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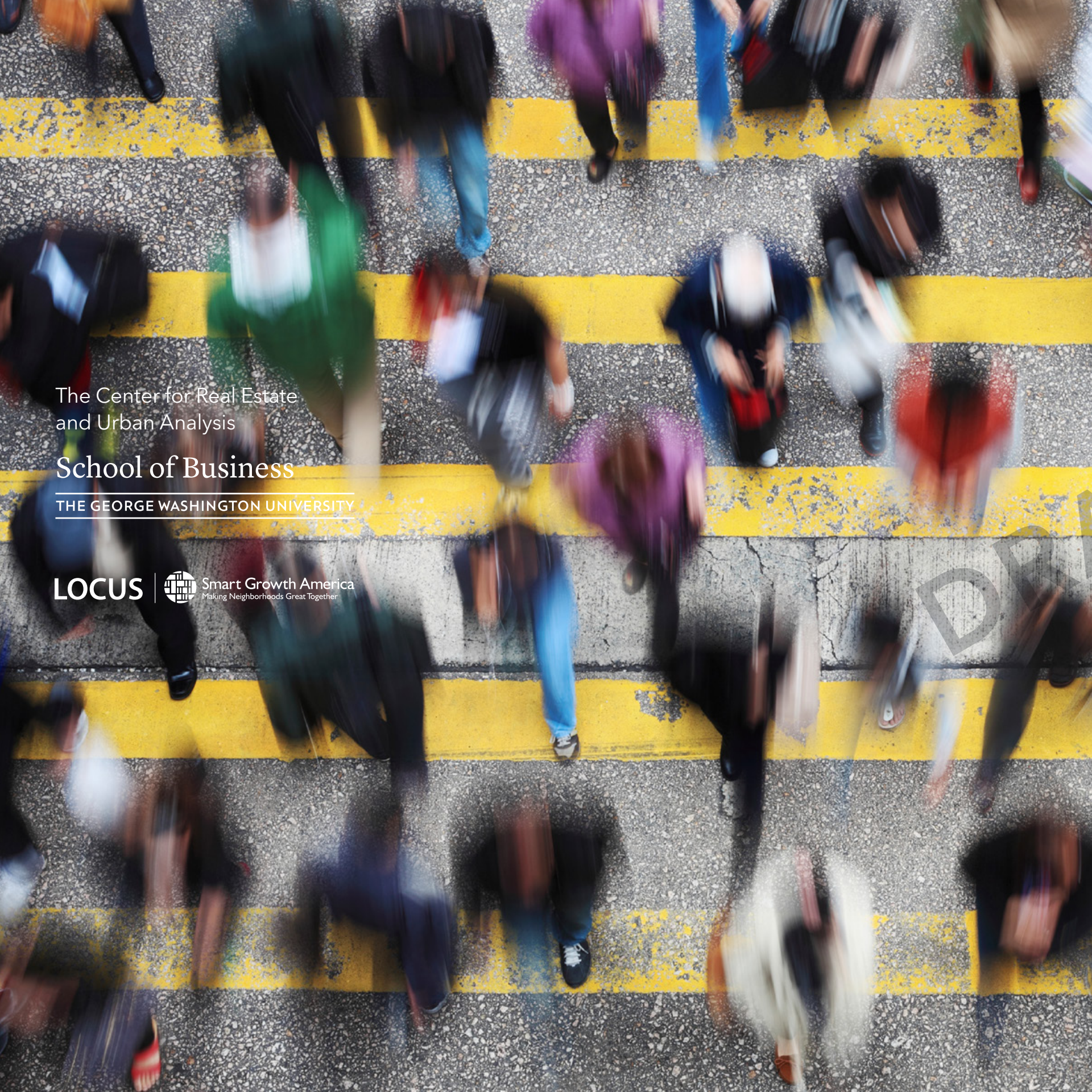
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Foot
Traffic
Ahead

Ranking Walkable Urbanism in
America's Largest Metros

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Executive Summary

This report indicates that metros found to have high walkable urbanism are models for the future development patterns of many—and possibly most—of the largest 30 U.S. metros.

These trends suggest future demand for tens of millions square feet of walkable urban development and hundreds of new WalkUPs.

This demand would provide an economic foundation for the U.S. economy, similar to the building of drivable suburbs in the mid to late 20th century.

KEY FINDINGS

- There are **558 WalkUPs**, or regionally significant, walkable urban places, in the 30 largest metropolitan areas in the United States.

- The **30 metros are ranked** according to their current walkable urbanism and categorizes them into four levels:

LEVEL 1: High Walkable Urbanism

Metros that augur the end of sprawl, as their current development is concentrated in creating and expanding WalkUPs rather than drivable sub-urban areas.

LEVEL 2: Moderate Walkable Urbanism

Metros that are developing both drivable sub-urban and walkable urban places, but are trending more toward a walkable urban future.

LEVEL 3: Tentative Walkable Urbanism

Metros that are trending toward WalkUP development in their center cities—along with a few examples in suburbs—despite being dominated by drivable sub-urban patterns.

LEVEL 4: Low Walkable Urbanism

Metros that continue to build in the drivable sub-urban pattern. Any bright spots of walkable urbanism tend to be located in revitalizing center cities.

- **Future-oriented metrics** show that some metropolitan areas, such as Miami, Atlanta, Los Angeles and Denver, are making some surprising and unexpected shifts toward walkable urban development.
- The **most walkable urban metro areas** have substantially higher GDPs per capita and percentages of college graduates over 25 years of age in the population. These relationships are correlations. Determining the causal relationships will require further research.
- **Walkable urban office space** in the 30 largest metros commands a 74 percent rent-per-square-foot premium over rents in drivable suburban areas. And, these price premiums continue to grow.
- **Walkable urban development** is not limited to the revitalization of center cities; it is also the urbanization of suburbs.

INTRODUCTION & METHODOLOGY



(Walkable) Urban Renewal

It is time for a new approach to urbanism and real estate analysis. With the rebirth of walkable urban development, we can no longer categorize metropolitan real estate as simply “city” or “suburb.”

It is time for a new approach to urbanism and real estate analysis. Since 1950, metropolitan areas in the United States have been divided into the two broad U.S. Census categories of “central city” and “outlying counties,” many times referred to in the popular press as “urban” and “suburban.” New development patterns suggest this old dichotomy is less meaningful today. Now, the only reason to use the old dichotomy is to show how far we have moved beyond it.

A far more useful understanding of metropolitan America is “walkable urban” and “drivable sub-urban” development. Both types of development can occur in a metro’s central city and in the suburbs, the reason old dichotomy is now obsolete.

During the second half of the 20th century, the familiar drivable sub-urban approach dominated real-estate development. Drivable sub-urban was characterized by low-density development connected only by car or truck, with real estate product types such as housing, office, industrial, and retail, segregated from one another.

Most real estate developers and investors, government regulators, and financiers understood this model well, turning it into successful development formulas. In addition to real estate, this model fueled demand for automobiles and trucks, drove road construction, and supported the finance, insurance, and oil industries. In short, this development model provided a solid foundation for the U.S. economy throughout the mid- to late-twentieth century.

Walkable urban development is characterized by much higher density and a mix of diverse real estate types, connected to surrounding areas via multiple

transportation options, such as bus and rail, bike routes, and motor vehicles. For those living or visiting a walkable urban place, everyday destinations, such as home, work, school, stores, and restaurants, are within walking distance.

Walkable urbanism is already a powerful driver of the economy, as shown by substantial downtown and suburban town center redevelopment, the redevelopment of regional malls into mixed-use developments, brown and green field walkable urban development, and the rise of the New Urbanism movement. This report will demonstrate that over the next generation, walkable urban development will spur even greater economic growth as demand for walkable urban development is met. The future growth of walkable urban places could provide the same economic base in the 21st century that drivable sub-urbanism did in the mid-to late-20th century. However, this growth will not be realized without appropriate infrastructure, zoning, and financing mechanisms at the federal, state, and local levels.

Two development forms dominate metropolitan development trends: walkable urban and drivable sub-urban. While each form includes a spectrum of densities, these two forms are fundamentally different, requiring different land acquisition, zoning, construction, financing, marketing, and management.

Form Meets Function

Need a headline here.

Metropolitan land use is categorized as playing one of two economic functions, either regionally significant or local-serving. Regionally significant places, sometimes referred to as “sub-markets” by the commercial brokerage community, have concentrations of employment (particularly in base/export or regional-serving businesses and jobs) and typically house

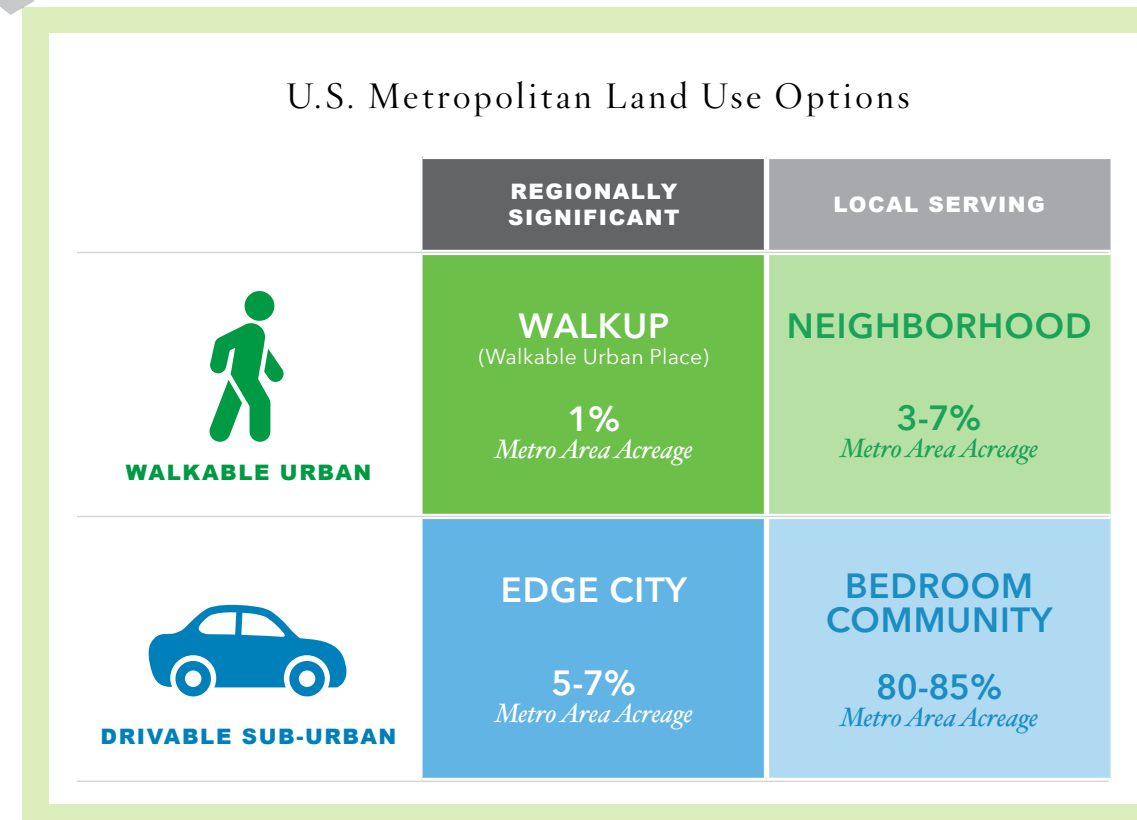
civic centers, institutions of higher education, major medical centers and regional retail, as well as one-of-a-kind cultural, entertainment, and sports assets.

Local-serving locations, frequently called bedroom communities, are dominated by residential development and complemented with support commercial

such as grocery stores, doctors and dentists offices, and realtors, as well as civic services like primary and secondary schools, police and fire stations, and police and fire stations. Generally speaking, regionally significant places are where the metropolitan area earns its living, while local-serving places are where most residents spend their lives outside of work.

Combining the two forms—walkable urban and drivable sub-urban—and two functions—regionally significant and local-serving—of metropolitan land use results in a simple four-cell matrix. This matrix defines the land-use options available for any metropolitan area. The matrix shown on the left also includes an estimate of the metropolitan land employed for each of the four form-meets-function possibilities.

The research in this report focuses on the upper left-hand corner of the matrix—regionally significant, walkable urban places (WalkUPs for short). Our hypothesis is that wealth-creating development in many metropolitan areas has begun a permanent shift away from drivable sub-urban to walkable urban. As such, we predict that WalkUP development, already prevalent in some of the 30 metropolitan areas included in this study, may come to dominate real estate development in many more.



Methodology

Ranking the country's 30 largest metropolitan areas on walkable urbanism began with identifying the existence and geographic boundaries of each metro's regionally significant walkable urban places (WalkUPs).

Data Sources:

Office & Retail Data:
CoStar, the leading provider of office and retail in the U.S.

Walkability:
Walk Score index
(www.walkscore.com)

Rail Transit Information:
Local transit agency web sites

Educational Attainment & Population Data:
The American Community Survey

Per Capita GDP:
U.S. Bureau of Economic Analysis

1 FINDING THE WALKUPS

The research used to identify WalkUPs in each of the U.S. top 30 metros is based on a 2012 Brookings Institution methodology that geographically and economically defines WalkUPs and allows them to be ranked using two metrics: economic performance and social equity performance.²

Using the Brookings methodology as our guide, we statistically defined regionally significant walkable urban places as having:

- **OFFICE & RETAIL SPACE**
 - **Office:** ≥ 1.4 million square feet or more and/or
 - **Retail:** ≥ 340,000 square feet or more
- **WALK SCORE:**³ Value ≥ 70 at the 100 percent location of the WalkUP*

2 RANKING THE METROS

Only office and retail space was employed to rank the walkable urbanism of the U.S.' 30 largest metropolitan areas.

In our evaluations of individual metropolitan areas, as we have done for metro Atlanta, Boston, and Washington, DC, we have been able to assess all real estate product types. Due to resource constraints in looking across all 30 metros, we have used office and retail as a proxy for development trends.

*Walk Scores are measured on a 0-100 scale. The Brookings methodology defines a WalkUP as having an average minimum Walk Score of 70.5 across all of its acreage. The more liberal standard above was employed in this research since it was easier to obtain and apply across the 30 largest metros.

Categories of WalkUPs:

Our previous research determined that there are seven types of WalkUPs.⁴ Generally speaking, the first four types of WalkUPs are located in a metro's central city, and the last three occur in its suburbs. Using the traditional dichotomy of city versus suburbs shows that walkable urban development is not simply a phenomenon of revitalization in central cities, but also a trend of urbanizing the suburbs.

Generally found in CENTER CITIES	Downtown: The traditional center of a metro's central city. ⁵ Occasionally there is a Secondary Downtown.	Any Traditional Downtown St. Paul <i>Minneapolis Secondary</i> Tacoma <i>Seattle Secondary</i>
	Downtown Adjacent: WalkUPs that cluster around the central city Downtown	Dupont Circle <i>DC</i> Capital Hill <i>Seattle</i> Uptown <i>Dallas</i>
	Urban Commercial: Former local-serving commercial districts in decline during the late 20th century, recently revitalized as regionally significant WalkUPs.	Columbia Heights <i>DC</i> Lincoln Park <i>Chicago</i> Melrose <i>Los Angeles</i>
	Urban University: Places where institutions of higher learning have embraced, and are integrated with, their community.	Westwood (UCLA) <i>Los Angeles</i> University City <i>Philadelphia</i> Columbia University <i>New York City</i>
Generally found in SUBURBS	Suburban Town Center: Eighteenth and 19th-century towns eventually swallowed by larger metro areas and recently revitalized.	Evanston <i>Chicago</i> Bellevue <i>Seattle</i> Pasadena <i>Los Angeles</i>
	Redeveloped Drivable Sub-urban: Places originally developed as strip commercial and/or regional malls that have since been urbanized.	Belmar <i>Denver</i> Tysons <i>DC</i> Perimeter <i>Atlanta</i>
	Green or Brown Field: WalkUPs developed from scratch	Reston Town Center <i>DC</i> Atlantic Station <i>Atlanta</i> Easton Town Center <i>Columbus</i>



METROPOLITAN RANKINGS

Where the WalkUPs Are

This study identifies WalkUPs in the 30 largest metros—and then ranks those metros according to current *and* future levels of walkable urbanism.

This study determines the geographic locations of WalkUPs in the country's 30 largest metropolitan areas. It then ranks each metro from greatest to least amount of walkable urban development. These rankings update findings from a 2007 Brookings Institution report; the 2007 report more primitively defined and measured this emerging trend compared with this analysis and the 2012 Brookings methodology on which this research is based.⁵

Defining the WalkUPs in each of the 30 largest metropolitan areas yielded 558 WalkUPs, although within each metro area the number of WalkUPs range considerably. Metro New York contains 66 WalkUPs, while metro San Antonio has only two. A variety of sources were employed to determine the locations and boundaries of each metro area's WalkUPs:

- **WalkScore heat maps** to identify the walkable areas with scores above 70
- **"Submarket" definitions** from commercial brokerage firms
- **Business improvement district boundaries**
- **Neighborhood boundaries** from local sources, where available
- **Satellite aeriels** to confirm walkable versus drivable environments⁶

MICE THAT ROAR

With 146 million residents, the 30 largest U.S. metropolitan areas are home to 46 percent of the total U.S. population. According to the Bureau of Economic Analysis, these 30 metros also account for 58 percent of the U.S. GDP.⁷

Within these metro areas, WalkUPs occupy a relatively small portion of land. Research in this report, observations, and in-depth analysis of metro Atlanta, Boston, and Washington, DC, suggest that WalkUPs account for about 1 percent of all metropolitan land in the 30 largest metros.

In defining the geographic boundaries of WalkUPs, it becomes clear that their small geographic size delivers outsized economic impact.

For example, Washington, DC's WalkUPs occupy less than 1 percent of the metro area square acreage—yet absorbs almost half of its office, retail, and apartment square footage.

In defining the geographic boundaries of WalkUPs, we find that their small geographic size delivers outsized economic benefits. Analysis of metro Washington, DC, in 2012 identified 45 WalkUPs that on average occupy 408 acres each—or approximately 17,500 acres in total.⁸ In the current real estate cycle, which began in 2009, these WalkUPs, which make up less than 1 percent of the metro area's acreage, have accounted for 48 percent of the metro area's new office, hotel, and rental apartment square footage.

As in metro DC, Atlanta's WalkUPs account for less than 1 percent of its total metro land mass. The 27 WalkUPs in metro Atlanta occupy an average of 374 acres each, or approximately 10,000 acres in total. Together, these WalkUPs accounted for 50 percent

of the metro area's office, retail, hotel and apartment square footage developed from 2009 to 2013.

This analysis does not account for the location and size of owner-user space. Owner-user space is employment space occupied by its owners. Many public

and private sector organizations occupy their own real estate. For example, federal and state governments, and universities and medical centers tend to be owner-occupied. Because no comprehensive regional or national database exists for these real estate types, as much as 30 to 40 percent of employment space cannot be classified and therefore measured. This omission represents a gap in all studies of development patterns, including this one.

WALKABLE URBANISM OF THE 30 LARGEST U.S. METROPOLITANS:

Current Ranking

RANK	METRO AREA	# OF WALKUPS	POPULATION			OFFICE & RETAIL SPACE			% of WalkUP Office & Retail Space in the Central City
			Total in Metro Region	Per WalkUP	Rank (Pop. per WalkUP)	Located in WalkUPs (sq. ft.)	Total in Metro Area (sq. ft.)	Share of Total Located in WalkUPs	
1	Washington, DC	45	5,047,000	112,000	2	297,300,000	696,441,000	43%	51%
2	New York	66	22,166,000	336,000	19	773,405,000	2,033,660,000	38%	89%
3	Boston	37	3,981,000	108,000	1	171,835,000	482,929,000	36%	67%
4	San Francisco	57	7,298,000	128,000	3	227,537,000	766,010,000	30%	83%
5	Chicago	38	8,509,000	224,000	10	262,374,000	893,718,000	29%	94%
6	Seattle	23	3,864,000	168,000	6	100,879,000	373,966,000	27%	82%
7	Portland	10	2,153,000	215,000	9	46,238,000	208,246,000	22%	91%
8	Atlanta	27	4,306,000	159,000	4	121,948,000	577,060,000	21%	75%
9	Pittsburgh	11	2,576,000	234,000	11	56,489,000	274,246,000	21%	98%
10	Cleveland	10	2,065,000	206,000	8	45,579,000	231,987,000	20%	94%
11	Baltimore	16	2,722,000	170,000	7	52,043,000	267,538,000	19%	84%
12	Minneapolis	10	2,953,000	295,000	17	66,450,000	343,821,000	19%	99%
13	Philadelphia	17	5,318,000	313,000	18	97,419,000	514,308,000	19%	95%
14	Denver	18	2,968,000	165,000	5	60,341,000	331,682,000	18%	90%
15	Houston	12	6,481,000	540,000	25	109,089,000	638,333,000	17%	93%
16	Columbus	7	2,064,000	295,000	16	33,676,000	211,799,000	16%	98%
17	Kansas City	7	1,966,000	281,000	13	35,859,000	227,534,000	16%	96%
18	Los Angeles	54	18,529,000	343,000	22	223,747,000	1,439,440,000	16%	65%
19	St. Louis	9	2,584,000	287,000	14	43,204,000	285,413,000	15%	77%
20	Cincinnati	7	2,024,000	289,000	15	33,234,000	222,225,000	15%	100%
21	Sacramento	6	2,384,000	397,000	23	26,815,000	209,797,000	13%	94%
22	Detroit	14	4,711,000	337,000	20	48,886,000	462,624,000	11%	71%
23	Miami	17	5,828,000	343,000	21	52,952,000	522,592,000	10%	51%
24	San Diego	13	3,211,000	247,000	12	24,966,000	251,671,000	10%	85%
25	Dallas	9	6,926,000	770,000	28	67,409,000	720,569,000	9%	93%
26	Las Vegas	3	2,028,000	676,000	27	13,904,000	170,856,000	8%	100%
27	San Antonio	2	2,387,000	1,193,000	30	12,152,000	196,033,000	6%	100%
28	Tampa	6	3,038,000	506,000	24	17,496,000	282,723,000	6%	92%
29	Phoenix	4	4,009,000	1,002,000	29	19,625,000	366,099,000	5%	69%
30	Orlando	3	1,960,000	653,000	26	10,417,000	199,300,000	5%	90%

Metropolitan areas are ranked according to their current levels of walkable urbanism.

The walkable urbanism of each metro is determined to be the share of office and retail space located in its WalkUPs, through the first quarter of 2014.

Rankings are divided into four levels of walkable urbanism, which are explained on the following pages.

KEY: Levels of Current Walkable Urbanism

- LEVEL 1: HIGH WALKABLE URBANISM
- LEVEL 2: MODERATE WALKABLE URBANISM
- LEVEL 3: TENTATIVE WALKABLE URBANISM
- LEVEL 4: LOW WALKABLE URBANISM

Washington, DC
New York
Boston
San Francisco
Chicago
Seattle

6
Number of Metros

266
Total WalkUPs

48%
Share of All WalkUPs
in Top 30 Metros

27-43%
Range of Metro Office & Retail
Space Located in WalkUPs

**LEVEL 1:
HIGHEST WALKABLE URBANISM**

Metro Washington, DC, ranks first. It not only has the most office and retail in WalkUPs, but also has the most balanced distribution of walkable urban space between the central city (51 percent) and suburbs (49 percent). In fact, it is the only metro that has more than half of its WalkUPs in the suburbs. Metro Boston, ranked third, experienced urbanization of its suburbs, primarily Cambridge, which contributed to its high ranking.

That Washington, DC, is ranked higher than New York, ranked second, and Chicago, ranked fifth, may be surprising to some observers. Though New York has a well-deserved reputation for walkability, that reputation is based mainly on New York City proper, and especially Manhattan—an island that makes up only 8 percent of the metro region’s 22 million people and 0.3 percent of the land area. More than 89 percent of walkable urban office and retail in the metro area is located within New York City’s limits, most in Manhattan. This means that much of the metro area outside the city limits does not have any WalkUPs. Metro Chicago also has the vast majority (94.5 percent) of its walkable urban office and retail space in the central city.

Portland
Atlanta
Pittsburgh
Cleveland
Baltimore
Minneapolis
Philadelphia
Denver

8
Number of Metros

119
Total WalkUPs

21%
Share of All WalkUPs
in Top 30 Metros

18-22%
Range of Metro Office & Retail
Space Located in WalkUPs

**LEVEL 2:
MODERATE WALKABLE URBANISM**

These metros have the vast majority of their walkable urban office and retail space in the central city (75 percent to 99 percent), indicating walkable urbanism has not yet spread to the suburbs. This characteristic particularly applies to Portland; despite its national reputation for walkable urbanism, more than 90 percent of its walkable urban space is concentrated within its central city.

Rankings of older industrial metros in this category, such as Pittsburgh, Cleveland, Baltimore, and Philadelphia, may reflect historic, early 20th-century trends. Many of these metros lack significant suburban walkable urbanism and have experienced decades of weaker economic growth and underinvestment in their early 20th-century rail transit systems. However, their center city walkable urban development has been impressive.

Among these moderately ranked metros, Minneapolis and Denver are noteworthy. While most current walkable urbanism is in their central cities, both areas are significantly expanding their light rail systems and the potential of suburban urbanism.

Houston
Columbus
Kansas City
Los Angeles
St. Louis
Cincinnati

6
Number of Metros

96
Total WalkUPs

17%
Share of All WalkUPs
in Top 30 Metros

15-17%
Range of Metro Office & Retail
Space Located in WalkUPs

**LEVEL 3:
TENTATIVE WALKABLE URBANISM**

Four of these six metros—Houston, Columbus, Kansas City, and Cincinnati—have 93 percent or more of their walkable urban office and retail space in the central city; virtually no walkable urbanism exists in their suburbs. These four metros continued the expansion of drivable sub-urban development patterns, especially Houston with its fast-growing, energy-based economy over the last decade. Despite the predominant trend, they also possess some surprising examples of revitalizing WalkUPs.

Los Angeles and St. Louis demonstrate strong walkable urbanism in their suburbs, and both metros are aggressively expanding their rail transit systems. Los Angeles is undertaking the largest rail transit expansion in the country.

Sacramento
Detroit
Miami
San Diego
Dallas
Las Vegas
San Antonio
Tampa
Phoenix
Orlando

10
Number of Metros

77
Total WalkUPs

14%
Share of All WalkUPs
in Top 30 Metros

5-13%
Range of Metro Office & Retail
Space Located in WalkUPs

**LEVEL 4:
LOWEST WALKABLE URBANISM**

Sacramento, San Diego, Las Vegas, San Antonio, Tampa, and Orlando have low percentages of walkable urban office and retail development overall, and nearly all of it is in the central city. While Sacramento and San Diego have invested in light rail, outside of their revitalized downtowns and downtown adjacent areas there is little evidence of this investment resulting in walkable urban development.

Historically, drivable sub-urban development has characterized metro Detroit, Miami, and Phoenix. However, in contrast to their popular reputations and low rankings at present, all three metros are experiencing revitalized downtowns and even some urbanizing suburbs, with several outstanding examples of WalkUPs in them.

WALKABLE URBANISM OF THE 30 LARGEST U.S. METROPOLITANS:

Future Ranking

RANK	METRO AREA	FAIR SHARE INDEX	% ABSORPTION 2010-Q1 2014		WALKUP RENT PREMIUMS		COMPOSITE DIRECTIONAL INDEX
			Share of Regional Office Space in WalkUPs	Share of WalkUP Office & Retail in Suburbs	Current Premium	Change in Premium Q4 2007-Q4 2014	
1	Boston	1.21	55%	33%	182%	107%	0.82
2	Washington, DC	1.40	76%	49%	56%	24%	0.49
3	New York	<0	<0%	11%	206%	52%	0.47
4	Miami	2.03	32%	49%	38%	14%	0.44
5	Atlanta	1.74	59%	25%	30%	13%	0.38
6	Seattle	1.68	69%	18%	25%	2%	0.34
7	San Francisco	0.88	32%	17%	47%	30%	0.32
8	Detroit	1.77	34%	29%	4%	2%	0.29
9	Denver	1.02	28%	10%	44%	20%	0.28
10	Tampa	1.58	18%	8%	16%	10%	0.25
11	Los Angeles	<0	<0%	35%	42%	25%	0.20
12	Phoenix	0.73	8%	31%	27%	1%	0.19
13	Houston	0.58	17%	7%	41%	10%	0.18
14	Portland	0.53	19%	9%	21%	18%	0.18
15	Chicago	0.25	11%	6%	44%	11%	0.15
16	Philadelphia	0.52	15%	5%	19%	12%	0.14
17	Dallas	0.66	12%	7%	15%	7%	0.14
18	Orlando	0.48	5%	10%	25%	1%	0.11
19	Sacramento	<0	<0%	6%	40%	12%	0.10
20	Las Vegas	<0	<0%	0%	25%	21%	0.10
21	Pittsburgh	0.36	13%	2%	14%	1%	0.08
22	Baltimore	0.31	9%	16%	-6%	0%	0.07
23	Minneapolis	<0	<0%	1%	10%	17%	0.06
24	Cleveland	<0	<0%	6%	10%	12%	0.06
25	Cincinnati	<0	<0%	0%	16%	13%	0.06
26	St. Louis	<0	<0%	23%	-3%	6%	0.06
27	Columbus	0.25	7%	2%	8%	-1%	0.05
28	San Diego	<0	<0%	15%	3%	0%	0.04
29	Kansas City	<0	<0%	4%	-1%	10%	0.03
30	San Antonio	<0	<0%	0%	1%	-2%	0.00

More interesting is to determine where the future growth of these metropolitan areas might be heading.

A Composite Directional Index was developed to rank the 30 largest metros on how walkable or sprawling their future development is likely to be.

This Index is a blend of the following trend metrics:

Office and/or Retail Space Absorption:

- Fair Share Index (FSI)
- Share of Regional Office Space Absorbed in WalkUPs
- Share of WalkUP Office & Retail Space Absorbed in Suburbs vs. Central Cities

Office Rent Premiums:

- Current WalkUP Office Rent Premiums
- Change in WalkUP Office Rent Premiums

Detailed explanations of each metric are included on the next page.

KEY:

Levels of Future Walkable Urbanism

- **LEVEL 1:** HIGH POTENTIAL for FUTURE WALKABLE URBANISM
- **LEVEL 2:** MODERATE POTENTIAL for FUTURE WALKABLE URBANISM
- **LEVEL 3:** LOW POTENTIAL for FUTURE WALKABLE URBANISM

- Boston
- Washington, DC
- New York
- Miami
- Atlanta
- Seattle
- San Francisco
- Detroit
- Denver

9
Number of Metros

LEVEL 1: HIGH POTENTIAL for FUTURE WALKABLE URBANISM

There are nine highest-ranked metros regarding future walkable urban performance. These metro area WalkUPs are gaining market share over drivable sub-urban locations, as evidenced by FSI values greater than 1.0 and significant price premiums for walkable urban office space. These trends are not consistent in metro New York, where WalkUPs are losing office market share even as their already sky-high premiums for office rent continue to increase.

Unsurprisingly, metro Boston, New York, Washington, DC, and Seattle all rank high for future walkable urban growth. Perhaps surprisingly, metro Miami, Atlanta, Detroit, and Denver are likely to experience future growth in walkable urban development. (see Metropolitan Snapshots on pages 27 and 29, respectively). Except for Detroit, all of these metros have rent premiums for walkable urban office space on a per square foot basis of at least 25 percent over their drivable sub-urban competition.

Both metro Miami and Atlanta sprawled faster than most metro areas for decades. In this real-estate cycle, which began in 2009, these two metros indicate a fundamental shift from drivable sub-urban office development to walkable urban, as their WalkUPs are rapidly increasing their share of the office market.

While Detroit experienced the most substantial and well-publicized economic decline over the past decade, its future for growth in walkable urban development seems promising. Recently, it experienced some of the fastest-growing GDP and job growth among metros, much of it in revived WalkUPs, particularly in downtown and Midtown.

With its substantial investment in rail transit, car-dominated Denver is also showing a clear path to walkable urbanism as its dominant land-use pattern. Nearly all of the suburban regional malls have, or will, convert to WalkUPs, following the wildly successful Belmar regional mall conversion in Lakewood, an inner suburb.

Trend Metrics Used in Future Ranking

OFFICE SPACE ABSORPTION

- **Fair Share Index (FSI)**
WalkUPs share of the regional office absorption for a set of recent years divided by WalkUPs market share of the office inventory at the beginning of that time period. For this analysis, we analyzed net office market absorption for 2010 through the first quarter of 2014.

FSI values indicate the following:

- **FSI > 1.0**
A metro's WalkUPs have gained market share
- **0.0 ≤ FSI ≤ 1.0**
A metro's WalkUPs have lost market share but have positive absorption
- **FSI < 0.0**
A metro's WalkUPs have lost of market share and have negative absorption

From the 1950s through the early 21st century, WalkUPs in virtually every metro area in the country lost office market share due to the dominance of drivable sub-urban land development. Select market research indicates that during these decades, the FSI for office space in WalkUPs generally ranged between 0.4 and 0.6, and was consistently less than 1.0. This study shows that this situation has begun to reverse in highly walkable urban metros.⁹

- **Share of Regional Office Space Absorbed in WalkUPs**
Total share of a WalkUP's regional office absorption from 2010 through the first quarter of 2014. This metric differs from the FSI described above in that it is not relative to market share in a base year; rather, it indicates a WalkUP's share of the total regional net office absorption over the study period.

- **Share of Total Metro WalkUP Office & Retail Space Absorbed in Suburban WalkUPs**
The share of a metro's total WalkUP office and retail space located in suburban WalkUPs versus central city WalkUPs. In most metro areas ranked highly for walkable urbanism, the large majority of office and retail development has occurred in the central cities. However, focusing only on redevelopment in downtown areas misses segments of the market that demand walkable urbanism in their suburbs. Increasing suburban urbanism portends future growth of WalkUPs in these metro areas.

OFFICE RENT PREMIUMS

- **Current WalkUP Office Rent Premiums**
The premium, or discount, for office rents per square foot in WalkUPs, as compared to the average in drivable sub-urban areas. Price premiums indicate pent-up demand for a product, in this case office space in walkable urban locations.
- **Change in WalkUP Office Rent Premium**
The increase or decrease in rent premiums for office space in WalkUPs between the fourth quarter of 2007 and the first quarter of 2014.

COMPOSITE DIRECTIONAL INDEX

The trend metrics above were blended into one index to rank the 30 metros according to how walkable or sprawling their future development is likely to be.

Tampa
Los Angeles
Phoenix
Houston
Portland
Chicago
Philadelphia
Dallas

8
Number of Metros

LEVEL 2: MODERATE POTENTIAL for FUTURE WALKABLE URBANISM

These eight moderately ranked metro areas show mixed indicators about their future growth. All have office price premiums (between 15 percent in Dallas to 44 percent in Chicago) for walkable urban places over their drivable sub-urban locations.

Regarding FSI, these metros generally lost market share—with FSIs under 1.0—except for Tampa, which gained market share. Even Chicago, ranked fifth among current walkable urban metros, is losing WalkUP market share, though walkable urban office price premium is a substantial 44 percent.

Compared with the high metros for future walkable urban development, most walkable urban office development in these moderately ranked metros is in the central city, not urbanizing suburbs. Again, low suburban urbanism limits the market potential.

What does walkable urban development mean for the future of these metro areas?

- **Tampa:** Tampa's ranking reflects mixed trends, including a recent surge of office walkable urban absorption over a very small base (18 percent absorption in this cycle over an 11 percent base in 2010). However, Tampa's recently built streetcar sparked a renaissance in downtown Tampa and two downtown adjacent WalkUPs. Its secondary downtown of St. Petersburg has been creating a vital walkable urban place. Together, these efforts may justify this ranking, though only time will tell.
- **Los Angeles:** Oriented around rail transit in the early 20th century, Los Angeles is a natural place to urbanize given its existing and rapidly revitalizing suburban town center WalkUPs. In addition, walkable urban growth exploded in downtown Los Angeles, along with six downtown adjacent WalkUPs. The region has been and will continue to invest more in rail transit

than any metro area in the country. These trends and investments demonstrate that freeway-dominated Los Angeles will become a major walkable urban metro (see Metropolitan Snapshot on page 26).

- **Phoenix:** Famously known as a sprawling metro area, Phoenix's new light rail serving Uptown, downtown Phoenix and Tempe and successful revitalization efforts in downtown and Tempe, home of ASU, warrant its moderate ranking. Like Tampa, this ranking is primarily based on high walkable urban office absorption over a low base in the current real-estate cycle; only time will tell if these trends endure.
- **Houston:** The oil and gas capital of the country certainly has a natural economic inclination for driving and road building. However, Houston's new light rail system serving its revitalizing downtown and downtown adjacent WalkUPs, together with significant WalkUP office rent premiums show that walkable urbanism may characterize at least part of its future (see Metropolitan Snapshot section on page 28).
- **Dallas:** The market viability of WalkUPs is the result of aggressive expansion of the Dallas Area Rapid Transit (DART) system and pioneering walkable urban real estate developers, such as Robert Shaw, Robert Bass, Ross Perot, III, and Blake Pogue. The cost of expanding DART to serve a physically huge "Metropolis", is daunting, but not beyond the typical ambition of Texans.
- **Portland:** Widely known for its walkable urbanism, rail transit, and bikeability, Portland has experienced little urbanization of its suburbs, continuing to build drivable sub-urban patterns in spite of its urban growth boundary.
- **Chicago:** While highly ranked for its current walkable urban development, it is located nearly entirely in the central city. Development confined to the city of Chicago limits the market for walkable urbanism, since many households and businesses would not consider a location in the city. Chicago's greatest opportunity to add walkable urbanism—and by extension, enhanced economic viability—is to urbanize its suburbs. The 388 local jurisdictions in the Chicago metro that control land use have stifled urbanization of the suburbs; this opposition hinders a significant portion of market demand to be satisfied.
- **Philadelphia:** Similar to Chicago, Philadelphia's walkable urban growth occurred almost exclusively in the central city. While urbanizing suburbs present an opportunity to realize more WalkUPs, massive NIMBY opposition and a poorly maintained commuter rail system create challenges.

Orlando
Sacramento
Las Vegas
Pittsburgh
Baltimore
Minneapolis
Cleveland
Cincinnati
St. Louis
Columbus
San Diego
Kansas City
San Antonio

13
Number of Metros

LEVEL 3: LOW POTENTIAL for FUTURE WALKABLE URBANISM

These 13 metropolitan areas continue to lose market share in office and retail locating in their WalkUPs, continuing the mid- to late- twentieth century trend toward drivable sub-urbanism. In addition, they do not have substantial office rental price premiums. With 5 percent to 13 percent of office and retail space in WalkUPs, these metro areas have a long way to go to fully develop walkable urbanism.

Each of these metros has walkable urban proponents in government, civic organizations, and the development community; yet, these supporters comprise a distinct minority.

These metros fall into two geographic categories:

- **Former industrial-era metropolitan areas** struggling to redefine their slow-growing economies, though having an historic central city to redevelop
- **Sunbelt metros** defined by low-density, drivable sub-urban development and lacking a substantial historic urban core to redevelop

Most of these metros have the vast majority (more than 90 percent) of the walkable urban office and retail development in their central cities, with a few exceptions of somewhat larger amount in the suburbs (San Diego, 15 percent; Baltimore, 16 percent; and St. Louis, 23 percent).

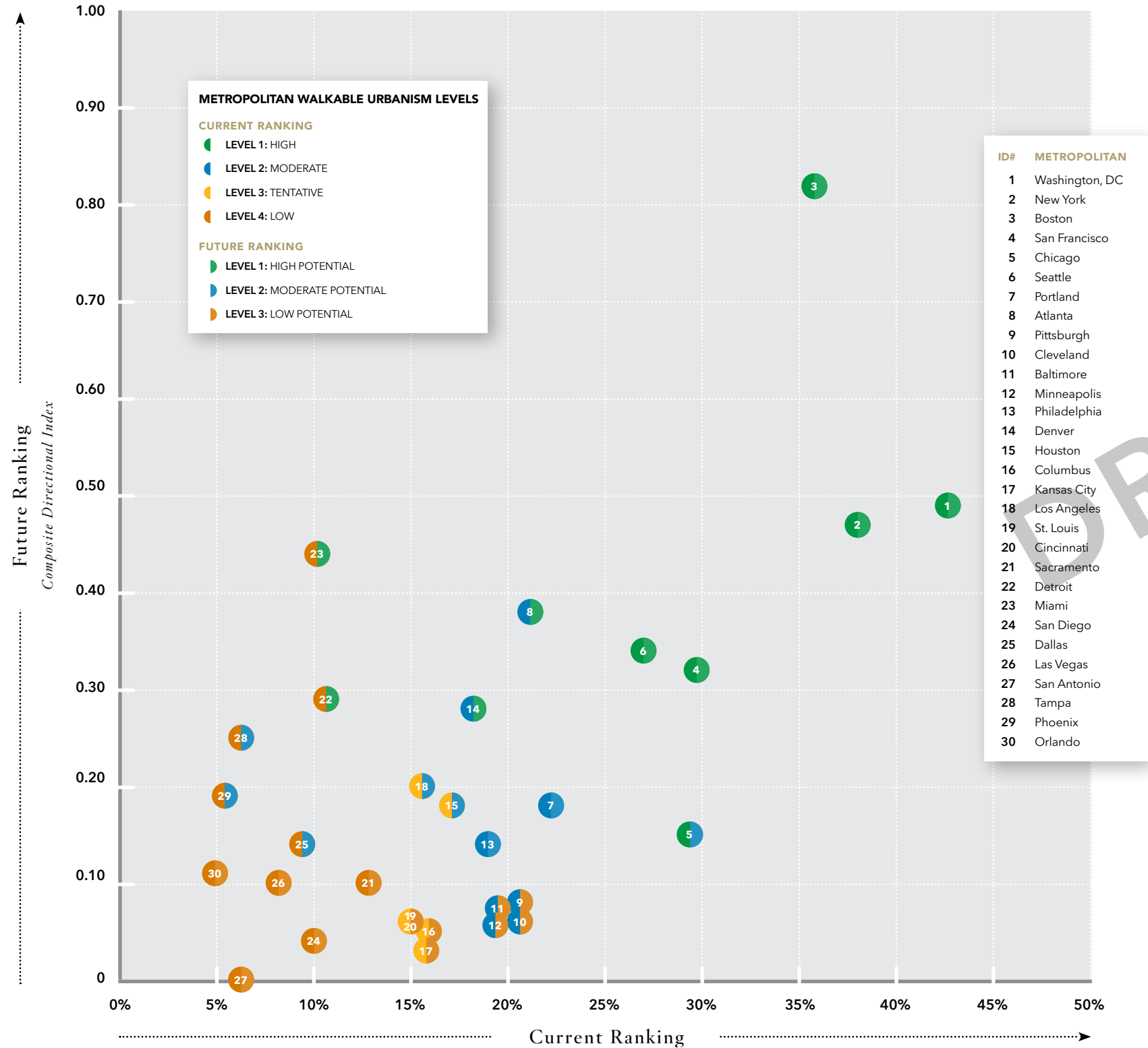
The following notable efforts in selected low potential metros may shift their development to walkable urban:

- **Substantial housing development in WalkUPs**, particularly downtown and downtown adjacent areas. Observed evidence suggests this could occur in metro Baltimore, St. Louis, Cleveland, Minneapolis, and San Diego.
- **New light rail lines** in metro Sacramento, Pittsburgh, Baltimore, St. Louis, Minneapolis, and San Diego.
- **Funded and under-construction streetcars** in Kansas City and Cincinnati.
- **Regional coordination and support for walkable urban development** generally through council of government organizations in selected metros, such as Sacramento's SACOG.

However, as of now, these low potential metros still favor drivable sub-urban over walkable urban development trends.

Walkable Urbanism of the 30 Largest U.S. Metros:

Scatterplot Showing the Distribution of
Current Rankings vs. *Future* Rankings



ID#	METROPOLITAN
1	Washington, DC
2	New York
3	Boston
4	San Francisco
5	Chicago
6	Seattle
7	Portland
8	Atlanta
9	Pittsburgh
10	Cleveland
11	Baltimore
12	Minneapolis
13	Philadelphia
14	Denver
15	Houston
16	Columbus
17	Kansas City
18	Los Angeles
19	St. Louis
20	Cincinnati
21	Sacramento
22	Detroit
23	Miami
24	San Diego
25	Dallas
26	Las Vegas
27	San Antonio
28	Tampa
29	Phoenix
30	Orlando



CORRELATIONS & FINDINGS

WalkUPs & Income

Correlations and findings indicate that walkable urban development, education, and economic vitality are somehow linked.

WALKUPS, METROPOLITAN GDP, AND HIGHER EDUCATION

Many studies have shown the causal link between increased education of an individual or metropolitan area and increased economic performance on a per capita gross domestic product (GDP) basis, metropolitan GDP, and U.S. GDP.

The Milken Institute, for example, released a study on the GDP performance of 261 U.S. metros in January 2013 that concludes, “the overall explanatory power of the relationship [between higher education and GDP per capita] is strong and robust.” It finds “over 70 percent of the variation in real GDP per capita across the 261 metros from 1990 to 2010 is explained [by higher education attainment].”¹⁰ This causal connection underpins the same conclusions in Enrico Moretti’s book, *The New Geography of Jobs*.

This study also shows significant correlation between higher education, measured by the percentage of population aged 25 years or older with a college degree, and metropolitan GDP per capita.¹¹

In addition, this study shows that walkable urbanism, measured by the percentage of a metro region’s office and retail square footage in WalkUPs, and higher educational attainment, measured by the percentage of a metro region’s population are positively correlated.¹²

Given the relationship between educational attainment and walkable urbanism, and the relationship between educational attainment and per capita GDP, it is not surprising that walkable urbanism and per capita GDP are also positively correlated.¹³ The six highest-ranked walkable urban metropolitan areas, shown in the Current Rankings table on page 11, have an average GDP per capita of \$60,400. GDP per capita in walkable urban metros is 38 percent higher than the average GDP per capita (\$43,900) in the 10 low walkable urban metros. The GDP

CURRENT WALKABLE URBANISM			WEALTH		EDUCATION LEVEL	
RANK	METRO AREA	% of Office & Retail Space Located in WalkUPs	Metro GDP per Capita (Chained 2005 Dollars)	Rank: GDP	% of Population 25 & Over with Bachelors Degree	Rank: Education
1	Washington, DC	43%	\$66,400	2	48%	1
2	New York	38%	\$59,400	6	37%	7
3	Boston	36%	\$58,400	7	42%	3
4	San Francisco	30%	\$69,900	1	43%	2
5	Chicago	29%	\$51,400	12	34%	10
6	Seattle	27%	\$64,200	3	37%	6
7	Portland	22%	\$62,000	5	34%	11
8	Atlanta	21%	\$47,000	16	35%	9
9	Pittsburgh	21%	\$44,400	19	30%	19
10	Cleveland	20%	\$46,200	17	28%	26
11	Baltimore	19%	\$49,200	13	36%	8
12	Minneapolis	19%	\$55,500	10	39%	5
13	Philadelphia	19%	\$51,800	11	33%	13
14	Denver	18%	\$56,400	8	41%	4
15	Houston	17%	\$62,400	4	29%	22
16	Columbus	16%	\$44,700	18	33%	14
17	Kansas City	16%	\$48,300	15	33%	15
18	Los Angeles	16%	\$44,000	20	29%	24
19	St. Louis	15%	\$41,700	23	31%	17
20	Cincinnati	15%	\$43,300	21	29%	20
21	Sacramento	13%	\$38,400	28	30%	18
22	Detroit	11%	\$43,100	22	29%	21
23	Miami	10%	\$41,300	25	29%	23
24	San Diego	10%	\$48,800	14	34%	12
25	Dallas	9%	\$55,600	9	31%	16
26	Las Vegas	8%	\$41,200	26	22%	30
27	San Antonio	6%	\$35,400	30	26%	28
28	Tampa	6%	\$36,600	29	26%	29
29	Phoenix	5%	\$40,700	27	28%	25
30	Orlando	5%	\$41,700	24	28%	27

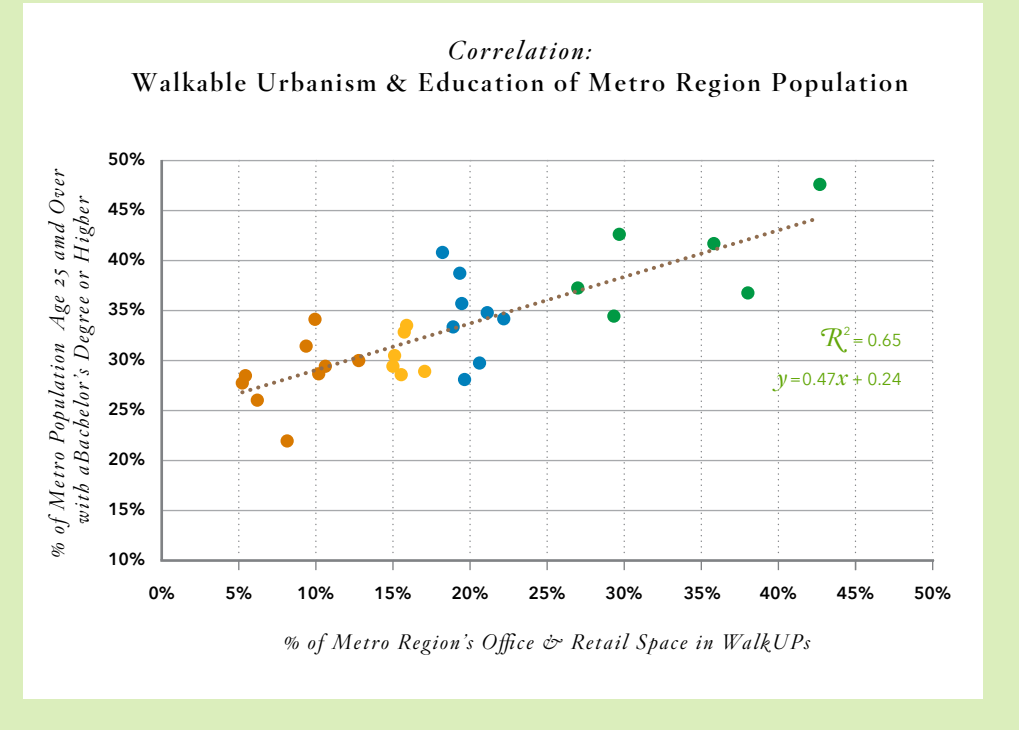
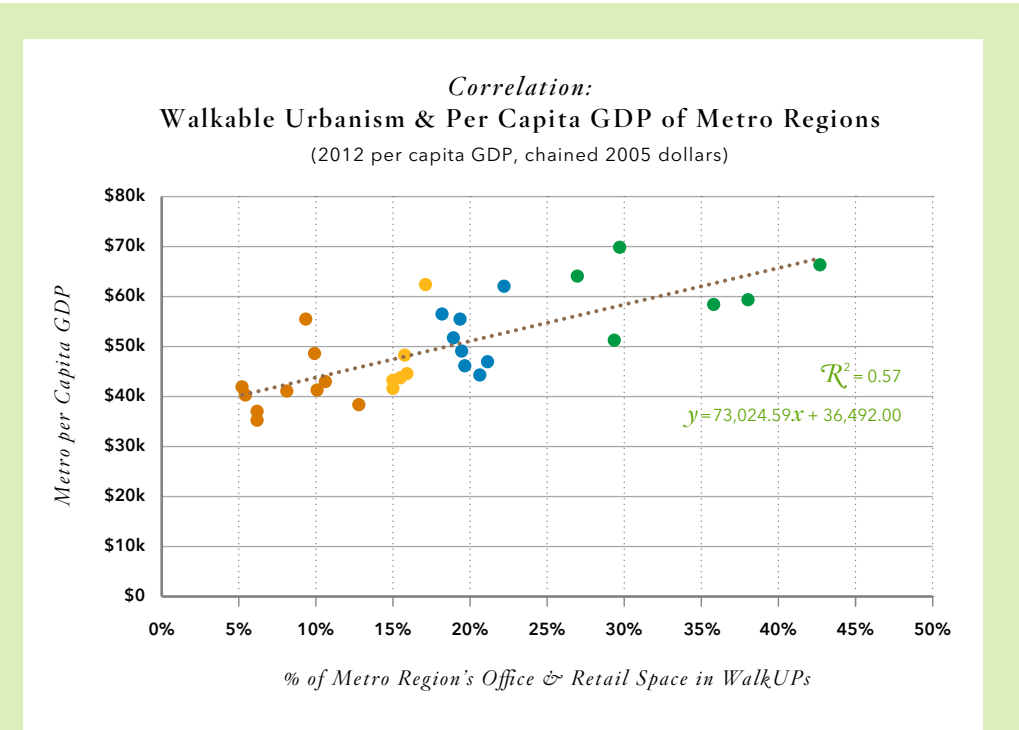
per capita of the highest three walkable urban metros (\$60,500) is 52 percent higher than the GDP per capita of the lowest three walkable urban metros (\$39,700).

This research does not indicate whether walkable urbanism causes highly educated persons to move or stay in metro areas or whether metro areas become more walkable urban because of higher-educated persons. Previous research suggests, though, that educated people prefer walkable urban places but does not indicate the causal connection. Richard Florida calls walkability a magnet for the creative class, and a recent study by Wisconsin PIRG finds that more than 80 percent of college students think having transportation options other than driving was either somewhat or very important in where they choose to live.¹⁴

Using both educational attainment and walkable urbanism together in a multiple regression analysis explains 66 percent of the variation in per capita GDP among the 30 largest metros. This correlation is only slightly stronger than the correlation between educational attainment and per capita GDP. This finding suggests that walkable urbanism’s positive correlation with per capita GDP may be due to its association with educated people. At the very least, though, these relationships establish that metro areas with wealthy, educated residents tend to be walkable.

Metro Dallas and Houston seem to be outliers in this analysis; moderate and tentative walkable urbanism but high GDP per capita. As expected, excluding Dallas and Houston from the analysis results in an even stronger correlation between walkable urbanism, higher education and GDP per capita.¹⁵ If they are excluded, the R² value for the correlation between walkable urbanism and educational attainment increases from 0.62 to 0.66. For the correlation between walkable urbanism and per capita GDP, it increases to 0.69.

Although more research needs to be done to understand why walkable urbanism is correlated with higher per capita GDPs and education levels, this evidence suggests that encouraging walkable urbanism is a potential strategy for regional economic development.



**OFFICE RENTAL PREMIUMS:
WALKUPS VERSUS DRIVABLE SUB-URBAN**

WalkUP office rents achieve a 74 percent premium over drivable sub-urban office rents in the 30 largest metros (\$35.33 per square foot for WalkUPs compared to \$20.32 per square foot for drivable sub-urban locations). Excluding metro New York City from the analysis, due to its high office rent premiums (206 percent), WalkUPs achieve an average 44 percent price premium in the remaining 29 metros (\$29.99 per square foot compared to \$20.81 per square foot). Since the fourth quarter of 2007, the walkable urban premium has increased by 19 percentage points (or 21 percentage points without New York), so the trend is accelerating.

Rent premiums of this magnitude reflect pent up demand for walkable urban offices space. In addition, the existence of these price premiums likely indicate that mainly walkable urban office will be financially feasible for the foreseeable future.

**WALKUP OFFICE & RETAIL:
CENTRAL CITIES VS. SUBURBS**

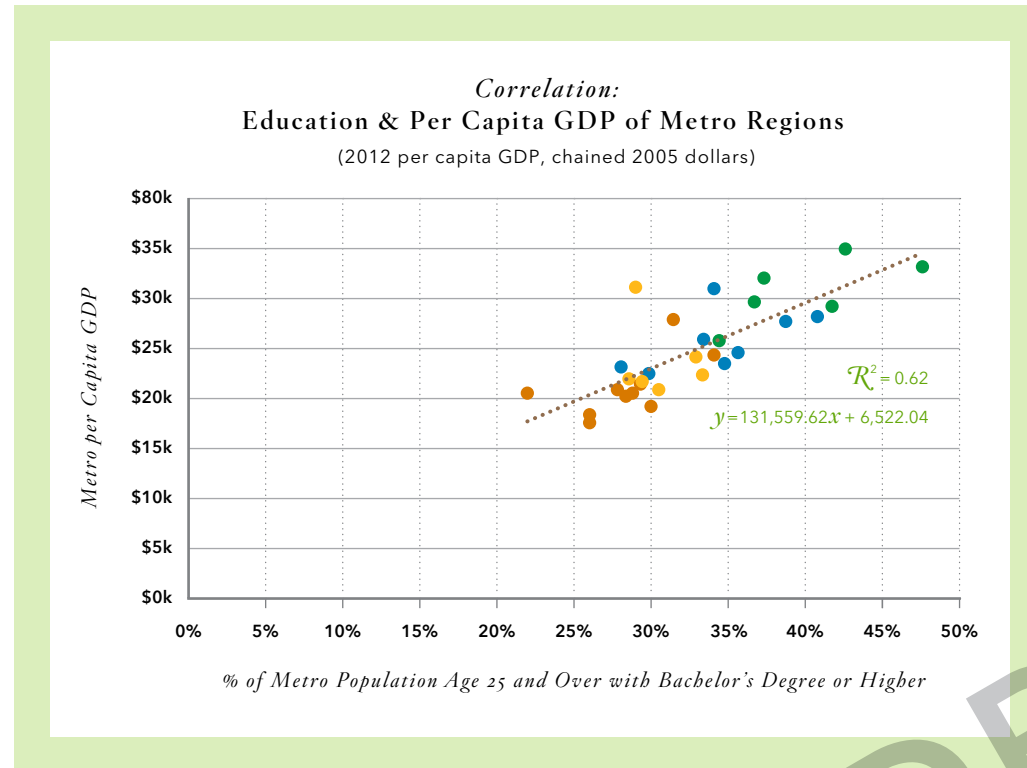
As previously discussed, the U.S. Census Bureau's central city and suburb designations have been the predominant lens through which metropolitan development trends have been analyzed. As this research has shown, walkable urban development and drivable sub-urban development is a more relevant perspective on metropolitan development trends since both types can occur in either the central city or the suburbs.

Yet, because the traditional central city-suburbs dichotomy dominates metropolitan-level analysis, we have analyzed these findings through that lens.

Of the 558 WalkUPs in the 30 largest metropolitan areas in the country, 58 percent are in the central city and 42 percent are in the suburbs. However, 82 percent of office and retail square footage is in WalkUPs, with 18 percent in the suburbs.

Some of the highest-ranked walkable urban metros, such as metro Washington, DC and Boston, have a high percentage of their walkable urbanism in the suburbs in both absolute number of WalkUPs and percentage of square footage. For instance, metro Washington, DC, has 49 percent of its walkable urban office and retail square footage in its suburbs. This indicates that the urbanization of the suburbs is important to increase walkable urbanism.

While redevelopment of U.S. central cities partially explains the growth in WalkUPs, urbanization of the suburbs represents an equally important, yet often overlooked, explanation. This study finds that the urbanization of the suburbs acts as an indicator of



future walkable urban development in a metropolitan area. To grow economically, urbanization of the suburbs is a crucial next step for metropolitan areas over the next few real estate cycles.

DEVELOPMENT POTENTIAL FOR ADDITIONAL WALKUPS

As the prevalence of regional shopping centers grew during the late 1950s and 60s, researchers discussed how many regional malls a metropolitan area could support. This determination was often made by measuring the number of residents needed to support a regional mall. There is a similar question for the growth of WalkUPs: "How many residents are needed to support a regionally significant, walkable urban place—and how many more WalkUPs are required?"

The average weighted number of residents per WalkUP in the 30 largest metros is approximately 260,000. However, there is considerable variation in average population per WalkUP between the 30 largest metros, with the lowest number of residents being 108,000 per WalkUP in metro Boston and the highest being 1.2 million in metro San Antonio. The amount of office and retail square footage as a percentage of total real estate is another way to analyze this question; the average across the 30 largest metros is 22 percent. Metro Washington, DC, has the highest amount of all office and retail space in WalkUPs at 42.7 percent; metro Orlando has the lowest at 5.2 percent.

If metro Boston and Washington, DC, are indicative of the future, this means there is the potential for hundreds of WalkUPs to be developed throughout the country, as well as millions of walkable urban square feet. Drawing a parallel between past and contemporary real estate trends, it took decades to meet the pent-up demand for regional malls. It will likely take decades of development to satisfy the demand for walkable urbanism and new and expanded WalkUPs.





The National Model

Metro Washington, DC, continues to be the national model of walkable urban growth.

The 2007 rankings of the 30 largest U.S. metros by the Brookings Institution surprisingly ranked metropolitan Washington, DC, as the leading walkable urban metro in the country; today, metro DC is still ranked on top.

Several reasons explain why metro Washington, DC, is highly ranked, including the following:

- Forty-eight percent of metro residents over 25 years old have a college degree—the highest percentage of college graduates in the country—compared with the national average of 30 percent.
- Metrorail, one of three 1970s-era heavy rail transit systems, has continued to aggressively expand. Over the past 40 years, there have been 29 separate expansions, far greater than Atlanta's MARTA or San Francisco's BART systems, the other two 1970s systems. While the system deteriorated due to poor maintenance in the 1990s and early 2000s, recent capital improvements are improving operational performance.
- The region has seven local government bodies—the District of Columbia and six suburban counties—and a few small cities with the ability to regulate land use, far less than nearly every other large metropolitan area. This relatively small number of governmental entities enables regional coordination that is embracing walkable urbanism. For example, most suburban counties encourage higher density, mixed-use zoning around their Metro stations.
- In general, metro Washington, DC developers have mastered developing walkable urban real estate. This method is much more complex and risky than the simple, well-known drivable sub-urban formulas that many real estate developers use to zone, plan, build, construct, finance, and market their projects.
- Many WalkUPs in metro Washington, DC are in its suburbs—a trend that underscores its high walkable urban ranking. Almost half of office and retail development (49 percent) exists in urbanizing suburbs in the metro area, far greater than any other metro area in the United States.

While metro Washington, DC, ranks first among walkable urban metros, trends suggest it may be reaching a plateau. The area is absorbing 75 percent of all office space and a majority of rental apartment space in its walkable urban places. Future growth will be less at the expense of drivable sub-urban locations, relying on the general growth of the region, which is currently begun to weaken with Federal cutbacks. Walkable urban growth depends on the overall economic health of the region, not just capturing demand from increasingly



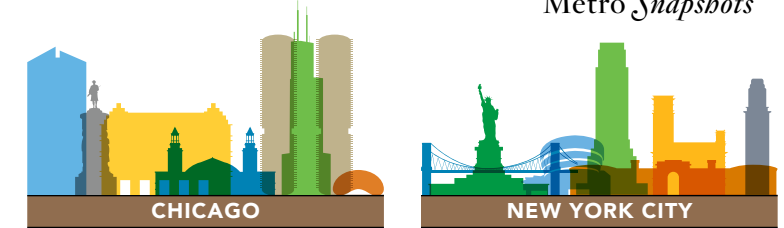
PHOTOS:
Christopher Leaman
Photography

A. The escalator at Dupont Circle Metro Station

B. Water feature at Georgetown Waterfront Park

C. Outdoor dining in Arlington

D. Cyclists beneath the Chinatown Friendship Gate at Gallery Place



Surpassing City Limits

Metro New York & Chicago's greatest development opportunities lie in their suburbs.

The universal images of New York and Chicago from movies, television, and tourist visits—tall skyscrapers, sidewalks full of people, and multiple transit options—suggest places of intense urbanism. In this analysis, like conventional wisdom, Manhattan is the most intense walkable urban place in the country. Yet, metro New York is ranked second, not first, while Chicago is ranked fifth among current walkable urban metros.

The reason is that in metro New York, 89 percent of walkable urbanism is in New York City proper, nearly all in Manhattan. Compared with the total metro population of 22 million, Manhattan accounts for only 8 percent of all the metro's residents. Manhattan is only 0.3 of 1 percent of the landmass of the metro area. In Chicago, 94 percent of the metro area's walkable urban office and retail space is in Chicago proper.

With a majority of WalkUPs within the boundaries of these cities, a great opportunity exists for both metro New York and Chicago, as well as many other metros, to urbanize their suburbs. Historically, many residential and businesses chose to locate in the suburbs and drivable sub-urban development continues to dominate the suburbs in these two metros. As the metro areas of Washington, DC, Boston, Miami, and Los Angeles demonstrate, many households and businesses would not consider or could not afford central cities' walkable urbanism, preferring walkable urbanism in the suburbs.

Realizing this opportunity requires leveraging the extensive, 100-year-old rail systems of New York and Chicago, where many suburban stations are surrounded by acres of surface parking lots. It also requires overcoming massive NIMBY opposition to change in the suburbs, which hampers economic growth and limits market choice in these metros.



A. Families gather at the Crown Fountain in Chicago's Millennium Park

B. The Long Island Railroad's Huntington Station at dusk.

C. Northward view of skyscrapers in Midtown and housing development in the Lower East Side, Manhattan



Back to the Future

Why metro Los Angeles may reclaim its historic walkable urbanism.

While stereotypes of Los Angeles include crazy people and horrendous freeway traffic, the historic development in the early 20th century of the Los Angeles Basin was primarily rail-oriented. In 1945, metro Los Angeles' rail system was the world's longest. Real estate developers like Henry Huntington built this far-flung system to transport customers to their real estate projects. The rail transit helped establish a constellation of suburban town centers like Pasadena, Glendale, Santa Monica, and Long Beach—all walkable urban places from their founding.

After World War II, freeway construction dominated Los Angeles' transportation system, and its rail system was dismantled by 1962. Like most of the United States in the post-War era, drivable sub-urban development, popularized by California pop music from Jan and Dean and the Beach Boys, captured both popular imagination and the reality on the ground.

During the late 20th century, these former walkable urban suburbs, along with downtown Los Angeles, economically declined, as did similar places across the country. Today, however, LA's original walkable urban suburbs are thriving again, helped by the largest rail construction program in the country. With committed funding of more than \$40 billion over the next decade, five new rail lines were under construction in 2014, adding to the eight new commuter, light, and heavy rail lines already open. Los Angeles even has a subway line from downtown to the San Fernando Valley. The former rail system that Los Angeles developed around is essentially being re-built from scratch.

Several other signs of walkable urbanism point in the same, positive direction. Only 15.5 percent of metro Los Angeles' office and retail space is in WalkUPs today, compared with nearly three times that amount in metro Washington, DC, so there is much room for growth. While the office and retail

absorption in WalkUPs has been negative, one of the reasons may have been the conversion of many class B and C offices into walkable urban residential products. Office and retail walkable urban space has high rental premiums that continue to grow, a typical indicator of pent-up demand. And, 35 percent of all office and retail walkable urban space is located in suburban WalkUPs, such as suburban town centers, all of which have prospered in the last decade.

The 2013 Oscar-nominated movie, *Her*, shows a Los Angeles in the near future, where the main characters live in high-density towers, walking to work and restaurants. None of the actors are seen in a car—they even take the subway directly to the beach. That future—of a walkable, transit-friendly Los Angeles—is being built right now. It will allow people to drive everywhere they want, assuming they can put up with the traffic, and provide the option of walkable urbanism for those who want it.



Los Angeles' Metro Gold Line departs the Chinatown Station.



Third Street Promenade in Santa Monica.



The End of Sprawl

How metro Atlanta turned the corner on sprawl development.

A 2014 Smart Growth America report, *Measuring Sprawl 2014*,¹⁶ ranked the major metropolitan areas by how much they were sprawling. Of the largest metro areas, Atlanta ranked first for most sprawling. Since the early 1990s, metro Atlanta has been referred to as the "poster child of sprawl" as its geographic footprint grew faster than any human settlement in history. However, this report shows that metro Atlanta is the eighth highest of the 30 largest metros in current walkable urbanism rankings, and even higher for future walkable urban growth. Is metro Atlanta characterized more by sprawl or by walkable urbanism?

In short, both reports' characterizations of Atlanta are correct. Atlanta's sprawl is the result of 60 years of drivable sub-urban development that Atlanta perfected.

Despite its sprawling history, the strength of Atlanta's walkable urban places, relative to its peers, appears to be real. This real estate cycle, starting in 2009, represents a major shift toward walkable urbanism. Atlanta WalkUPs have been rapidly gaining market share of office absorption (FSI of 1.74) with 59 percent of all office space absorbed this cycle being in WalkUPs. These WalkUPs occupy less than 1 percent of the total land-mass of the metro area. An in-depth analysis of metro Atlanta conducted in 2013 finds that this level of walkable urban absorption is three times greater than in the 1990s real-estate cycle. Atlanta's walkable urban office rent premiums are 30 percent higher than drivable sub-urban office space. This premium increased from a 17 percent premium at the beginning of this cycle, indicating a growing pent-up demand for walkable urbanism.

To take advantage of this changed market dynamic, the region needs to invest in the expansion and maintenance of its neglected heavy rail system, MARTA. The proposed BeltLine rail transit project, a 22-mile ring around greater downtown, along with three streetcar lines, will encourage substantial walkable urban development in the region. In addition, the residential housing market has already shifted; the highest-priced zip codes are the close-in neighborhoods directly adjacent to downtown, many of which were low-income areas 20 years ago. It used to be that the up-and-coming neighborhoods were located outside Interstate 285, also known as the Perimeter; today these neighborhoods are located inside the Perimeter.



PHOTOS:
Raftermen Photography

A. Castleberry Hill

B. A Midtown MARTA station

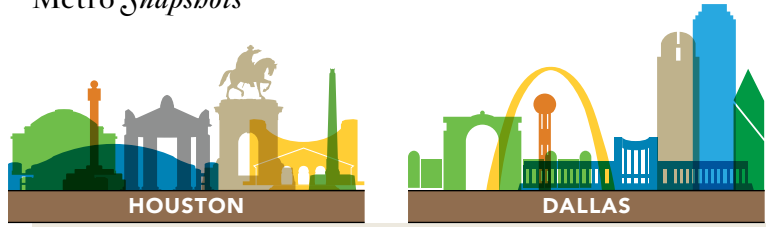
C. The Atlanta BeltLine is being built on old rail corridors that encircle the city's Downtown & Midtown WalkUPs

D. Centennial Olympic Park and continued development

E. The BeltLine's Eastside Trail

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On the Road Again (and Again)

Mixed signals from drivable sub-urban Houston and Dallas. Which way will they turn?

With Atlanta primed to shed its reputation as the “poster child of sprawl,” few metros deserve this title more so than metro Houston and Dallas. Of the largest 30 metro areas, The Smart Growth America 2014 ranking of sprawl put metro Houston as the second most sprawling large metro area after Atlanta, while metro Dallas ranked third. Both metro Houston and Dallas have some of the longest beltways in the world; metro Houston’s Sam Houston Tollway runs 88 miles, and when completed, the Grand Parkway will total 170 miles.

Houston is the energy capital of the United States. In 2013, Houston surpassed metro New York as the nation’s leading exporter, with energy comprising two-thirds of its exports. Metro Dallas is also a major energy center, housing the headquarters of the largest oil company in the world, Exxon-Mobil. Dallas is also home to several information technology corporations, such as Texas Instruments and Dell Computer. These lucrative industries contribute to a high metro GDP per capita—\$58,900 for both metro areas combined.

Among the current rankings of walkable urban metros, metro Houston ranks in the middle with 17 percent of office and retail development in WalkUPs, and Dallas ranks among the low walkable urban metros with less than 10 percent. These two metros—with their fast economic growth and sprawling development—have embodied the 20th-century American Dream.

Both metros are beginning to add walkable urban alternatives, which may shape their futures. In the future walkable urbanism rankings, both Houston and Dallas rank in the middle, at 13th and 17th, respectively. While their walkable urban office absorption is not gaining market share (FSI is 0.58 for Houston and 0.66 for Dallas), walkable urban office space in Houston has a 41 percent per square foot premium and in Dallas a 15 percent premium. Both metros experienced rent premium growth in this real estate cycle.

Significant investment in rail transit may help Dallas and Houston achieve more walkable urban development. Metro Dallas has 85 miles of light rail—with funding to expand to 147 miles—as well as commuter rail and a new streetcar downtown. Metro Houston’s first light rail line, which is 13 miles long, connects two of the area’s major WalkUPs—downtown and the Houston Medical Center.

However, the unique energy-based economies of Houston and Dallas do not provide realistic models for other metro areas to follow for comparable economic performance. Following Atlanta’s recent path, Houston and Dallas may be shifting from exclusively drivable sub-urban development to offering both drivable sub-urban and walkable urban options.



A. Sammons Park in the Dallas Arts District

B. & C. The Uptown Dart Station for the M-Line Trolley that runs along on McKinney Ave. in Dallas

D. Houston skyline and cyclists

E. Aerial view of Houston Freeways US 290 (Ronald Reagan Memorial Highway) & Beltway 8 (Sam Houston Tollway)



A. Urban decay in Detroit
 B. **NEED A CAPTION**
 C. **NEED A CAPTION**
 D. The “People Mover,” Detroit’s elevated mass transit train
 E. Annual art fair in downtown Ann Arbor
 F. RiverFront Walk at dusk

Brave New Development

Rebuilding Detroit as a thoroughly modern, walkable urban metro.

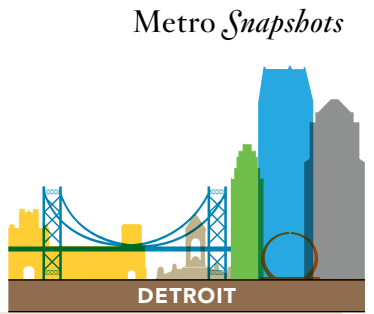
Metro Detroit is synonymous with the automobile industry, and by extension, drivable sub-urban development patterns. Detroit, along with Cincinnati, Columbus, and Kansas City, is one of four large metros not to have rail transit (both Cincinnati and Kansas City will be leaving that short list since both are building new streetcar lines). However, funding exists for an initial light rail line along Woodward Avenue, linking three WalkUPs: downtown; Midtown; and New Center.

Detroit also represents a central city that suffered as the middle- and upper-middle-classes abandoned it, skyrocketing crime. Complicating these trends is a stark racial divide and a bankrupt city government. Metro Detroit’s current ranking of 22nd, therefore, is not a surprise.

Future walkable urban rankings show Detroit rocketing up to eighth, ranked below walkable urban San Francisco and above Denver. What explains Detroit’s strong move toward walkable urban development?

Corporate investment by Quicken Loans, which recently moved their corporate headquarters to downtown Detroit, partially explains this higher ranking. Quicken Loans bought, redeveloped, and encouraged the occupancy of 40 office, retail, and residential buildings over the past five years alone. Over the last 15 years, Midtown, a downtown adjacent WalkUP, added hundreds of new residential units, new or expanded cultural and higher education facilities, new retail (including a Whole Foods) and a successful Innovation District.¹⁷ Lastly, many urbanizing suburbs, such as Ann Arbor (home of the University of Michigan), Royal Oak, Ferndale, Birmingham, among others, bolster this trend.

Metro Detroit has the second highest market share gain (FSI of 1.78), only behind another surprising metro, Miami (FSI of 2.08). Along with relatively high amount of walkable urban development in the suburbs, Detroit, known as Motor City for more than 100 years, may become one of the country’s fastest-growing walkable urban metros.



Innovation Districts

WalkUPs for the 21st-century knowledge economy.

The Brookings Institution has researched the rise of Innovations Districts,¹⁸ areas at the heart of the knowledge economy where primarily tech industries concentrate, such as:

- **High-value, research-oriented sectors** such as applied sciences and the burgeoning “app economy”
- **Creative fields** such as industrial design, graphic arts, media and architecture
- **Highly specialized, small-batch manufacturing**

Innovation Districts are a subset of WalkUPs that offer a high-density mix of different uses within walking distance. The focus on knowledge-based businesses and organizations, and networks of knowledge-based workers facilitated by close proximity and walkability, are what gives them a unique economic development strategy.

In the early era of the knowledge economy, from the 1970s until the high tech bubble of 2001, knowledge-based businesses and organizations located in isolated drivable sub-urban “campuses,” similar to where most mainstream American businesses were locating themselves. These freeway-fronting concentrations included famous locations such as Silicon Valley, North Carolina’s Research Triangle, and Boston’s Route 128, all drivable sub-urban.

After high tech came back in the mid-2000s, a fundamentally different model emerged—the “collaborate-to-compete” model. The collaboration inherent to walkable urbanism made it the preferred business location. Emerging high tech and social media companies began locating in WalkUPs like South of Market in San Francisco, South Lake Union in Seattle, Silicon Alley (Meatpacking District) in New York City, and the various WalkUPs in Cambridge and the Seaport in metro Boston.

Isolated campuses are becoming a thing of the past for new startups. Walkable urban Innovation Districts are now in. Companies stuck in 20th-century drivable sub-urban locations are now at a competitive disadvantage for the most important input to their business: creative class employees. The Massachusetts Secretary of Economic Development reported that businesses located on drivable sub-urban Route 128 now have to pay \$25,000 more per year for software engineers over those in walkable urban Cambridge and Boston. The higher salary is necessary to entice employees to drive out into the suburbs for work from the walkable urban neighborhoods where they generally live.

So far, four WalkUP types have evolved into Innovation Districts, but there is no reason all seven types could not assume this economic strategy model. The four types to evolve so far are downtown adjacent, urban university, redeveloped drivable sub-urban, and brown field redevelopments.



South Lake Union in Seattle.



Manhattan's Meatpacking District.



CONCLUSIONS & FURTHER STUDY

Conclusions & Further Study

Our analysis points to a gradual shift from drivable sub-urban development to walkable urban. However this shift is occurring rapidly in some metros, while more tentatively in others.

Since World War II, sprawl—the land use pattern associated with drivable sub-urban development—has characterized U.S. metropolitan growth. Land-use consumption during the late 20th century ranged from three to eight times the metropolitan population growth rate.

This analysis, coupled with findings from the WalkUP Wake Up Call reports for metro Atlanta, Boston, and Washington, DC, signals the beginning of the end of sprawl in the high walkable urban metros. This marks a significant shift in U.S. growth patterns. The end of sprawl is as significant as when historian Fredrick Jackson Turner proclaimed the “closing of the frontier” in 1893.

The three metropolitan level reports found that a majority of office and retail absorption in this real estate cycle took place in WalkUPs, and those WalkUPs occupy less than 1 percent of each of these metro area’s land mass. If this relationship continues in the high walkable urban (both current and future) metro areas, Washington, DC, New York, Boston, San Francisco, Chicago, and Seattle will witness the beginning of the end of sprawl.

Two caveats accompany this prediction. First, further in-depth analysis of all real estate products, particularly for-sale housing, needs to be conducted to confirm this conclusion. This analysis does not include for-sale housing and new datasets with the location of walkable urban for-sale housing have only become recently available.

Second, the end of sprawl does not mean sprawl will disappear immediately. Rather, its end marks a gradual shift from drivable sub-urban development

as the dominant real-estate trend to walkable urban development. Even in Washington, DC, and Boston, two of the most walkable urban metros in the country, fringe, single-family drivable sub-urban housing is being built. However, this product type makes up less of the recent housing stock, as it is increasingly difficult to finance.

The end of sprawl in moderate walkable urban metros in this study largely depends on the question, “Will these metros continue to build predominantly drivable sub-urban or will they follow the path of high walkable urban metros?” Based on current and future rankings, this analysis predicts the following metros will accelerate their evolution in a walkable urban manner:

- Denver
- Los Angeles
- Portland
- Miami
- Atlanta¹⁹

Low walkable urban metros generally resist walkable urban development, with a proud reliance on automobiles and trucks and drivable sub-urban development. These metros have advocates for walkable urbanism, including developers, neighborhood activists, and elected leaders. Yet, these metros’ dominant infrastructure, zoning, and land-use subsidies still favor drivable sub-urban development.

FUTURE RESEARCH

Further study should include an analysis the following topics:

- **Favored Quarter:** The vast majority of growth in regionally significant development in the late 20th century occurred in a metropolitan’s “favored quarter,” areas of concentrated upper-middle-class housing separated from concentrated minority housing. Further research could explore to what extent favored quarter development influences future development in high walkable urban metros.
- **Rail Transit:** Many different modes of rail and high-capacity bus transit (e.g., heavy, light, and commuter rail, streetcar, and bus rapid transit) influence future walkable urbanism. Future research should explore the different economic performance of WalkUPs served by the various types of transit, while accounting for the substantially different capital and operating costs of each type.
- **For-Sale Housing:** Single-family detached homes, townhouses, and stacked flats, comprise more than 50 percent of the square footage of the real estate industry; for-sale housing was the catalytic product type of the drivable sub-urban era. Further research should assess its economic performance in walkable urban versus drivable sub-urban metropolitan areas.
- **Rental Housing:** The peak of housing ownership in the U.S. was 2006. Since then it has been falling, as a higher percentage of households have been renting. In the current real estate cycle, which began in 2009 in most metros, rental housing has been the most active type of real estate development. In addition, it has been observed for decades that high walkable urban places have a higher percentage of rental households. Future research should determine if high walkable urban places have a higher propensity to rent.
- **WalkUP-Education-GDP Relationship:** This report suggests a strong relationship between walkable urban places and the economic health of a metro area. Further research and analysis of this relationship could clarify the mechanisms behind it, as well as illuminate if a casual relationship exists.

APPENDICES

Endnotes

1. The definition of “metropolitan” is based on the metropolitan area definitions in use by the regional planning agencies specific to each metro. They are largely consistent with “metropolitan statistical area” or “combined metropolitan statistical area,” as defined by the U.S. Census. In addition, this report uses the name of the central city of the metropolitan area to refer to the metropolitan area. For instance, Los Angeles in this report refers to the Los Angeles metropolitan area, unless otherwise noted.
2. Leinberger, C. and Alfonzo, M. “Walk this way: The economic promise of walkable places in metropolitan Washington, DC.” The Brookings Institution. Available at www.brookings.edu/research/papers/2012/05/25-walkable-places-leinberger.
3. Walk Score is the most common ranking of walkability available. Walk Score assigns every address and many neighborhoods a score from 0 to 100. This score reflects a pedestrian’s ability to reach a variety of daily destinations within walking distance. For full methodology, see www.walkscore.com/methodology.shtml.

The 2012 Brookings methodology defines a WalkUP as having an average minimum Walk Score of 70.5 across its acreage. This research uses a Walk Score of 70 or greater at the most walkable intersection, because it was easier to obtain and apply across 30 metros.
4. For in-depth, metropolitan-level research of these typologies in Washington, DC, and Atlanta, GA, visit <http://business.gwu.edu/walkup/> and <http://business.gwu.edu/walkup/atlanta2013/>.
5. Leinberger, C. (2007). “Footloose and Fancy Free: A Field Survey of Walkable Urban Places in the Top 30 U.S. Metropolitan Areas.” Paper prepared for The Brookings Institution. Retrieved from www.brookings.edu/research/papers/2007/12/1128-walkableurbanism-leinberger.
6. Defining the boundaries of a place is not an exact science. Even among locals, substantial disagreement exists about where one place ends and another begins. Given these limitations, the definition of WalkUPs will continue to evolve. Nonetheless, this study represents the most comprehensive identification of such places to date.
7. U.S. Bureau of Economic Analysis.
8. In this report, the number of metro Washington, DC, WalkUPs has been increased to 45. This increase was the result of dividing 2,400 acres of Tysons Corner, VA, where four new heavy rail stations will open in 2014, into three WalkUPs.
9. For purposes of calculating the directional index, we assigned a FSI of 0 to metros where walkable urban areas experienced negative absorption from 2010 to 2014.
10. DeVol, R.; Shen, I.; Bedroussian, A.; and Zhang, N. “A Matter of Degrees: The Effect of Educational Attainment on Regional Economic Prosperity.” The Milken Institute. Available at <http://www.milkeninstitute.org/pdf/matter-of-degrees-fr.pdf>.
11. R-squared equals 0.63.
12. R-squared equals 0.64.
13. R-squared equals 0.56.

14. <http://www.citylab.com/commute/2011/10/why-walkable-cities-arent-always-the-ones-you-think/279/>.
<http://www.wispirg.org/news/wip/new-survey-wisconsin-brain-drain-partly-because-youth-seek-alternatives-driving>.
15. These two metros differ from their counterparts in several ways: 1) they have high GDP per capita income (\$58,900, compared to the high walkable urban metros of \$60,668); 2) their economies, especially Houston, uniquely rely on oil and gas industries; and 3) they rank moderate to tentative on walkable urbanism.
16. Ewing, R. and Hamidi, S. (2014). “Measuring sprawl 2014.” Report prepared for Smart Growth America. Retrieved from www.smartgrowthamerica.org/measuring-sprawl.
17. Katz, B. and Wager, J. “The Rise of Innovation Districts: A New Geography of Innovation in America.” The Brookings Institution. Available at <http://www.brookings.edu/about/programs/metro/innovation-districts>.
18. Katz, B. and Wager, J. “The Rise of Innovation Districts: A New Geography of Innovation in America.” The Brookings Institution. Available at <http://www.brookings.edu/about/programs/metro/innovation-districts>.
19. Previous research demonstrates that metro Atlanta is shifting from drivable sub-urban to walkable urban development in this real-estate cycle, and its high-ranking for future walkable urban development in this research confirms this pattern.

Acknowledgments

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DRAFT

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