.86	85.62
Hamilton County	IN	99.85	104.30	81.69	94.95	93.93
Hancock County	IN	93.31	95.10	82.93	84.80	86.14
Harrison County	IN	91.11	56.70	85.50	61.31	66.71
Hendricks County	IN	95.72	91.32	79.42	89.16	85.98
Howard County	IN	98.37	114.28	95.94	109.61	105.75
Jasper County	IN	89.52	90.18	73.22	51.82	69.90
Johnson County	IN	98.31	116.23	81.08	102.48	99.40
Lake County	IN	102.28	124.13	124.40	126.26	124.35
LaPorte County	IN	95.04	104.81	108.11	96.11	101.29
Madison County	IN	96.40	113.83	107.92	112.32	109.63
Marion County	IN	108.62	123.19	125.02	127.04	126.50

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Monroe County	IN	104.36	112.59	163.85	98.52	125.06
Morgan County	IN	94.61	85.99	85.60	99.46	89.15
Ohio County	IN	91.06	97.13	78.90	99.39	89.41
Owen County	IN	91.06	35.65	78.62	99.32	69.87
Porter County	IN	96.95	108.40	88.88	87.95	94.37
Posey County	IN	92.19	75.20	81.37	81.92	78.10
Putnam County	IN	91.01	96.03	82.78	73.04	81.95
St. Joseph County	IN	100.67	117.65	124.80	131.20	123.48
Shelby County	IN	98.24	116.00	82.26	97.84	98.21
Sullivan County	IN	89.97	94.33	85.42	79.03	83.81
Tippecanoe County	IN	104.58	112.14	101.52	96.00	104.5
Tipton County	IN	89.55	85.73	80.10	62.84	74.17
Vanderburgh County	IN	101.79	119.70	120.43	116.35	118.41
Vermillion County	IN	103.23	90.48	79.32	155.06	108.87
Vigo County	IN	96.90	111.19	114.75	128.65	116.27
Warrick County	IN	99.66	102.11	81.65	82.32	89.18
Washington County	IN	94.15	67.81	80.30	87.16	77.70
Wells County	IN	89.98	90.10	83.04	70.18	78.93
Whitley County	IN	90.31	89.14	84.12	56.30	74.69
Benton County	IA	88.87	108.97	90.60	97.81	95.65
Black Hawk County	IA	99.10	129.91	94.20	118.50	113.18
Bremer County	IA	89.00	112.79	82.24	77.70	87.91
Dallas County	IA	95.45	106.94	79.89	91.67	91.77
Dubuque County	IA	100.57	130.56	115.08	106.99	116.81
Harrison County	IA	89.16	113.13	76.21	76.79	85.87
Johnson County	IA	103.02	124.12	157.95	85.78	122.39
Jones County	IA	89.77	115.53	71.55	95.83	91.37
Linn County	IA	100.19	118.29	121.29	103.21	113.58
Madison County	IA	90.62	124.56	70.25	103.16	96.40
Mills County	IA	89.93	84.78	77.08	92.04	82.25
Polk County	IA	102.96	129.31	116.94	112.82	119.60
Pottawattamie County	IA	97.53	120.78	95.92	99.22	104.25
Scott County	IA	100.21	128.03	85.19	130.22	113.79
Story County	IA	96.60	115.01	125.73	97.63	111.05
Warren County	IA	93.98	105.61	82.31	83.56	89.09
Washington County	IA	90.00	104.89	78.56	86.53	87.36
Woodbury County	IA	97.33	125.17	117.13	122.41	119.60
Butler County	KS	95.93	116.69	81.59	76.86	90.86
Douglas County	KS	100.21	127.37	99.68	98.22	108.05
Franklin County	KS	89.92	101.1	85.19	101.84	93.07
Geary County	KS	96.96	-	84.76	128.69	-
Harvey County	KS	90.56	115.17	75.64	73.36	85.7
Jackson County	KS	88.64	77.77	79.63	44.65	65.47
Johnson County	KS	104.45	125.43	86.47	101.88	105.76
Leavenworth County	KS	95.13	99.39	87.24	93.72	92.25

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Miami County	KS	89.17	87.98	79.03	102.93	87.08
Osage County	KS	89.37	97.03	68.66	75.02	77.91
Pottawatomie County	KS	89.00	-	81.55	95.3	-
Riley County	KS	98.61	-	93.38	105.56	-
Sedgwick County	KS	102.93	118.91	117.57	112.30	116.34
Shawnee County	KS	98.59	111.59	125.79	108.80	114.14
Sumner County	KS	88.32	98.41	84.72	92.96	88.76
Wyandotte County	KS	101.91	113.88	103.10	127.92	114.79
Boone County	KY	99.70	101.93	95.37	84.83	94.26
Bourbon County	KY	97.22	93.99	80.83	92.96	88.94
Boyd County	KY	94.45	98.55	126.68	104.55	107.65
Bullitt County	KY	95.94	83.26	81.17	86.62	83.25
Campbell County	KY	102.73	124.27	85.29	109.72	106.95
Christian County	KY	97.34	94.37	87.11	104.06	94.59
Clark County	KY	93.45	102.00	79.27	98.84	91.64
Daviess County	KY	99.18	109.86	121.56	106.12	111.6
Fayette County	KY	110.05	128.66	134.26	116.37	128.22
Grant County	KY	90.59	52.57	80.01	76.95	68.44
Greenup County	KY	94.52	87.52	78.55	112.22	91.41
Hardin County	KY	95.48	90.76	131.65	93.87	103.72
Henderson County	KY	99.09	105.95	76.39	103.24	95.15
Henry County	KY	89.37	76.60	77.64	85.73	77.68
Jefferson County	KY	109.11	119.34	118.64	123.85	122.42
Jessamine County	KY	94.35	102.50	84.93	91.02	91.41
Kenton County	KY	104.06	117.51	88.49	119.32	109.28
Larue County	KY	89.43	63.30	84.72	65.93	69.47
Meade County	KY	93.39	46.63	84.90	78.41	69.46
Nelson County	KY	91.95	66.86	78.24	89.54	76.81
Oldham County	KY	94.48	74.42	80.90	81.70	78.36
Scott County	KY	95.24	97.32	80.79	97.28	90.72
Shelby County	KY	95.85	91.76	112.29	86.78	95.79
Spencer County	KY	91.13	31.97	75.02	76.42	60.36
Warren County	KY	101.86	102.72	124.59	100.77	109.46
Woodford County	KY	93.43	105.61	79.51	90.95	90.36
Ascension Parish	LA	92.32	90.20	93.22	86.92	88.20
Bossier Parish	LA	95.13	94.84	83.39	90.35	88.54
Caddo Parish	LA	98.39	108.22	98.44	110.2	104.82
Calcasieu Parish	LA	95.68	105.58	123.81	94.14	106.07
De Soto Parish	LA	89.07	61.88	140.34	77.66	90.19
East Baton Rouge Parish	LA	103.91	113.92	97.85	114.04	109.39
Grant Parish	LA	88.67	34.23	66.17	64.67	53.79
Iberville Parish	LA	93.41	93.69	84.62	92.02	88.54
Jefferson Parish	LA	113.17	132.12	84.47	148.19	124.62
Lafayette Parish	LA	99.95	114.45	110.96	106.53	110.08
Lafourche Parish	LA	95.04	99.35	143.72	98.05	111.43



County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Livingston Parish	LA	93.18	62.05	84.88	75.38	73.3
Orleans Parish	LA	121.91	137.94	153.63	214.43	172.01
Ouachita Parish	LA	95.23	94.61	111.60	108.52	103.15
Plaquemines Parish	LA	90.01	91.73	81.72	104.87	90.00
Pointe Coupee Parish	LA	91.55	71.09	-	98.29	-
Rapides Parish	LA	93.23	98.11	100.74	101.17	97.87
St. Bernard Parish	LA	100.03	121.48	80.94	130.72	110.48
St. Charles Parish	LA	93.42	97.97	81.23	108.41	94.01
St. John the Baptist Parish	LA	97.39	101.63	88.78	109.44	99.13
St. Martin Parish	LA	90.60	70.42	94.32	86.13	81.51
St. Tammany Parish	LA	95.66	94.37	97.06	109.33	98.87
Terrebonne Parish	LA	96.62	103.72	99.01	107.65	102.21
Union Parish	LA	89.87	71.18	70.25	78.43	71.48
West Baton Rouge Parish	LA	92.80	93.51	81.41	106.35	91.81
Androscoggin County	ME	94.76	103.78	136.26	91.39	108.27
Cumberland County	ME	98.75	114.38	138.89	90.26	113.36
Penobscot County	ME	92.40	98.83	131.29	77.32	99.95
Sagadahoc County	ME	91.37	75.85	95.72	87.89	84.47
York County	ME	92.68	89.80	93.72	78.52	85.70
Allegany County	MD	94.56	117.81	106.32	116.79	111.21
Anne Arundel County	MD	105.04	115.29	100.72	118.53	112.50
Baltimore County	MD	109.47	130.43	100.71	118.19	118.58
Calvert County	MD	95.09	73.94	82.27	107.81	87.08
Carroll County	MD	95.33	95.07	100.64	94.25	95.35
Cecil County	MD	93.63	88.61	89.42	100.50	91.20
Charles County	MD	97.94	88.84	83.65	107.96	93.17
Frederick County	MD	97.32	108.73	104.01	100.82	103.44
Harford County	MD	100.16	109.82	96.6	99.78	102.01
Howard County	MD	104.93	128.35	97.95	107.27	112.17
Montgomery County	MD	117.80	129.94	123.29	116.70	127.72
Prince George's County	MD	112.70	124.13	90.27	125.16	116.51
Queen Anne's County	MD	91.01	67.98	77.17	76.61	72.44
Somerset County	MD	91.18	73.80	82.53	110.34	86.69
Washington County	MD	97.32	110.91	127.59	95.52	109.90
Wicomico County	MD	96.00	106.22	124.92	114.15	113.05
Baltimore city	MD	163.61	143.97	183.84	196.44	190.94
Barnstable County	MA	-	-	-	119.45	-
Berkshire County	MA	-	-	-	95.18	-
Bristol County	MA	-	33.82	-	120.97	-
Essex County	MA	-	36.98	-	122.20	-
Franklin County	MA	-	-	-	83.51	-
Hampden County	MA	-	32.99	-	112.97	-
Hampshire County	MA	-	-	-	85.50	-
Middlesex County	MA	-	38.77	-	122.51	-
Norfolk County	MA	-	34.74	-	117.59	-

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Plymouth County	MA	-	-	-	104.20	-
Suffolk County	MA	-	53.29	-	201.99	-
Worcester County	MA	-	30.90	-	98.17	-
Barry County	MI	90.18	57.23	87.88	75.47	71.80
Bay County	MI	96.11	112.33	108.40	104.10	106.61
Berrien County	MI	94.04	108.26	90.63	99.01	97.45
Calhoun County	MI	95.50	103.98	103.91	94.09	99.21
Cass County	MI	89.45	65.94	94.70	73.69	75.91
Clinton County	MI	91.92	77.85	131.40	63.62	88.88
Eaton County	MI	94.44	101.46	85.64	72.87	85.60
Genesee County	MI	97.37	109.34	123.51	103.52	110.66
Ingham County	MI	109.11	118.48	141.89	104.33	123.32
Ionia County	MI	92.27	71.44	96.34	76.97	80.10
Jackson County	MI	94.83	98.29	137.01	86.66	105.30
Kalamazoo County	MI	97.50	106.35	113.21	90.33	102.33
Kent County	MI	99.67	119.56	128.07	96.76	113.92
Lapeer County	MI	92.22	70.09	131.99	63.03	86.52
Livingston County	MI	92.30	81.87	104.20	80.88	87.13
Macomb County	MI	107.83	131.48	92.09	106.26	111.9
Monroe County	MI	92.58	95.56	109.24	75.47	91.42
Muskegon County	MI	96.94	110.29	96.74	107.62	103.66
Newaygo County	MI	89.64	63.71	82.85	79.68	73.43
Oakland County	MI	103.79	122.43	99.39	107.48	110.46
Ottawa County	MI	96.62	104.73	106.96	84.83	97.83
Saginaw County	MI	96.26	111.36	121.05	101.28	109.46
St. Clair County	MI	95.48	93.49	115.33	87.56	97.42
Van Buren County	MI	90.64	78.99	85.30	71.88	76.88
Washtenaw County	MI	105.17	117.06	155.39	87.03	120.43
Wayne County	MI	112.50	126.50	136.09	148.34	139.00
Anoka County	MN	101.07	111.72	98.03	105.23	105.07
Benton County	MN	99.34	111.80	83.26	89.21	94.82
Blue Earth County	MN	97.06	-	81.38	83.73	-
Carlton County	MN	89.72	89.44	86.19	89.97	85.88
Carver County	MN	94.80	100.10	82.70	100.41	93.05
Chisago County	MN	91.23	72.57	80.16	79.33	75.77
Clay County	MN	101.35	118.95	84.41	81.24	95.56
Dakota County	MN	104.83	115.9	86.85	107.32	104.71
Dodge County	MN	90.15	114.35	78.13	95.81	93.19
Hennepin County	MN	114.74	127.82	151.96	129.69	139.24
Houston County	MN	89.84	94.39	70.75	100.51	85.94
Isanti County	MN	91.07	89.01	80.16	86.90	83.30
Nicollet County	MN	97.81	-	77.60	107.27	-
Olmsted County	MN	98.99	108.08	166.15	100.70	123.35
Polk County	MN	89.65	106.65	85.6	58.59	81.20
Ramsey County	MN	117.31	135.35	105.13	148.75	133.66

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
St. Louis County	MN	95.96	113.02	140.27	103.63	116.70
Scott County	MN	96.04	104.74	81.51	85.26	89.75
Sherburne County	MN	92.57	80.55	85.40	79.35	80.37
Stearns County	MN	95.49	112.29	109.13	96.54	104.25
Wabasha County	MN	89.66	101.77	80.16	119.28	97.11
Washington County	MN	100.91	108.44	82.51	109.35	100.38
Wright County	MN	92.03	88.12	85.17	74.14	80.87
Copiah County	MS	90.59	89.53	72.41	81.93	79.29
DeSoto County	MS	95.25	88.58	99.48	78.18	87.83
Forrest County	MS	95.34	105.53	96.31	100.75	99.35
George County	MS	90.76	69.74	77.91	92.68	78.23
Hancock County	MS	92.04	77.68	80.99	112.70	88.44
Harrison County	MS	97.88	105.23	107.35	113.32	107.51
Hinds County	MS	100.02	107.02	141.59	102.57	116.18
Jackson County	MS	95.32	88.99	120.77	104.57	103.05
Lamar County	MS	90.94	85.24	82.62	69.99	77.50
Madison County	MS	96.21	91.29	91.18	87.79	89.40
Marshall County	MS	89.58	45.70	77.07	80.95	66.29
Rankin County	MS	94.27	82.77	81.61	77.70	79.89
Simpson County	MS	89.83	72.44	81.01	94.49	80.34
Stone County	MS	90.38	88.05	70.63	94.96	82.31
Tate County	MS	92.63	63.13	71.62	95.88	75.76
Tunica County	MS	88.41	60.42	81.24	70.41	68.56
Andrew County	MO	88.73	86.17	72.60	76.11	75.86
Bates County	MO	89.22	111.73	80.53	106.69	96.26
Boone County	MO	98.98	107.90	126.76	103.07	111.60
Buchanan County	MO	101.70	120.56	95.28	141.17	118.55
Callaway County	MO	90.40	82.96	97.28	84.65	85.87
Cape Girardeau County	MO	95.78	-	114.42	102.52	-
Cass County	MO	94.15	94.94	79.62	83.45	84.89
Christian County	MO	91.93	89.25	81.10	90.63	85.12
Clay County	MO	97.62	113.96	88.28	98.64	99.52
Clinton County	MO	90.37	103.72	78.89	114.83	96.15
Cole County	MO	94.77	101.06	122.96	85.07	101.22
Crawford County	MO *(pt.)	89.11	-	71.96	88.13	-
Franklin County	MO	91.10	94.49	82.43	93.59	87.87
Greene County	MO	100.74	119.9	88.95	115.29	107.86
Jackson County	MO	105.14	126.53	136.74	127.96	130.44
Jasper County	MO	94.90	113.72	88.44	114.86	103.76
Jefferson County	MO	96.02	87.54	85.42	99.04	89.90
Lafayette County	MO	89.16	87.92	74.98	94.53	83.13
Lincoln County	MO	90.59	52.94	85.39	93.02	75.34
Moniteau County	MO	90.40	117.93	68.41	89.59	89.37
Newton County	MO	92.11	83.25	102.74	93.49	91.02
Platte County	MO	98.15	104.96	79.77	94.12	92.73

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Ray County	MO	89.65	108.59	73.35	65.04	79.98
St. Charles County	MO	104.37	118.40	86.54	121.39	109.70
St. Louis County	MO	107.75	126.19	95.35	120.59	115.76
Warren County	MO	90.25	65.09	88.50	88.94	78.76
Washington County	MO	89.88	65.15	71.89	94.61	75.21
Webster County	MO	89.70	58.65	78.35	95.58	75.45
St. Louis city	MO	126.98	137.55	194.29	185.95	177.33
Carbon County	MT	88.78	68.92	85.23	93.01	79.76
Cascade County	MT	97.85	123.74	127.17	118.61	121.28
Missoula County	MT	98.92	119.30	111.04	110.74	112.64
Yellowstone County	MT	103.87	120.17	119.97	115.07	118.66
Cass County	NE	89.10	86.96	86.25	95.22	86.59
Dakota County	NE	98.92	114.43	75.16	122.40	103.44
Douglas County	NE	110.08	132.45	125.37	138.38	133.58
Lancaster County	NE	109.75	133.02	115.33	121.45	125.13
Sarpy County	NE	101.37	112.49	87.29	118.08	106.08
Saunders County	NE	88.71	95.50	88.74	85.06	86.74
Seward County	NE	89.14	99.79	77.47	81.06	83.40
Washington County	NE	89.99	86.51	117.82	94.88	96.59
Clark County	NV	119.01	116.44	140.45	122.06	130.94
Washoe County	NV	103.05	110.72	131.45	103.68	115.45
Carson City	NV	104.88	133.53	80.10	118.62	111.73
Hillsborough County	NH	101.22	116.91	121.07	97.04	111.45
Rockingham County	NH	94.00	101.41	97.51	82.02	92.08
Strafford County	NH	95.77	105.80	88.23	82.45	91.23
Atlantic County	NJ	103.00	114.8	142.81	120.73	125.70
Bergen County	NJ	128.56	150.29	86.86	143.25	134.43
Burlington County	NJ	100.52	120.12	99.61	99.94	106.38
Camden County	NJ	115.67	137.68	105.55	141.06	131.58
Cape May County	NJ	97.81	117.44	101.22	145.73	119.65
Cumberland County	NJ	99.51	113.21	119.51	98.78	109.80
Essex County	NJ	161.02	146.99	128.46	148.71	158.50
Gloucester County	NJ	100.59	121.22	87.46	104.71	104.41
Hudson County	NJ	223.23	156.67	92.82	176.49	178.73
Hunterdon County	NJ	93.84	90.14	95.20	74.00	85.21
Mercer County	NJ	114.81	128.87	109.53	119.34	122.92
Middlesex County	NJ	118.29	135.37	114.47	132.03	131.64
Monmouth County	NJ	105.74	133.26	84.28	121.16	114.04
Morris County	NJ	103.00	125.29	87.76	100.05	105.09
Ocean County	NJ	105.44	110.28	91.35	129.32	111.5
Passaic County	NJ	143.82	148.45	101.63	135.66	140.93
Salem County	NJ	94.41	98.00	80.11	92.91	89.08
Somerset County	NJ	101.83	120.78	86.24	103.35	103.86
Sussex County	NJ	95.74	89.17	86.54	87.85	87.14
Union County	NJ	140.17	153.96	89.87	148.90	141.99

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Warren County	NJ	95.86	119.17	85.21	97.52	99.29
Bernalillo County	NM	110.26	122.46	113.45	131.01	124.38
Dona Ana County	NM	99.20	106.04	114.72	103.66	107.46
Sandoval County	NM	97.97	91.24	110.10	85.16	95.09
San Juan County	NM	93.52	88.26	135.96	78.81	98.91
Santa Fe County	NM	99.91	106.29	116.83	88.05	103.50
Valencia County	NM	94.94	85.92	108.47	76.38	89.17
Albany County	NY	107.10	128.39	135.96	104.63	124.04
Bronx County	NY	336.70	143.95	100.25	211.61	224.01
Broome County	NY	99.92	115.80	121.53	93.89	109.84
Chemung County	NY	98.96	117.49	130.79	99.06	114.63
Dutchess County	NY	97.07	110.29	128.55	81.19	105.40
Erie County	NY	109.71	131.45	111.78	93.59	114.70
Herkimer County	NY	96.91	100.82	82.72	80.37	87.62
Kings County	NY	355.50	142.16	199.99	225.25	265.20
Livingston County	NY	93.13	102.59	78.75	53.09	77.11
Madison County	NY	94.67	96.7	85.84	57.89	79.49
Monroe County	NY	106.45	123.67	121.06	93.28	114.04
Nassau County	NY	128.98	149.38	111.6	160.85	147.65
New York County	NY	654.01	144.57	400.25	230.33	425.15
Niagara County	NY	100.04	115.62	92.59	94.32	100.81
Oneida County	NY	101.65	107.32	112.12	84.48	101.76
Onondaga County	NY	104.46	122.19	142.75	96.45	120.80
Ontario County	NY	94.36	101.34	91.19	62.58	84.03
Orange County	NY	101.31	113.59	90.33	87.33	97.65
Orleans County	NY	94.19	97.46	78.22	53.47	75.78
Oswego County	NY	96.64	90.83	108.43	70.57	89.4
Putnam County	NY	94.19	95.77	83.82	88.92	88.21
Queens County	NY	266.34	147.42	91.93	224.01	204.16
Rensselaer County	NY	99.20	109.08	97.62	92.25	99.41
Richmond County	NY	175.08	131.67	78.94	179.98	152.34
Rockland County	NY	117.77	134.18	81.37	105.52	112.27
Saratoga County	NY	95.36	98.37	102.26	80.90	92.70
Schenectady County	NY	107.32	130.66	104.18	110.94	116.78
Schoharie County	NY	90.59	78.79	84.01	56.05	71.39
Suffolk County	NY	105.86	126.74	94.53	115.53	113.48
Tioga County	NY	94.68	75.76	82.48	64.79	74.00
Tompkins County	NY	102.44	95.84	144.53	72.43	104.82
Ulster County	NY	95.12	96.80	124.18	81.42	99.22
Warren County	NY	94.99	105.93	183.56	89.94	123.51
Washington County	NY	92.47	80.23	80.51	59.21	72.33
Wayne County	NY	92.68	85.72	85.91	55.37	74.62
Westchester County	NY	129.24	146.99	93.74	123.66	129.58
Alamance County	NC	95.78	102.85	94.52	96.28	96.66
Alexander County	NC	91.03	78.52	79.96	55.54	70.00

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Anson County	NC	89.44	65.32	80.36	52.48	64.49
Brunswick County	NC	90.81	69.18	88.65	85.96	79.34
Buncombe County	NC	95.14	101.18	126.22	94.85	105.50
Burke County	NC	90.80	78.73	87.53	75.57	78.72
Cabarrus County	NC	96.20	97.46	88.76	88.00	90.65
Caldwell County	NC	92.41	74.22	123.75	80.60	90.83
Catawba County	NC	93.56	91.54	85.36	88.36	86.99
Chatham County	NC	91.14	56.42	79.76	62.63	65.23
Cumberland County	NC	100.01	104.64	91.45	90.81	95.86
Currituck County	NC	90.42	69.81	77.63	76.98	73.10
Davie County	NC	91.08	61.13	81.22	60.37	66.45
Durham County	NC	102.68	108.43	103.83	103.70	105.89
Edgecombe County	NC	91.45	83.77	99.40	93.79	90.02
Forsyth County	NC	98.47	107.56	110.15	95.01	103.53
Franklin County	NC	91.13	52.43	78.63	63.74	63.96
Gaston County	NC	95.33	103.37	110.64	94.20	101.12
Greene County	NC	90.47	47.46	83.61	40.96	56.56
Guilford County	NC	100.36	113.56	102.77	95.45	103.84
Haywood County	NC	91.09	79.15	80.84	102.68	85.39
Henderson County	NC	92.12	98.21	84.83	93.59	90.13
Hoke County	NC	91.51	57.98	83.07	70.19	69.27
Johnston County	NC	93.03	70.60	103.97	64.44	78.53
Madison County	NC	89.40	44.18	77.93	90.45	69.03
Mecklenburg County	NC	105.91	115.35	135.51	101.84	118.52
Nash County	NC	91.58	88.78	88.52	79.45	83.68
New Hanover County	NC	102.34	118.86	107.70	121.50	115.92
Onslow County	NC	94.97	82.72	104.59	82.75	88.95
Orange County	NC	99.40	106.99	120.04	75.56	100.63
Pender County	NC	91.15	64.41	81.67	60.61	67.72
Person County	NC	91.24	74.11	81.98	61.12	71.08
Pitt County	NC	98.36	104.23	117.55	87.14	102.30
Randolph County	NC	92.22	84.74	100.63	57.18	79.39
Rockingham County	NC	90.85	72.36	83.70	76.47	75.79
Stokes County	NC	90.59	52.98	81.84	64.72	65.29
Union County	NC	94.98	81.73	100.88	84.45	88.01
Wake County	NC	103.07	115.17	134.61	96.60	115.62
Wayne County	NC	93.55	78.79	130.76	84.88	96.20
Yadkin County	NC	90.06	70.68	79.45	49.29	65.08
Burleigh County	ND	96.52	118.46	128.76	90.68	110.87
Cass County	ND	99.52	125.90	113.31	97.15	111.34
Grand Forks County	ND	104.24	124.99	97.01	96.71	107.25
Morton County	ND	91.13	108.21	82.17	85.86	89.69
Allen County	OH	95.85	114.27	117.83	118.07	114.54
Belmont County	OH	92.89	98.58	83.73	112.11	95.99
Brown County	OH	90.42	54.19	85.62	78.68	71.22

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Butler County	OH	101.42	116.84	94.22	101.13	104.30
Carroll County	OH	89.77	69.05	94.41	68.25	75.19
Clark County	OH	96.98	111.55	97.15	102.52	102.60
Clermont County	OH	98.23	97.66	83.05	84.14	88.34
Cuyahoga County	OH	112.92	133.64	119.54	109.64	123.93
Delaware County	OH	97.21	109.37	84.07	87.68	93.15
Erie County	OH	96.77	121.77	104.84	102.29	108.11
Fairfield County	OH	95.20	100.29	89.76	89.15	91.91
Franklin County	OH	111.37	131.41	124.87	127.88	130.18
Fulton County	OH	90.59	113.35	82.43	93.65	93.69
Geauga County	OH	90.84	82.83	86.85	50.20	71.79
Greene County	OH	97.09	114.93	85.08	94.01	97.19
Hamilton County	OH	110.12	134.12	141.56	113.68	131.43
Jefferson County	OH	95.10	103.84	109.52	107.80	105.14
Lake County	OH	100.55	123.58	82.99	88.29	98.55
Lawrence County	OH	93.75	81.53	83.82	104.35	88.45
Licking County	OH	95.01	99.59	98.19	106.48	99.77
Lorain County	OH	98.61	117.13	93.18	95.05	101.26
Lucas County	OH	105.01	131.81	114.29	116.4	121.33
Madison County	OH	92.38	85.12	84.52	84.97	83.25
Mahoning County	OH	98.98	121.53	107.96	102.09	109.66
Medina County	OH	96.03	105.54	93.20	57.23	84.83
Miami County	OH	92.97	103.49	85.25	95.62	92.84
Montgomery County	OH	102.99	130.21	114.82	117.40	120.67
Morrow County	OH	89.85	49.60	83.41	46.82	58.82
Ottawa County	OH	93.01	98.23	86.34	94.39	91.15
Pickaway County	OH	95.16	82.72	83.74	78.20	80.99
Portage County	OH	94.89	103.80	90.32	100.22	96.60
Preble County	OH	90.05	70.46	86.69	100.99	83.63
Richland County	OH	94.98	105.89	118.65	103.59	107.30
Stark County	OH	98.73	120.66	98.80	120.61	112.26
Summit County	OH	101.67	125.68	109.41	114.42	116.17
Trumbull County	OH	95.85	111.81	91.49	95.52	98.31
Union County	OH	94.04	77.41	81.94	86.51	81.01
Warren County	OH	97.43	106.62	84.37	88.63	92.75
Washington County	OH	93.06	88.20	86.67	83.86	84.77
Wood County	OH	94.89	111.78	91.96	82.11	93.91
Canadian County	OK	97.03	97.68	82.74	92.01	90.35
Cleveland County	OK	101.04	107.98	106.44	102.24	105.59
Comanche County	OK	99.03	118.45	98.20	116.33	110.11
Creek County	OK	90.09	85.48	84.46	104.69	88.85
Grady County	OK	91.37	75.37	86.82	102.85	86.23
Le Flore County	OK	89.15	67.37	83.45	99.19	80.78
Logan County	OK	89.70	68.27	90.56	98.34	83.21
McClain County	OK	89.63	80.94	81.73	88.92	81.43

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Oklahoma County	OK	103.44	120.48	122.50	117.89	120.32
Okmulgee County	OK	89.76	90.51	83.84	122.81	95.86
Osage County	OK	93.63	66.07	86.07	96.84	81.87
Pawnee County	OK	88.73	75.14	77.53	99.62	81.37
Rogers County	OK	92.33	79.74	87.59	95.45	85.82
Sequoyah County	OK	89.78	72.88	91.90	101.22	86.03
Tulsa County	OK	102.60	121.46	117.13	113.15	117.17
Wagoner County	OK	93.20	77.70	83.08	102.13	86.14
Benton County	OR	100.72	123.18	126.52	95.34	114.46
Clackamas County	OR	101.80	126.17	90.03	96.25	104.50
Columbia County	OR	93.28	102.74	80.42	84.73	87.73
Deschutes County	OR	95.73	115.65	115.30	80.19	102.17
Jackson County	OR	97.76	122.20	122.65	91.71	110.84
Lane County	OR	101.73	127.48	138.05	98.88	120.90
Marion County	OR	101.62	130.36	123.77	101.10	117.96
Multnomah County	OR	120.53	142.82	150.58	166.68	157.06
Polk County	OR	94.97	105.79	80.13	83.85	88.86
Washington County	OR	110.39	132.91	85.02	113.10	113.09
Yamhill County	OR	99.08	122.85	81.32	93.49	98.97
Allegheny County	PA	109.54	133.89	145.40	135.70	139.34
Armstrong County	PA	92.89	85.75	101.54	84.86	88.95
Beaver County	PA	95.17	110.16	84.42	111.13	100.28
Berks County	PA	108.58	126.11	116.00	110.71	119.40
Blair County	PA	97.22	121.95	124.31	123.01	121.01
Bucks County	PA	102.39	126.03	79.87	99.58	102.49
Butler County	PA	93.68	105.26	120.02	79.27	99.44
Cambria County	PA	95.43	107.43	120.16	119.48	113.43
Carbon County	PA	93.36	98.43	90.96	97.65	93.81
Centre County	PA	110.10	115.70	149.49	91.83	121.21
Chester County	PA	98.81	117.12	91.20	89.11	98.81
Cumberland County	PA	98.59	111.24	85.52	112.72	102.55
Dauphin County	PA	104.58	124.71	129.24	125.68	126.61
Delaware County	PA	119.69	141.69	83.25	137.90	126.07
Erie County	PA	102.74	130.88	122.48	102.40	118.48
Fayette County	PA	93.03	102.25	96.86	108.42	100.17
Lackawanna County	PA	101.86	133.13	134.53	123.50	129.39
Lancaster County	PA	102.63	119.90	128.60	94.47	114.41
Lebanon County	PA	96.31	122.77	84.72	116.98	106.56
Lehigh County	PA	111.48	134.36	115.73	137.75	131.38
Luzerne County	PA	99.44	121.47	93.27	114.55	109.08
Lycoming County	PA	97.09	120.85	113.98	117.91	115.74
Mercer County	PA	95.34	106.25	83.44	87.04	91.17
Montgomery County	PA	107.67	136.32	85.84	109.26	112.35
Northampton County	PA	103.88	133.01	101.8	124.28	119.89
Perry County	PA	89.79	63.67	91.33	79.02	75.93



County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Philadelphia County	PA	206.38	144.48	178.43	209.98	207.19
Pike County	PA	91.08	56.19	144.75	90.61	94.51
Washington County	PA	95.07	106.69	93.55	102.25	99.23
Westmoreland County	PA	95.84	111.77	104.88	108.50	106.63
Wyoming County	PA	90.40	51.38	86.24	74.76	69.28
York County	PA	99.69	112.24	115.21	96.33	107.42
Bristol County	RI	109.79	144.16	83.56	135.16	122.96
Kent County	RI	103.82	122.09	81.70	122.57	109.54
Newport County	RI	99.45	121.07	99.03	118.74	112.10
Providence County	RI	121.10	142.01	141.75	134.74	144.11
Washington County	RI	94.03	102.13	88.56	97.10	94.26
Aiken County	SC	93.29	79.37	103.25	96.65	91.33
Anderson County	SC	92.29	82.54	110.42	81.70	89.56
Berkeley County	SC	98.30	88.34	80.72	78.85	83.00
Charleston County	SC	103.20	119.32	138.48	116.56	124.50
Darlington County	SC	91.78	86.08	84.55	73.08	79.62
Dorchester County	SC	103.61	98.38	81.02	84.79	89.83
Edgefield County	SC	89.95	55.96	76.27	60.96	63.08
Fairfield County	SC	89.55	49.53	76.12	74.02	65.00
Florence County	SC	96.07	90.47	109.63	83.71	93.64
Greenville County	SC	98.68	106.59	100.39	91.07	98.97
Horry County	SC	94.78	90.85	112.78	101.88	100.09
Kershaw County	SC	90.43	61.70	129.24	61.49	81.95
Laurens County	SC	89.91	59.53	87.21	79.89	73.63
Lexington County	SC	94.92	94.04	88.00	80.44	86.54
Pickens County	SC	92.45	92.02	97.27	82.26	88.63
Richland County	SC	101.53	109.51	144.33	110.91	120.94
Spartanburg County	SC	93.37	97.98	112.28	90.54	98.16
Sumter County	SC	93.59	86.69	119.72	90.32	96.94
York County	SC	95.01	95.83	94.28	80.22	89.05
Lincoln County	SD	92.75	107.03	82.73	77.53	87.38
Meade County	SD	89.23	75.07	81.40	103.16	83.84
Minnehaha County	SD	102.86	120.06	105.90	107.25	111.40
Pennington County	SD	96.18	101.49	117.26	95.04	103.15
Anderson County	TN	92.32	81.10	121.37	89.51	95.04
Blount County	TN	94.52	79.63	87.08	89.16	84.33
Bradley County	TN	94.75	85.38	114.48	87.22	94.26
Carter County	TN	93.30	77.41	129.08	96.48	98.82
Cheatham County	TN	93.65	56.61	86.41	61.81	67.92
Chester County	TN	91.73	79.08	69.11	55.42	66.93
Davidson County	TN	104.68	111.86	121.78	111.57	115.76
Dickson County	TN	91.19	65.43	90.57	73.70	75.01
Fayette County	TN	89.34	50.43	89.51	51.46	62.32
Grainger County	TN	89.49	45.66	74.08	70.51	62.01
Hamblen County	TN	95.73	85.00	142.29	95.50	105.85

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Hamilton County	TN	98.48	101.33	119.36	103.40	107.13
Hawkins County	TN	90.78	69.01	90.10	81.51	78.33
Jefferson County	TN	91.49	63.63	91.38	79.72	76.69
Knox County	TN	99.46	102.38	136.24	96.83	111.03
Loudon County	TN	90.60	74.46	83.62	96.59	82.71
Macon County	TN	90.08	45.11	73.25	47.03	54.34
Madison County	TN	95.08	104.99	108.51	91.26	99.95
Marion County	TN	89.77	69.94	73.16	87.72	74.91
Montgomery County	TN	97.02	80.87	113.11	75.99	89.57
Robertson County	TN	91.68	72.06	85.62	63.10	72.35
Rutherford County	TN	97.98	90.60	108.29	83.25	93.72
Sequatchie County	TN	90.25	76.45	78.98	57.33	69.36
Shelby County	TN	105.33	109.94	122.61	114.90	116.68
Smith County	TN	90.53	70.87	66.08	83.13	71.76
Sullivan County	TN	93.76	86.37	119.66	101.34	100.36
Sumner County	TN	97.36	86.46	115.60	76.15	92.28
Tipton County	TN	92.75	59.76	87.84	64.39	69.90
Trousdale County	TN	90.52	71.81	67.37	64.82	66.68
Unicoi County	TN	94.94	90.30	80.78	113.03	93.38
Union County	TN	89.52	50.58	82.78	73.69	67.32
Washington County	TN	94.93	91.12	94.03	93.77	91.74
Williamson County	TN	97.00	85.43	133.03	87.19	100.84
Wilson County	TN	93.71	71.92	85.24	70.33	75.10
Aransas County	TX	91.90	104.27	84.03	122.27	100.78
Atascosa County	TX	89.05	79.50	85.77	94.63	83.87
Austin County	TX	88.89	64.78	86.07	82.34	75.38
Bandera County	TX	89.19	38.15	69.25	101.83	67.91
Bastrop County	TX	89.76	76.25	87.26	96.10	84.01
Bell County	TX	99.90	110.30	106.90	110.75	108.80
Bexar County	TX	107.69	116.02	115.57	118.94	118.40
Bowie County	TX	93.73	106.36	80.75	99.24	93.71
Brazoria County	TX	96.54	96.26	92.15	97.38	94.42
Brazos County	TX	105.72	112.86	101.13	110.13	109.43
Burleson County	TX	89.32	100.91	77.93	109.68	93.00
Caldwell County	TX	89.63	89.32	84.60	100.93	88.78
Calhoun County	TX	97.89	104.62	74.17	145.39	106.98
Cameron County	TX	100.34	102.76	87.93	110.32	100.42
Chambers County	TX	88.91	43.66	75.63	77.45	63.87
Clay County	TX	88.03	67.28	76.56	111.02	81.95
Collin County	TX	106.24	114.06	85.45	118.59	107.69
Comal County	TX	93.66	86.53	108.62	88.26	92.76
Coryell County	TX	97.23	77.14	87.93	86.13	83.70
Dallas County	TX	116.03	123.21	125.52	139.21	132.85
Delta County	TX	88.85	80.30	68.73	127.14	88.95
Denton County	TX	104.96	107.37	91.25	114.16	105.61

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Ector County	TX	101.41	123.37	112.23	111.89	115.45
Ellis County	TX	92.65	86.97	84.65	100.12	88.75
El Paso County	TX	109.16	113.33	102.45	125.22	115.85
Fort Bend County	TX	104.19	96.20	101.96	111.59	104.41
Galveston County	TX	100.94	113.67	106.27	130.51	116.24
Grayson County	TX	93.05	103.96	92.14	102.59	97.39
Gregg County	TX	96.10	114.14	103.02	99.15	103.92
Guadalupe County	TX	96.53	93.38	84.13	94.73	90.14
Hardin County	TX	89.38	75.62	84.66	83.17	78.78
Harris County	TX	112.9	122.96	115.12	138.63	128.31
Hays County	TX	95.58	87.83	131.77	84.13	99.78
Hidalgo County	TX	100.21	101.69	104.76	109.10	104.98
Hunt County	TX	91.85	76.80	100.17	94.77	88.50
Jefferson County	TX	99.99	118.66	127.39	137.42	126.37
Johnson County	TX	94.62	85.00	88.74	91.72	87.39
Kaufman County	TX	91.56	77.63	83.06	108.05	87.46
Kendall County	TX	94.46	97.53	79.63	72.72	82.42
Lampasas County	TX	89.18	74.92	86.25	95.76	82.98
Liberty County	TX	89.41	54.79	90.70	83.18	74.12
Lubbock County	TX	101.82	123.12	97.75	110.77	110.57
McLennan County	TX	96.64	112.13	100.28	109.99	106.02
Medina County	TX	88.53	55.51	85.30	81.66	71.88
Midland County	TX	103.45	123.85	110.90	119.62	118.27
Montgomery County	TX	95.68	87.52	111.61	84.05	93.32
Nueces County	TX	104.85	127.12	106.59	121.30	118.91
Orange County	TX	90.28	87.97	84.52	104.13	89.54
Parker County	TX	90.72	77.89	87.88	79.00	79.62
Potter County	TX	101.40	118.20	99.33	132.71	116.32
Randall County	TX	101.51	122.09	78.97	110.72	104.20
Rockwall County	TX	97.13	97.42	79.27	94.18	89.89
Rusk County	TX	89.28	80.54	82.05	67.69	74.59
San Patricio County	TX	93.48	114.78	84.07	111.29	101.14
Smith County	TX	95.50	100.31	119.02	100.60	104.88
Tarrant County	TX	108.94	119.35	100.17	128.90	118.12
Tom Green County	TX	97.73	119.81	103.96	106.90	108.97
Travis County	TX	108.45	120.81	148.98	110.66	128.09
Upshur County	TX	90.15	67.18	79.57	86.71	75.86
Victoria County	TX	103.10	120.55	119.38	119.70	119.82
Waller County	TX	95.59	60.29	82.16	92.14	77.94
Webb County	TX	101.78	122.77	102.69	121.89	115.53
Wichita County	TX	98.04	121.94	121.17	110.29	116.25
Williamson County	TX	101.28	106.24	98.74	101.69	102.51
Wilson County	TX	89.22	46.70	88.44	72.24	67.33
Wise County	TX	89.07	68.46	80.23	80.04	74.03
Cache County	UT	100.03	120.88	128.98	82.21	110.14

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Davis County	UT	103.45	125.21	80.47	105.19	104.52
Juab County	UT	88.62	93.30	78.14	83.59	82.20
Salt Lake County	UT	112.04	129.10	106.26	116.30	120.12
Summit County	UT	90.70	90.55	91.28	75.60	83.61
Tooele County	UT	97.75	102.75	79.12	75.88	85.94
Utah County	UT	108.21	127.19	89.82	106.36	109.98
Washington County	UT	95.06	98.96	84.85	91.60	90.67
Weber County	UT	105.74	124.44	97.16	108.01	111.17
Chittenden County	VT	101.56	121.65	152.59	89.97	120.78
Franklin County	VT	92.87	95.99	82.45	75.67	83.25
Grand Isle County	VT	89.13	86.07	69.37	90.87	79.60
Albemarle County	VA	95.30	102.67	87.34	78.58	88.59
Amherst County	VA	89.69	70.62	84.60	75.08	74.72
Appomattox County	VA	89.68	39.87	90.05	58.37	61.45
Arlington County	VA	174.41	153.20	95.54	177.13	163.28
Bedford County	VA	89.97	55.41	91.02	73.51	71.54
Botetourt County	VA	89.85	72.00	83.63	88.06	79.00
Campbell County	VA	91.88	77.31	83.38	109.02	87.87
Caroline County	VA	89.04	40.80	74.87	77.09	62.65
Chesterfield County	VA	100.63	98.15	114.36	102.77	105.03
Clarke County	VA	89.87	79.72	79.01	86.65	79.55
Dinwiddie County	VA	90.02	49.10	78.23	71.08	64.75
Fairfax County	VA	117.83	123.70	113.17	114.82	121.96
Fauquier County	VA	90.61	73.98	90.24	80.50	79.57
Fluvanna County	VA	92.01	71.24	75.82	69.22	71.02
Franklin County	VA	91.30	47.21	88.85	77.48	69.94
Frederick County	VA	93.79	81.33	87.14	85.85	83.61
Gloucester County	VA	92.66	69.24	89.69	99.14	84.43
Goochland County	VA	90.23	55.11	75.26	78.66	68.17
Greene County	VA	90.55	59.72	70.10	78.44	68.03
Hanover County	VA	94.37	84.41	82.56	88.35	84.10
Henrico County	VA	105.97	114.27	86.41	123.03	109.38
Isle of Wight County	VA	90.76	75.64	77.65	79.82	75.95
James City County	VA	93.70	97.02	79.60	106.28	92.61
King William County	VA	90.95	56.69	79.27	102.10	77.57
Loudoun County	VA	102.68	116.85	81.49	113.55	104.60
Mathews County	VA	92.20	52.08	72.32	78.22	66.77
Montgomery County	VA	95.29	95.57	85.40	102.18	93.19
New Kent County	VA	89.75	43.95	80.36	72.40	64.13
Pittsylvania County	VA	89.61	42.72	80.80	66.85	62.08
Powhatan County	VA	94.07	44.51	74.52	65.38	61.61
Prince George County	VA	90.96	66.68	75.53	81.97	73.19
Prince William County	VA	106.28	106.57	94.52	115.14	107.11
Pulaski County	VA	91.55	84.58	83.02	103.9	88.33
Roanoke County	VA	96.03	110.04	80.69	98.89	95.46

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Rockingham County	VA	90.09	73.51	86.01	88.97	80.60
Scott County	VA	89.25	50.38	78.01	92.28	71.54
Spotsylvania County	VA	97.94	84.86	88.47	92.55	88.57
Stafford County	VA	98.78	84.11	81.07	88.85	85.09
Sussex County	VA	102.08	63.80	–	–	–
Warren County	VA	93.50	92.21	88.78	94.07	90.07
Washington County	VA	90.49	77.47	81.92	90.19	81.06
York County	VA	97.29	99.00	86.14	108.50	97.13
Alexandria city	VA	176.94	154.32	115.16	173.76	169.56
Bedford city	VA	94.78	123.63	72.04	113.62	101.29
Bristol city	VA	105.00	130.60	82.35	145.26	119.97
Charlottesville city	VA	128.80	148.33	210.83	152.37	175.93
Chesapeake city	VA	103.40	108.24	88.28	109.52	102.98
Colonial Heights city	VA	108.95	135.66	77.65	153.60	123.97
Danville city	VA	99.84	126.20	121.82	120.33	121.54
Fairfax city	VA	116.97	152.84	73.00	131.05	123.34
Falls Church city	VA	127.12	177.53	72.72	164.07	144.69
Fredericksburg city	VA	120.16	145.13	97.72	154.28	137.06
Hampton city	VA	110.55	123.19	114.92	150.96	131.48
Harrisonburg city	VA	122.83	143.99	144.42	131.80	145.19
Hopewell city	VA	112.29	124.58	79.39	185.81	132.25
Lynchburg city	VA	104.80	130.42	104.85	132.31	122.87
Manassas city	VA	115.54	140.36	76.57	150.36	126.17
Manassas Park city	VA	129.66	128.88	82.19	133.50	123.45
Newport News city	VA	112.21	121.94	86.53	137.18	118.28
Norfolk city	VA	129.98	131.46	210.96	179.44	179.57
Petersburg city	VA	101.48	127.00	104.35	144.23	124.34
Poquoson city	VA	97.09	105.92	77.55	104.32	95.22
Portsmouth city	VA	111.16	129.35	88.86	163.76	129.42
Radford city	VA	105.79	135.40	81.24	156.21	124.84
Richmond city	VA	120.46	133.06	160.69	172.23	158.90
Roanoke city	VA	109.84	129.71	120.97	155.62	136.69
Salem city	VA	107.30	128.88	76.93	140.41	116.91
Suffolk city	VA	95.77	99.14	103.14	98.02	98.76
Virginia Beach city	VA	111.75	123.10	86.61	137.93	118.77
Williamsburg city	VA	108.92	118.37	158.90	136.03	138.61
Winchester city	VA	114.03	135.13	133.91	150.19	142.10
Asotin County	WA	106.62	134.33	77.00	134.97	116.72
Benton County	WA	98.56	118.73	109.61	97.28	107.64
Chelan County	WA	97.97	126.31	120.30	99.04	113.78
Clark County	WA	102.63	123.40	89.55	105.28	106.59
Cowlitz County	WA	96.07	103.40	128.01	99.00	108.37
Douglas County	WA	103.94	116.98	82.17	91.30	98.23
Franklin County	WA	101.59	119.22	82.23	111.14	104.48
King County	WA	114.85	128.93	159.34	131.70	142.60

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Kitsap County	WA	98.92	107.82	115.62	96.04	105.81
Pierce County	WA	103.02	117.02	126.32	119.43	120.78
Skagit County	WA	96.68	112.71	101.76	99.87	103.48
Snohomish County	WA	103.47	116.86	122.73	100.03	113.62
Spokane County	WA	101.37	122.39	122.32	127.12	123.13
Thurston County	WA	97.83	103.71	132.90	95.16	109.35
Whatcom County	WA	95.83	110.62	115.26	99.00	106.54
Yakima County	WA	98.64	124.46	128.18	89.38	112.84
Berkeley County	WV	94.85	90.23	97.70	94.03	92.67
Boone County	WV	90.83	61.03	-	123.52	-
Brooke County	WV	91.02	93.32	87.28	116.81	96.34
Cabell County	WV	98.52	112.81	183.48	119.12	135.99
Hancock County	WV	94.13	110.72	86.79	118.07	103.07
Jefferson County	WV	91.79	75.67	87.64	98.81	85.44
Kanawha County	WV	96.10	108.14	147.64	125.60	124.48
Marshall County	WV	92.36	89.16	137.78	120.37	112.53
Mineral County	WV	90.81	75.55	159.67	111.67	111.91
Monongalia County	WV	98.42	117.16	120.10	115.01	116.02
Morgan County	WV	89.50	67.70	90.00	74.66	75.31
Ohio County	WV	95.76	115.77	150.91	129.79	129.14
Preston County	WV	88.93	44.98	90.63	80.67	70.06
Putnam County	WV	93.37	87.87	78.21	99.34	86.98
Wayne County	WV	93.73	81.82	84.99	106.16	89.48
Wood County	WV	96.66	116.84	107.75	121.08	113.37
Brown County	WI	99.46	115.40	101.30	91.01	102.26
Calumet County	WI	94.95	80.84	87.75	80.59	82.35
Chippewa County	WI	92.19	85.15	89.40	88.50	85.86
Columbia County	WI	90.01	92.46	87.63	90.90	87.68
Dane County	WI	106.96	126.20	153.67	106.96	129.63
Douglas County	WI	95.01	99.68	81.91	108.53	95.30
Eau Claire County	WI	98.55	115.50	116.85	96.62	108.70
Fond du Lac County	WI	95.54	109.78	153.06	94.09	116.57
Iowa County	WI	89.19	78.00	83.48	83.09	79.07
Kenosha County	WI	100.80	119.03	123.52	118.90	119.67
Kewaunee County	WI	92.15	103.67	77.23	79.49	85.01
La Crosse County	WI	98.49	119.38	88.95	117.4	107.65
Marathon County	WI	94.14	102.58	121.29	83.21	100.38
Milwaukee County	WI	128.75	139.35	178.96	155.69	164.06
Oconto County	WI	88.82	49.35	77.77	66.91	62.99
Outagamie County	WI	99.06	120.79	164.21	97.96	125.91
Ozaukee County	WI	95.11	116.53	106.77	87.76	101.95
Pierce County	WI	94.38	92.07	143.31	81.67	103.61
Racine County	WI	100.48	122.63	111.62	107.68	113.40
Rock County	WI	97.51	113.90	108.04	98.59	105.70
St. Croix County	WI	92.02	87.72	93.45	67.27	81.19

County	State	Density score	Land use mix score	Activity centering score	Street connectivity score	Composite (total) score
Sheboygan County	WI	97.60	115.59	94.01	98.77	101.88
Washington County	WI	94.74	96.05	128.67	75.35	98.36
Waukesha County	WI	96.89	112.13	147.79	101.06	118.28
Winnebago County	WI	100.65	118.29	97.48	113.49	109.45
Laramie County	WY	100.71	112.98	132.64	114.68	119.28
Natrona County	WY	100.14	116.47	136.24	117.49	122.22

## Appendix C: Quality of life analysis

In addition to analyzing development at the Metropolitan Statistical Area (MSA) and county levels, the researchers also generated index scores for the census-defined urbanized areas (UZAs) within MSAs. For more information about the methodology of the research and for UZA scores, see the full report at <http://gis.cancer.gov/tools/urban-sprawl/>.

To provide a better understanding of what data sources informed analyses at the MSA, county and UZA levels, an overview is below in Table C1.

TABLE C1

### Data sources used to evaluate quality of life outcomes, by geographic scale

Outcome	Data Source	Geography	Relationship to sprawl
Housing affordability	Location Affordability Index <sup>27</sup>	MSA	positive and significant
Transportation affordability	Location Affordability Index	MSA	negative and significant
Combined housing and transportation affordability	Location Affordability Index	MSA	negative and significant
Upward mobility	Equality of Opportunity databases <sup>28</sup>	MSA	negative and significant
Average household vehicle ownership	American Community Survey <sup>29</sup>	MSA, county, UZA	positive and significant
Percentage of commuters walking to work	American Community Survey	MSA, county, UZA	negative and significant
Percentage of commuters using public transportation (excluding taxi)	American Community Survey	MSA, county, UZA	negative and significant
Average journey-to-work drive time in minutes	American Community Survey	MSA, county, UZA	positive and significant
Traffic crash rate per 100,000 population	States <sup>30</sup>	County	negative and significant
Injury crash rate per 100,000 population	States	County	negative and significant
Fatal crash rate per 100,000 population	States	County	positive and significant
Body mass index	Behavioral Risk Factor Surveillance System (BRFSS) <sup>31</sup>	County	positive and significant
Obesity	BRFSS	County	positive and significant
Any physical activity	BRFSS	County	not significant

Outcome	Data Source	Geography	Relationship to sprawl
Diagnosed high blood pressure	BRFSS	County	positive and significant
Diagnosed heart disease	BRFSS	County	not significant
Diagnosed diabetes	BRFSS	County	positive and significant
Average life expectancy	Institute for Health Metrics and Evaluation <sup>32</sup>	County	negative and significant



## Endnotes

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- 1 This study excludes Metropolitan Statistical Areas (MSAs) with populations less than 200,000 people due to data availability and because impacts are more difficult to measure at smaller scales.
- 2 For a more detailed explanation of how Sprawl Index scores are calculated, see Ewing, R. and Hamidi, S. (2014). *Measuring Urban Sprawl and Validating Sprawl Measures*. Metropolitan Research Center, University of Utah. Available at <http://gis.cancer.gov/tools/urban-sprawl/>.
- 3 The Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area includes District of Columbia, DC; Calvert County, MD; Charles County, MD; Prince George's County, MD; Arlington County, VA; Clarke County, VA; Culpeper County, VA; Fairfax County, VA; Fauquier County, VA; Loudoun County, VA; Prince William County, VA; Rappahannock County, VA; Spotsylvania County, VA; Stafford County, VA; Warren County, VA; Alexandria City, VA; Fairfax City, VA; Falls Church City, VA; Fredericksburg City, VA; Manassas City, VA; Manassas Park City, VA; Jefferson County, WV. From: <http://www.whitehouse.gov/sites/default/files/omb/bulletins/2013/b-13-01.pdf>.
- 4 Metropolitan areas with populations less than 200,000 were not included in this analysis.
- 5 See the full analytical report for more information on these assessments: Ewing, R. and Hamidi, S. (2014). *Measuring Urban Sprawl and Validating Sprawl Measures*. Metropolitan Research Center, University of Utah. Available at <http://gis.cancer.gov/tools/urban-sprawl/>.
- 6 The Equality of Opportunity Project. Retrieved March 27, 2014, from [www.equality-of-opportunity.org/](http://www.equality-of-opportunity.org/).
- 7 Ewing, R. and Hamidi, S. (2014). *Measuring Urban Sprawl and Validating Sprawl Measures*. (Page 89) Metropolitan Research Center, University of Utah. Available at <http://gis.cancer.gov/tools/urban-sprawl/>.
- 8 Ewing, R. and Hamidi, S. (2014). *Measuring Urban Sprawl and Validating Sprawl Measures*. (Page 90). Metropolitan Research Center, University of Utah. Available at <http://gis.cancer.gov/tools/urban-sprawl/>.
- 9 U.S. Department of Housing and Urban Development (HUD). *Location Affordability Index*. Available at [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/sustainable\\_housing\\_communities/location\\_affordability](http://portal.hud.gov/hudportal/HUD?src=/program_offices/sustainable_housing_communities/location_affordability).
- 10 See note 10.
- 11 These calculations represent a weighted average of census block group values based on transportation and housing cost data from the HUD's Location Affordability Index. Available at [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/sustainable\\_housing\\_communities/location\\_affordability](http://portal.hud.gov/hudportal/HUD?src=/program_offices/sustainable_housing_communities/location_affordability).
- 12 Ewing, R. and Hamidi, S. (2014). *Measuring Urban Sprawl and Validating Sprawl Measures*. (Pages 73–74). Metropolitan Research Center, University of Utah. Available at <http://gis.cancer.gov/tools/urban-sprawl/>.
- 13 Data for health outcomes is not available at the metropolitan level. The researchers use information available at the county level to inform these conclusions.
- 14 Ewing, R. and Hamidi, S. (2014). *Measuring Urban Sprawl and Validating Sprawl Measures*. (Page 83). Metropolitan Research Center, University of Utah. Available at <http://gis.cancer.gov/tools/urban-sprawl/>.
- 15 This calculation is based on the researchers' models. According to the Center for Disease Control's Behavioral Risk Factor Surveillance System (BRFSS), the actual difference in weight is greater due to income and racial differences. Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance System*. Available at [www.cdc.gov/brfss/](http://www.cdc.gov/brfss/).
- 16 City of Santa Barbara. Uses permitted in various zones. Available at [www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=17638](http://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=17638).
- 17 City of Santa Barbara. (2011). *General Plan Update*. (Page 105). Available at [www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=16916](http://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=16916).
- 18 City of Santa Barbara. (2011). Land Use Element. (p. 2). Available at <https://www.santabarbaraca.gov/civicax/filebank/blobdload.aspx?BlobID=16898>.
- 19 Learn more about the County of Santa Barbara's Long Range Planning Division at [http://longrange.sbcountyplanning.org/landuse\\_element.php](http://longrange.sbcountyplanning.org/landuse_element.php).
- 20 Learn about Madison, WI's homebuyer assistance programs at [www.cityofmadison.com/dpced/economicdevelopment/home-loans/228/](http://www.cityofmadison.com/dpced/economicdevelopment/home-loans/228/).
- 21 Learn more about the Mansion Hill—James Madison Park Neighborhood Small Cap TIF Loan Program from the City of Madison's Economic Development Department at <http://www.cityofmadison.com/dpced/economicdevelopment/mansion-hill-james-madison-park-neighborhood-small-cap-tif-loan-program/229/>.
- 22 City of Madison, WI. (2006, January). Appendix 4: City of Madison Strategic Management System Goals and Strategies re: Growth Management. *City of Madison Comprehensive Plan, Volume I*. Available at <http://www.cityofmadison.com/planning/ComprehensivePlan/dplan/v1/chapter5/v1c5.pdf>.
- 23 For more information about Madison, WI's comprehensive plan see [www.cityofmadison.com/planning/ComprehensivePlan/](http://www.cityofmadison.com/planning/ComprehensivePlan/).

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- 24 City of Trenton, NJ. (2004, January). Trenton Transportation Master Plan: Phase One Summary Report. Available at: [http://www.trentonnj.org/documents/housing-economic/city\\_master\\_plan/phase%20one%20summary%20report.pdf](http://www.trentonnj.org/documents/housing-economic/city_master_plan/phase%20one%20summary%20report.pdf).
  - 25 Learn more about the Los Angeles Transit Neighborhood Plans project at [www.latnp.org/](http://www.latnp.org/).
  - 26 City of Los Angeles. (2008, February). Ordinance No. 179681. Available at [cityplanning.lacity.org/Code\\_Studies/Housing/DensityBonus.pdf](http://cityplanning.lacity.org/Code_Studies/Housing/DensityBonus.pdf).
  - 27 U.S. Department of Housing and Urban Development. *Location Affordability Index*. Available at [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/sustainable\\_housing\\_communities/location\\_affordability](http://portal.hud.gov/hudportal/HUD?src=/program_offices/sustainable_housing_communities/location_affordability).
  - 28 The Equality of Opportunity Project. *Mobility in All Commuting Zones*. Available at [www.equality-of-opportunity.org/index.php/city-rankings/city-rankings-all](http://www.equality-of-opportunity.org/index.php/city-rankings/city-rankings-all).
  - 29 U.S. Census Bureau. *American Community Survey*. Available at [www.census.gov/acs/www/](http://www.census.gov/acs/www/).
  - 30 Crash data were obtained from all states via online databases or email/phone request. Survey years ranged from 2008 to 2011, with the majority between 2010 and 2011. The individual state crash data were compiled into a national database that includes nearly 6.1 million crashes, 1.8 million injury crashes and 30,000 fatal crashes.
  - 31 See note 15.
  - 32 Institute for Health Metrics and Evaluation. Available at [www.healthmetricsandevaluation.org/](http://www.healthmetricsandevaluation.org/).



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