

Access Across America: Transit 2017

Final Report

Prepared by:

Andrew Owen

Brendan Murphy

Accessibility Observatory
Center for Transportation Studies
University of Minnesota

CTS 18-12

**ACCESSIBILITY
OBSERVATORY**

UNIVERSITY OF MINNESOTA

Technical Report Documentation Page

1. Report No. CTS 18-12	2.	3. Recipients Accession No.	
4. Title and Subtitle Access Across America: Transit 2017		5. Report Date June 2018	
		6.	
7. Author(s) Andrew Owen and Brendan Murphy		8. Performing Organization Report No.	
9. Performing Organization Name and Address Accessibility Observatory University of Minnesota Minneapolis, MN 55455 United States		10. Project/Task/Work Unit No. CTS 2016016	
		11. Contract (C) or Grant (G) No.	
12. Sponsoring Organization Name and Address Center for Transportation Studies University of Minnesota 200 Transportation and Safety Building 511 Washington Ave. SE Minneapolis, MN 55455		13. Type of Report and Period Covered Final Report	
		14. Sponsoring Agency Code	
15. Supplementary Notes http://ao.umn.edu/publications/ http://www.cts.umn.edu/Publications/ResearchReports/			
16. Abstract (Limit: 250 words) <p>Accessibility is the ease and feasibility of reaching valued destinations. It can be measured for a wide array of transportation modes, to different types of destinations, and at different times of day. There are a variety of ways to measure accessibility, but the number of destinations reachable within a given travel time is the most comprehensible and transparent as well as the most directly comparable across cities.</p> <p>This study estimates the accessibility to jobs by transit and walking for each of the United States' 11 million census blocks, and analyzes these data in 49 of the 50 largest (by population) metropolitan areas. Transit is used for an estimated 5 percent of commuting trips in the United States, making it the second most widely used commute mode after driving. Travel times by transit are calculated using detailed pedestrian networks and full transit schedules for the 7:00 – 9:00 a.m. period. The calculations include all components of a transit journey, including “last-mile” access and egress walking segments and transfers, and account for minute-by-minute variations in service frequency.</p> <p>This report presents detailed accessibility values for each metropolitan area, as well as block-level maps that illustrate the spatial patterns of accessibility within each area. A separate publication, Access Across America: Transit 2017 Methodology, describes the data and methodology used in this evaluation.</p> <p>This analysis uses the same tools and techniques as Access Across America: Transit 2015 and 2016, and at the same fully national scale; availability of GTFS data has increased in consistency. For these reasons, direct comparisons between transit accessibility results of 2015 and 2016 are possible, and comparisons and time-series analysis are included in these reports going forward.</p>			
17. Document Analysis/Descriptors accessibility, transit, commuting, work trips, land use, travel time, travel behavior, urban transportation		18. Availability Statement No restrictions. Document available from: National Technical Information Services, Alexandria, Virginia 22312	
19. Security Class (this report) Unclassified	20. Security Class (this page) Unclassified	21. No. of Pages 167	22. Price

Access Across America: Transit 2017

Final Report

Prepared by:

Andrew Owen
Brendan Murphy
Accessibility Observatory
Center for Transportation Studies
University of Minnesota

June 2018

Published by:

Center for Transportation Studies
University of Minnesota
200 Transportation and Safety Building
511 Washington Ave. S.E.
Minneapolis, Minnesota 55455

Authors

Andrew Owen

Director, Accessibility Observatory
University of Minnesota

Brendan Murphy

Lead Researcher, Accessibility Observatory
University of Minnesota

Acknowledgements

The development of this report was made possible by sponsorship from:

- Arkansas State Highway and Transportation Department
- California Department of Transportation
- District Department of Transportation
- Federal Highway Administration
- Florida Department of Transportation
- Iowa Department of Transportation
- Maryland Department of Transportation
- Minnesota Department of Transportation
- North Carolina Department of Transportation
- Tennessee Department of Transportation
- Virginia Department of Transportation
- Washington State Department of Transportation

Executive Summary

Accessibility is the ease and feasibility of reaching valuable destinations. Accessibility can be measured for a wide array of transportation modes, to different types of destinations, and at different times of day. There are a variety of ways to define accessibility, but the number of destinations reachable within a given travel time is the most comprehensible and transparent—as well as the most directly comparable between cities, and other geographic areas. This report focuses on accessibility to jobs by transit. Jobs are the most significant non-home destination, and job accessibility is an important consideration in the attractiveness and usefulness of a place or area. Transit is used for an estimated 5% of commuting trips in the United States nationwide, making it the second most widely used commute mode after driving.

This study estimates the accessibility to jobs by transit and walking for each of the United States' 11 million census blocks, and analyzes these data in 49 of the 50 largest (by population) metropolitan areas. Travel times by transit are calculated using detailed pedestrian networks and full transit schedules for the 7:00 – 9:00 AM period. The calculations include all components of a transit journey, including “last mile” access and egress walking segments and transfers, and account for minute-by-minute variations in service frequency.

Rankings are determined by a weighted average of accessibility, with a higher weight given to closer, easier to access jobs. Jobs reachable within ten minutes are weighted most heavily, and jobs are given decreasing weights as travel time increases up to 60 minutes. Based on this measure, the 10 metropolitan areas with the greatest accessibility to jobs by transit are:

1. New York
2. San Francisco
3. Chicago
4. Washington
5. Boston
6. Los Angeles
7. Philadelphia
8. Seattle
9. San Jose
10. Denver

Additionally, rankings based on 1-year changes in weighted average accessibility are also provided, comparing the results of *Access Across America: Transit 2016* with the results of the 2017 study. The 10 metropolitan areas with the greatest 1-year relative gains in accessibility to jobs by transit are:

1. Kansas City

2. Charlotte
3. Austin
4. Columbus
5. San Francisco
6. Orlando
7. Las Vegas
8. Phoenix
9. Minneapolis
10. Cincinnati

This report presents detailed accessibility values for each metropolitan area, as well as block-level maps that illustrate the spatial patterns of accessibility within each area. A separate publication, *Access Across America: Transit 2017 Methodology*, describes the data and methodology used in this evaluation.

This analysis uses the same tools and techniques as *Access Across America: Transit 2015* and *Access Across America: Transit 2016*, and at the same fully national scale; availability of GTFS data has increased in consistency. For these reasons, direct comparisons between transit accessibility results of 2016 and 2017 are possible, and longitudinal analysis is now included in these reports as of the 2017 study, via comparing accessibility results for 2017 and 2015.

Contents

- 1 Introduction** **1**

- 2 Accessibility to Jobs by Transit** **3**
 - 2.1 Metropolitan Area Rankings 3
 - 2.2 Longitudinal Analyses 3

- 3 Discussion** **8**
 - 3.1 Transit Service Effects 8
 - 3.2 Land Use Effects 9
 - 3.3 Comparisons With 2016 Data 10
 - 3.4 Conclusions 10

- 4 Metropolitan Area Data and Maps** **12**

1 Introduction

Accessibility is the ease and feasibility of reaching valuable destinations. It combines the simpler metric of mobility with the understanding that travel is driven by a desire to reach destinations. Accessibility can be measured for a wide range of transportation modes, to different types of destinations, and at different times of day. There are a variety of ways to define accessibility, but the number of destinations reachable within a given travel time is the most comprehensible and transparent—as well as the most directly comparable across cities. This report focuses on accessibility to jobs by transit. Jobs are the most significant non-home destination, and economic accessibility is an important consideration in the attractiveness and usefulness of a place or area. Transit is used for an estimated 5% of commuting trips in the United States, making it the second most widely used commute mode after driving.¹ The commute mode share of transit can be higher in individual metropolitan areas: 31% in the New York metropolitan area; 11% in Chicago; 8% in Seattle.²

Accessibility is not a new idea.³ Historically, however, implementations of accessibility evaluation have typically focused on individual cities or metropolitan areas. Recent work has demonstrated the feasibility and value of systematically evaluating accessibility across multiple metropolitan areas by auto,⁴ and by transit.⁵

This study estimates the accessibility to jobs by transit and walking for each of the United States' 11 million census blocks, and analyzes these data in 49 of the 50 largest (by population) metropolitan areas using transit schedules from 2017. The city excluded from comparisons due to lack of available GTFS data is Memphis, TN, which ranks 41st by metropolitan area population. [Table 1](#) lists the included metropolitan areas, ordered by the total employment within each.

Travel times by transit are calculated using detailed pedestrian networks and full transit schedules for the 7:00 – 9:00 AM period. The calculations include all components of a transit journey, including “last mile” access and egress walking segments and transfers, and account for minute-by-minute variations in service frequency.

[Section 2](#) presents the accessibility values for the included metropolitan areas and ranks metropolitan areas by accessibility, as well as by 1-year gains or losses in weighted accessibility between 2017 and 2016. [Section 3](#) discusses these results and their implications, and [Section 4](#) provides data and maps describing patterns of accessibility in individual metropolitan areas. A separate document, *Access Across America: Transit 2017 Methodology*, describes the data and detailed methodology used in the evaluation.

¹[McKenzie \(2014\)](#)

²American Community Survey 2012 5-year estimates

³See [Hansen \(1959\)](#) for its origins, and [Geurs and Van Eck \(2001\)](#) and [Handy and Niemeier \(1997\)](#) for reviews.

⁴[Levinson \(2013\)](#) [Levine et al. \(2012\)](#)

⁵[Ramsey and Bell \(2014\)](#), [Tomer et al. \(2011\)](#)

Table 1: Metropolitan Areas Ranked by Total Employment

Rank	Area	Total Employment
1	New York	8,654,470
2	Los Angeles	5,636,421
3	Chicago	4,389,339
4	Dallas	3,206,364
5	Houston	2,888,073
6	Philadelphia	2,793,982
7	Washington	2,776,148
8	Atlanta	2,416,397
9	Miami	2,412,346
10	Boston	2,401,512
11	San Francisco	2,164,298
12	Detroit	1,869,538
13	Phoenix	1,865,829
14	Minneapolis	1,794,806
15	Seattle	1,709,920
16	Riverside	1,635,100
17	San Diego	1,363,986
18	Denver	1,356,387
19	St. Louis	1,310,349
20	Baltimore	1,291,995
21	Tampa	1,227,356
22	Pittsburgh	1,100,915
23	Portland	1,093,778
24	Orlando	1,050,065
25	Kansas City	1,023,563
26	Cincinnati	1,018,914
27	San Antonio	986,091
28	Cleveland	955,181
29	Austin	917,901
30	Sacramento	915,759
31	Columbus	911,367
32	San Jose	909,053
33	Las Vegas	897,183
34	Indianapolis	886,380
35	Charlotte	877,360
36	Nashville	801,589
37	Milwaukee	771,322
38	Providence	757,913
39	Virginia Beach	707,752
40	Louisville	627,630
41	Jacksonville	626,060
42	Richmond	617,617
43	Hartford	593,012
44	Raleigh	583,916
45	Salt Lake City	576,320
46	Oklahoma City	574,561
47	Buffalo	529,252
48	New Orleans	513,830
49	Birmingham	476,681

Employment totals are based on LEHD estimates and may not match other sources.

2 Accessibility to Jobs by Transit

Table 2 gives the accessibility values for each metropolitan area, in alphabetical order, based on January, 2017 transit schedules. The columns represent the number of jobs that a typical worker residing in the city can reach within 10, 20, 30, 40, 50, and 60 minutes of travel, between 7:00 and 9:00 AM, by transit and walking.

2.1 Metropolitan Area Rankings

The rankings of accessibility across U.S. cities for 2017 are shown in Table 3. The ranking is based on a weighted average, where the jobs reachable within each threshold are given a decreasing weight as travel time increases. A job reachable within 10 minutes counts more toward the ranking than a job reachable within 20, and so on. The 10 metro areas where workers can, on average, reach the most jobs are listed below. Within the specific time thresholds, the rankings vary.

1. New York
2. San Francisco
3. Chicago
4. Washington
5. Boston
6. Los Angeles
7. Philadelphia
8. Seattle
9. San Jose
10. Denver

2.2 Longitudinal Analyses

The 1-year relative gains and losses of weighted transit accessibility across U.S. cities between 2016 and 2017 are shown in Table 4. The differences detailed here are relative percentage changes in weighted accessibility. Following are the 10 metro areas which saw the largest gains in relative transit accessibility over 2016 are as follows.

1. Kansas City
2. Charlotte
3. Austin

4. Columbus
5. San Francisco
6. Orlando
7. Las Vegas
8. Phoenix
9. Minneapolis
10. Cincinnati

Additional details about each metropolitan area, including block-level maps of accessibility, are presented in [Section 4](#).

Table 2: Number of Jobs Reachable by Number of Minutes, 2017

Area	10 min	20 min	30 min	40 min	50 min	60 min
Atlanta	327	1,936	7,152	18,963	40,575	72,599
Austin	479	3,125	11,444	27,794	51,601	81,826
Baltimore	656	5,202	17,344	39,068	71,035	111,707
Birmingham	195	914	2,713	6,097	11,236	17,858
Boston	1,569	12,461	44,014	102,793	185,162	275,182
Buffalo	459	3,348	11,101	25,397	46,002	70,219
Charlotte	412	2,342	7,682	18,417	34,868	55,578
Chicago	1,765	15,515	53,831	124,251	224,898	342,635
Cincinnati	365	2,157	7,080	16,385	30,562	48,793
Cleveland	439	2,527	8,703	22,317	44,429	74,528
Columbus	404	3,165	10,857	24,913	46,249	74,521
Dallas	472	3,132	10,699	27,006	56,150	100,304
Denver	820	6,136	20,665	50,416	102,821	180,478
Detroit	298	1,877	6,349	16,277	34,937	64,677
Hartford	455	3,438	11,300	24,037	41,986	64,698
Houston	474	3,637	13,639	33,725	66,836	114,960
Indianapolis	332	2,278	7,491	17,349	32,467	52,705
Jacksonville	277	1,211	3,765	9,340	18,984	32,651
Kansas City	351	2,094	6,864	15,944	29,505	47,330
Las Vegas	286	2,094	8,350	24,295	57,145	110,821
Los Angeles	1,246	10,266	38,647	96,294	194,784	341,437
Louisville	321	2,155	7,263	17,588	33,099	52,872
Miami	753	4,558	14,419	33,960	66,127	113,542
Milwaukee	697	5,216	19,383	47,810	89,491	139,321
Minneapolis	558	4,455	18,029	46,801	90,650	146,905
Nashville	283	1,595	5,380	12,248	21,929	34,390
New Orleans	592	3,413	10,429	21,972	35,117	48,220
New York	6,132	62,161	213,407	471,409	840,599	1,287,186
Oklahoma City	262	1,587	4,936	11,529	21,693	35,139
Orlando	331	1,811	5,596	13,357	27,105	48,584
Philadelphia	1,337	11,406	38,185	80,695	138,076	205,692
Phoenix	325	2,611	10,290	28,260	60,739	109,972
Pittsburgh	514	3,133	12,317	28,734	50,509	76,673
Portland	819	5,785	20,666	50,787	96,831	156,682
Providence	535	3,205	9,751	20,457	35,071	53,339
Raleigh	244	1,347	4,371	10,631	21,036	36,321
Richmond	349	2,201	6,719	13,934	22,782	33,016
Riverside	203	1,371	4,732	11,519	22,827	39,302
Sacramento	478	2,969	9,430	22,005	43,074	72,932
Salt Lake City	499	3,877	14,721	38,625	81,033	144,560
San Antonio	328	2,326	9,306	24,329	49,566	86,468
San Diego	655	3,727	12,109	30,587	63,522	113,058
San Francisco	2,773	25,965	81,215	169,525	283,096	415,289
San Jose	654	5,173	19,254	51,597	111,469	203,107
Seattle	1,478	9,530	29,003	65,316	117,114	185,318
St. Louis	358	2,102	7,268	18,833	37,894	64,119
Tampa	343	2,078	6,891	16,252	31,310	52,728
Virginia Beach	284	1,492	4,649	10,542	19,919	33,168
Washington	1,324	12,775	50,551	120,916	226,810	357,510

Table 3: Rank of Accessibility by Metropolitan Area, 2017

Rank	Weighted Average	10 min	20 min	30 min	40 min	50 min	60 min
1	New York	New York	New York	New York	New York	New York	New York
2	San Francisco	San Francisco	San Francisco	San Francisco	San Francisco	San Francisco	San Francisco
3	Chicago	Chicago	Chicago	Chicago	Chicago	Washington	Washington
4	Washington	Boston	Washington	Washington	Washington	Chicago	Chicago
5	Boston	Seattle	Boston	Boston	Boston	Los Angeles	Los Angeles
6	Los Angeles	Philadelphia	Philadelphia	Los Angeles	Los Angeles	Boston	Boston
7	Philadelphia	Washington	Los Angeles	Philadelphia	Philadelphia	Philadelphia	Philadelphia
8	Seattle	Los Angeles	Seattle	Seattle	Seattle	Seattle	San Jose
9	San Jose	Denver	Denver	Portland	San Jose	San Jose	Seattle
10	Denver	Portland	Portland	Denver	Portland	Denver	Denver
11	Portland	Miami	Milwaukee	Milwaukee	Denver	Portland	Portland
12	Milwaukee	Milwaukee	Baltimore	San Jose	Milwaukee	Minneapolis	Minneapolis
13	Minneapolis	Baltimore	San Jose	Minneapolis	Minneapolis	Milwaukee	Salt Lake City
14	Salt Lake City	San Diego	Miami	Baltimore	Baltimore	Salt Lake City	Milwaukee
15	Baltimore	San Jose	Minneapolis	Salt Lake City	Salt Lake City	Baltimore	Houston
16	Miami	New Orleans	Salt Lake City	Miami	Miami	Houston	Miami
17	Houston	Minneapolis	San Diego	Houston	Houston	Miami	San Diego
18	San Diego	Providence	Houston	Pittsburgh	San Diego	San Diego	Baltimore
19	Phoenix	Pittsburgh	Hartford	San Diego	Pittsburgh	Phoenix	Las Vegas
20	Dallas	Salt Lake City	New Orleans	Austin	Phoenix	Las Vegas	Phoenix
21	Pittsburgh	Austin	Buffalo	Hartford	Austin	Dallas	Dallas
22	Austin	Sacramento	Providence	Buffalo	Dallas	Austin	San Antonio
23	Las Vegas	Houston	Columbus	Columbus	Buffalo	Pittsburgh	Austin
24	Buffalo	Dallas	Pittsburgh	Dallas	Columbus	San Antonio	Pittsburgh
25	Columbus	Buffalo	Dallas	New Orleans	San Antonio	Columbus	Cleveland
26	San Antonio	Hartford	Austin	Phoenix	Las Vegas	Buffalo	Columbus
27	Hartford	Cleveland	Sacramento	Providence	Hartford	Cleveland	Sacramento
28	Sacramento	Charlotte	Phoenix	Sacramento	Cleveland	Sacramento	Atlanta
29	Cleveland	Columbus	Cleveland	San Antonio	Sacramento	Hartford	Buffalo
30	New Orleans	Cincinnati	Charlotte	Cleveland	New Orleans	Atlanta	Hartford
31	Providence	St. Louis	San Antonio	Las Vegas	Providence	St. Louis	Detroit
32	Atlanta	Kansas City	Indianapolis	Charlotte	Atlanta	New Orleans	St. Louis
33	St. Louis	Richmond	Richmond	Indianapolis	St. Louis	Providence	Charlotte
34	Charlotte	Tampa	Cincinnati	St. Louis	Charlotte	Detroit	Providence
35	Indianapolis	Indianapolis	Louisville	Louisville	Louisville	Charlotte	Louisville
36	Detroit	Orlando	St. Louis	Atlanta	Indianapolis	Louisville	Tampa
37	Louisville	San Antonio	Las Vegas	Cincinnati	Cincinnati	Indianapolis	Indianapolis
38	Tampa	Atlanta	Kansas City	Tampa	Detroit	Tampa	Cincinnati
39	Cincinnati	Phoenix	Tampa	Kansas City	Tampa	Cincinnati	Orlando
40	Kansas City	Louisville	Atlanta	Richmond	Kansas City	Kansas City	New Orleans
41	Orlando	Detroit	Detroit	Detroit	Richmond	Orlando	Kansas City
42	Richmond	Las Vegas	Orlando	Orlando	Orlando	Riverside	Riverside
43	Nashville	Virginia Beach	Nashville	Nashville	Nashville	Richmond	Raleigh
44	Oklahoma City	Nashville	Oklahoma City	Oklahoma City	Oklahoma City	Nashville	Oklahoma City
45	Riverside	Jacksonville	Virginia Beach	Riverside	Riverside	Oklahoma City	Nashville
46	Virginia Beach	Oklahoma City	Riverside	Virginia Beach	Raleigh	Raleigh	Virginia Beach
47	Raleigh	Raleigh	Raleigh	Raleigh	Virginia Beach	Virginia Beach	Richmond
48	Jacksonville	Riverside	Jacksonville	Jacksonville	Jacksonville	Jacksonville	Jacksonville
49	Birmingham	Birmingham	Birmingham	Birmingham	Birmingham	Birmingham	Birmingham

Table 4: 1-Year Change in Weighted Accessibility

Rank	Area	1-Year Change in Weighted Accessibility
1	Kansas City	+17.36%
2	Charlotte	+10.81%
3	Austin	+9.76%
4	Columbus	+8.99%
5	San Francisco	+8.72%
6	Orlando	+7.88%
7	Las Vegas	+7.68%
8	Phoenix	+7.31%
9	Minneapolis	+7.01%
10	Cincinnati	+6.78%
11	New Orleans	+6.76%
12	Denver	+6.64%
13	San Jose	+6.57%
14	Hartford	+6.54%
15	Philadelphia	+6.14%
16	Portland	+6.01%
17	Indianapolis	+5.87%
18	Milwaukee	+5.62%
19	Dallas	+5.41%
20	Washington	+5.21%
21	Riverside	+4.78%
22	Houston	+4.63%
23	Raleigh	+4.49%
24	Richmond	+4.37%
25	Nashville	+3.74%
26	San Diego	+3.72%
27	Oklahoma City	+3.69%
28	Detroit	+3.66%
29	San Antonio	+3.40%
30	St. Louis	+3.33%
31	Virginia Beach	+3.13%
32	Chicago	+3.00%
33	Atlanta	+2.76%
34	Salt Lake City	+2.62%
35	Cleveland	+2.33%
36	New York	+1.91%
37	Birmingham	+1.86%
38	Louisville	+1.42%
39	Pittsburgh	+1.25%
40	Providence	+1.10%
41	Tampa	+1.07%
42	Boston	+1.01%
43	Buffalo	-0.03%
44	Sacramento	-0.69%
45	Baltimore	-1.67%
46	Seattle	-3.18%
47	Jacksonville	-5.99%
48	Miami	-6.47%
49	Los Angeles	-6.64%

3 Discussion

This report builds on the work begun in *Access Across America: Transit 2014* and continued in *Access Across America: Transit 2015* and *Access Across America: Transit 2016*, which introduced a new methodology and datasets to enable inter-metropolitan comparisons of accessibility by transit in a way that is clearly understood and explainable, tracks with our experience and the available evidence, and incorporates the many factors that determine the usefulness of a transit system. Additionally, in 2015 the work expanded its scope to become fully national – accessibility data are calculated for every census block in the U.S.; data are aggregated and summarized within CBSAs for this report. In 2016, the uniform methodology across years allowed for direct comparison, and the beginning of longitudinal analysis of accessibility.

Not all jobs are the same. Some jobs are higher paying, some are lower skilled, and they exist in a variety of industries. Given sufficient data, one could differentiate accessibility by breaking down jobs by type and get different results. Accessibility to non-work locations (shopping, health care, education, etc.) is also important. Regardless of trip purpose, people who experience higher accessibility tend to travel shorter distances because origins and destinations are closer together.

But accessibility to jobs is not the only thing that people care about. If it were, cities would be situated on a minimum amount of space so people could live immediately adjacent to their jobs, or everyone would work from home. Measuring (and then valuing) accessibility to other opportunities and considering the trade-off between accessibility and living space are central problems of urban economics, regional science, and transportation and land-use planning. While being more accessible is generally better, there are costs as well as benefits associated with accessibility. If land is more valuable, its price is higher, and purchasers can afford less. Streets in places with more activities are inherently more crowded, and trips are less peaceful.

Accessibility is a function of both transportation networks and land use decisions, which has important policy implications. There are two broad avenues to increasing accessibility: improving transportation systems, and altering land use patterns. Neither of these things can be easily shifted overnight, but over time they do change—both through direct plans and action and through market forces.

It is important to recognize that aggregate metrics such as these are also affected simply by the size of the areas being studied. For example, residents of central Minneapolis enjoy greater accessibility than those of central Milwaukee, but the expansive Minneapolis–Saint Paul metropolitan area, which is over four times as large in land area, includes far more suburban and exurban areas (with little or no transit service) than does the Milwaukee area.

3.1 Transit Service Effects

Transit transportation improvements within existing infrastructure take the form of speed increases or frequency increases. Speed improvements increase accessibility by making destinations reachable in less time, but they are often difficult to achieve for transit vehicles operating in mixed traffic. Frequency improvements reduce the average amount of time spent waiting for transit vehicles at stops, leaving more time for travel toward valuable destinations. Speed and frequency are also linked: as average speeds increase, a fixed number of transit vehicles can serve the same route length with increasing

frequency.⁶ Improvements involving construction of new transit infrastructure (additional bus stops, rail line extensions, or entirely new transit lines) also can heavily influence accessibility by transit, by providing transit-based access to job centers and destinations previously unreachable. New transit lines which serve already-served areas do not expand the basin of reachable valuable destinations, but could serve to increase service frequency in aggregate.

This evaluation reflects the impact of transit service frequency by making the assumption that all departure times are equally valuable to users, and it includes full waiting times before each trip. This is an important difference relative to earlier national evaluations of transit accessibility, which typically use a single departure time and/or a fixed wait time.⁷ This approach provides two important benefits. First, it avoids the assumptions that transit service with 30-minute frequency is as valuable as service with 10-minute frequency, and that users suffer no inconvenience from adjusting their personal schedules to match transit schedules. Second, it allows more meaningful comparisons with accessibility evaluations for other transportation modes such as driving,⁸ which typically use average speeds over time periods—implicitly assuming an equal value of departure times. As a result of this methodological choice, the accessibility results presented here are far more sensitive to service frequency effects than those of earlier transit accessibility evaluations. Cities with robust transit coverage but low service frequency are generally ranked lower than cities with comparable networks but higher frequencies.

3.2 Land Use Effects

Land use-based approaches to improving transit accessibility revolve around proximity and density for both origins and destinations. Proximity to transit service is critical in overcoming both the low speed of pedestrian access to and from stops and stations, and the decrease in motivation to make the walking trip with greater distance. Density is the manifestation of the increasing value of more accessible locations. As residential areas become denser, more residents experience the local accessibility; as employment areas become denser, more jobs can be accessed through the same transit system.

Density is not determined solely by accessibility, however: land-use policies can restrict density where it would otherwise be high or encourage density where it might otherwise be low. Perhaps the most famous examples of such policies are Oregon's urban growth boundary laws, which encourage density by restricting the amount of land available for urban development, and the Height of Buildings Act of 1910, which restricts density in the District of Columbia by limiting building heights. Other notable areas with urban growth boundary laws in the U.S. include Seattle, San Jose, and Boulder; additionally, Boston limits building heights near its Common central park. Between these most salient examples lie a range of density-focused urban policies, typically embedded in zoning codes, which help enable (and hinder) each city's transit accessibility performance. In general, areas with higher residential and employment density can achieve greater transit accessibility given the same level of transit service.

At lower accessibility thresholds, and especially at the 10-minute threshold, the job accessibility experienced by a typical worker is determined primarily by local employment density and only secondarily, if at all, by transit service. With a 10-minute travel time budget, reaching a stop, waiting for a vehicle, and walking to the destination after alighting leave little time available for actually traveling on

⁶Walker (2012) provides a detailed and accessible exploration of transit service fundamentals.

⁷e.g. Tomer et al. (2011), Ramsey and Bell (2014)

⁸e.g. Levinson (2013), Levine et al. (2012)

a transit vehicle. It is likely that most jobs within this threshold are reached solely by walking and do not involve a transit vehicle at all. The results presented in [Table 3](#) for the 10-minute threshold look much like a ranking by employment and residential density. As the travel time threshold increases, so does the relative contribution of transit service and coverage to the rankings.

3.3 Comparisons With 2016 Data

This analysis uses the same tools and techniques as *Access Across America: Transit 2016*, and at the same fully national scale. GTFS data availability has steadily improved, and now is sufficiently consistent year-to-year in major metropolitan areas to allow meaningful comparisons of transit accessibility, and to inform discussions of transit coverage and land use changes. As detailed in *Access Across America: Transit 2017*, this report implements the most recent update to the U.S. Census LEHD dataset, LEHD 2015. *Access Across America: Transit 2015* relied on LEHD 2013 data, while *Access Across America: Transit 2016* relied on LEHD 2014 data. This update of data source, in combination with increased GTFS consistency, allows observation of significant land-use changes (namely, job growth and mixed-use densification in certain metropolitan areas), and the impact of land-use on how accessible a city will turn out to be. The precise disentanglement of accessibility changes due to land-use mix or transit improvements (and determining relative percentage apportionment) requires a significant increase in the amount of accessibility computations. However, absent significant restructuring of an entire transit system (e.g. Houston, TX ca. 2015), or the addition of new corridor lines (e.g. Metro Transit adding the Green Line LRT in the Twin Cities, MN in 2014), it is reasonable to suggest a majority of accessibility changes are due to evolving land use patterns.

3.4 Conclusions

The cities that make up the top 10 transit accessibility ranks all exhibit a combination of high density land use and fast, frequent transit service. However, there is still significant variation within this group. In New York, San Francisco, Washington, and Chicago, fast heavy rail systems connect both urban and suburban areas with a highly employment-dense core. It is instructive to compare these cities to Atlanta, which has a similar, but smaller, rail system but a much more decentralized job and population distribution, and lower accessibility. Seattle and Denver both have rapidly expanding light rail systems, supported by extensive and frequent bus networks. Though Portland is famous for its streetcar service, this covers only a small part of the city, and operates mostly in mixed traffic with very little access to proprietary right-of-way, limiting its service speed. Its urban growth boundary, combined with frequent bus service throughout core areas and light rail connections to suburban areas, likely plays a more important role in providing high accessibility: by encouraging both residents and employers to locate in parts of the city already well served by transit, each new resident enjoys high accessibility but imposes only a small marginal burden on the transit system's existing resources.

Additionally, the expanded scope of this report's focus toward analyzing accessibility for every census block in the U.S. affords a look at what impact public transit has on a national scale. The vast majority of the U.S. land mass is quite sparsely-populated outside of metropolitan areas, and the contained metropolitan areas are in many cases very far apart. Also, the type of transit service included in the analysis is strictly limited to public transit, most commonly found in urban areas—inter-city bus and

rail services, such as Megabus, Greyhound, or Jefferson, and Amtrak, respectively, are not included. Further, such services operate on time-scales greater than the travel times involved in this analysis. Given that mostly urban-centric systems are included, only a very small geographical area of the country enjoys mass transit services, and thus the total area experiencing transit accessibility benefits is quite small.

Transportation and land use systems are both dynamic, and this report presents the third annual national evaluation, following those detailed in *Access Across America: Transit 2015* and *Access Across America: Transit 2016*. In constantly-evolving systems like these, it is critical to monitor changes over time. A city that adopts a goal of increasing transit accessibility should be evaluated based on how effectively it advances that goal relative to a baseline. *Access Across America: Transit 2014* served as a starting framework for inter-city accessibility evaluation, and *Access Across America: Transit 2015* expanded the scope and data availability to allow direct year-to-year comparisons, which began in *Access Across America: 2016*; this report adds 2017 transit accessibility data, and continues the process of monitoring and comparing how accessibility in these metropolitan areas evolves in response to transportation investments and land use decisions.

4 Metropolitan Area Data and Maps

The following pages present summary accessibility data and maps for each of the 49 included metropolitan areas. Metropolitan areas are presented in alphabetical order. The maps show 30-minute accessibility values at the Census block level, averaged between 7:00 and 9:00 AM. On the data summary pages, two different chart scales are used to accommodate the wide range of accessibility values across metropolitan areas. All charts using the same scale are plotted in the same color.

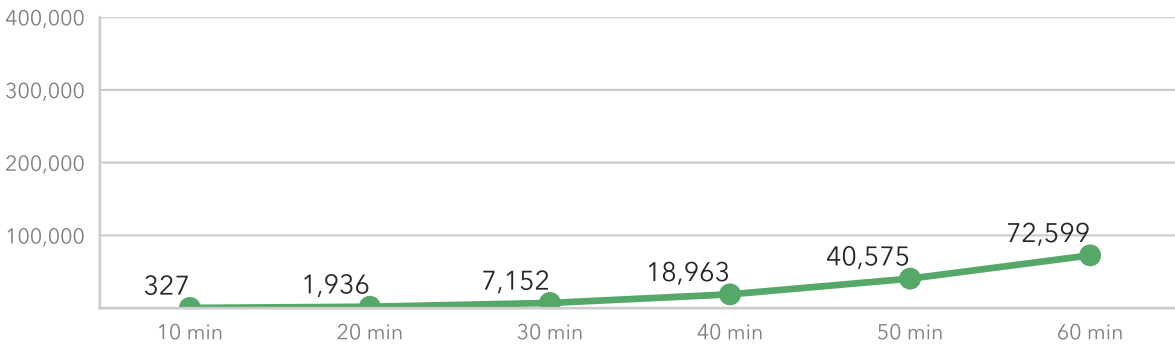
Atlanta

Atlanta-Sandy Springs-Marietta, GA

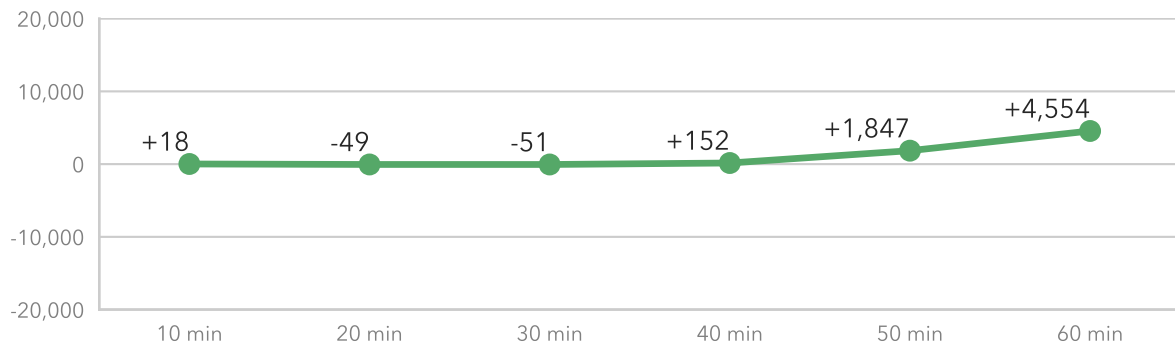
Rank by Weighted Accessibility	32
Rank by Total Employment	8
Rank by 1-Year Change in Weighted Accessibility	33
1-Year Change in Weighted Accessibility	+2.76%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+8.34%
Total Jobs	2,511,895
Average Job Density (per km ²)	116
Total Workers	2,416,397
Average Worker Density (per km ²)	112

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Atlanta

Atlanta-Sandy Springs-Marietta, GA

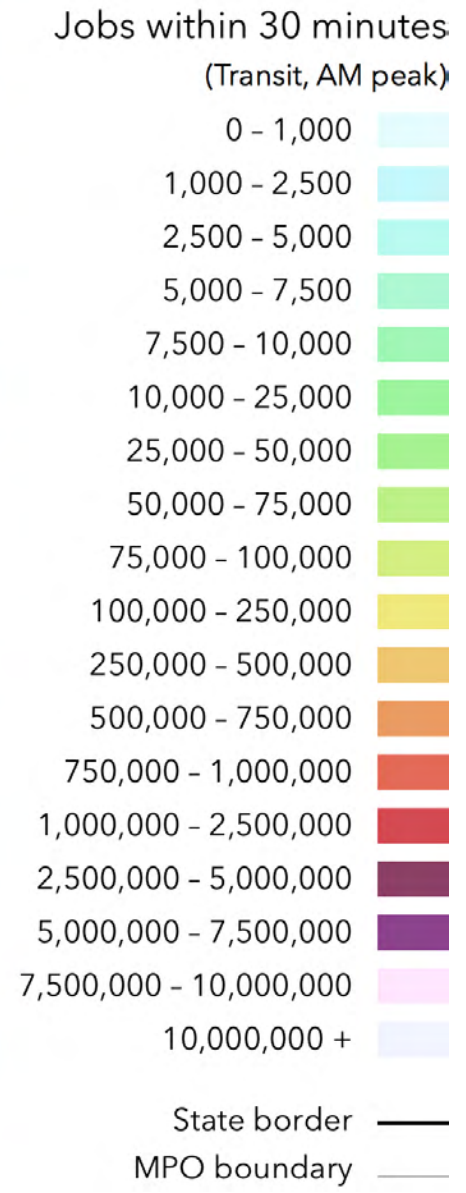
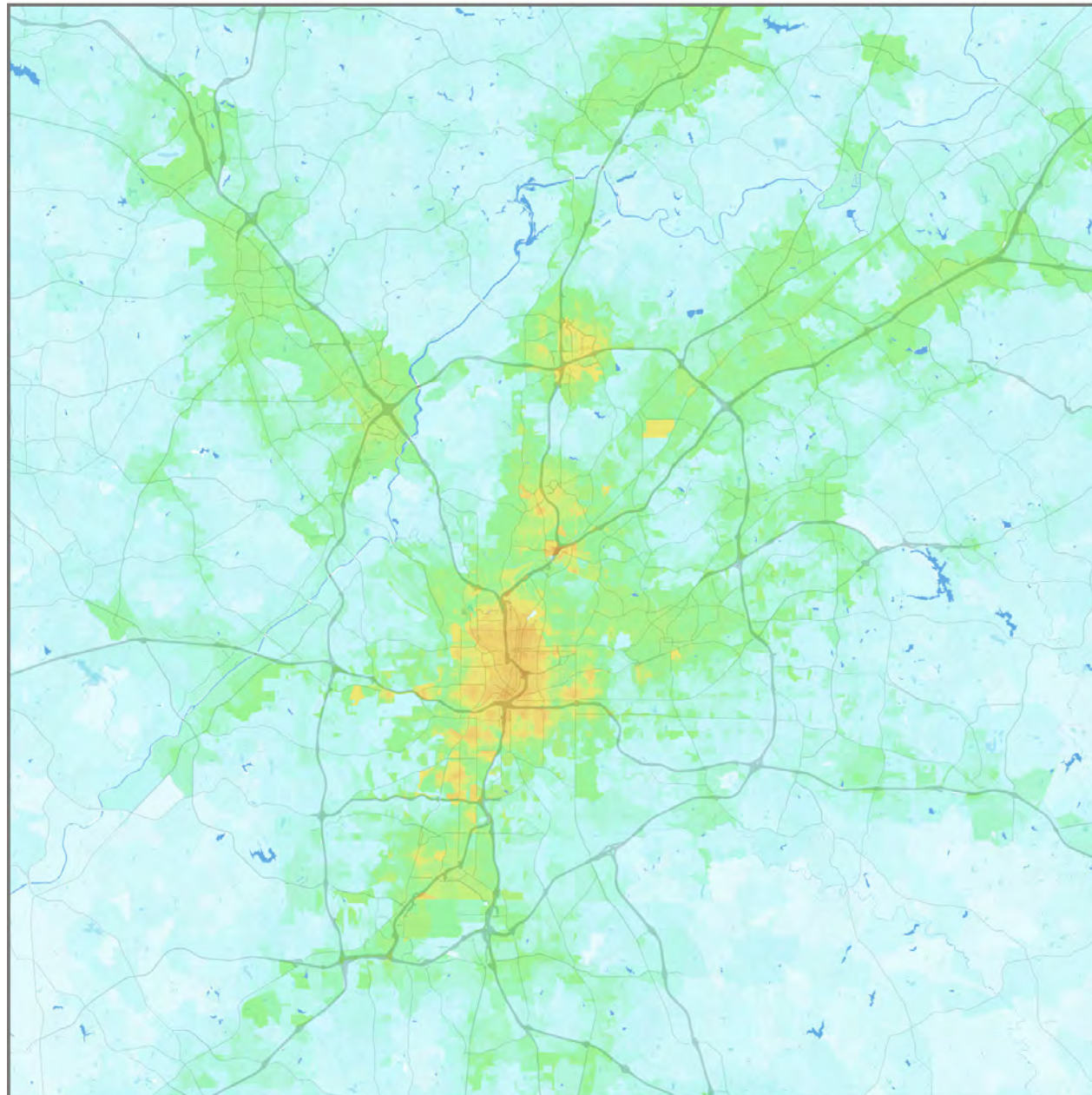
Transit Schedules Included

Agency	Dates
Atlanta Streetcar	March 25, 2016 - December 31, 2016
Atlantic Station Shuttle	January 1, 2013 - December 31, 2013
Buc Shuttle	January 1, 2013 - December 31, 2013
Cherokee Area Transportation System (CATS)	January 1, 2013 - December 31, 2013
Cliff Shuttles/Emory University	January 1, 2013 - December 31, 2013
CobbLinc	September 30, 2016 - September 30, 2017
GRTA Xpress	May 10, 2014 - June 10, 2015
Georgia Tech Trolley & Stinger Shuttles	August 12, 2013 - May 3, 2014
Gwinnett County Transit	June 12, 2014 - December 31, 2014
Metropolitan Atlanta Rapid Transit Authority	December 10, 2016 - April 16, 2017

Atlanta

Atlanta-Sandy Springs-Marietta, GA

15



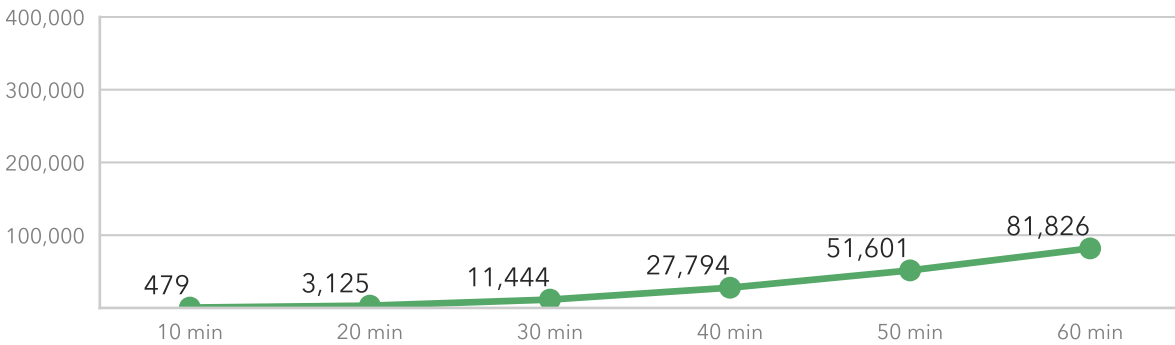
Austin

Austin-Round Rock-San Marcos, TX

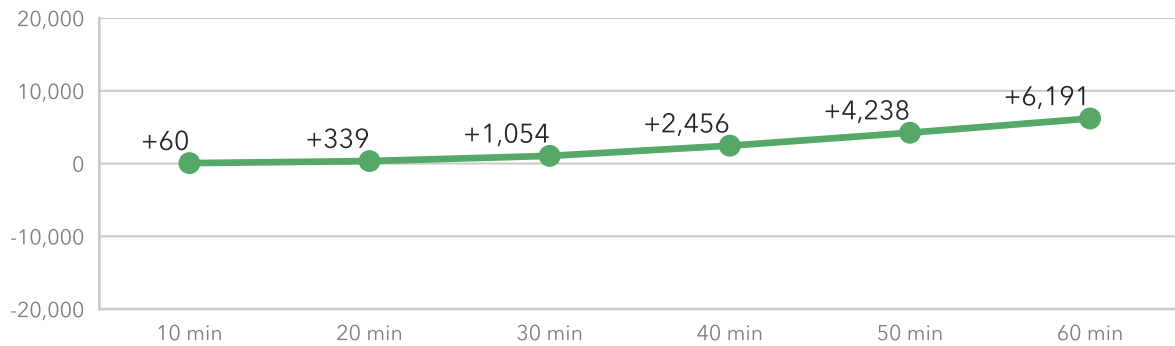
Rank by Weighted Accessibility	22
Rank by Total Employment	29
Rank by 1-Year Change in Weighted Accessibility	3
1-Year Change in Weighted Accessibility	+9.76%
1-Year Change in Weighted Accessibility Rank	+1
2-Year Change in Weighted Accessibility	+7.34%
Total Jobs	956,883
Average Job Density (per km ²)	88
Total Workers	917,901
Average Worker Density (per km ²)	84

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Austin

Austin-Round Rock-San Marcos, TX

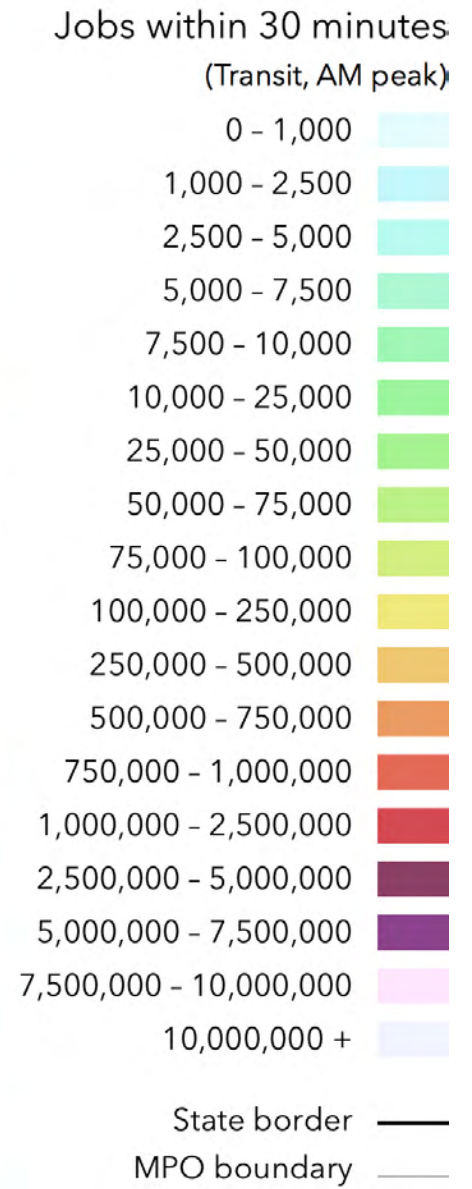
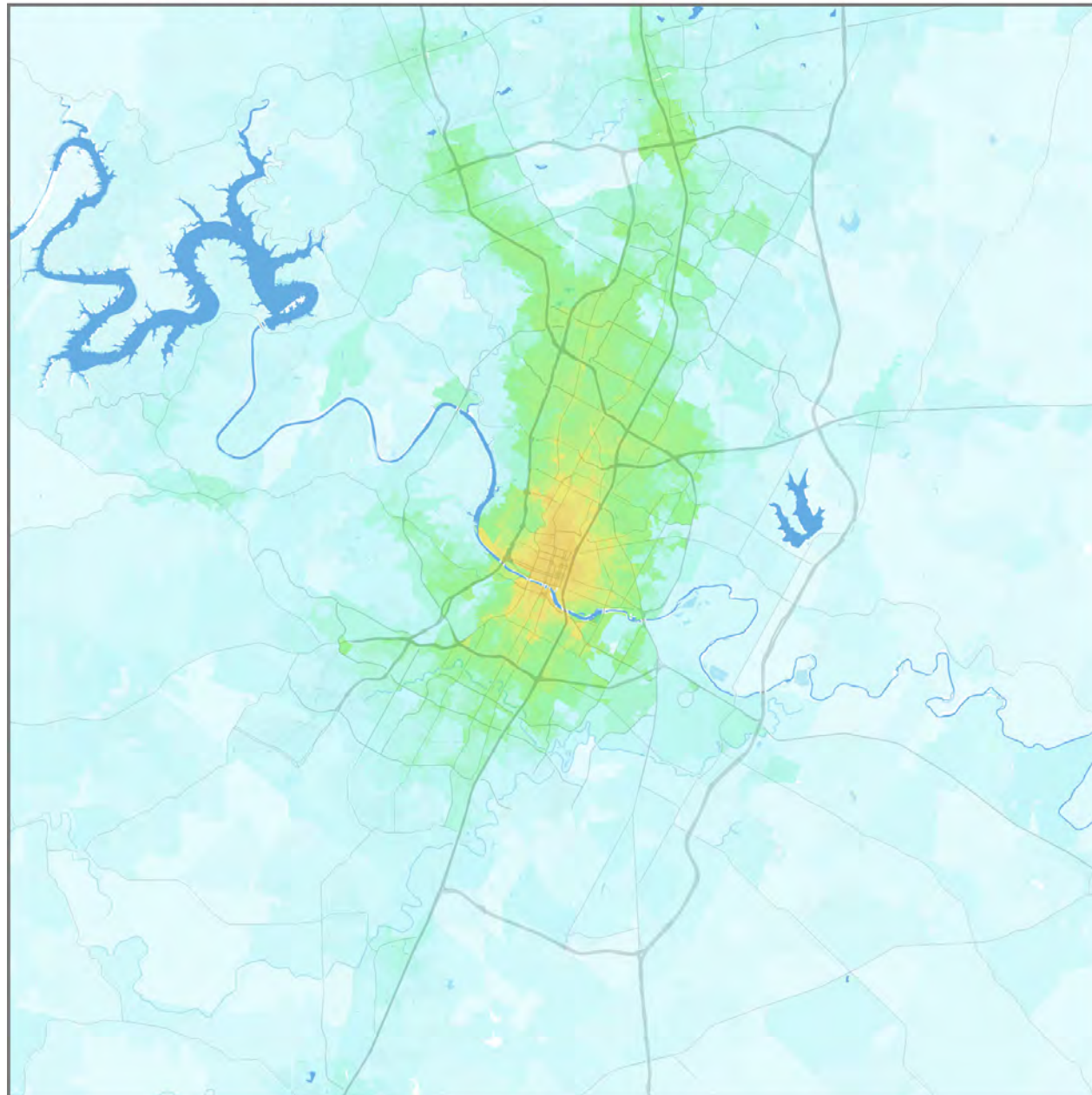
Transit Schedules Included

Agency	Dates
CapMetro	June 7, 2015 - August 22, 2015

Austin

Austin-Round Rock-San Marcos, TX

18



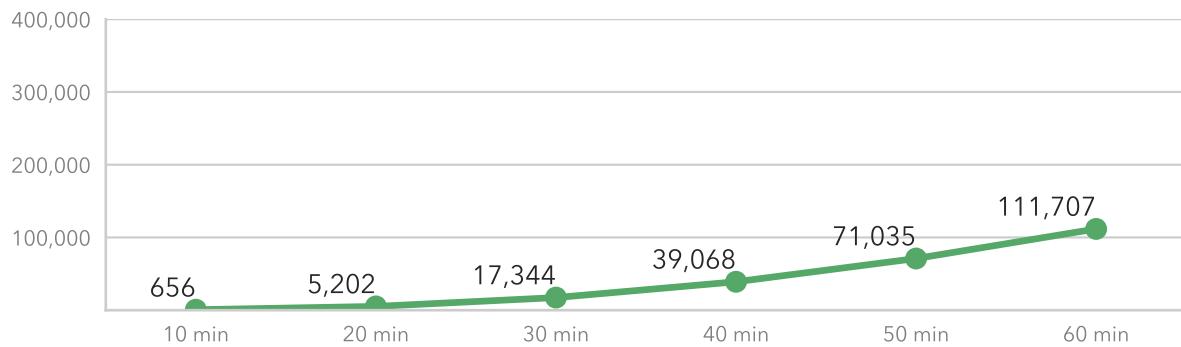
Baltimore

Baltimore-Towson, MD

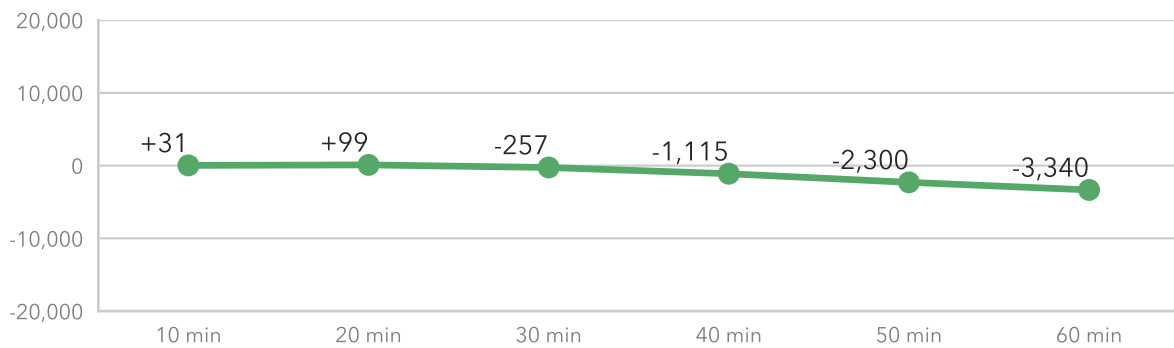
Rank by Weighted Accessibility	15
Rank by Total Employment	20
Rank by 1-Year Change in Weighted Accessibility	45
1-Year Change in Weighted Accessibility	-1.67%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	-1.30%
Total Jobs	1,309,980
Average Job Density (per km ²)	194
Total Workers	1,291,995
Average Worker Density (per km ²)	192

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Baltimore

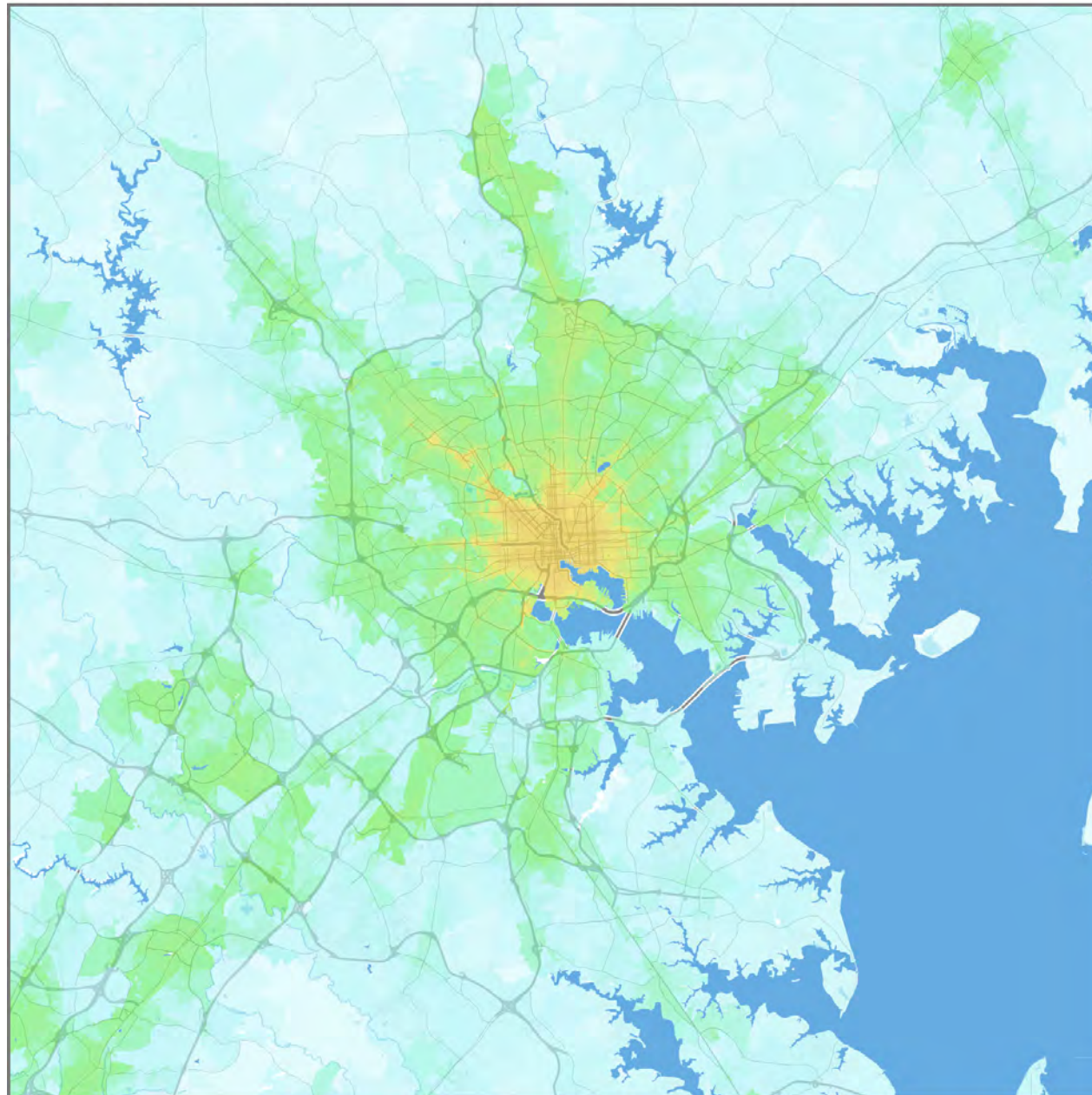
Baltimore-Towson, MD

Transit Schedules Included

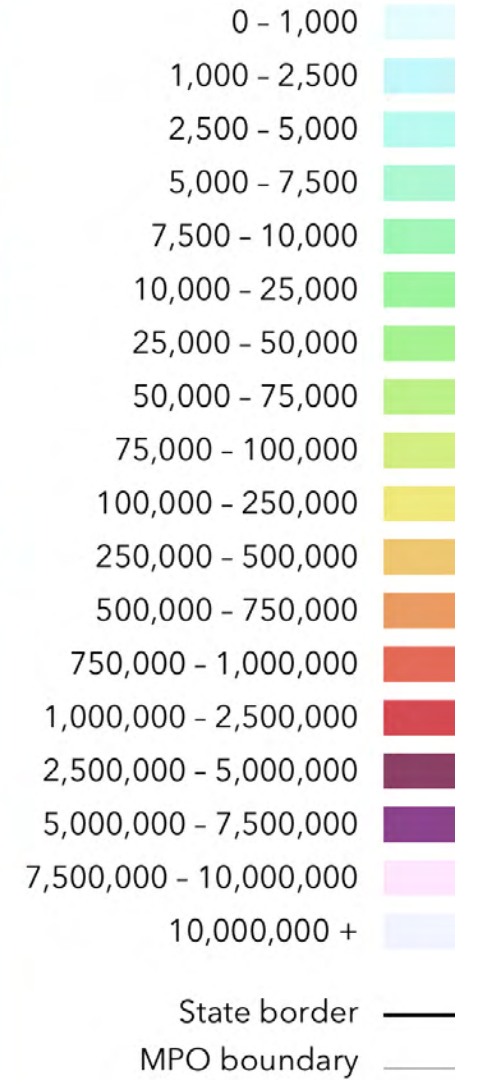
Agency	Dates
Annapolis Transit	January 1, 2015 - December 31, 2015
BWI Thurgood Marshall Airport	January 1, 2016 - December 31, 2017
Carroll Transit System	January 1, 2016 - January 1, 2018
Charm City Circulator	May 1, 2016 - December 30, 2018
Delmarva Community Transit	August 1, 2014 - December 31, 2017
Harford Transit LINK	October 1, 2015 - December 31, 2017
MTA Office of Local Transit Support	August 28, 2016 - February 4, 2017
Maryland Transit Administration	February 5, 2017 - September 2, 2017
Queen Anne's County Ride	March 8, 2016 - December 31, 2017
Rabbit Transit	November 30, 2016 - December 1, 2017
Regional Transportation Agency of Central Maryland	June 1, 2016 - March 1, 2018
WMATA	February 22, 2017 - August 20, 2017

Baltimore

Baltimore-Towson, MD



Jobs within 30 minutes
(Transit, AM peak)



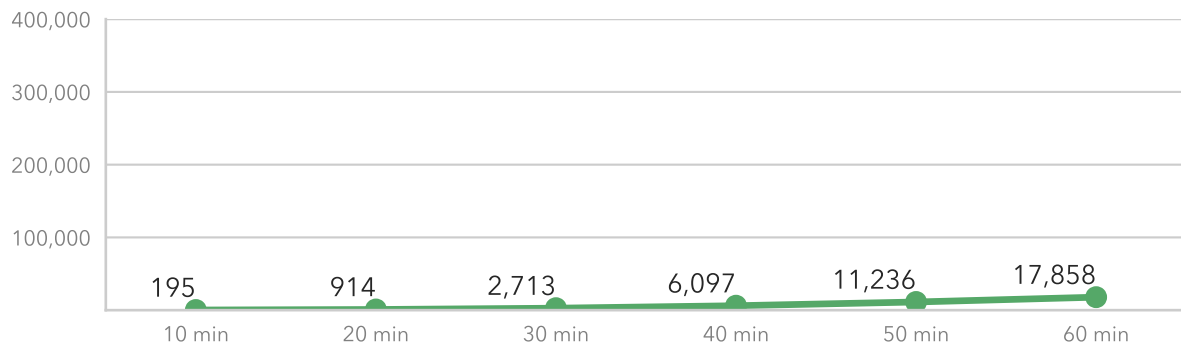
Birmingham

Birmingham-Hoover, AL

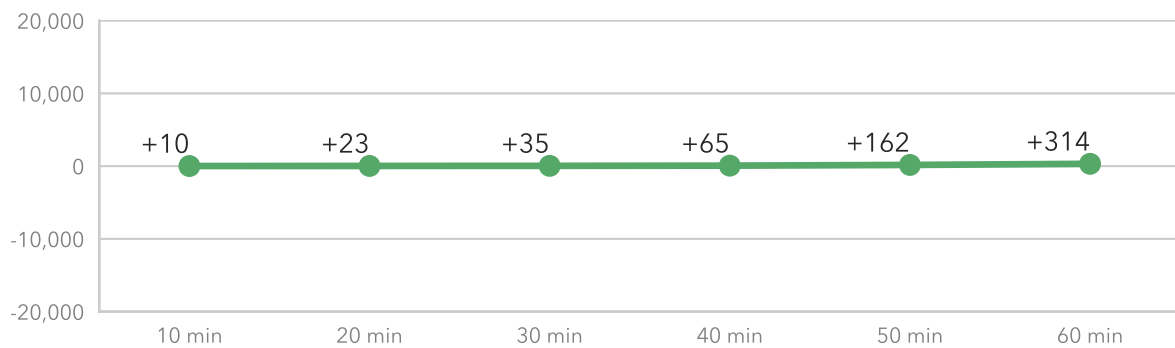
Rank by Weighted Accessibility	49
Rank by Total Employment	50
Rank by 1-Year Change in Weighted Accessibility	37
1-Year Change in Weighted Accessibility	+1.86%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+5.13%
Total Jobs	508,196
Average Job Density (per km ²)	37
Total Workers	476,681
Average Worker Density (per km ²)	35

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Birmingham

Birmingham-Hoover, AL

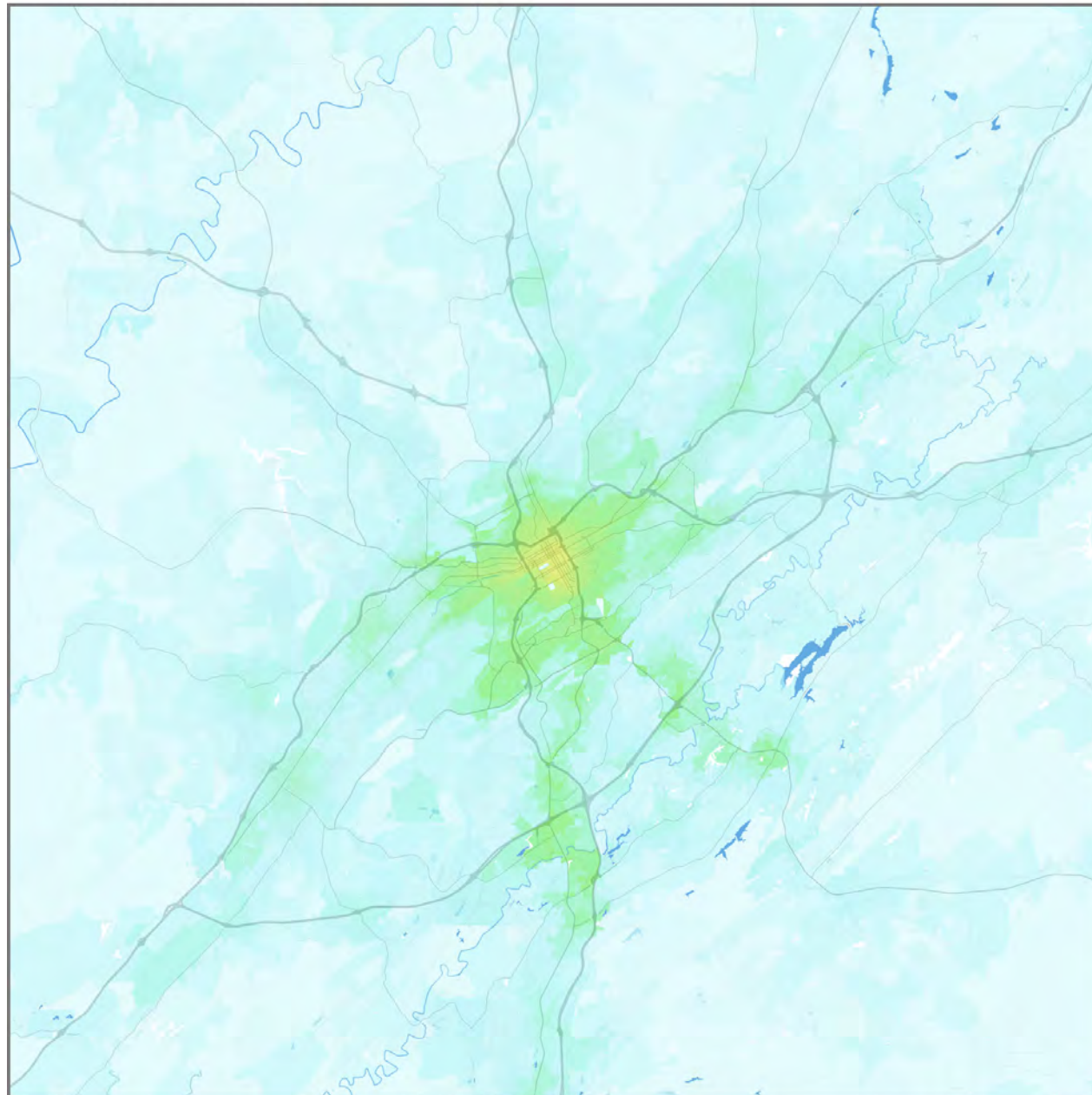
Transit Schedules Included

Agency	Dates
Birmingham Jefferson County Transit Authority	February 1, 2017 - December 31, 2018

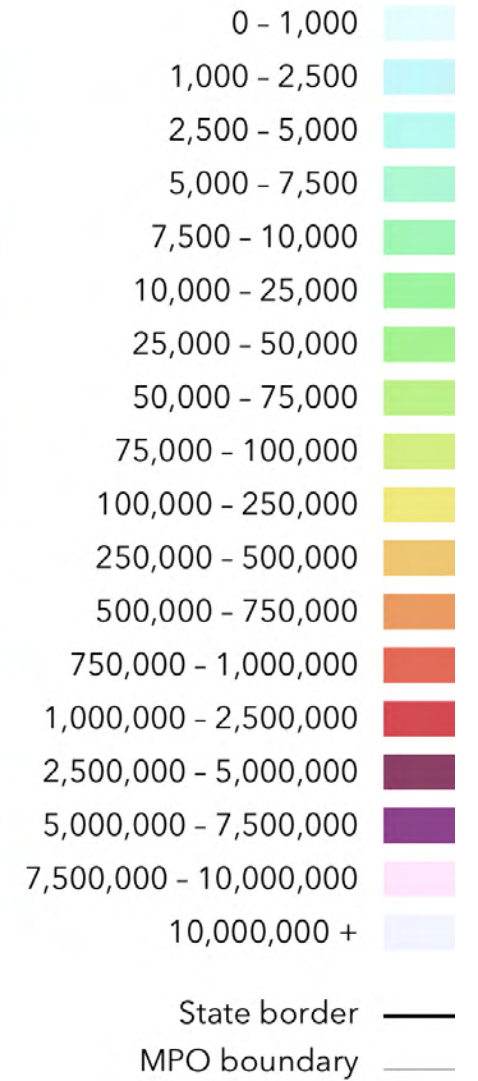
Birmingham

Birmingham-Hoover, AL

24



Jobs within 30 minutes
(Transit, AM peak)



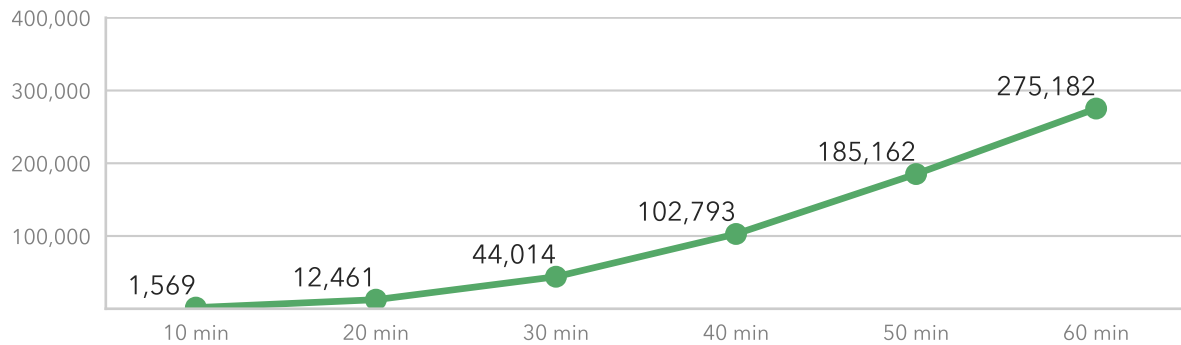
Boston

Boston-Cambridge-Quincy, MA-NH

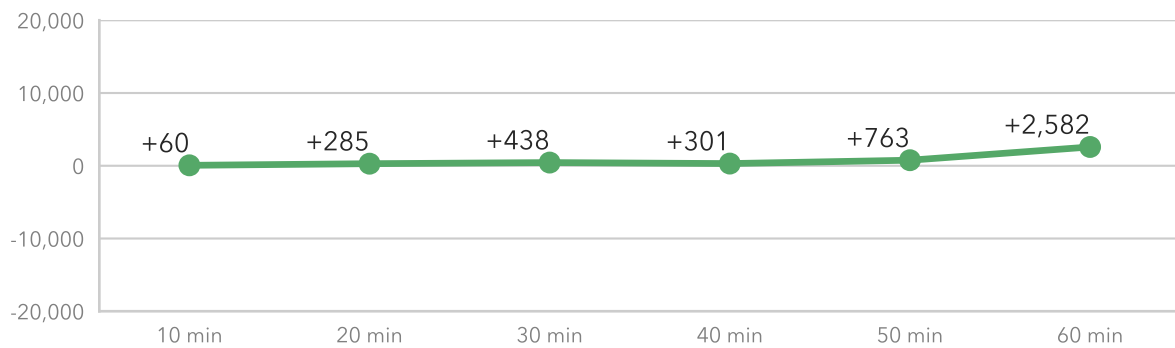
Rank by Weighted Accessibility	5
Rank by Total Employment	10
Rank by 1-Year Change in Weighted Accessibility	42
1-Year Change in Weighted Accessibility	+1.01%
1-Year Change in Weighted Accessibility Rank	+1
2-Year Change in Weighted Accessibility	+0.87%
Total Jobs	2,597,474
Average Job Density (per km ²)	288
Total Workers	2,401,512
Average Worker Density (per km ²)	266

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Boston

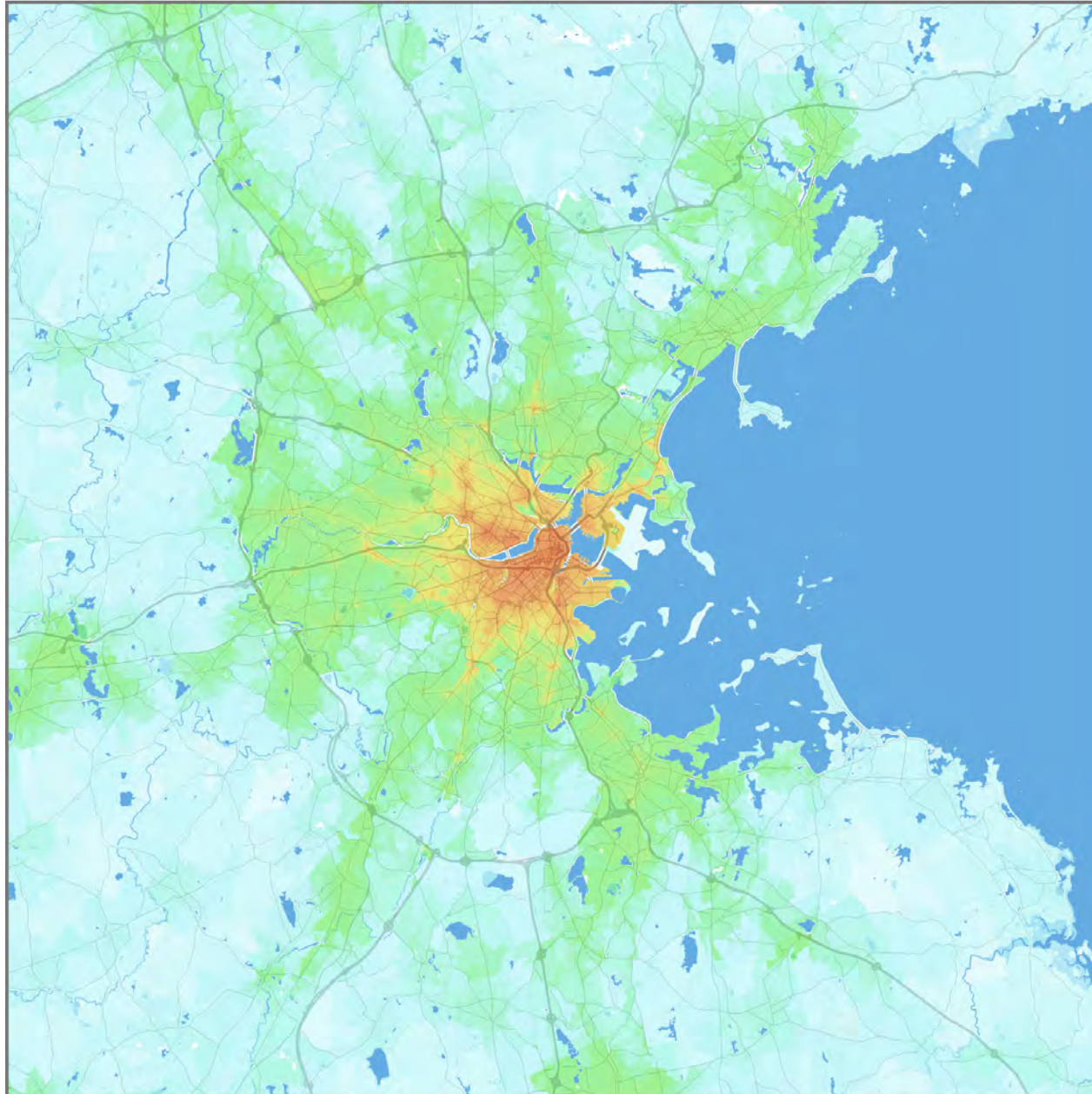
Boston-Cambridge-Quincy, MA-NH

Transit Schedules Included

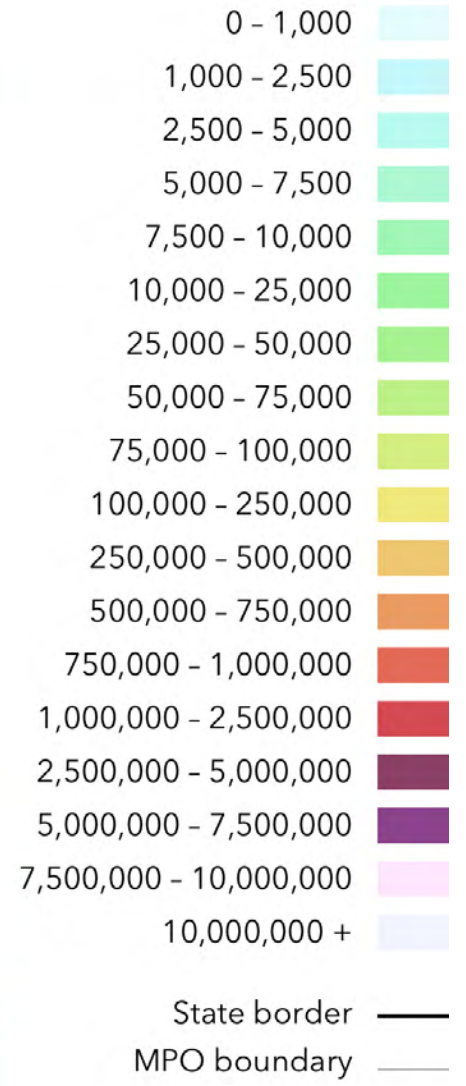
Agency	Dates
Bloom Bus	January 2, 2015 - January 2, 2016
Boston Harbor Islands National and State Park	May 7, 2016 - October 10, 2016
Brockton Area Transit Authority	April 21, 2014 - January 8, 2020
Cape Ann Transportation	January 1, 2015 - January 1, 2018
Cape Cod Regional Transit Authority (CCRTA)	September 6, 2016 - June 23, 2017
DATTCO	January 2, 2015 - January 2, 2016
Lexpress Lexington MA	October 1, 2014 - June 30, 2016
Lowell Regional Transit Authority	January 1, 2015 - January 1, 2018
MBTA	January 23, 2017 - March 24, 2017
Massport	January 23, 2017 - March 24, 2017
Merrimack Valley Regional Transit Authority	January 1, 2015 - January 1, 2018
MetroWest Regional Transit Authority	September 24, 2013 - September 23, 2020
Montachusett Regional Transit Authority	January 1, 2015 - May 31, 2018
Plymouth & Brockton Street Railway Co.	June 28, 2014 - June 28, 2015
The Greater Attleboro Taunton Regional Transit Authority	January 1, 2016 - January 1, 2017

Boston

Boston-Cambridge-Quincy, MA-NH



Jobs within 30 minutes
(Transit, AM peak)



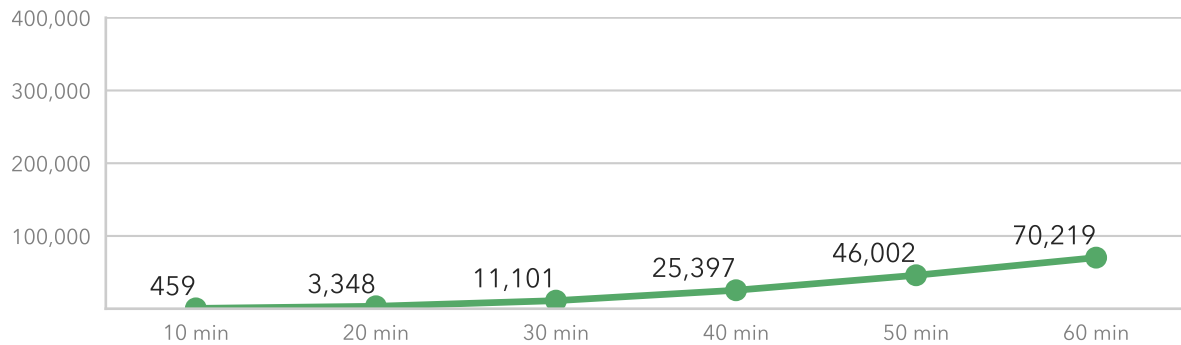
Buffalo

Buffalo-Niagara Falls, NY

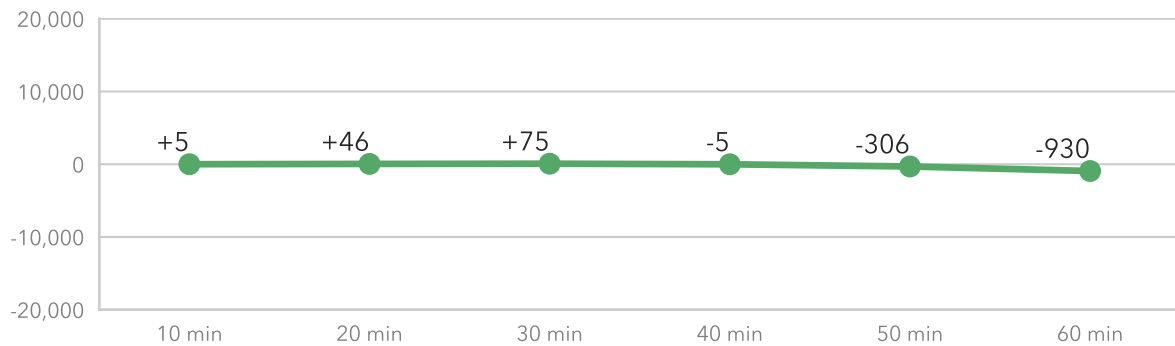
Rank by Weighted Accessibility	24
Rank by Total Employment	48
Rank by 1-Year Change in Weighted Accessibility	43
1-Year Change in Weighted Accessibility	-0.03%
1-Year Change in Weighted Accessibility Rank	-2
2-Year Change in Weighted Accessibility	+4.46%
Total Jobs	547,851
Average Job Density (per km ²)	135
Total Workers	529,252
Average Worker Density (per km ²)	131

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Buffalo

Buffalo-Niagara Falls, NY

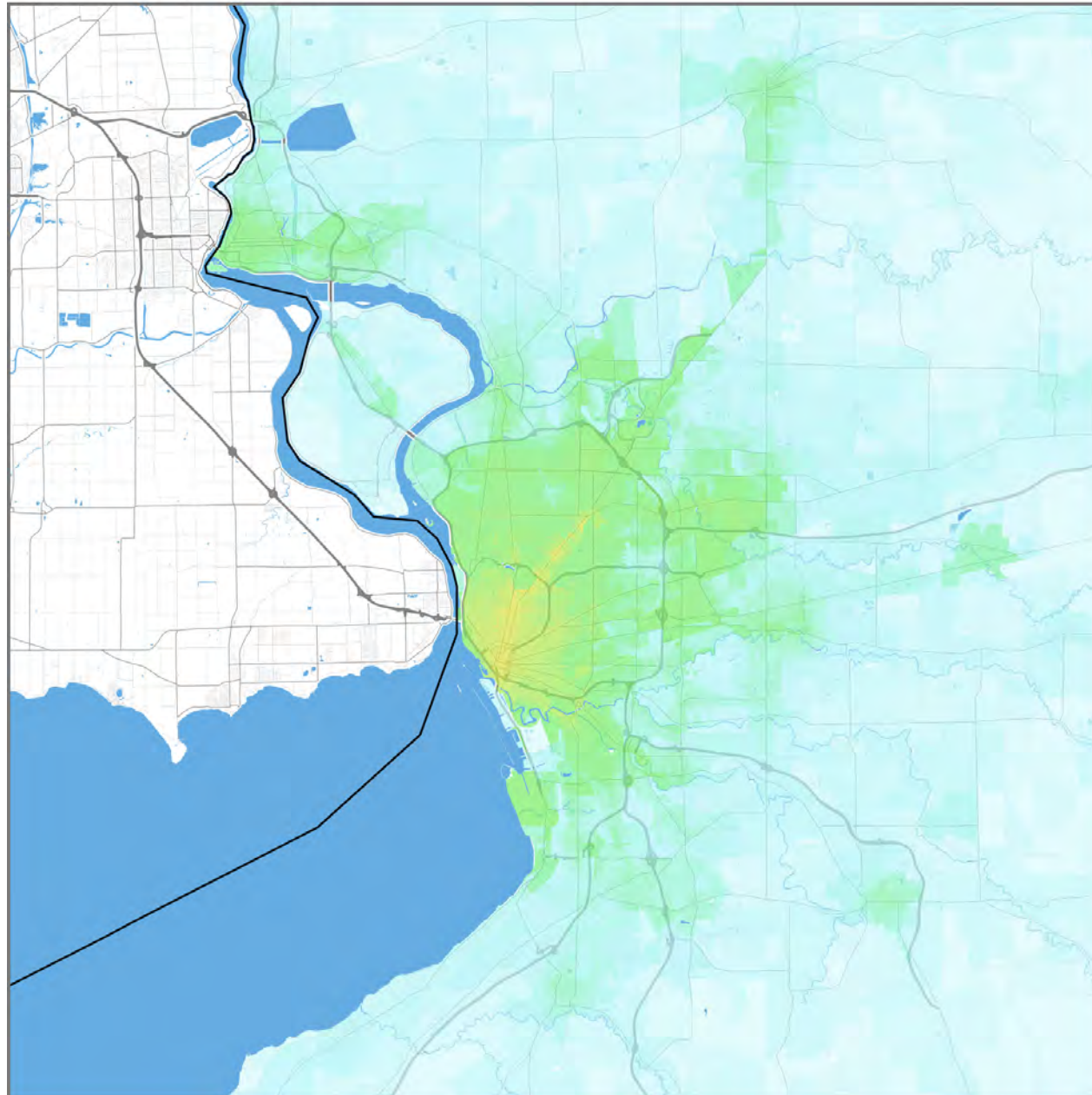
Transit Schedules Included

Agency	Dates
NFTA - Metro	November 26, 2016 - March 4, 2017

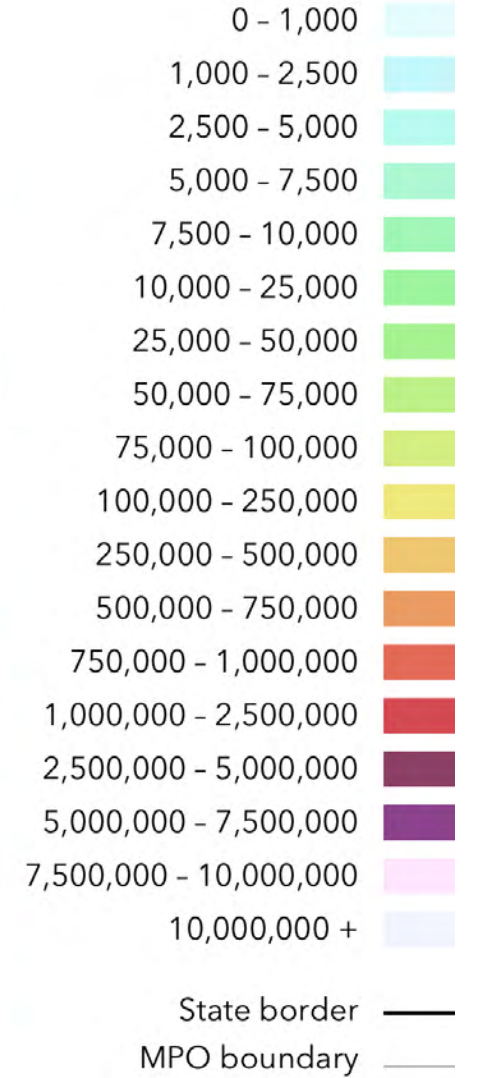
Buffalo

Buffalo-Niagara Falls, NY

30



Jobs within 30 minutes
(Transit, AM peak)



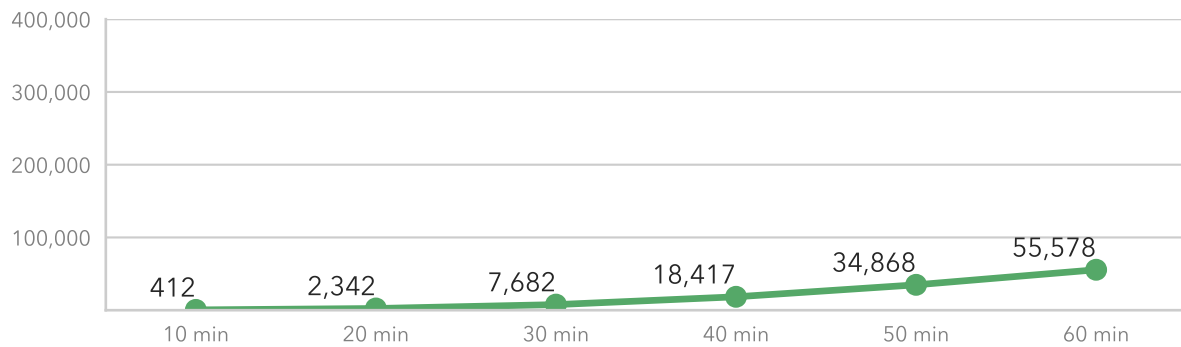
Charlotte

Charlotte-Gastonia-Rock Hill, NC-SC

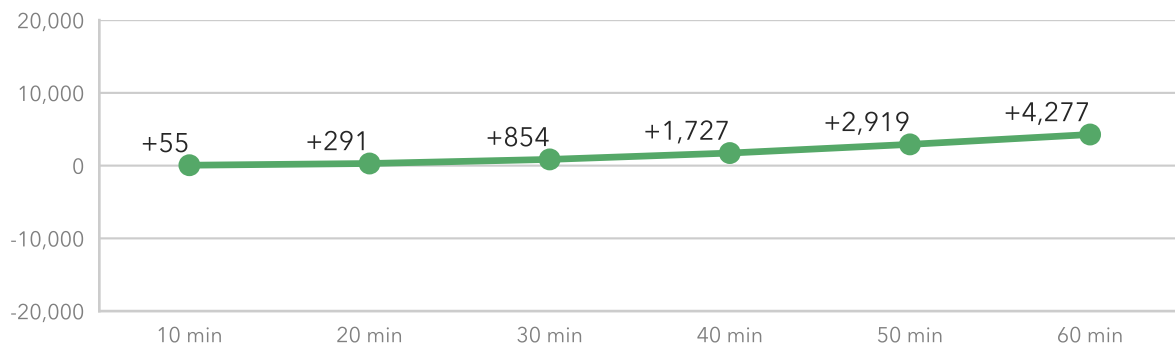
Rank by Weighted Accessibility	34
Rank by Total Employment	35
Rank by 1-Year Change in Weighted Accessibility	2
1-Year Change in Weighted Accessibility	+10.81%
1-Year Change in Weighted Accessibility Rank	+2
2-Year Change in Weighted Accessibility	+23.02%
Total Jobs	971,585
Average Job Density (per km ²)	122
Total Workers	877,360
Average Worker Density (per km ²)	110

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Charlotte

Charlotte-Gastonia-Rock Hill, NC-SC

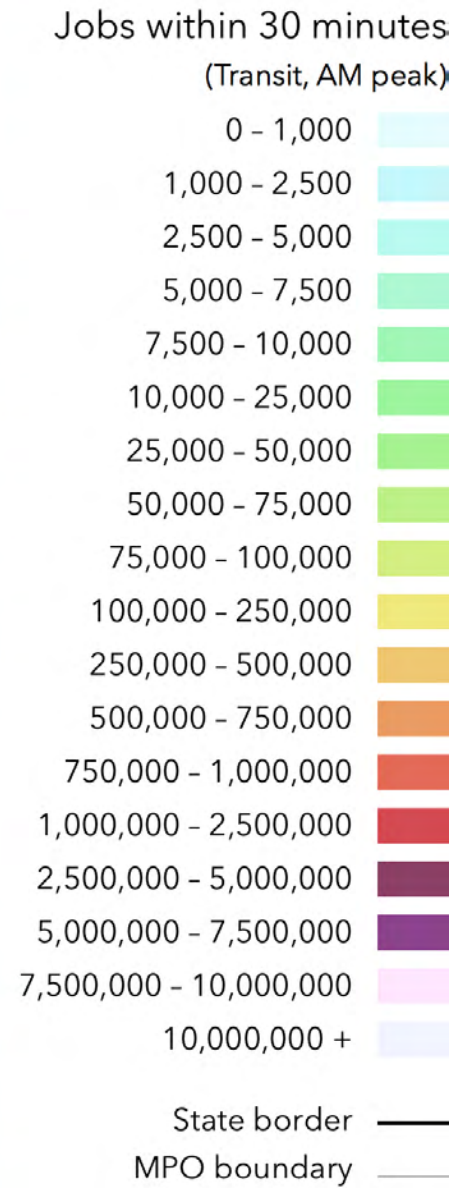
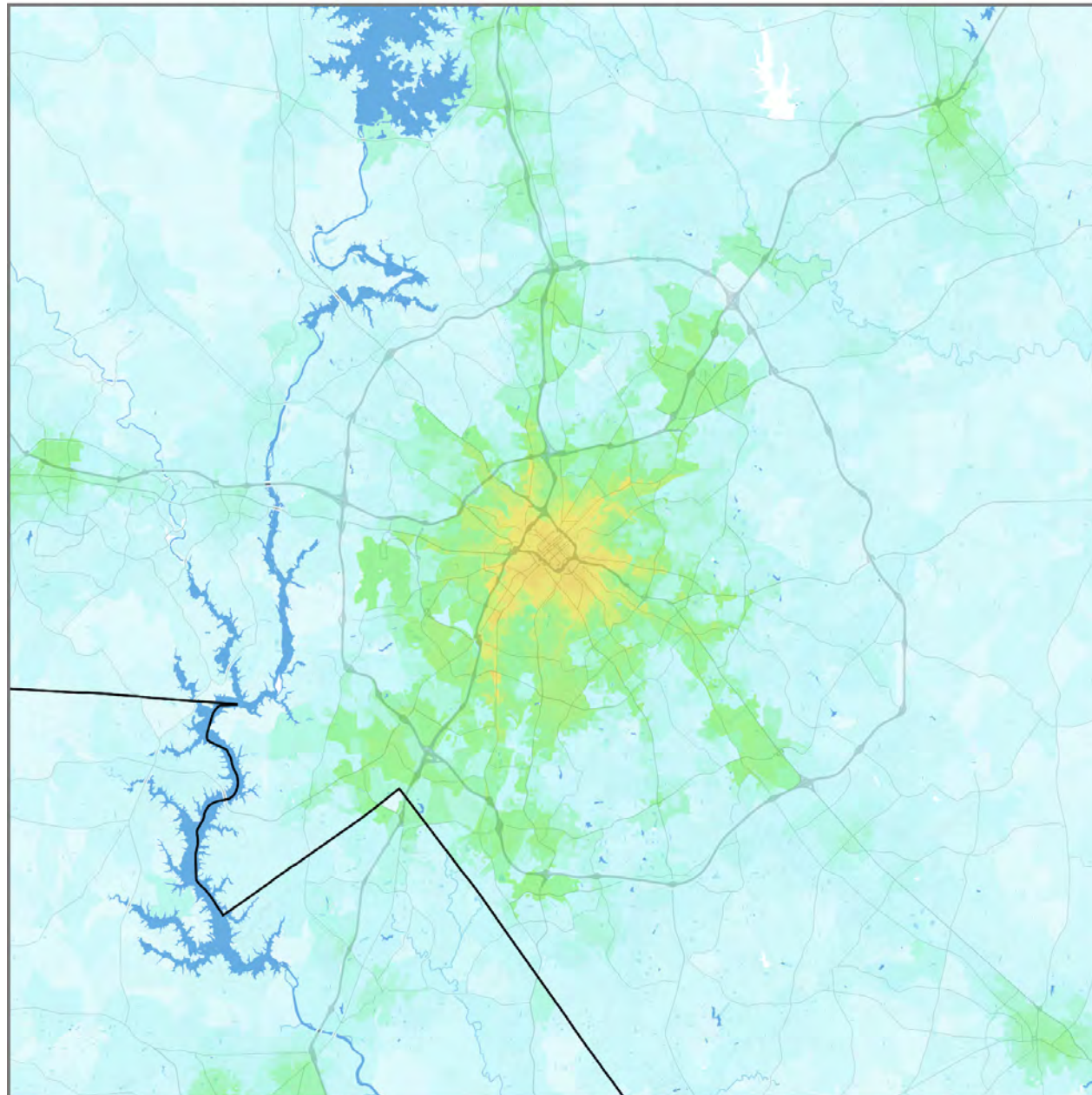
Transit Schedules Included

Agency	Dates
Charlotte Area Transit System	September 8, 2016 - February 5, 2017

Charlotte

Charlotte-Gastonia-Rock Hill, NC-SC

33



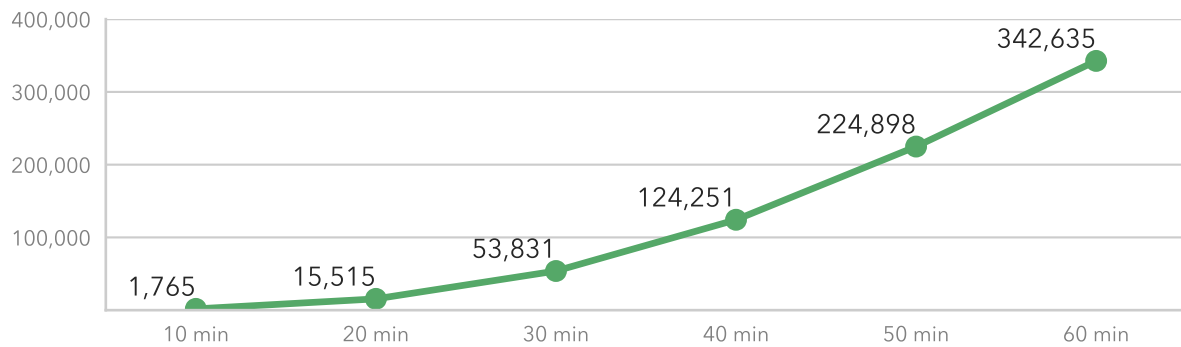
Chicago

Chicago-Joliet-Naperville, IL-IN-WI

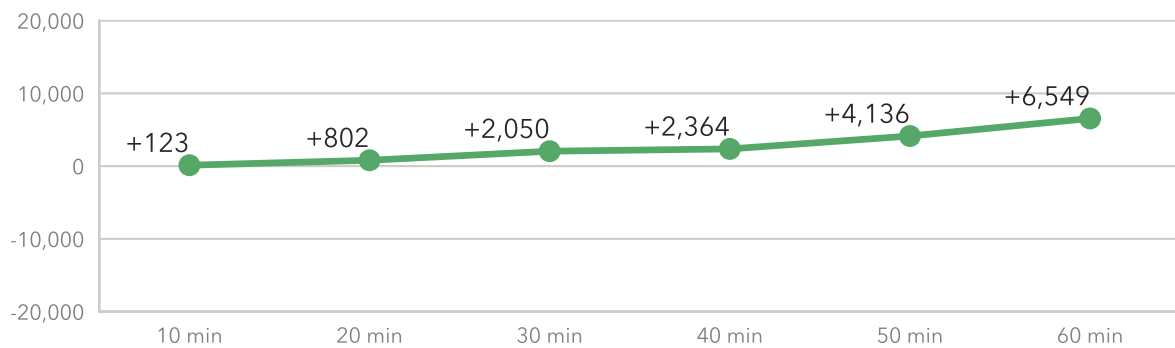
Rank by Weighted Accessibility	3
Rank by Total Employment	3
Rank by 1-Year Change in Weighted Accessibility	32
1-Year Change in Weighted Accessibility	+3.00%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+5.67%
Total Jobs	4,480,793
Average Job Density (per km ²)	240
Total Workers	4,389,339
Average Worker Density (per km ²)	235

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Chicago

Chicago-Joliet-Naperville, IL-IN-WI

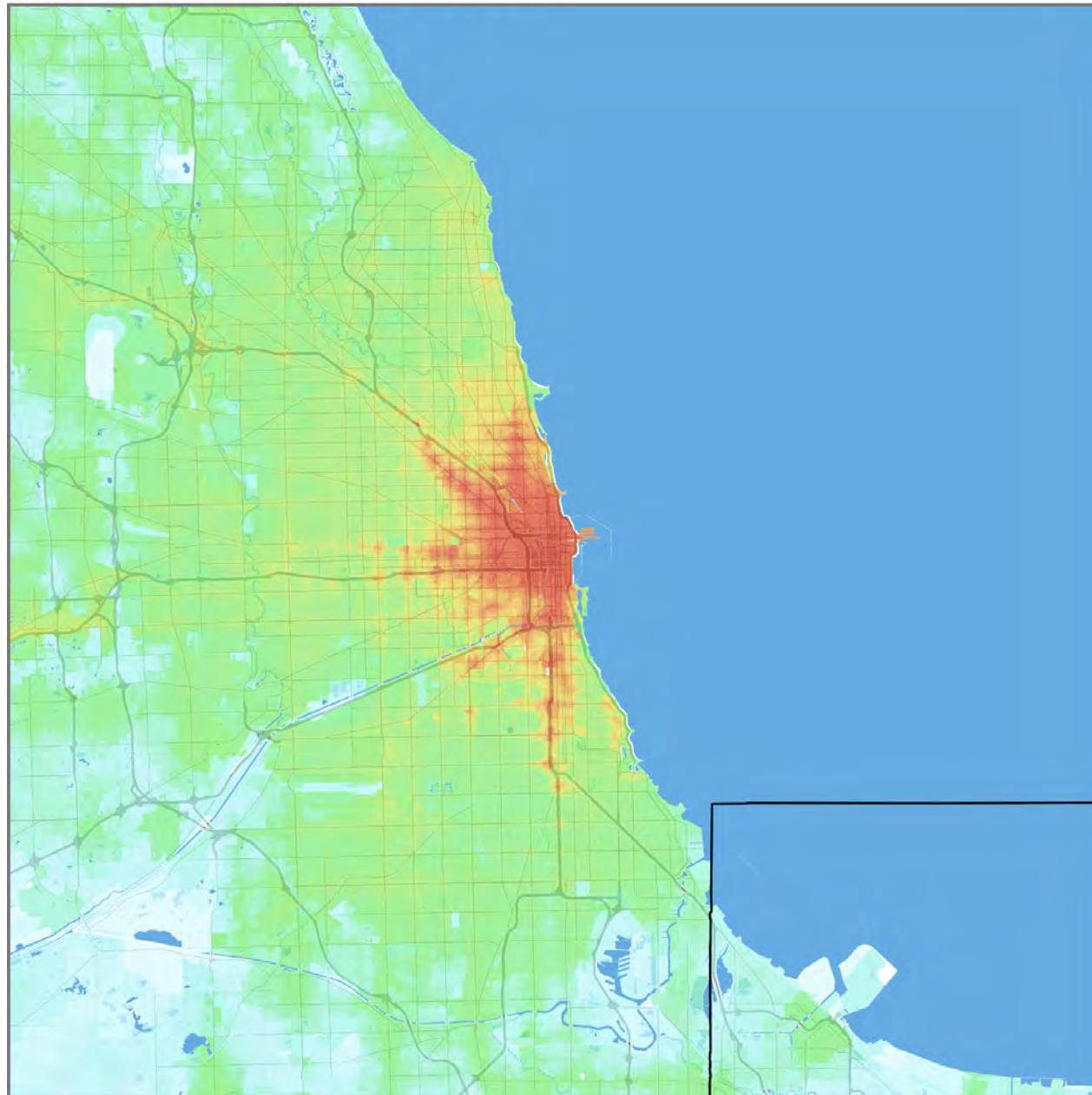
Transit Schedules Included

Agency	Dates
Chicago Transit Authority	January 17, 2017 - March 31, 2017
Metra	January 1, 2017 - September 3, 2017
PACE	January 13, 2017 - March 24, 2017

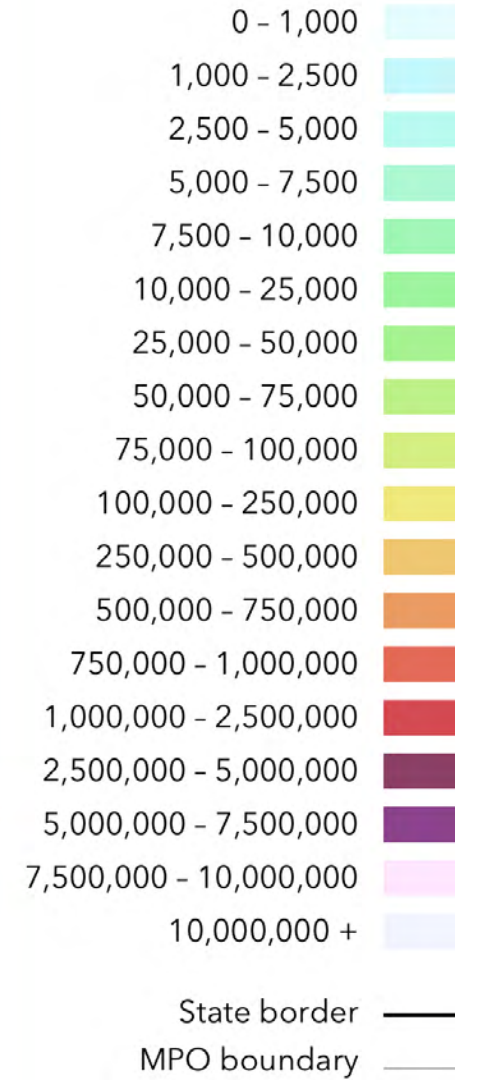
Chicago

Chicago-Joliet-Naperville, IL-IN-WI

36



Jobs within 30 minutes
(Transit, AM peak)



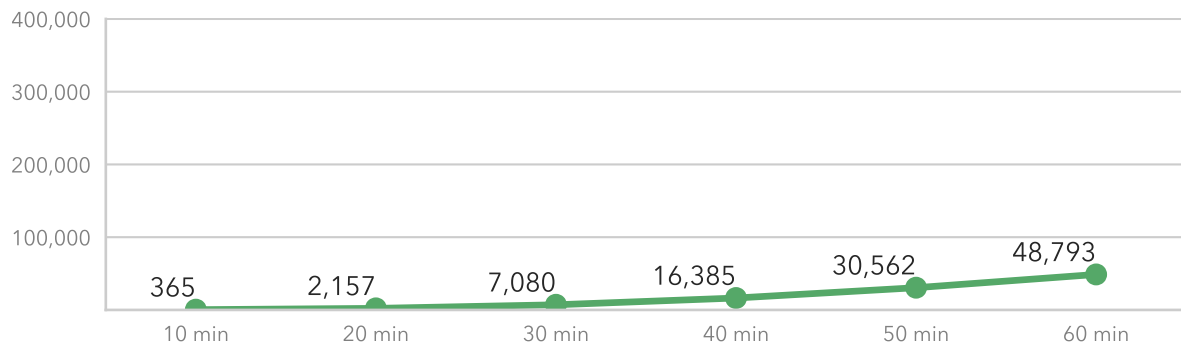
Cincinnati

Cincinnati-Middletown, OH-KY-IN

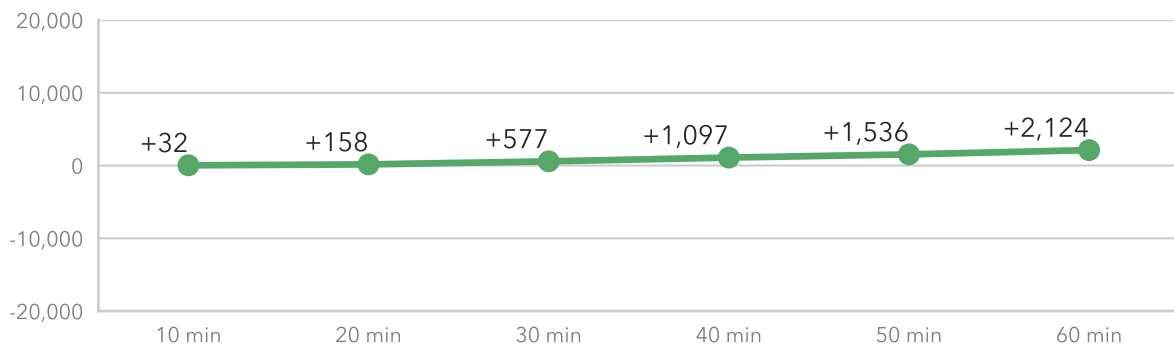
Rank by Weighted Accessibility	39
Rank by Total Employment	26
Rank by 1-Year Change in Weighted Accessibility	10
1-Year Change in Weighted Accessibility	+6.78%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+18.78%
Total Jobs	1,019,443
Average Job Density (per km ²)	90
Total Workers	1,018,914
Average Worker Density (per km ²)	90

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Cincinnati

Cincinnati-Middletown, OH-KY-IN

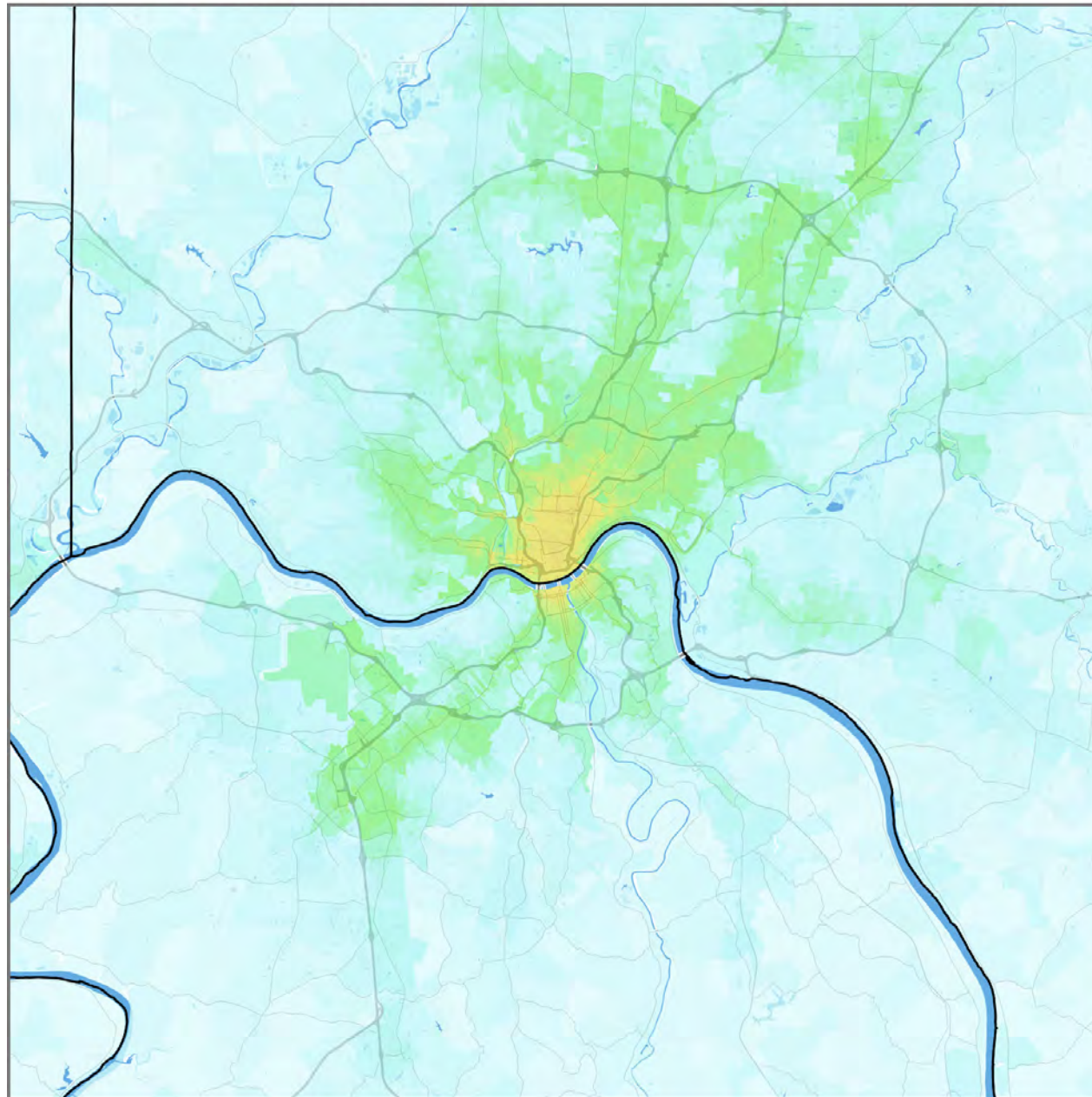
Transit Schedules Included

Agency	Dates
Southwest Ohio Regional Transit Authority	December 4, 2016 - May 27, 2017
Transit Authority of Northern Kentucky	October 27, 2016 - May 31, 2017

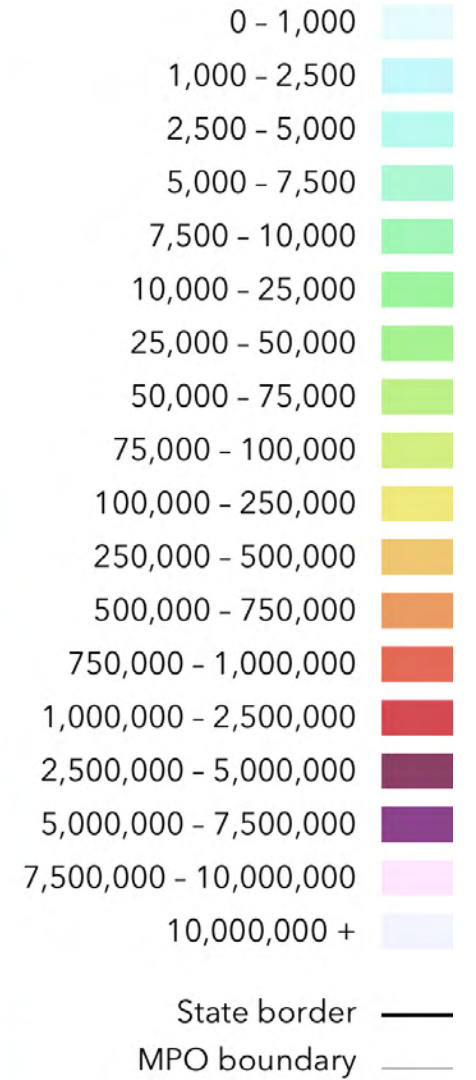
Cincinnati

Cincinnati-Middletown, OH-KY-IN

39



Jobs within 30 minutes
(Transit, AM peak)



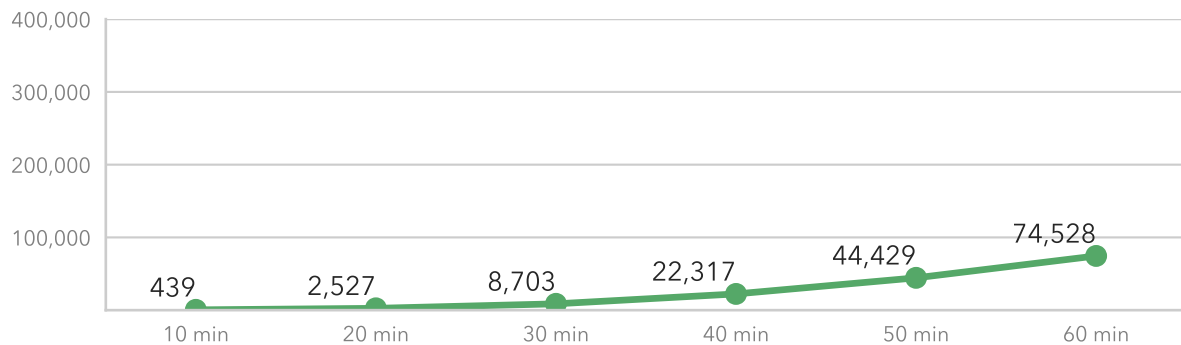
Cleveland

Cleveland-Elyria-Mentor, OH

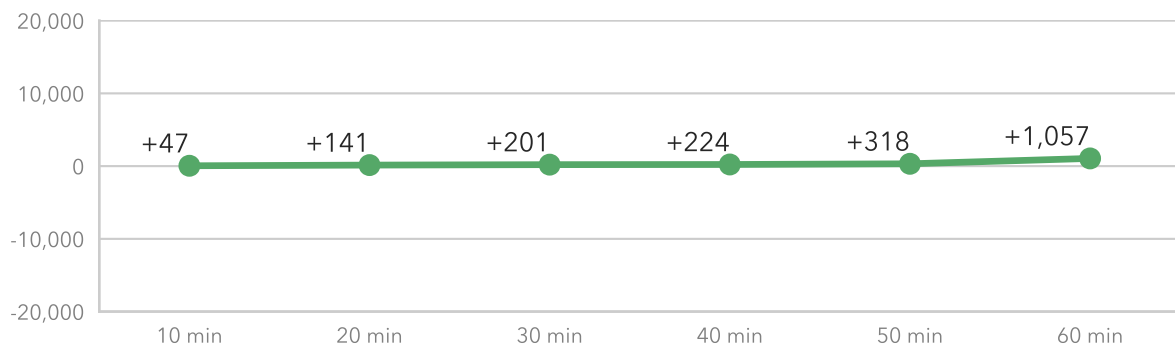
Rank by Weighted Accessibility	29
Rank by Total Employment	28
Rank by 1-Year Change in Weighted Accessibility	35
1-Year Change in Weighted Accessibility	+2.33%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+0.71%
Total Jobs	1,016,398
Average Job Density (per km ²)	196
Total Workers	955,181
Average Worker Density (per km ²)	185

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Cleveland

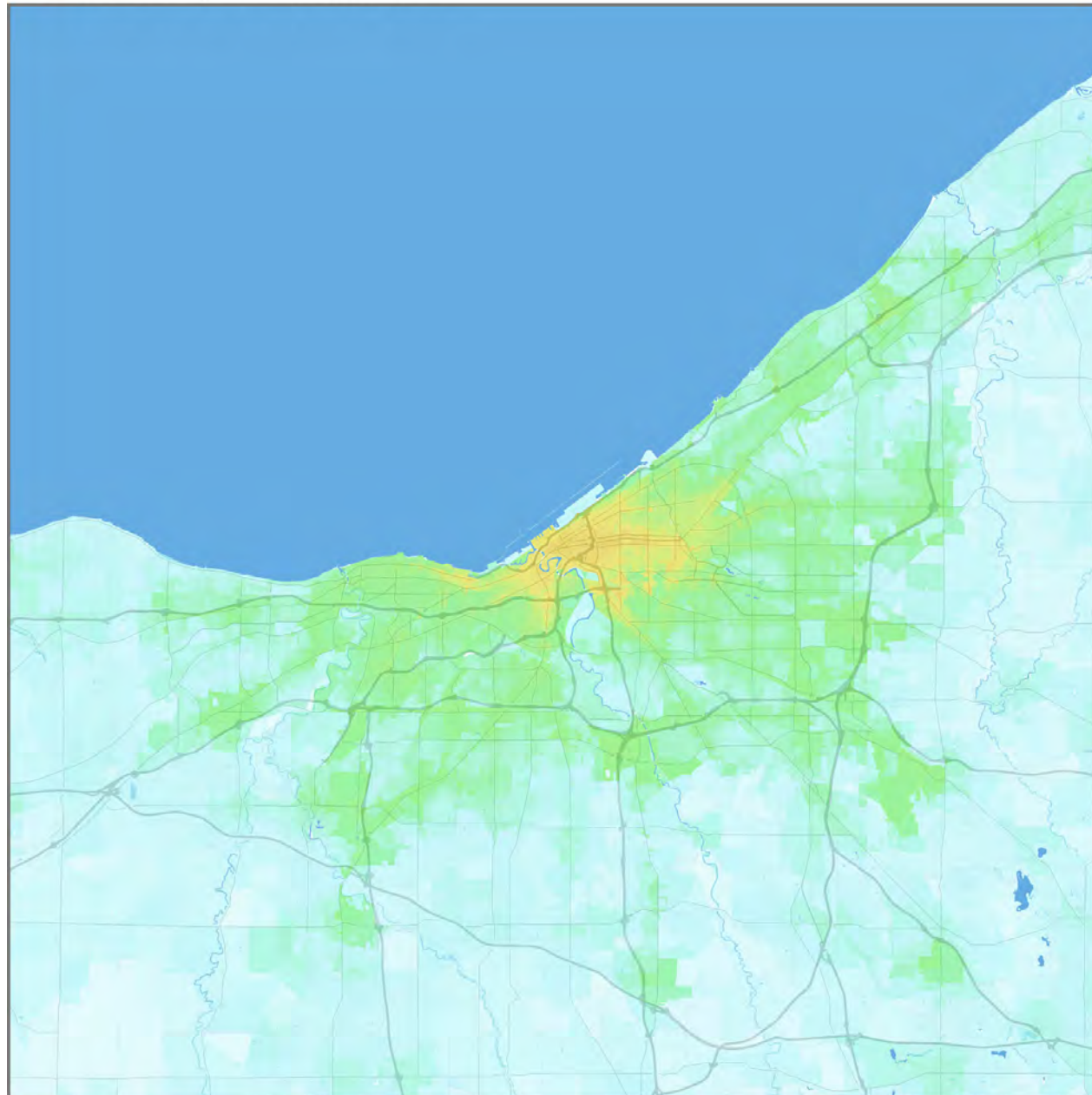
Cleveland-Elyria-Mentor, OH

Transit Schedules Included

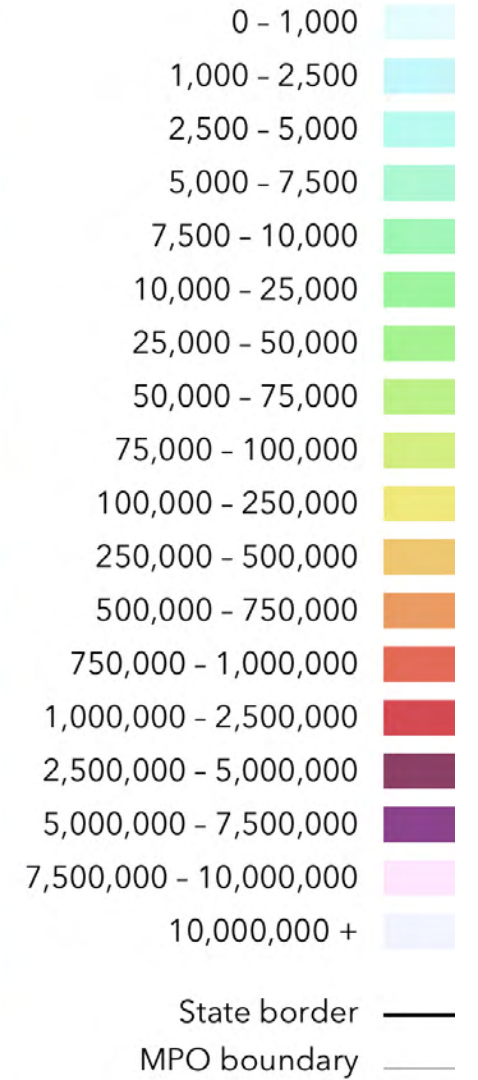
Agency	Dates
Cuyahoga Valley Scenic Railroad	January 21, 2017 - October 29, 2017
Greater Cleveland Regional Transit Authority	September 11, 2016 - March 11, 2017
Laketran	January 1, 2016 - December 1, 2018

Cleveland

Cleveland-Elyria-Mentor, OH



Jobs within 30 minutes
(Transit, AM peak)



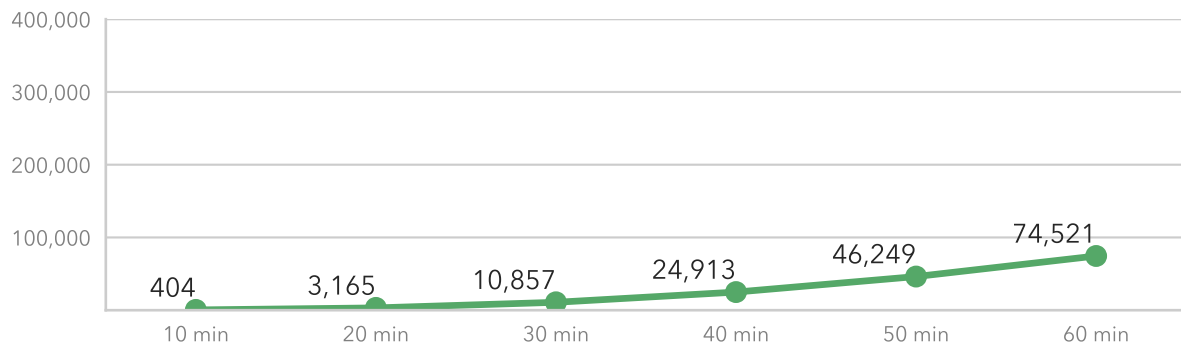
Columbus

Columbus, OH

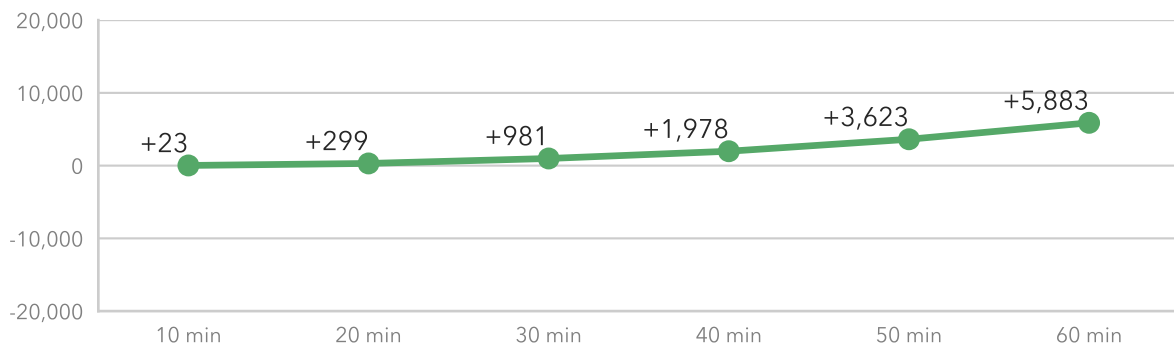
Rank by Weighted Accessibility	25
Rank by Total Employment	31
Rank by 1-Year Change in Weighted Accessibility	4
1-Year Change in Weighted Accessibility	+8.99%
1-Year Change in Weighted Accessibility Rank	+2
2-Year Change in Weighted Accessibility	+12.24%
Total Jobs	987,881
Average Job Density (per km ²)	96
Total Workers	911,367
Average Worker Density (per km ²)	89

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Columbus

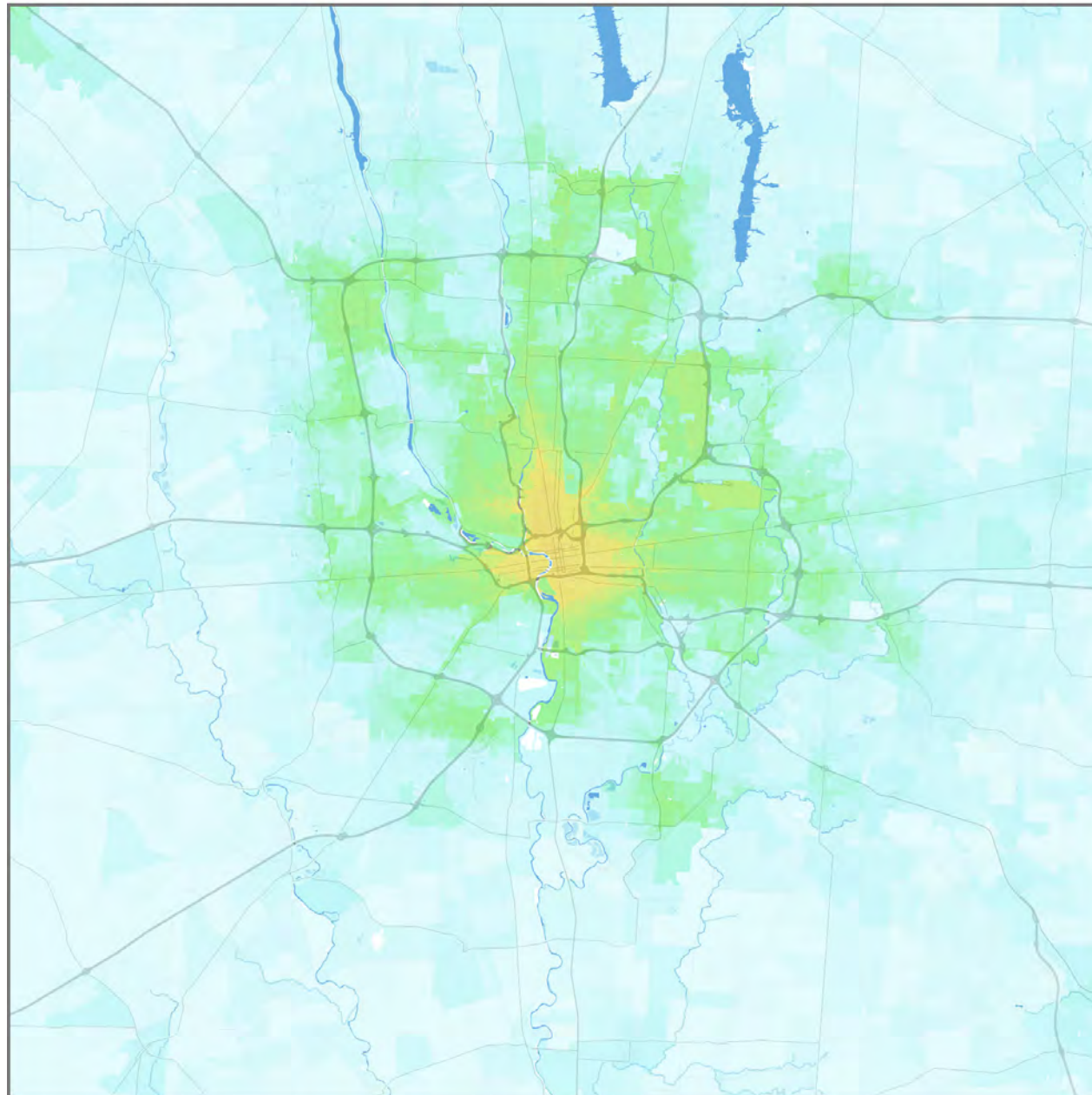
Columbus, OH

Transit Schedules Included

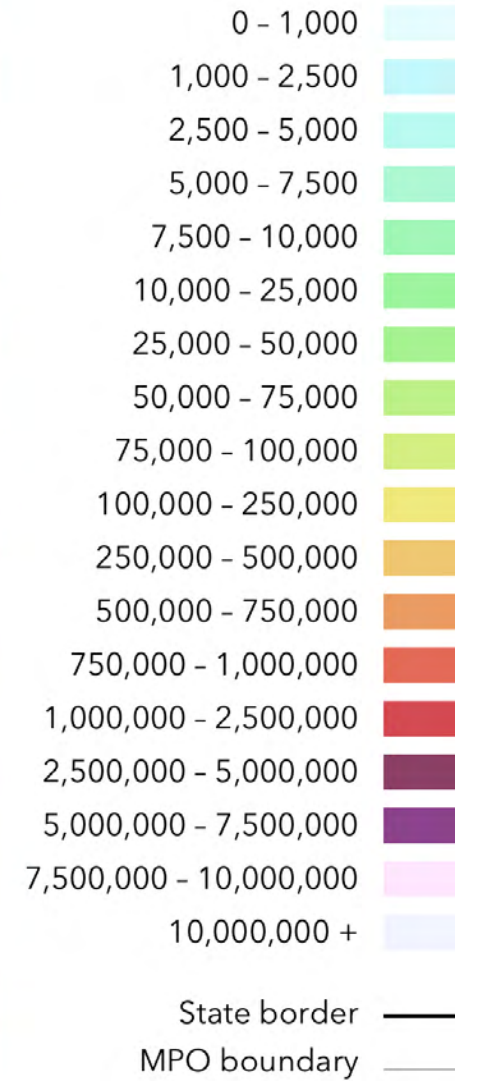
Agency	Dates
Central Ohio Transit Authority	January 2, 2017 - September 3, 2017

Columbus

Columbus, OH



Jobs within 30 minutes
(Transit, AM peak)



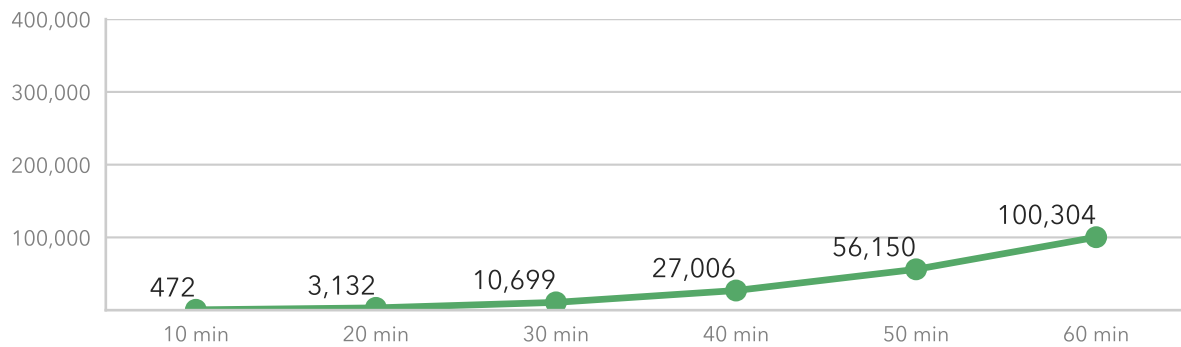
Dallas

Dallas-Fort Worth-Arlington, TX

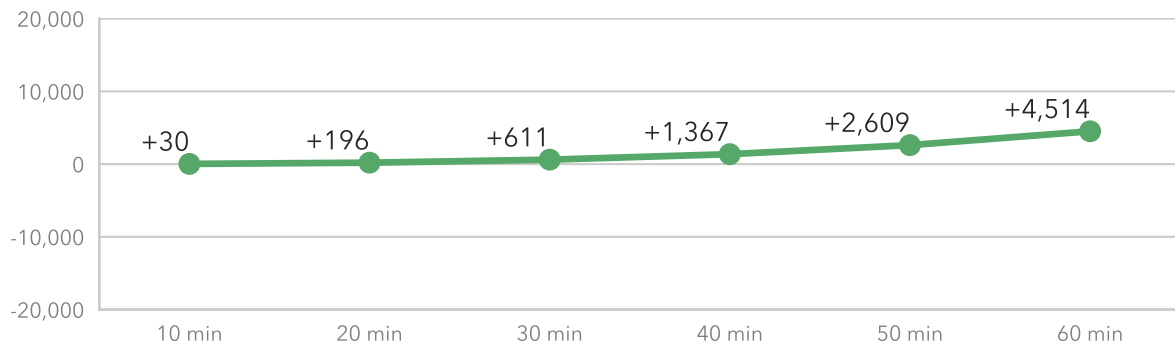
Rank by Weighted Accessibility	20
Rank by Total Employment	4
Rank by 1-Year Change in Weighted Accessibility	19
1-Year Change in Weighted Accessibility	+5.41%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	+7.16%
Total Jobs	3,352,887
Average Job Density (per km ²)	145
Total Workers	3,206,364
Average Worker Density (per km ²)	139

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Dallas

Dallas-Fort Worth-Arlington, TX

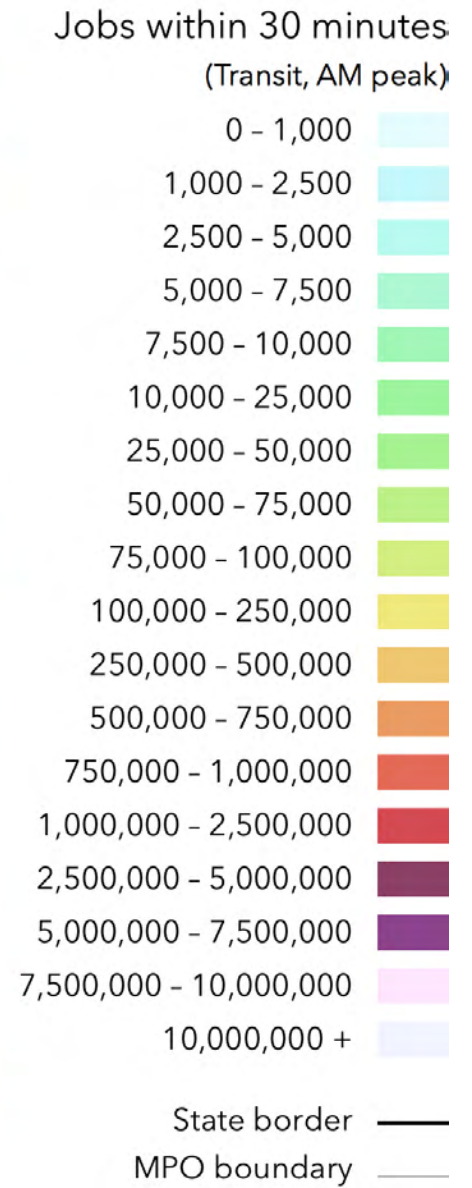
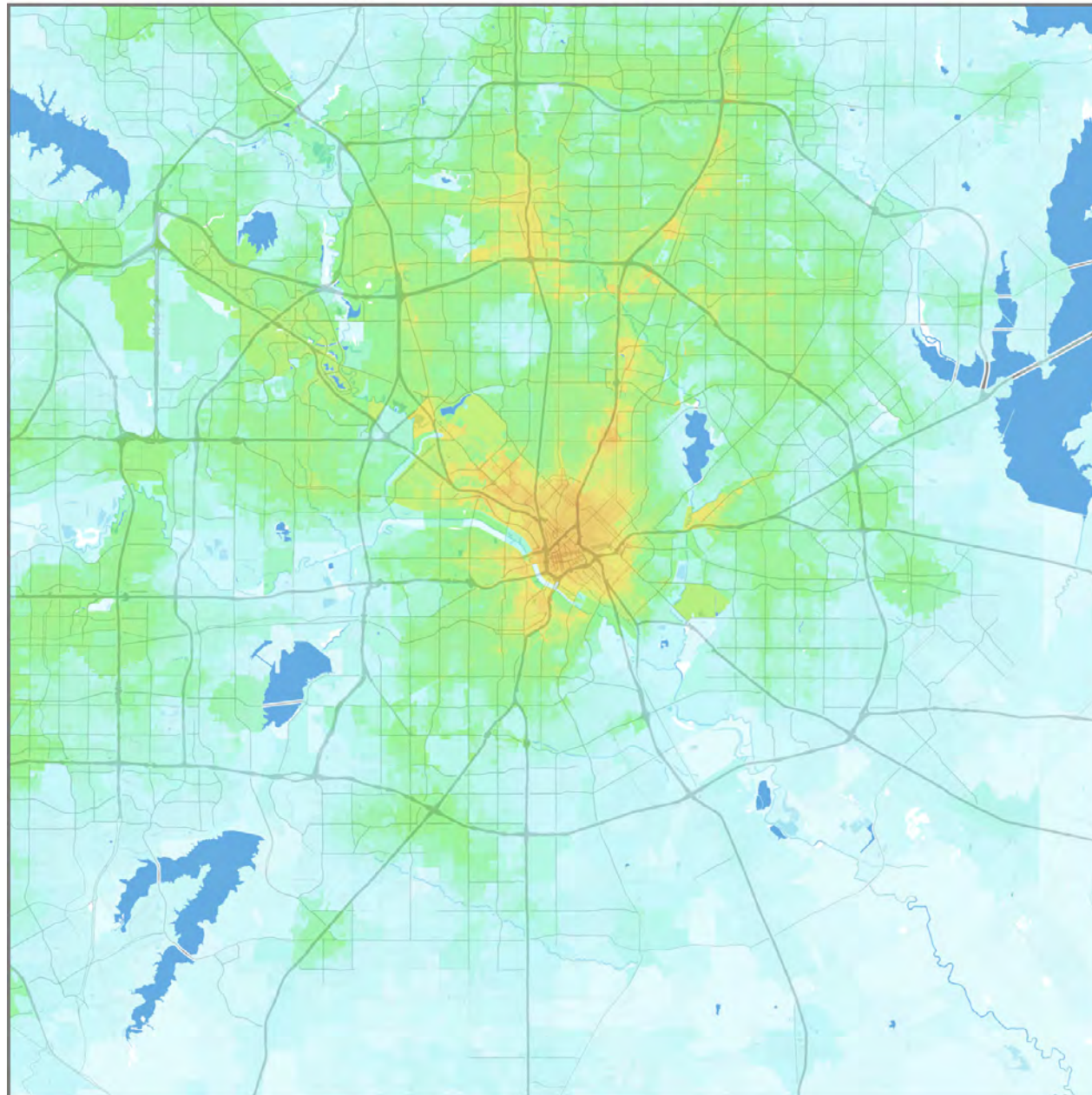
Transit Schedules Included

Agency	Dates
Dallas Area Rapid Transit	October 24, 2016 - March 12, 2017
Fort Worth Transportation Authority	May 22, 2016 - September 24, 2016

Dallas

Dallas-Fort Worth-Arlington, TX

48



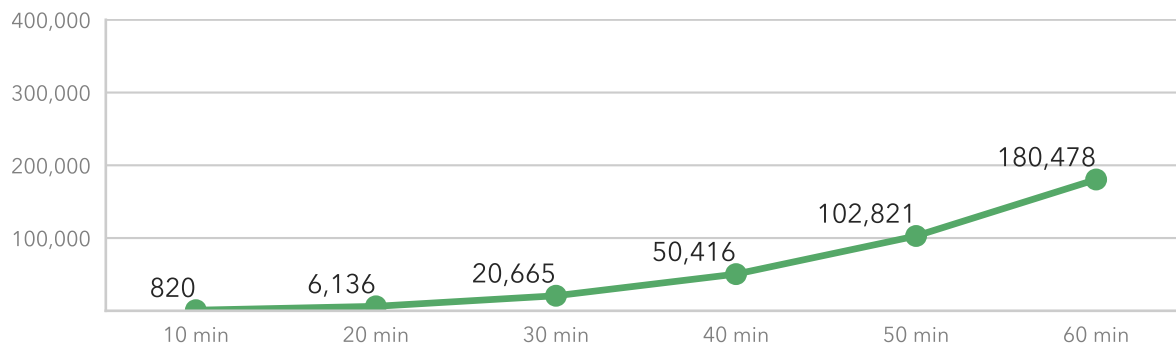
Denver

Denver-Aurora-Broomfield, CO

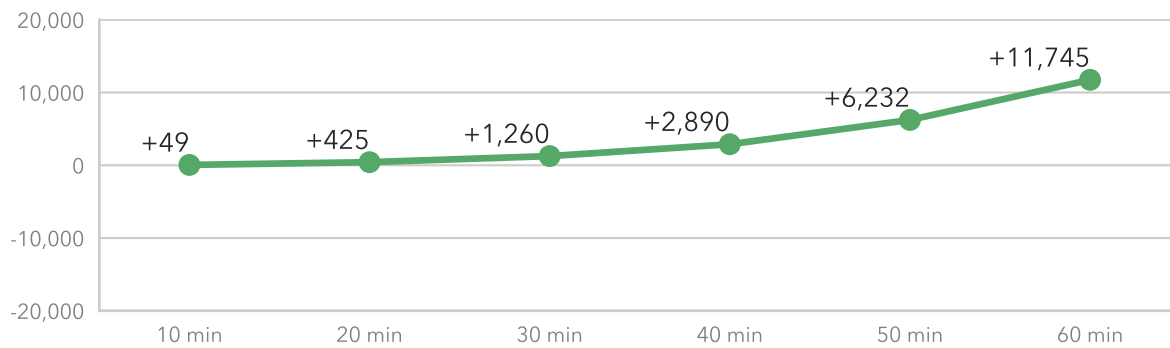
Rank by Weighted Accessibility	10
Rank by Total Employment	18
Rank by 1-Year Change in Weighted Accessibility	12
1-Year Change in Weighted Accessibility	+6.64%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+12.12%
Total Jobs	1,404,705
Average Job Density (per km ²)	65
Total Workers	1,356,387
Average Worker Density (per km ²)	63

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Denver

Denver-Aurora-Broomfield, CO

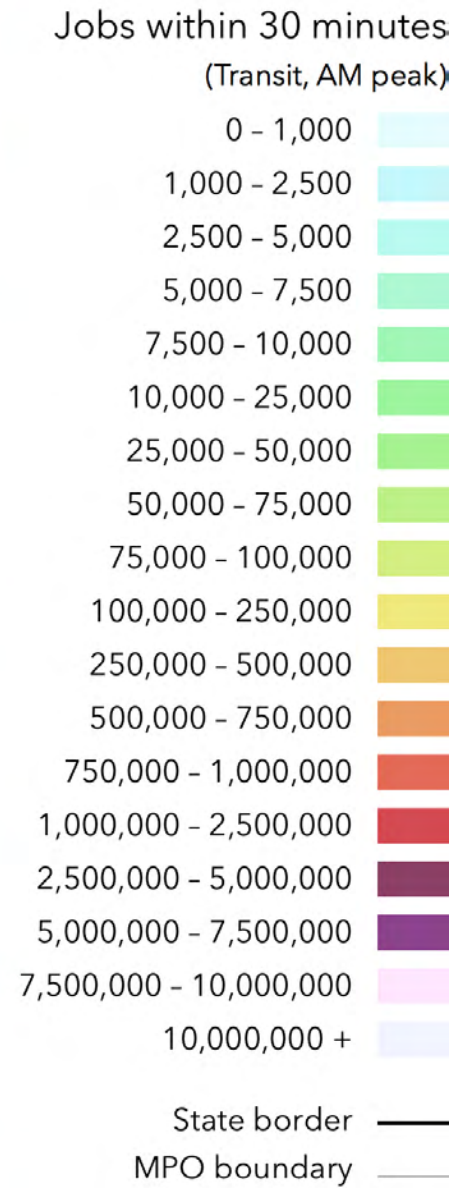
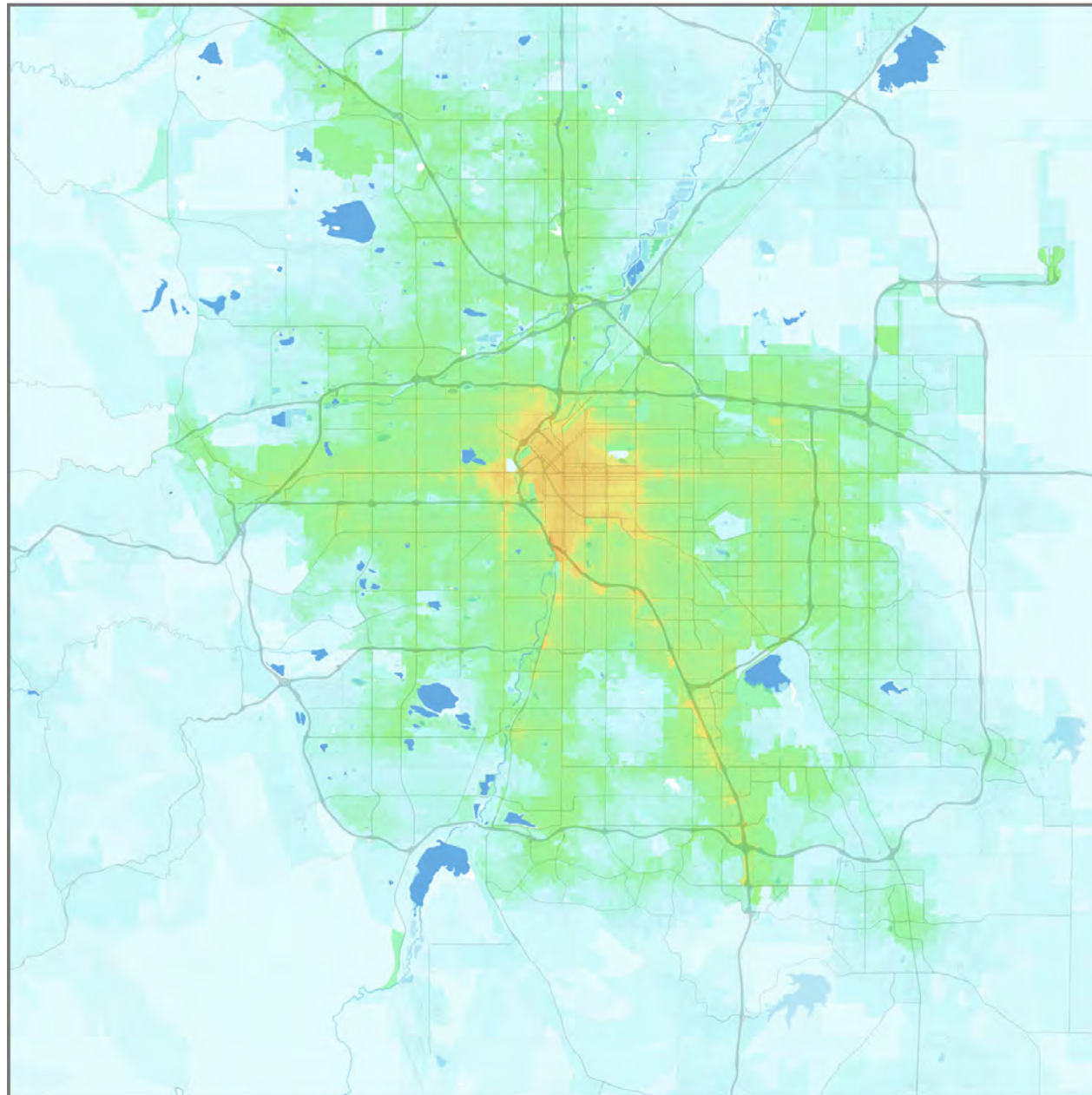
Transit Schedules Included

Agency	Dates
Regional Transportation District	January 15, 2017 - May 20, 2017

Denver

Denver-Aurora-Broomfield, CO

51



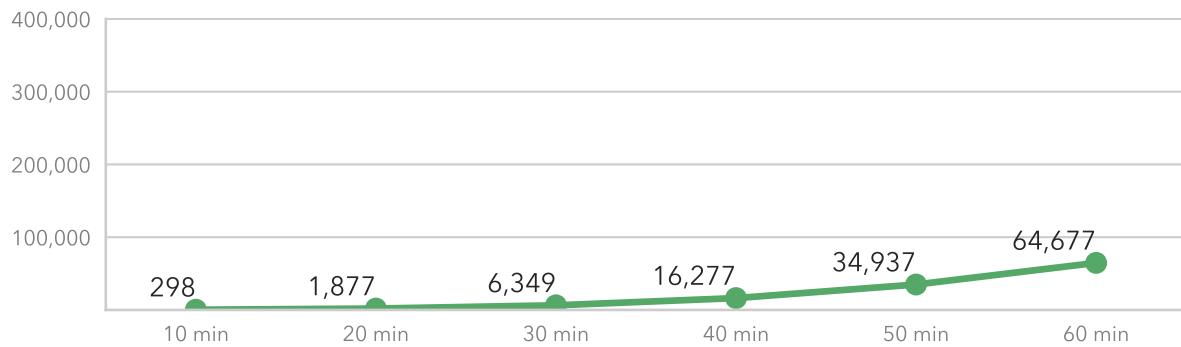
Detroit

Detroit-Warren-Livonia, MI

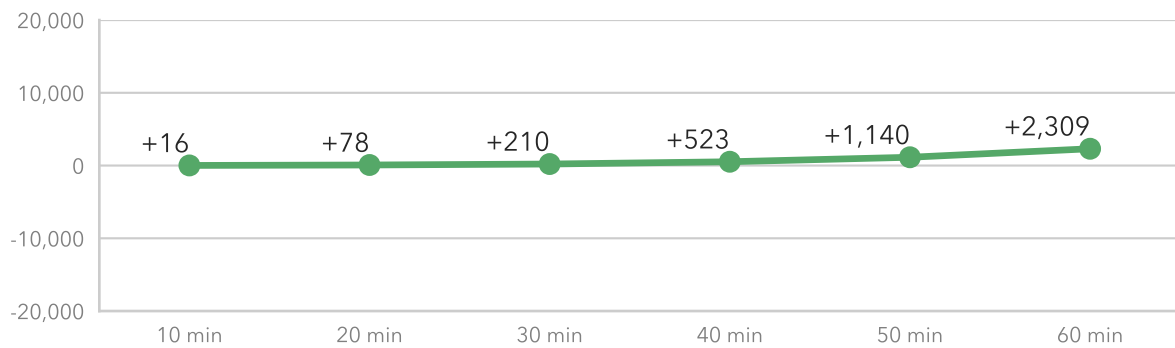
Rank by Weighted Accessibility	36
Rank by Total Employment	12
Rank by 1-Year Change in Weighted Accessibility	28
1-Year Change in Weighted Accessibility	+3.66%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	+8.33%
Total Jobs	1,881,505
Average Job Density (per km ²)	187
Total Workers	1,869,538
Average Worker Density (per km ²)	186

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Detroit

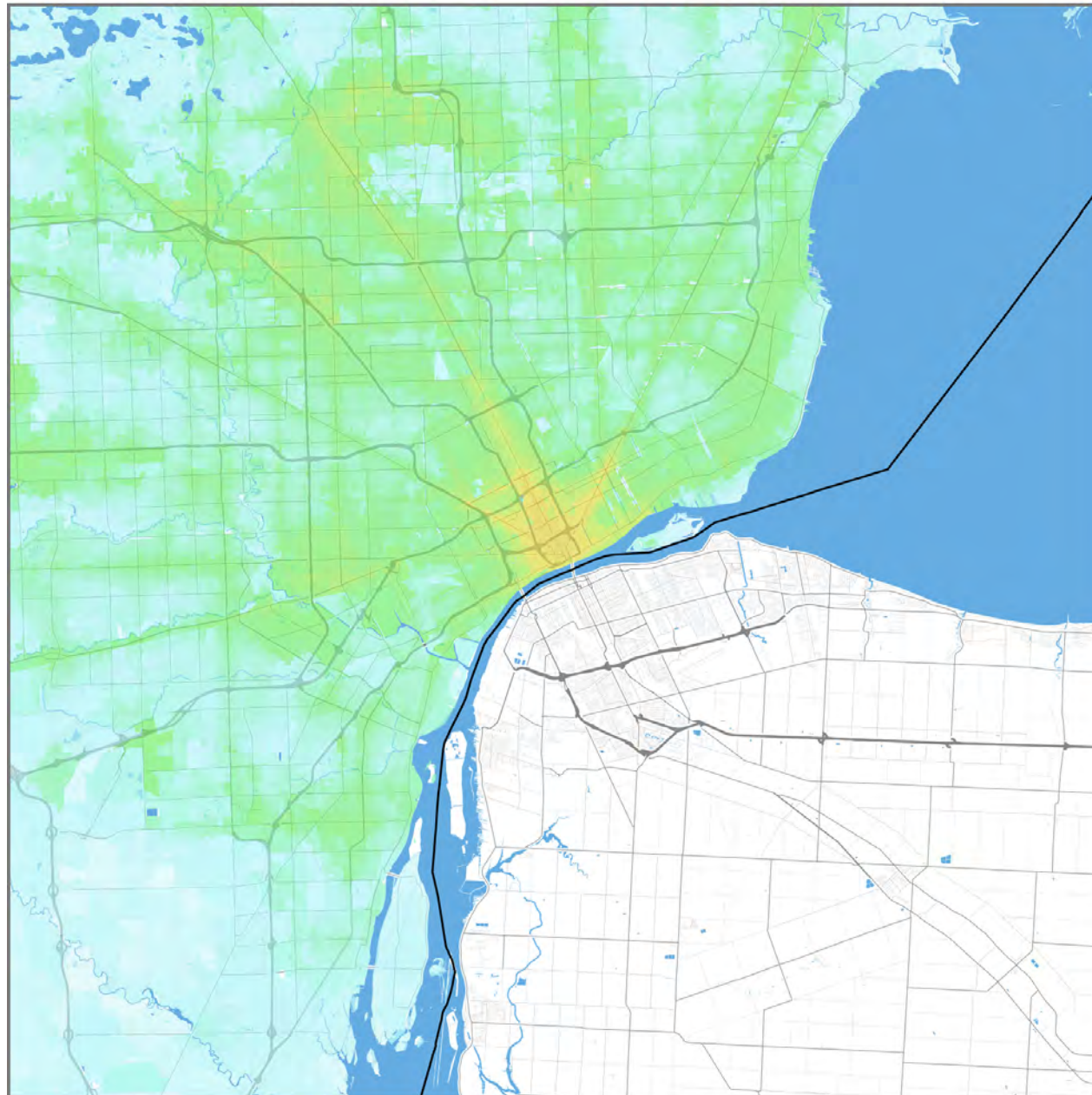
Detroit-Warren-Livonia, MI

Transit Schedules Included

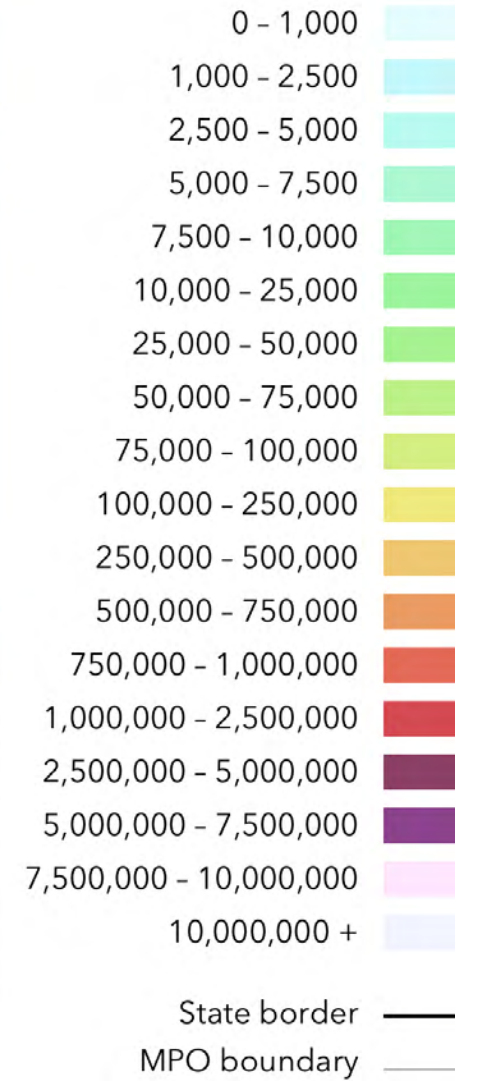
Agency	Dates
Ann Arbor Area Transportation Authority	May 1, 2016 - January 28, 2017
Detroit Department of Transportation	September 1, 2016 - January 27, 2017
SMART	January 2, 2017 - April 2, 2017

Detroit

Detroit-Warren-Livonia, MI



Jobs within 30 minutes
(Transit, AM peak)



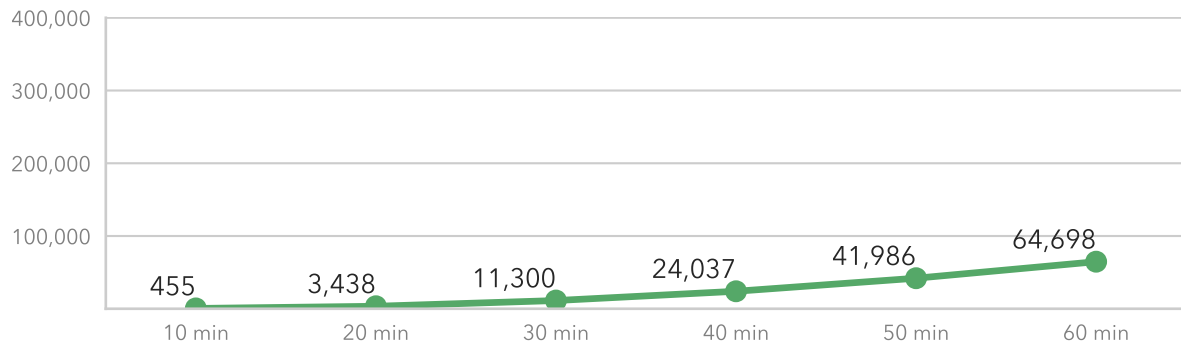
Hartford

Hartford-West Hartford-East Hartford, CT

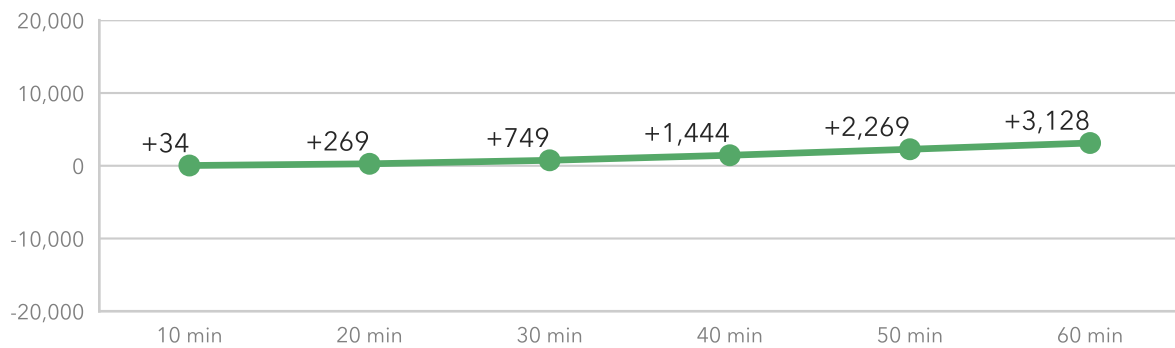
Rank by Weighted Accessibility	27
Rank by Total Employment	43
Rank by 1-Year Change in Weighted Accessibility	14
1-Year Change in Weighted Accessibility	+6.54%
1-Year Change in Weighted Accessibility Rank	+1
2-Year Change in Weighted Accessibility	+13.40%
Total Jobs	637,363
Average Job Density (per km ²)	162
Total Workers	593,012
Average Worker Density (per km ²)	151

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Hartford

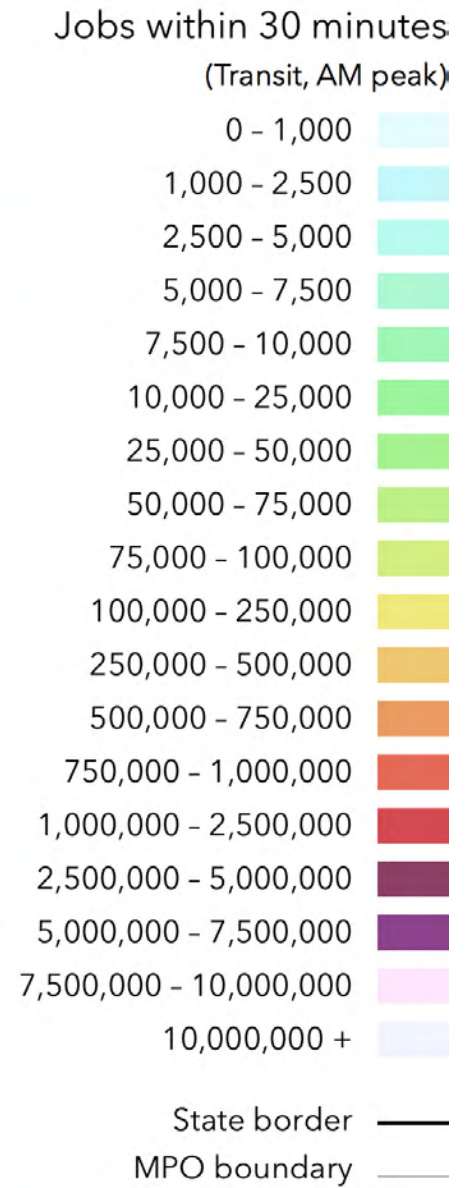
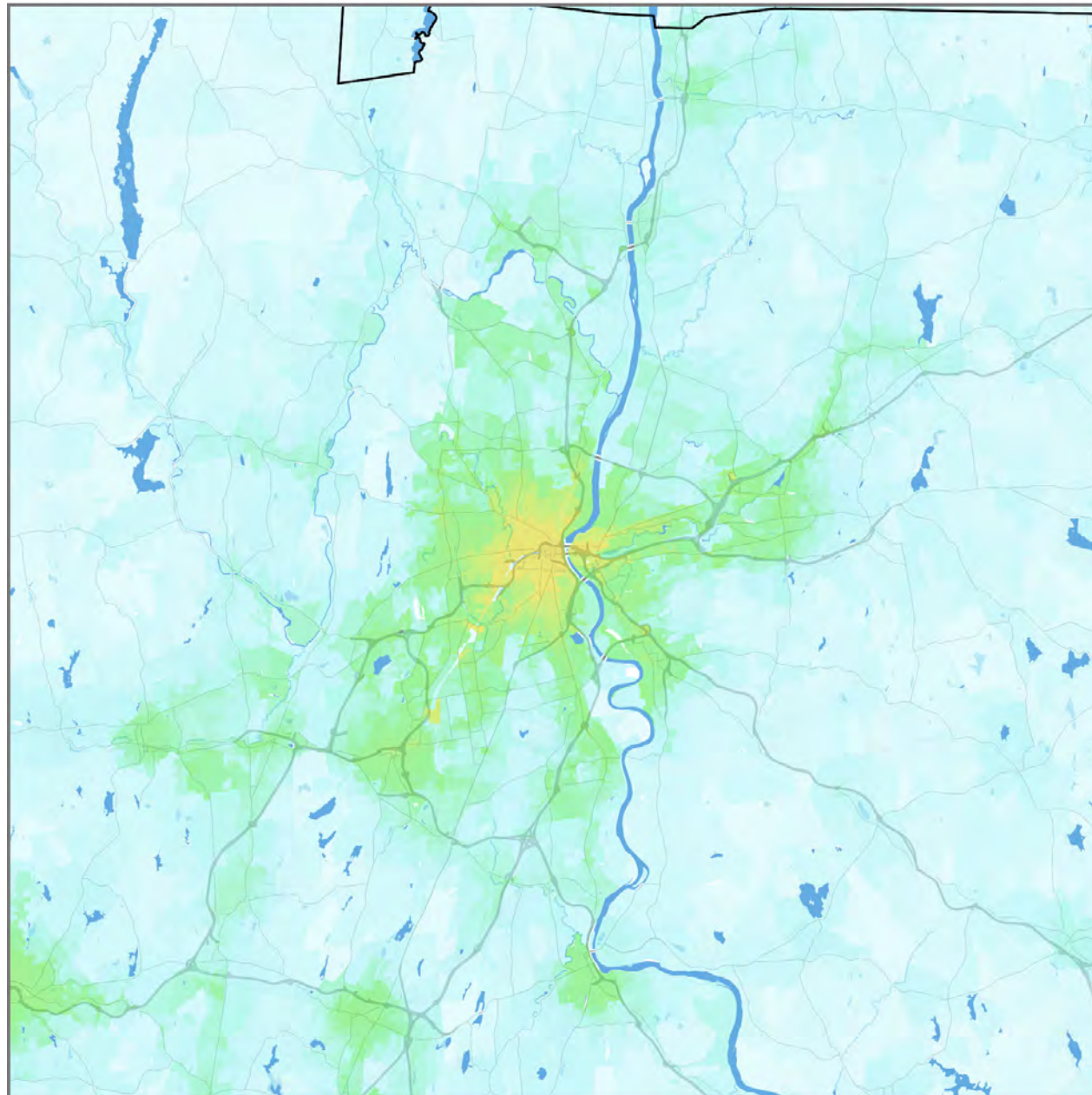
Hartford-West Hartford-East Hartford, CT

Transit Schedules Included

Agency	Dates
9 Town Transit	September 1, 2016 - September 1, 2017
CTTransit- Hartford	December 4, 2016 - May 9, 2017
CTTransit- New Britain-Bristol	July 12, 2015 - June 30, 2017
CTTransit- Waterbury	June 27, 2016 - September 23, 2017
PVTA	August 24, 2016 - September 4, 2017
Shore Line East	November 5, 2016 - May 1, 2017

Hartford

Hartford-West Hartford-East Hartford, CT



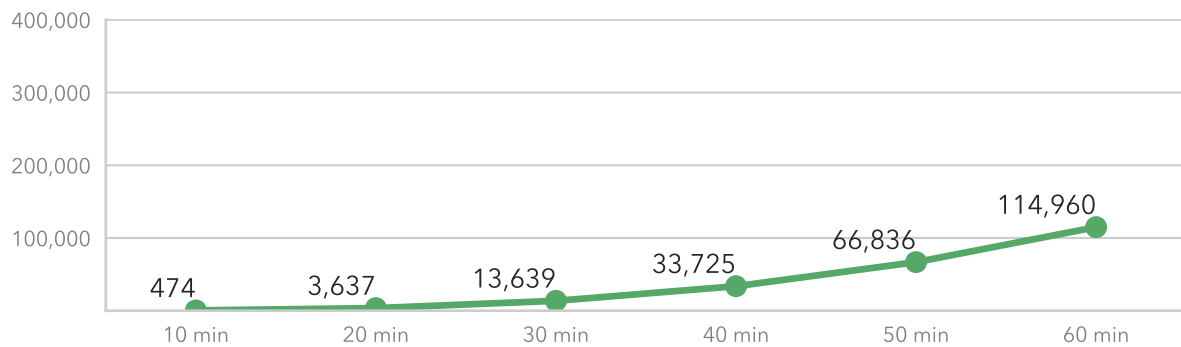
Houston

Houston-Sugar Land-Baytown, TX

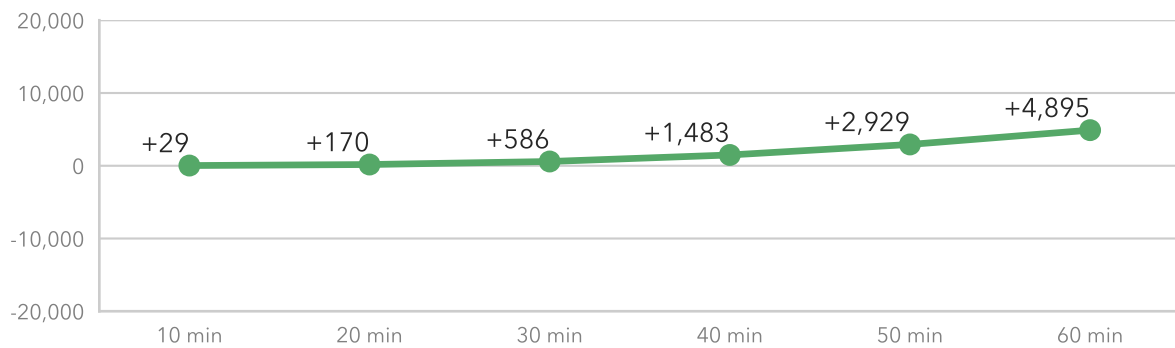
Rank by Weighted Accessibility	17
Rank by Total Employment	5
Rank by 1-Year Change in Weighted Accessibility	22
1-Year Change in Weighted Accessibility	+4.63%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+7.18%
Total Jobs	2,986,623
Average Job Density (per km ²)	131
Total Workers	2,888,073
Average Worker Density (per km ²)	126

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Houston

Houston-Sugar Land-Baytown, TX

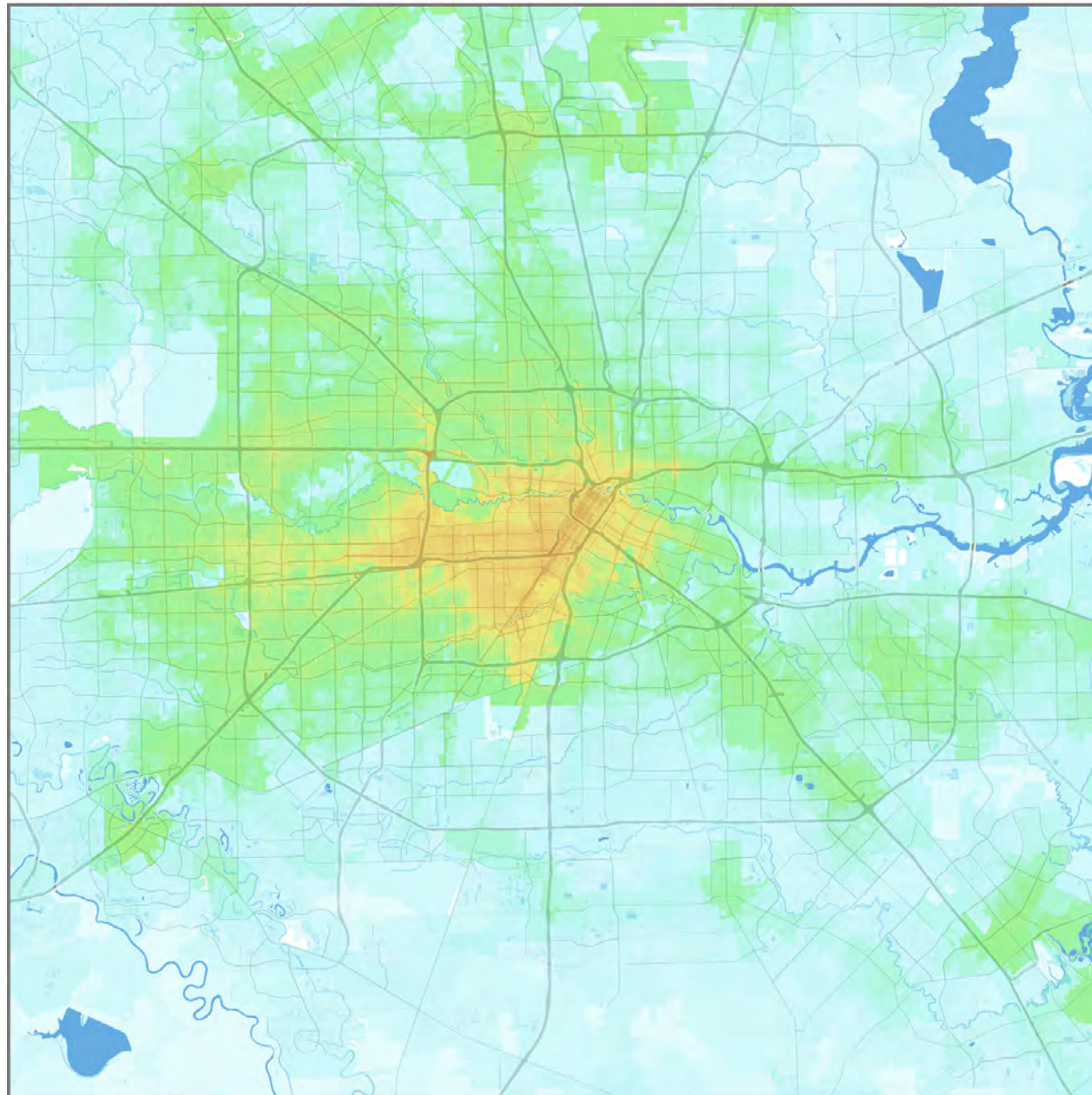
Transit Schedules Included

Agency	Dates
Metropolitan Transit Authority of Harris County	August 21, 2016 - February 11, 2017

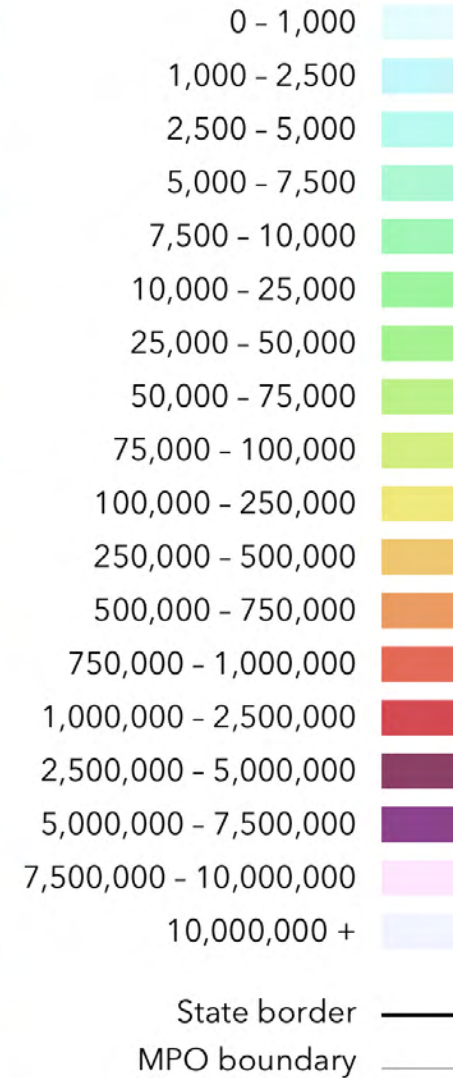
Houston

Houston-Sugar Land-Baytown, TX

60



Jobs within 30 minutes
(Transit, AM peak)



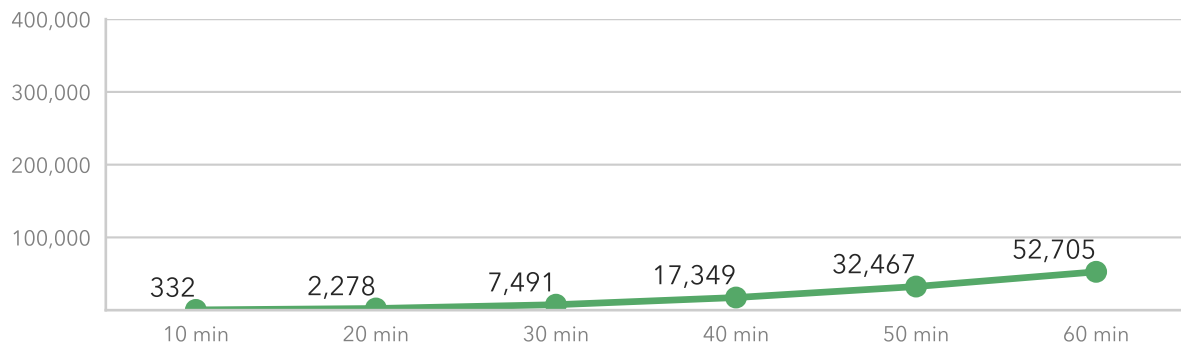
Indianapolis

Indianapolis-Carmel, IN

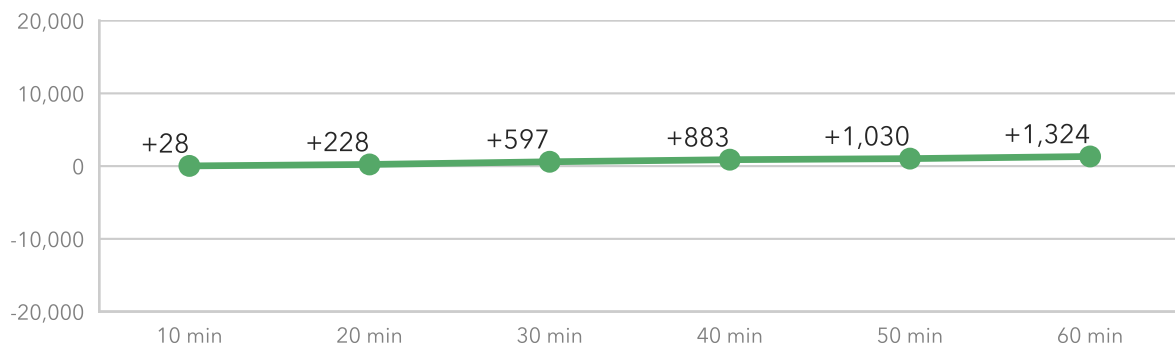
Rank by Weighted Accessibility	35
Rank by Total Employment	34
Rank by 1-Year Change in Weighted Accessibility	17
1-Year Change in Weighted Accessibility	+5.87%
1-Year Change in Weighted Accessibility Rank	+2
2-Year Change in Weighted Accessibility	+6.97%
Total Jobs	976,644
Average Job Density (per km ²)	98
Total Workers	886,380
Average Worker Density (per km ²)	89

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Indianapolis

Indianapolis-Carmel, IN

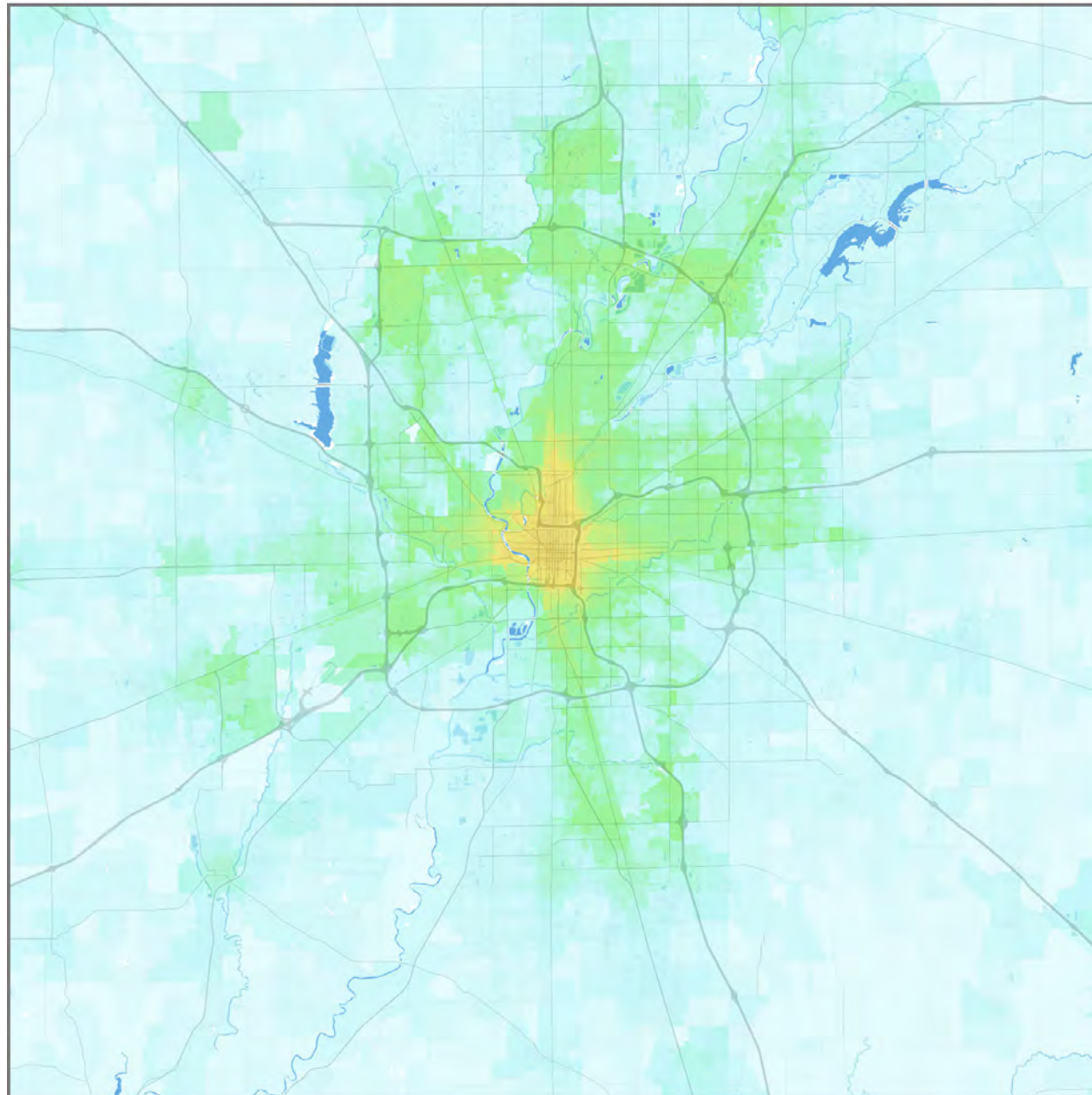
Transit Schedules Included

Agency	Dates
IndyGo	August 31, 2016 - February 11, 2017

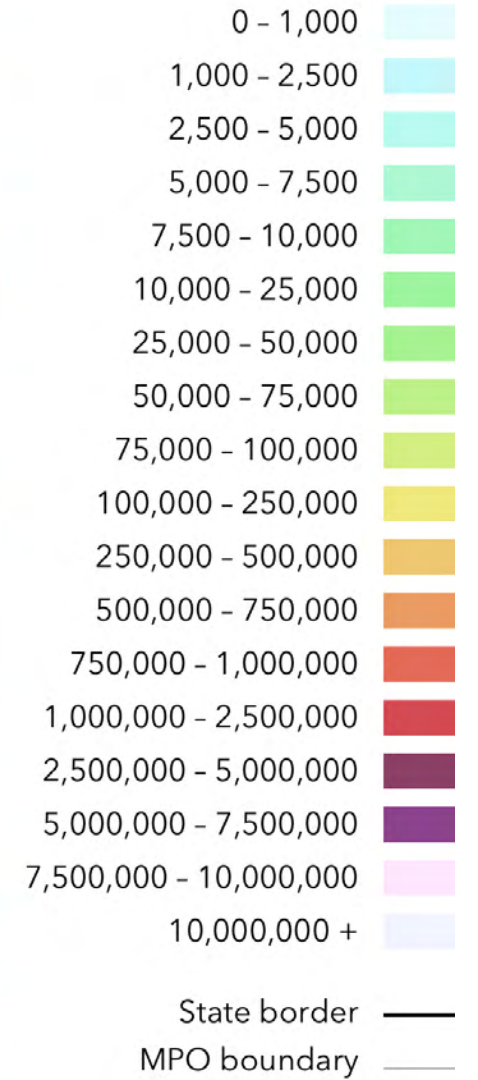
Indianapolis

Indianapolis-Carmel, IN

63



Jobs within 30 minutes
(Transit, AM peak)



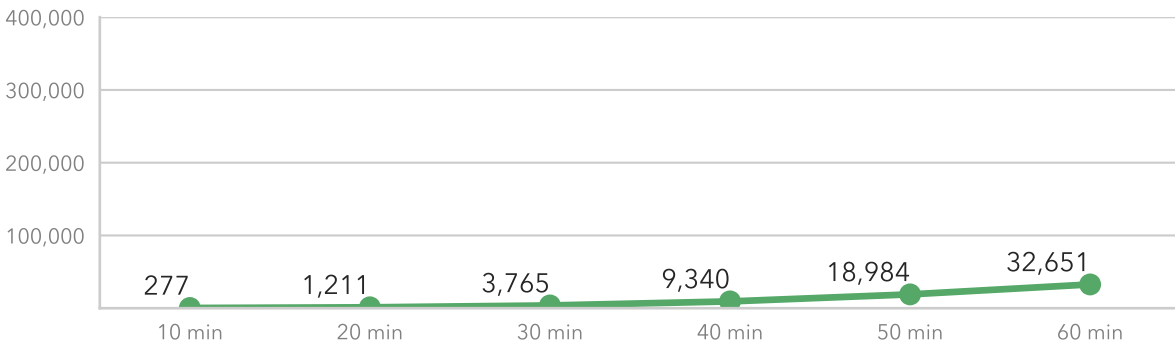
Jacksonville

Jacksonville, FL

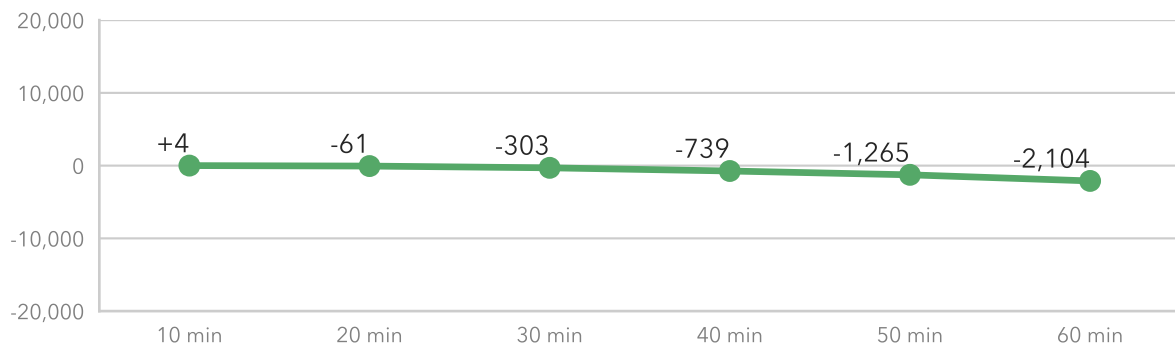
Rank by Weighted Accessibility	48
Rank by Total Employment	41
Rank by 1-Year Change in Weighted Accessibility	47
1-Year Change in Weighted Accessibility	-5.99%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	-9.84%
Total Jobs	635,773
Average Job Density (per km ²)	77
Total Workers	626,060
Average Worker Density (per km ²)	76

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Jacksonville

Jacksonville, FL

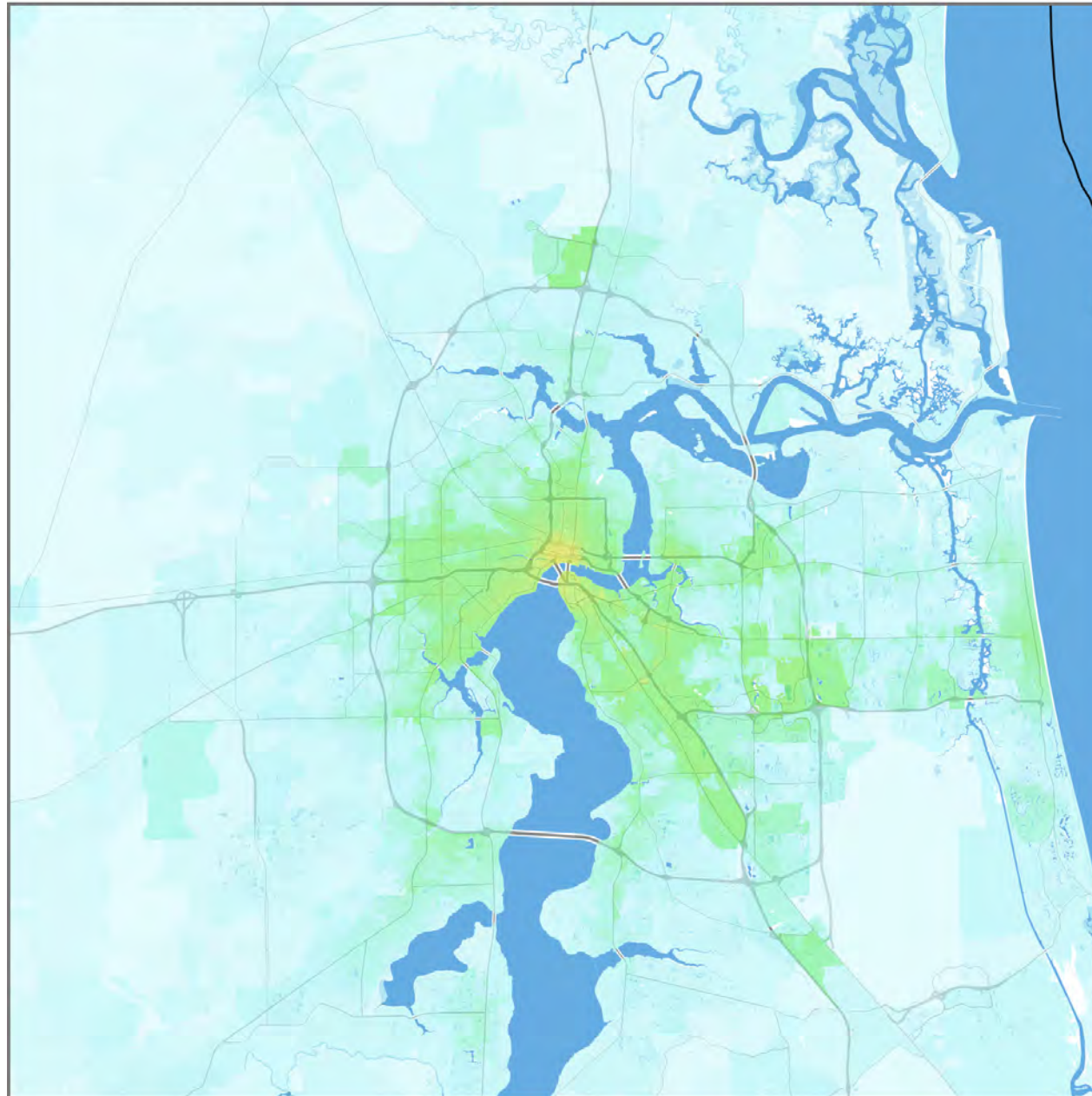
Transit Schedules Included

Agency	Dates
Jacksonville Transportation Authority	December 5, 2016 - April 2, 2017
Sunshine Bus Company	July 1, 2015 - July 1, 2017

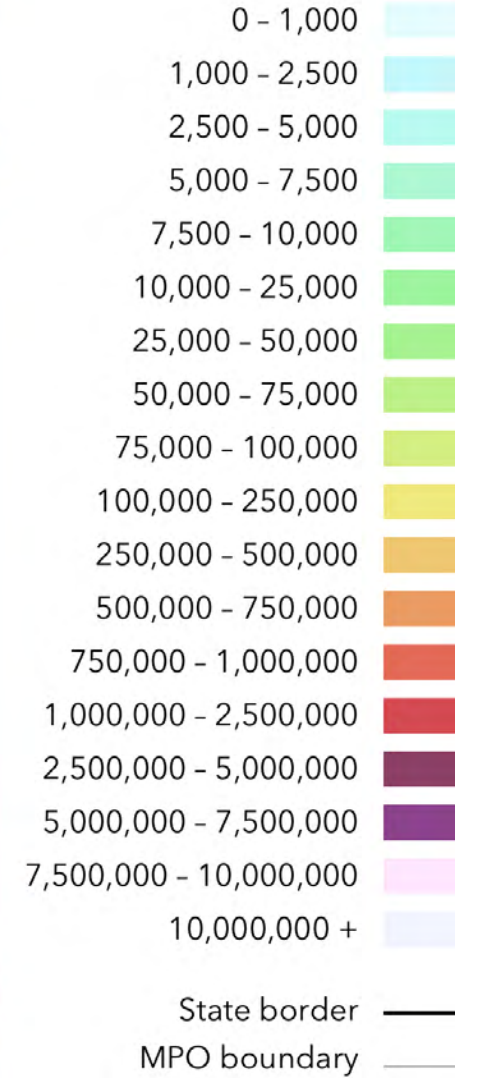
Jacksonville

Jacksonville, FL

99



Jobs within 30 minutes
(Transit, AM peak)



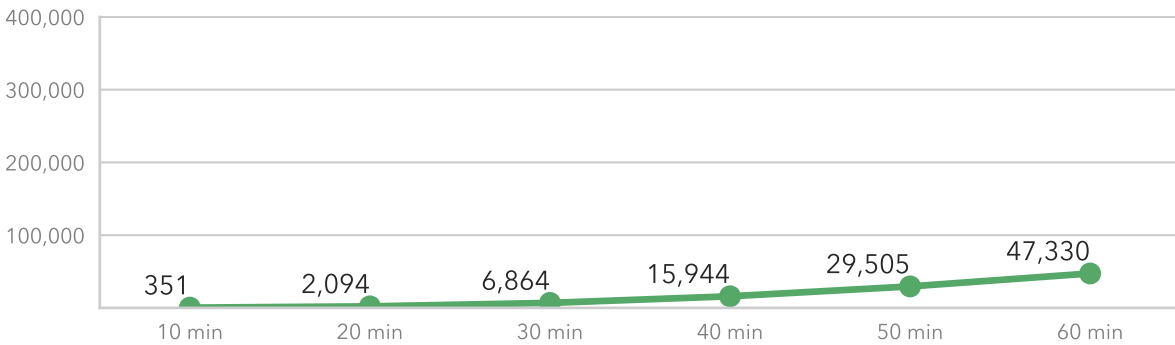
Kansas City

Kansas City, MO-KS

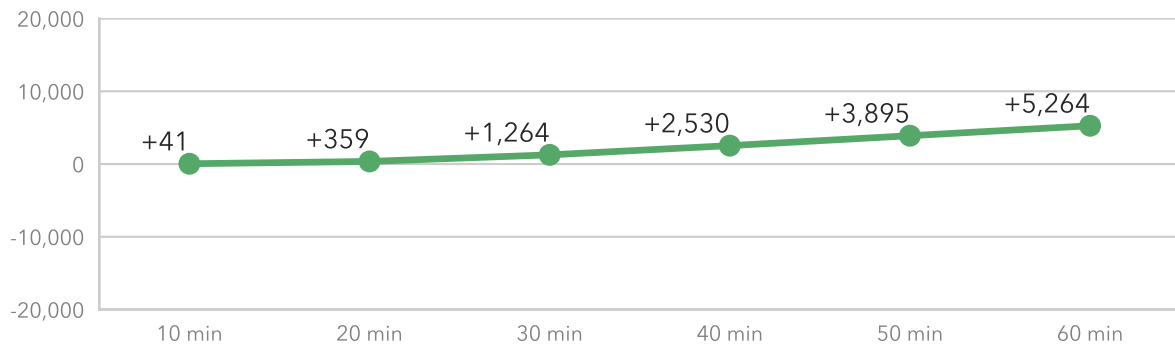
Rank by Weighted Accessibility	40
Rank by Total Employment	25
Rank by 1-Year Change in Weighted Accessibility	1
1-Year Change in Weighted Accessibility	+17.36%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+4.09%
Total Jobs	1,041,536
Average Job Density (per km ²)	51
Total Workers	1,023,563
Average Worker Density (per km ²)	50

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Kansas City

Kansas City, MO-KS

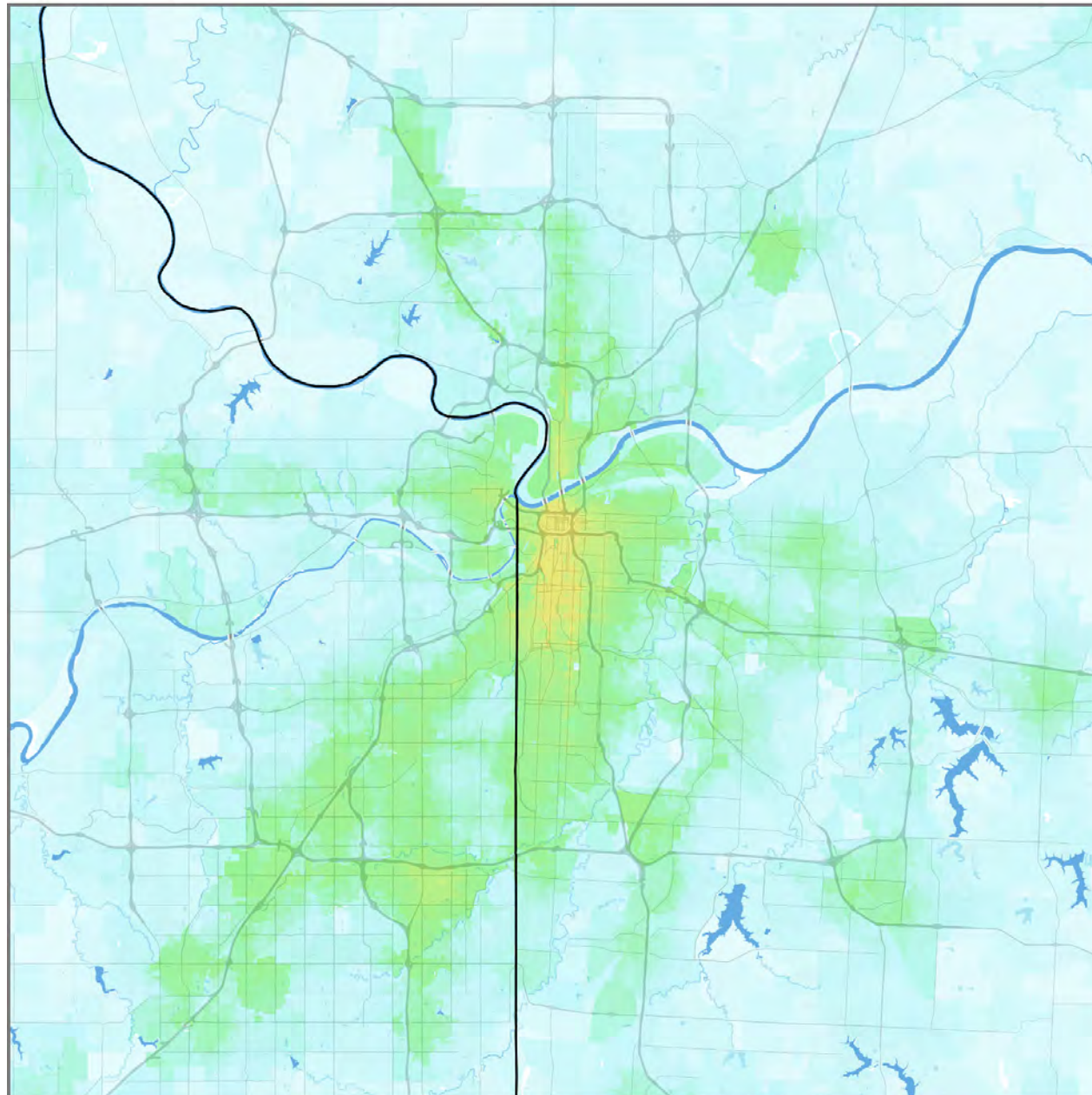
Transit Schedules Included

Agency	Dates
KCATA	January 3, 2017 - April 2, 2017
The JO	January 1, 2013 - May 31, 2019

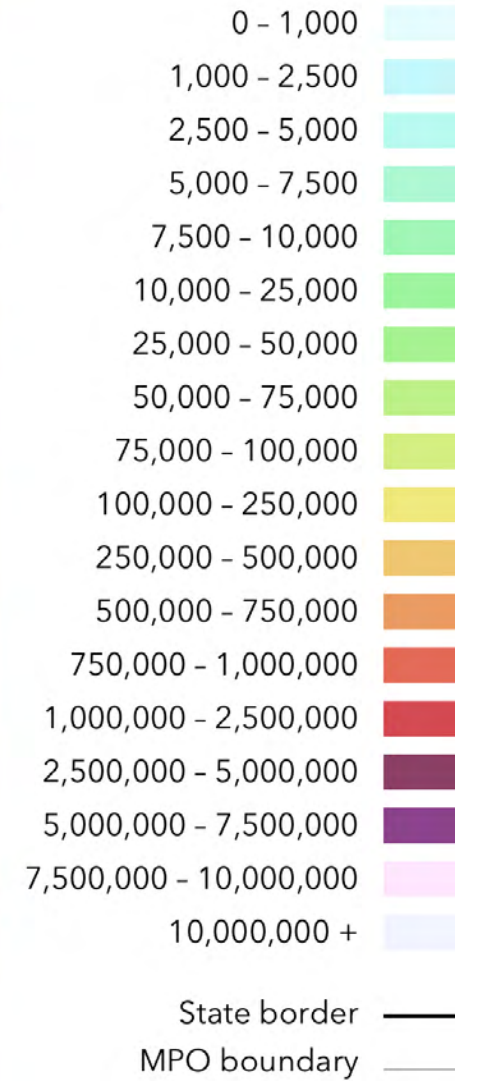
Kansas City

Kansas City, MO-KS

69



Jobs within 30 minutes
(Transit, AM peak)



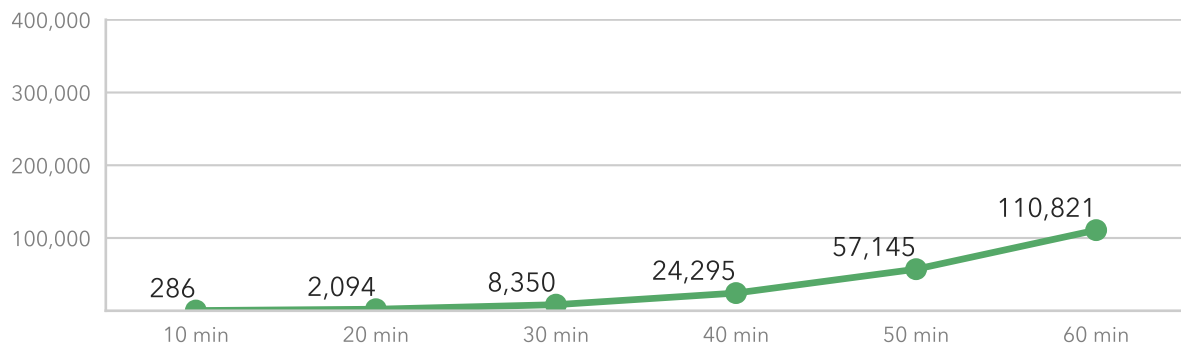
Las Vegas

Las Vegas-Paradise, NV

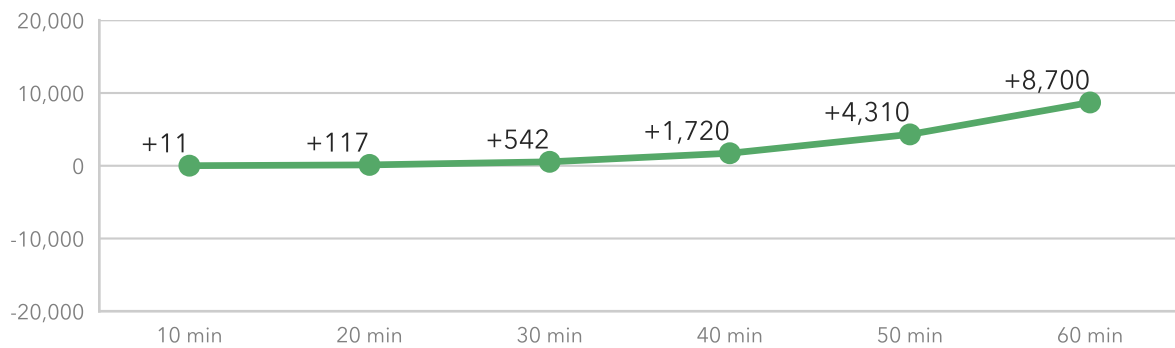
Rank by Weighted Accessibility	23
Rank by Total Employment	33
Rank by 1-Year Change in Weighted Accessibility	7
1-Year Change in Weighted Accessibility	+7.68%
1-Year Change in Weighted Accessibility Rank	+1
2-Year Change in Weighted Accessibility	+14.25%
Total Jobs	911,758
Average Job Density (per km ²)	45
Total Workers	897,183
Average Worker Density (per km ²)	44

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Las Vegas

Las Vegas-Paradise, NV

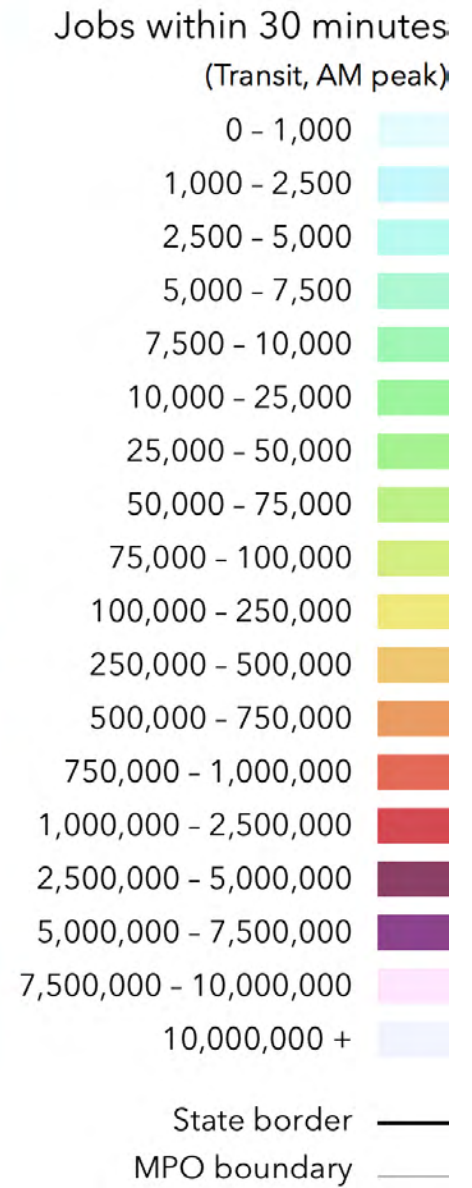
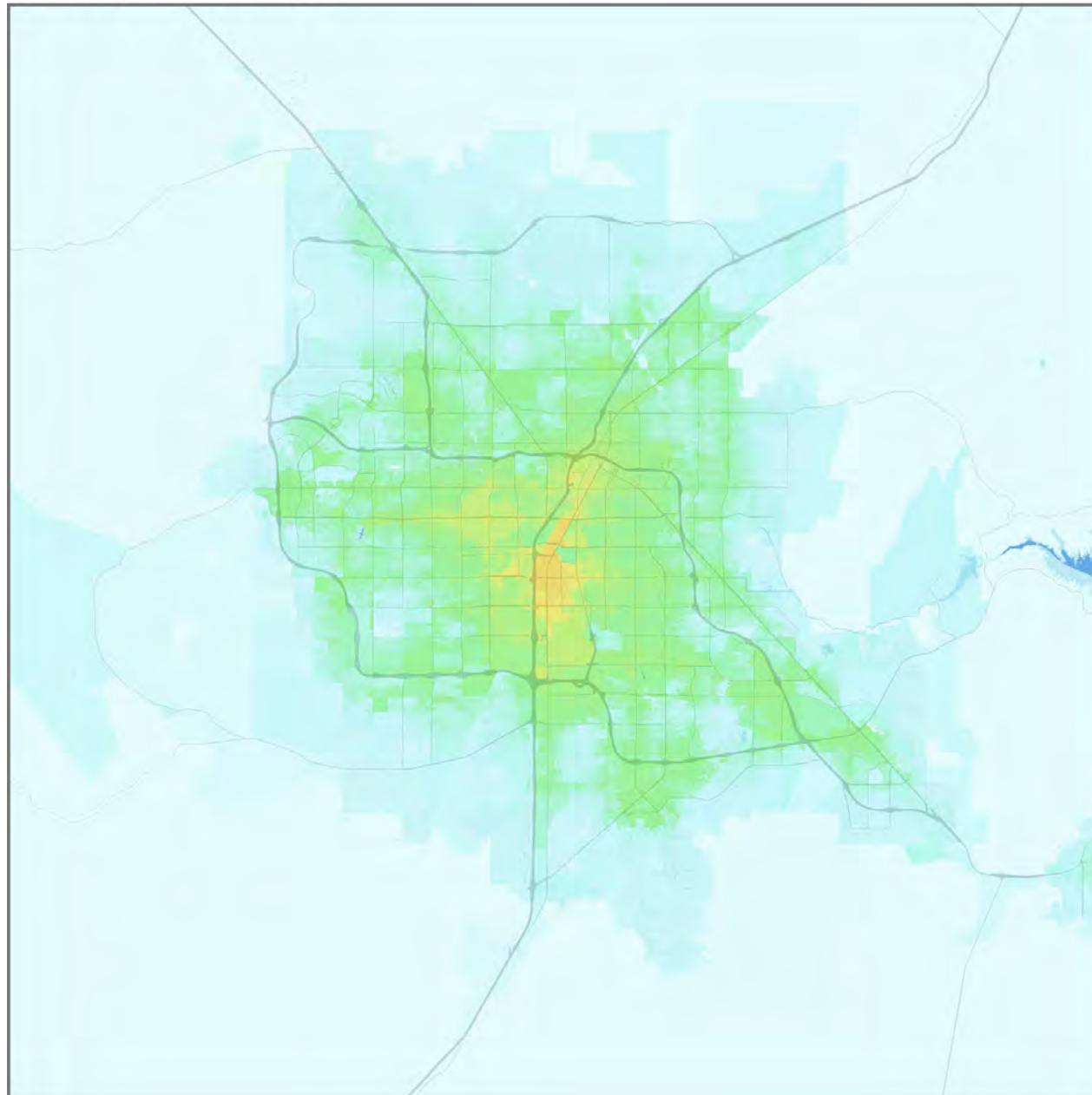
Transit Schedules Included

Agency	Dates
Regional Transportation Commission of Southern Nevada	November 6, 2016 - December 30, 2017

Las Vegas

Las Vegas-Paradise, NV

72



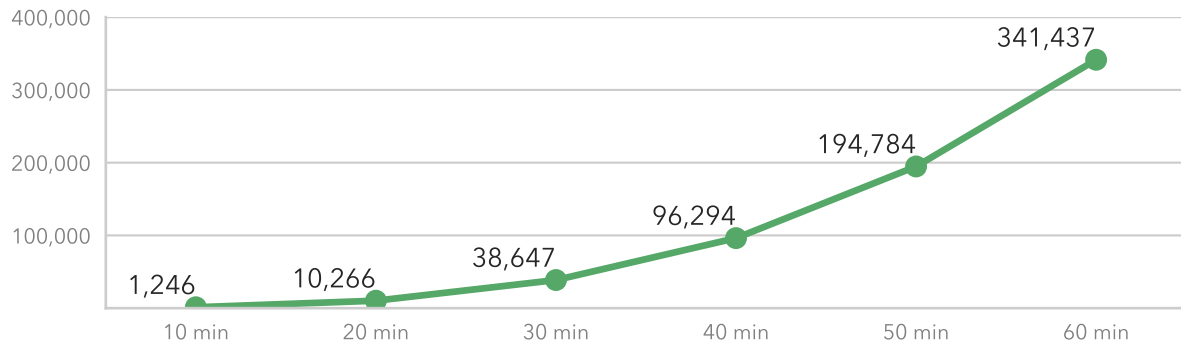
Los Angeles

Los Angeles-Long Beach-Santa Ana, CA

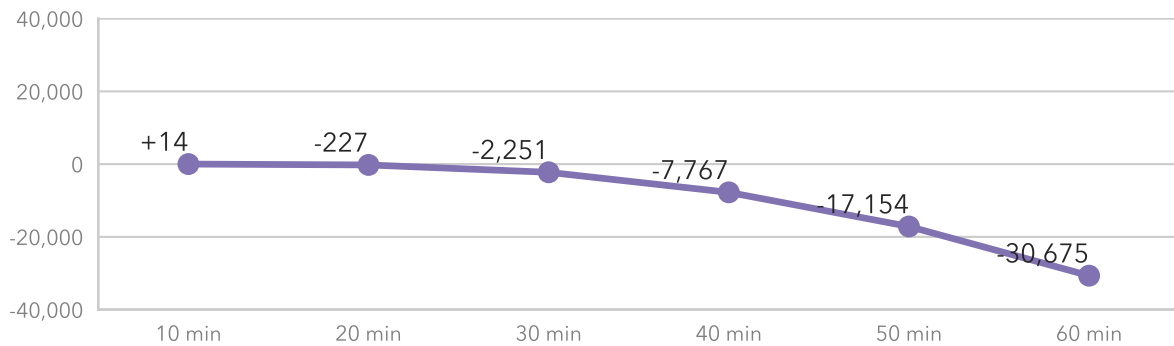
Rank by Weighted Accessibility	6
Rank by Total Employment	2
Rank by 1-Year Change in Weighted Accessibility	49
1-Year Change in Weighted Accessibility	-6.64%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	-3.65%
Total Jobs	6,021,504
Average Job Density (per km ²)	480
Total Workers	5,636,421
Average Worker Density (per km ²)	449

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Los Angeles

Los Angeles-Long Beach-Santa Ana, CA

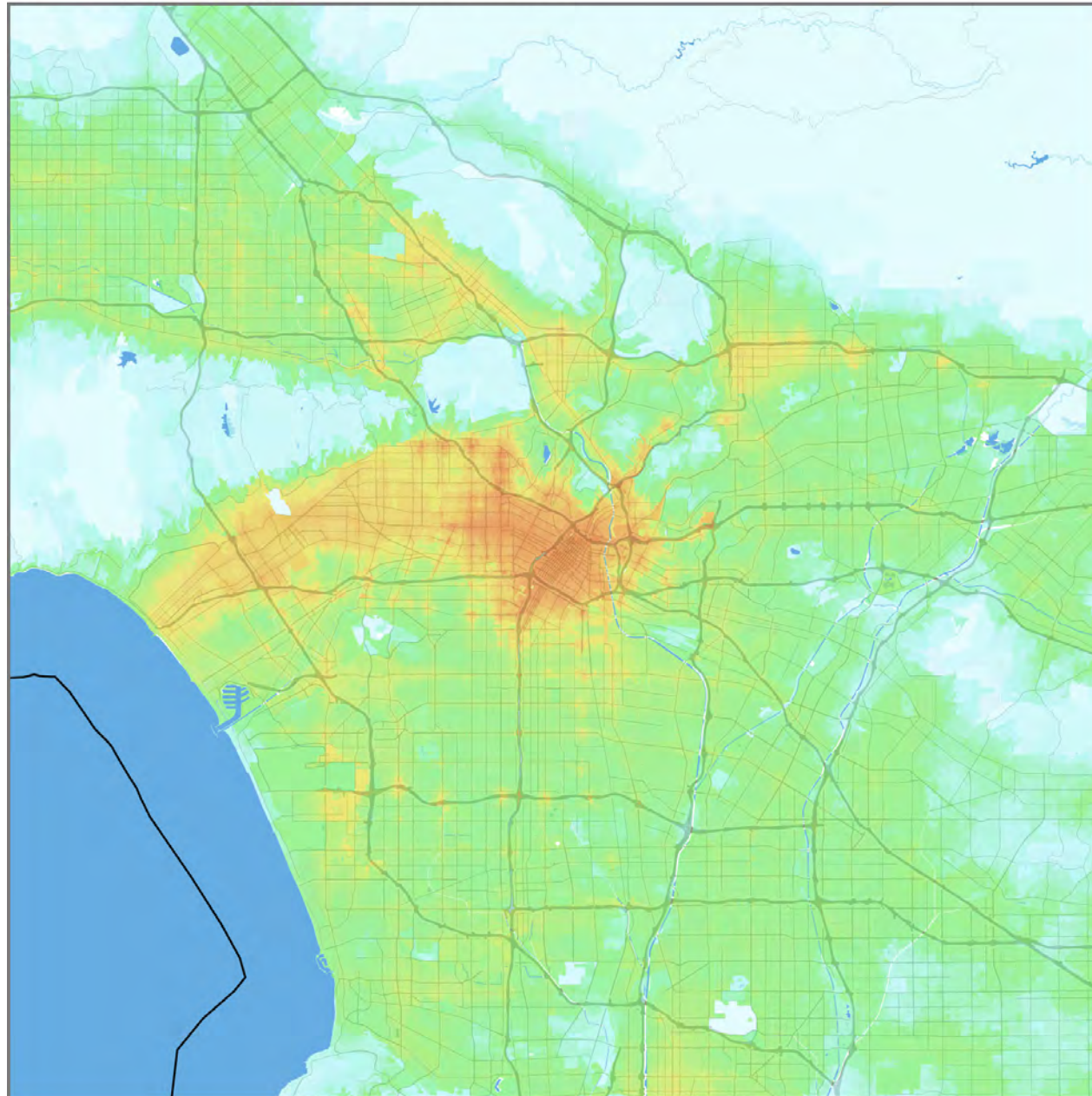
Transit Schedules Included

Agency	Dates
Anaheim Resort Transportation	October 2, 2016 - January 1, 2018
Big Blue Bus	August 21, 2016 - June 10, 2017
Culver CityBus	December 21, 2016 - May 14, 2017
Duarte Transit	January 1, 2016 - December 31, 2018
Eastern Sierra Transit Authority	January 2, 2015 - December 31, 2018
Foothill Transit	October 30, 2016 - July 1, 2017
Glendale Beeline	October 19, 2015 - November 1, 2016
Irvine Shuttle	June 10, 2013 - December 31, 2015
Kern Transit	February 29, 2016 - January 1, 2018
LADOT	May 1, 2016 - December 25, 2017
Laguna Beach Transit	January 1, 2013 - January 1, 2018
Long Beach Transit	June 19, 2016 - February 11, 2017
Metro - Los Angeles - Bus	December 11, 2016 - June 24, 2017
Metro - Los Angeles - Rail	January 25, 2017 - February 8, 2017
Metrolink Trains	April 2, 2016 - December 31, 2017
OMNITRANS	January 2, 2017 - September 3, 2017
Orange County Transportation Authority	June 12, 2016 - June 10, 2017
Palos Verdes Peninsula Transit Authority	January 2, 2015 - January 1, 2018
Riverside Transit Agency	October 3, 2016 - May 13, 2017
Spirit Bus	January 1, 2016 - January 1, 2018
Thousand Oaks Transit	January 1, 2016 - January 1, 2018
Torrance Transit System	January 8, 2017 - July 9, 2017
Ventura County Transportation Commission	September 1, 2016 - January 1, 2018

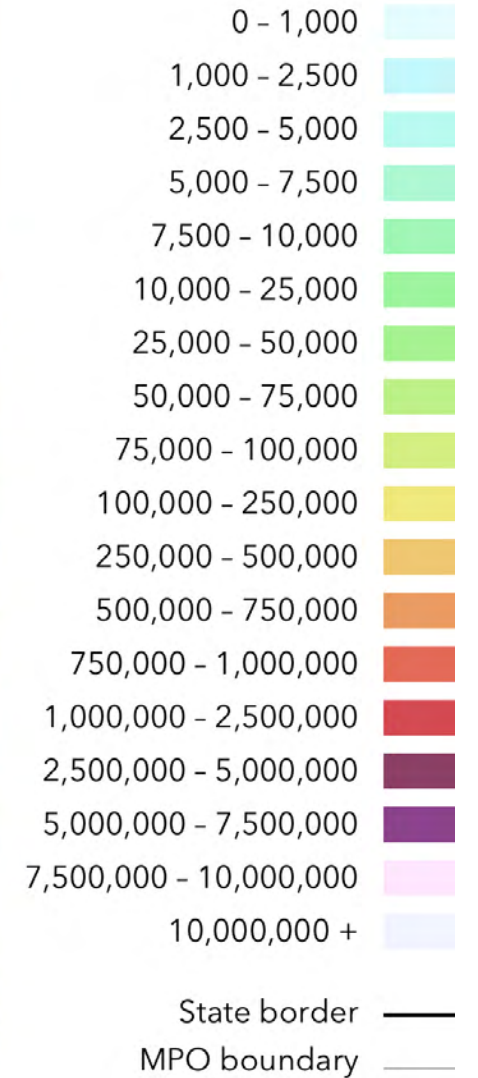
Los Angeles

Los Angeles-Long Beach-Santa Ana, CA

75



Jobs within 30 minutes
(Transit, AM peak)



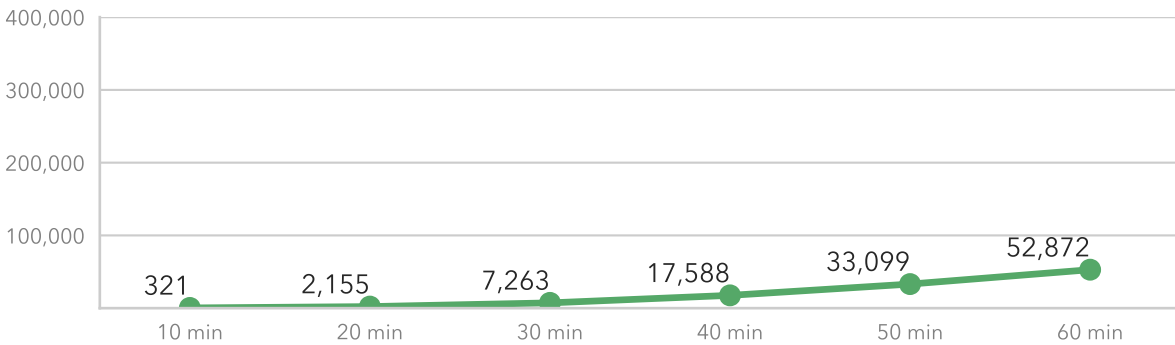
Louisville

Louisville/Jefferson County, KY-IN

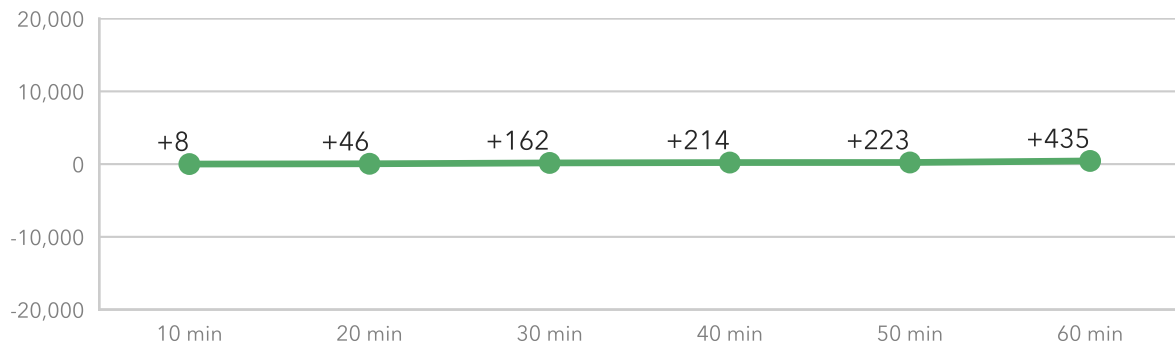
Rank by Weighted Accessibility	37
Rank by Total Employment	40
Rank by 1-Year Change in Weighted Accessibility	38
1-Year Change in Weighted Accessibility	+1.42%
1-Year Change in Weighted Accessibility Rank	-3
2-Year Change in Weighted Accessibility	+4.04%
Total Jobs	645,913
Average Job Density (per km ²)	61
Total Workers	627,630
Average Worker Density (per km ²)	59

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Louisville

Louisville/Jefferson County, KY-IN

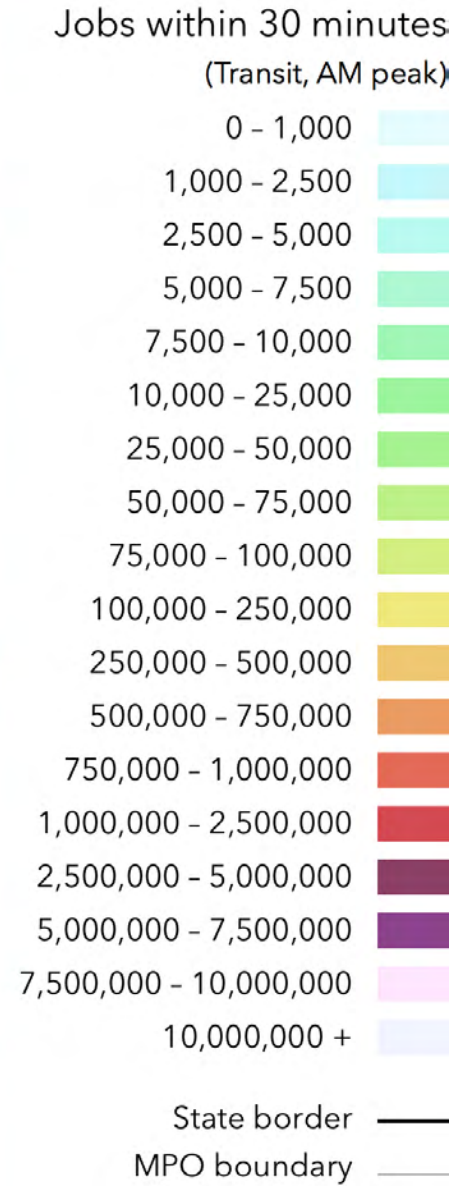
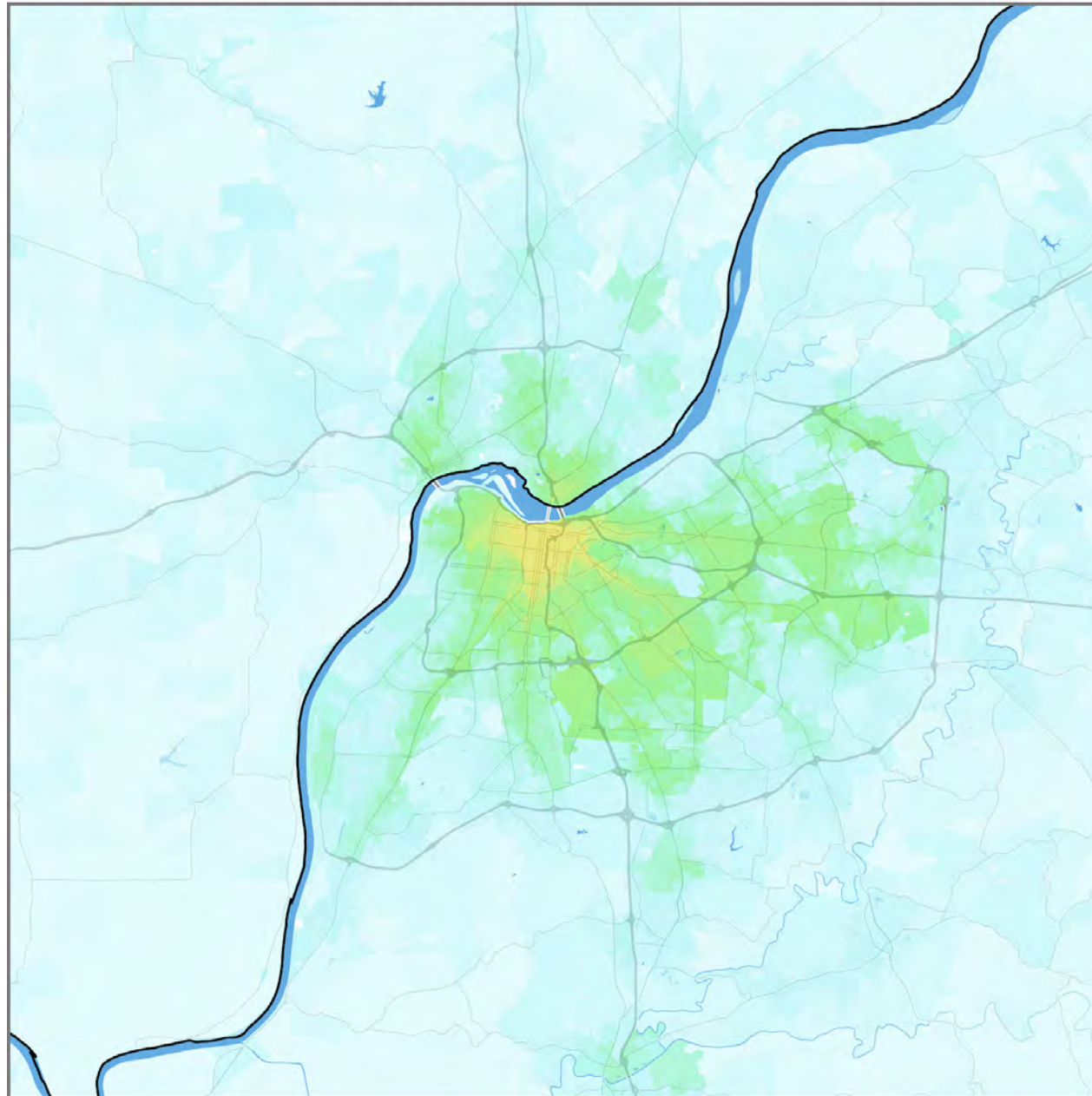
Transit Schedules Included

Agency	Dates
Transit Authority of River City	January 18, 2017 - June 3, 2017

Louisville

Louisville/Jefferson County, KY-IN

78



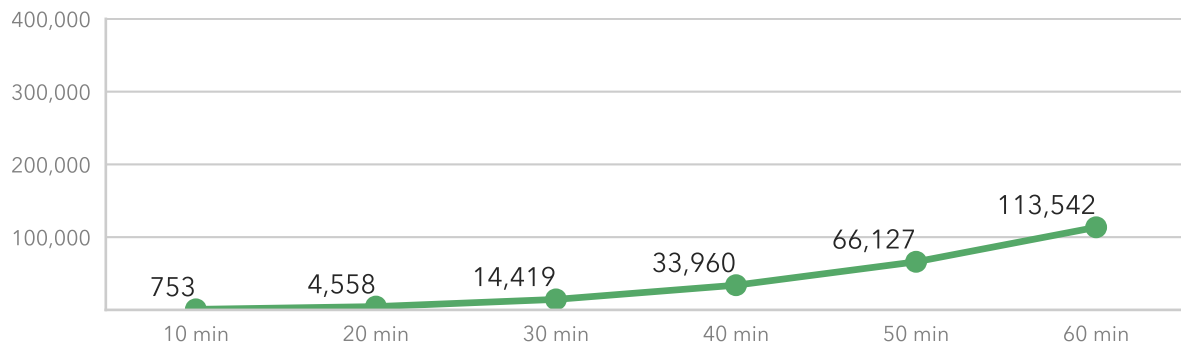
Miami

Miami-Fort Lauderdale-Pompano Beach, FL

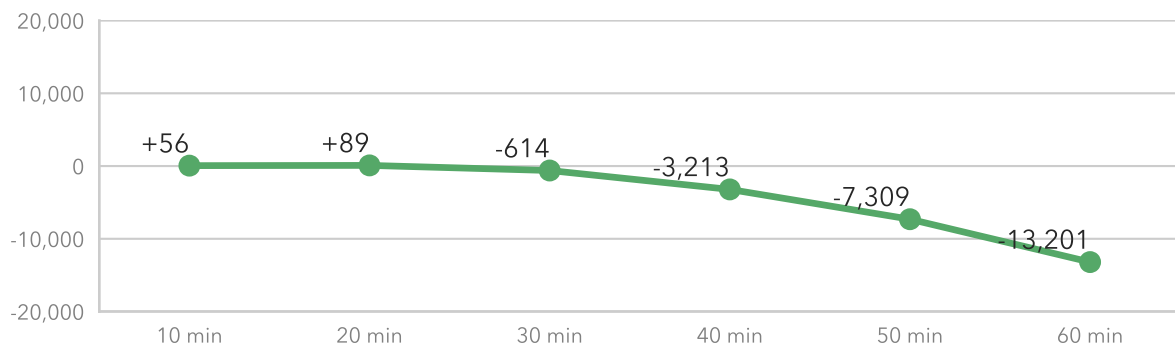
Rank by Weighted Accessibility	16
Rank by Total Employment	9
Rank by 1-Year Change in Weighted Accessibility	48
1-Year Change in Weighted Accessibility	-6.47%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	-3.48%
Total Jobs	2,471,380
Average Job Density (per km ²)	188
Total Workers	2,412,346
Average Worker Density (per km ²)	183

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Miami

Miami-Fort Lauderdale-Pompano Beach, FL

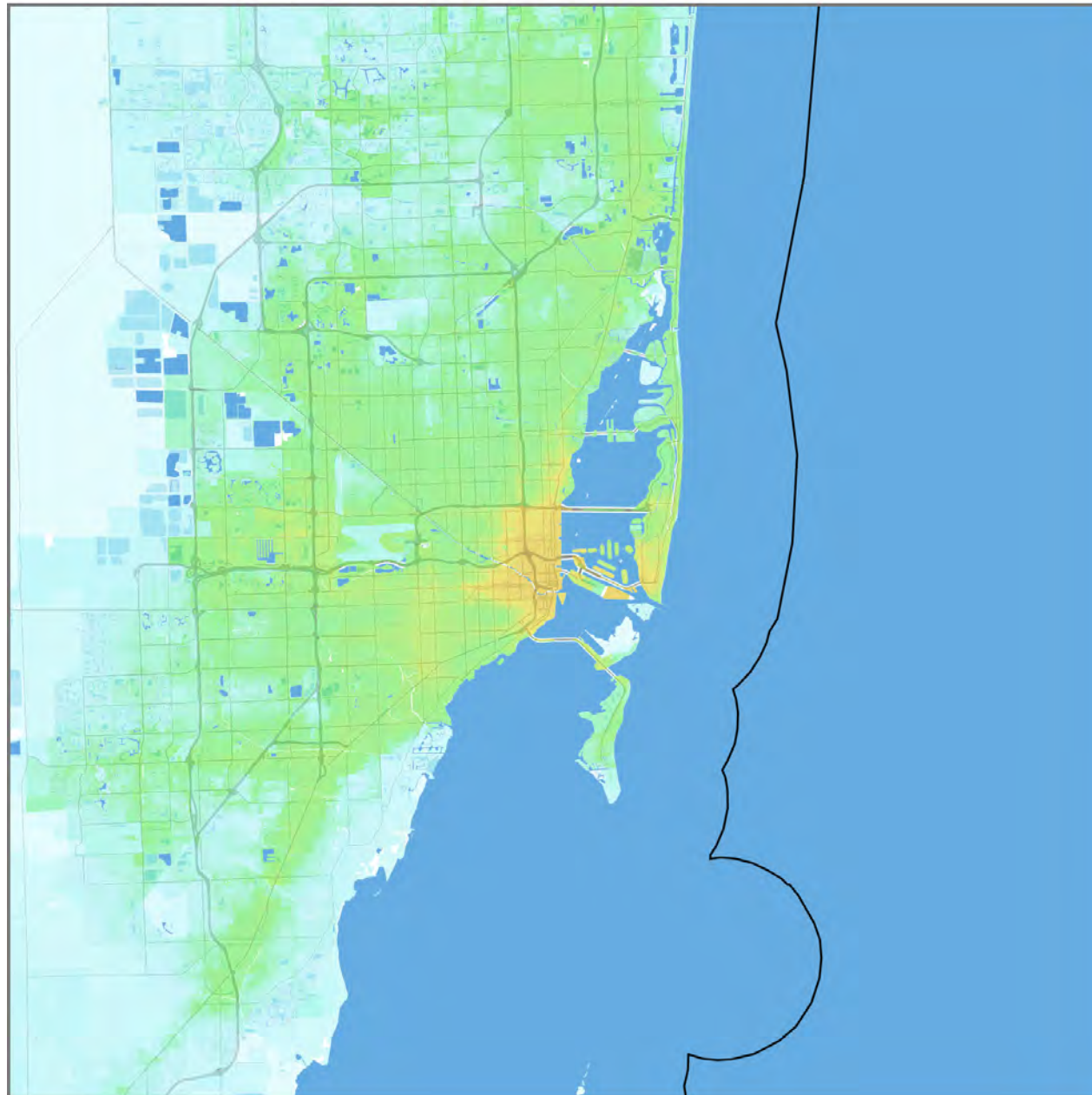
Transit Schedules Included

Agency	Dates
Broward County Transit	January 15, 2017 - June 17, 2017
Miami-Dade Transit	November 20, 2016 - September 16, 2017
Palm Tran	January 8, 2017 - May 13, 2017
SFRTA/Tri-Rail	April 20, 2012 - December 31, 2024

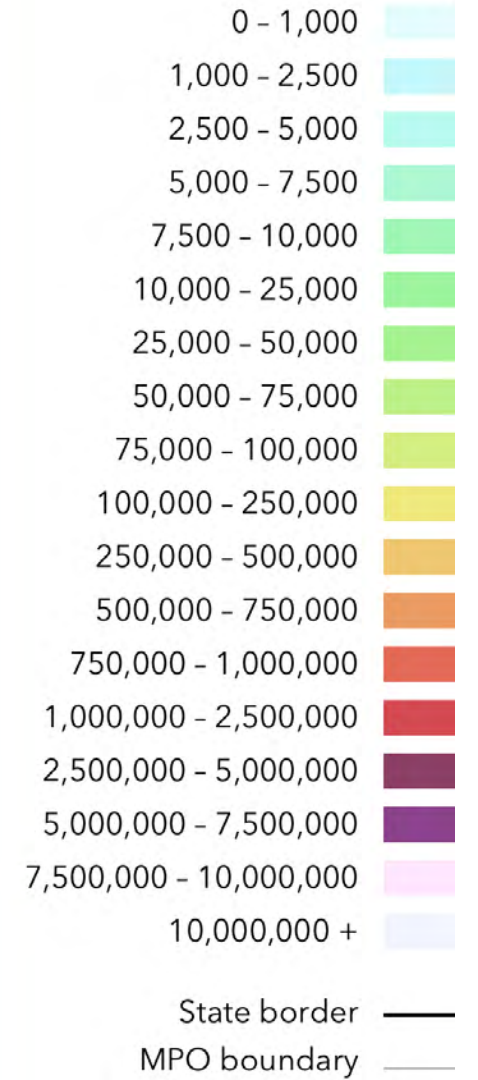
Miami

Miami-Fort Lauderdale-Pompano Beach, FL

81



Jobs within 30 minutes
(Transit, AM peak)



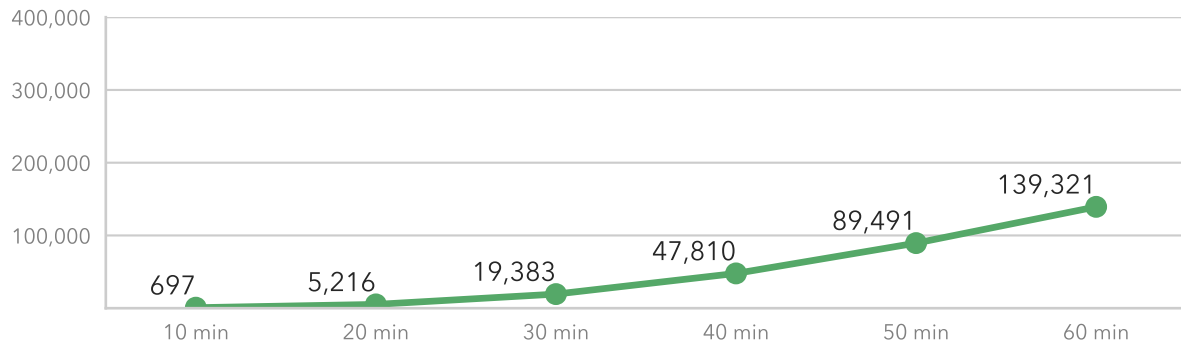
Milwaukee

Milwaukee-Waukesha-West Allis, WI

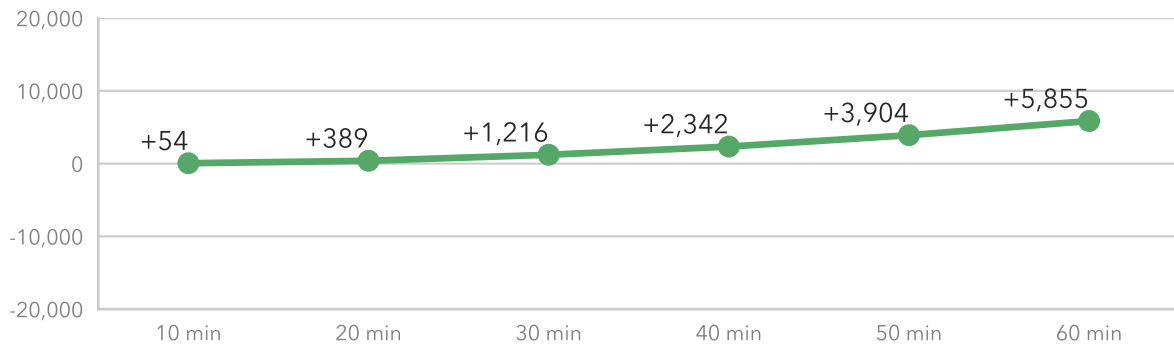
Rank by Weighted Accessibility	12
Rank by Total Employment	37
Rank by 1-Year Change in Weighted Accessibility	18
1-Year Change in Weighted Accessibility	+5.62%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+12.51%
Total Jobs	845,543
Average Job Density (per km ²)	224
Total Workers	771,322
Average Worker Density (per km ²)	205

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Milwaukee

Milwaukee-Waukesha-West Allis, WI

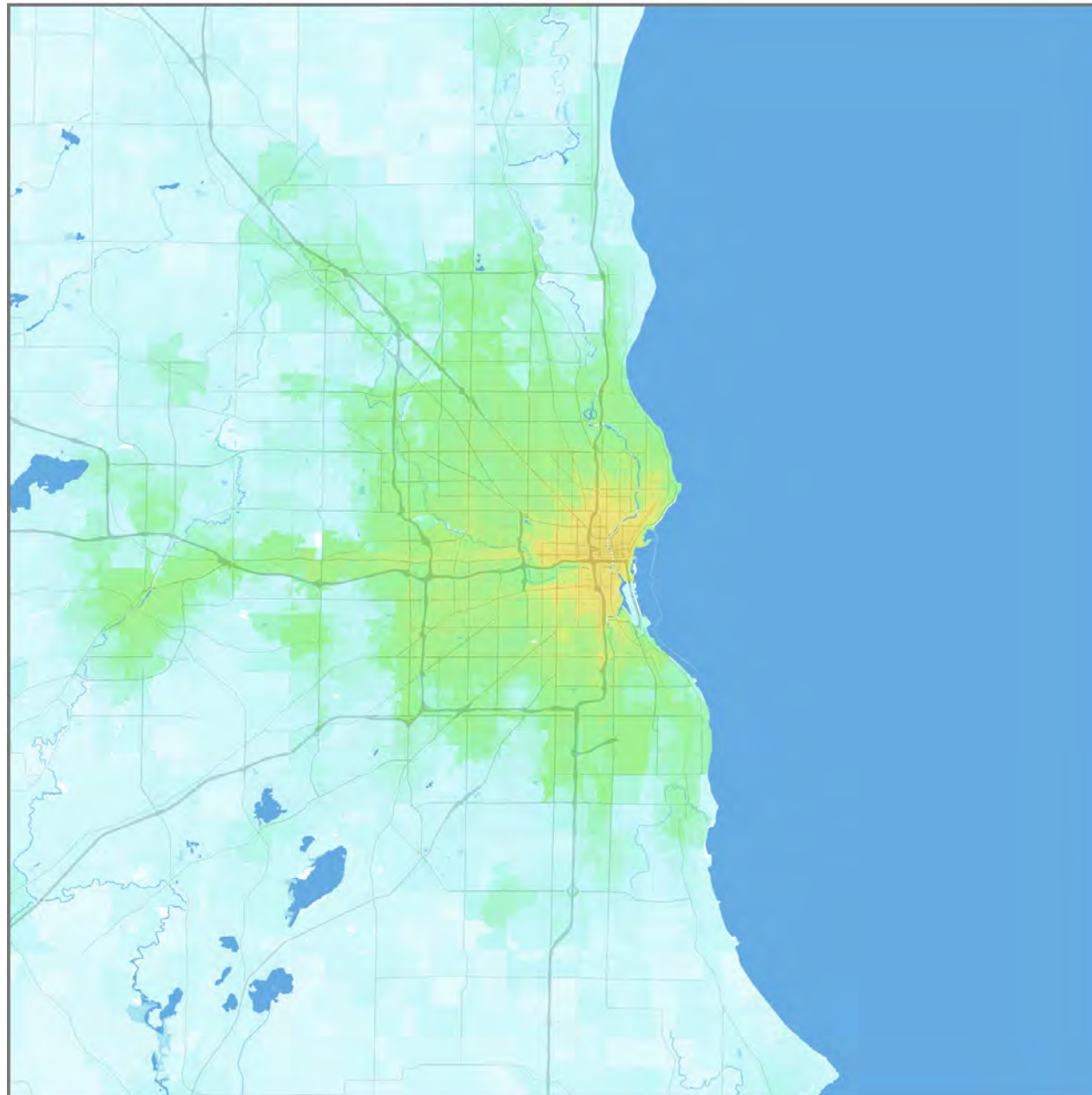
Transit Schedules Included

Agency	Dates
Milwaukee County Transit System	January 22, 2017 - March 26, 2017
Waukesha County Transit	November 1, 2014 - June 8, 2016

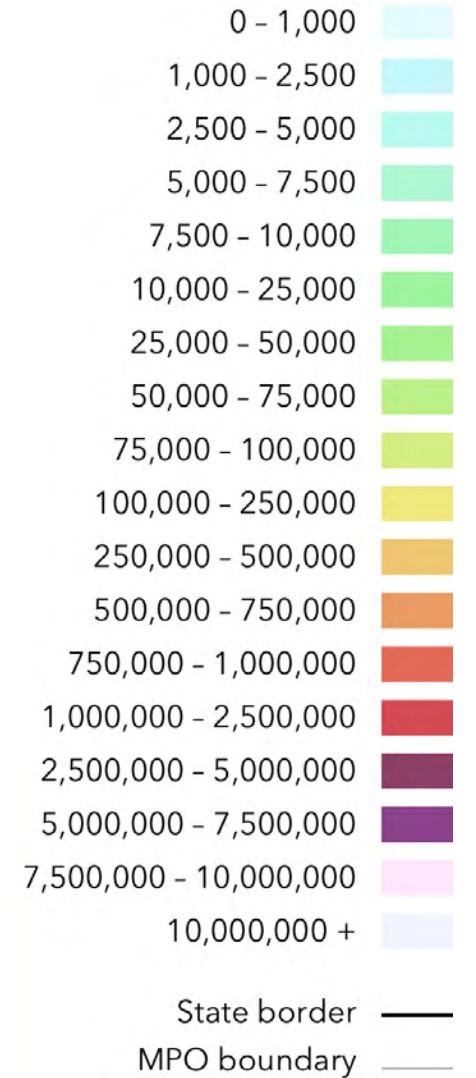
Milwaukee

Milwaukee-Waukesha-West Allis, WI

84



Jobs within 30 minutes
(Transit, AM peak)



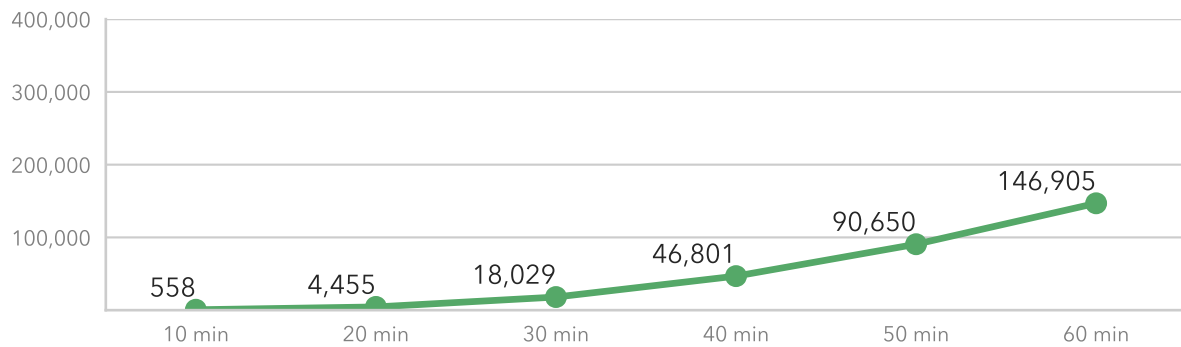
Minneapolis

Minneapolis-St. Paul-Bloomington, MN-WI

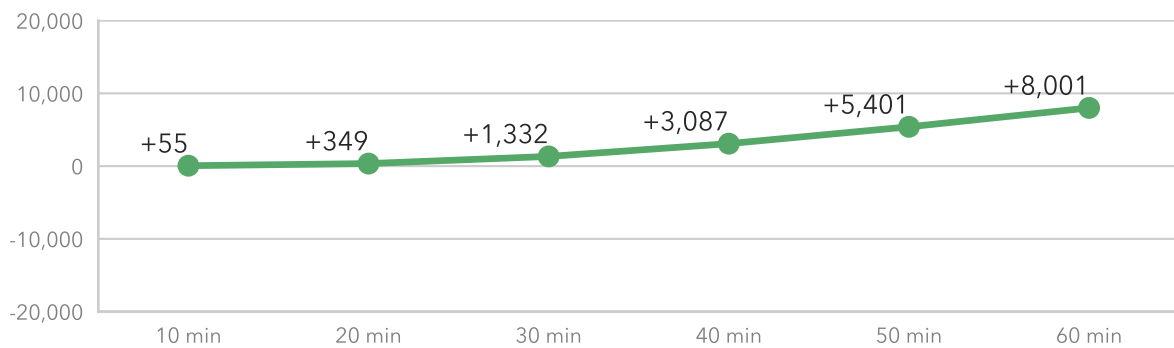
Rank by Weighted Accessibility	13
Rank by Total Employment	14
Rank by 1-Year Change in Weighted Accessibility	9
1-Year Change in Weighted Accessibility	+7.01%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+5.26%
Total Jobs	1,841,695
Average Job Density (per km ²)	118
Total Workers	1,794,806
Average Worker Density (per km ²)	115

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Minneapolis

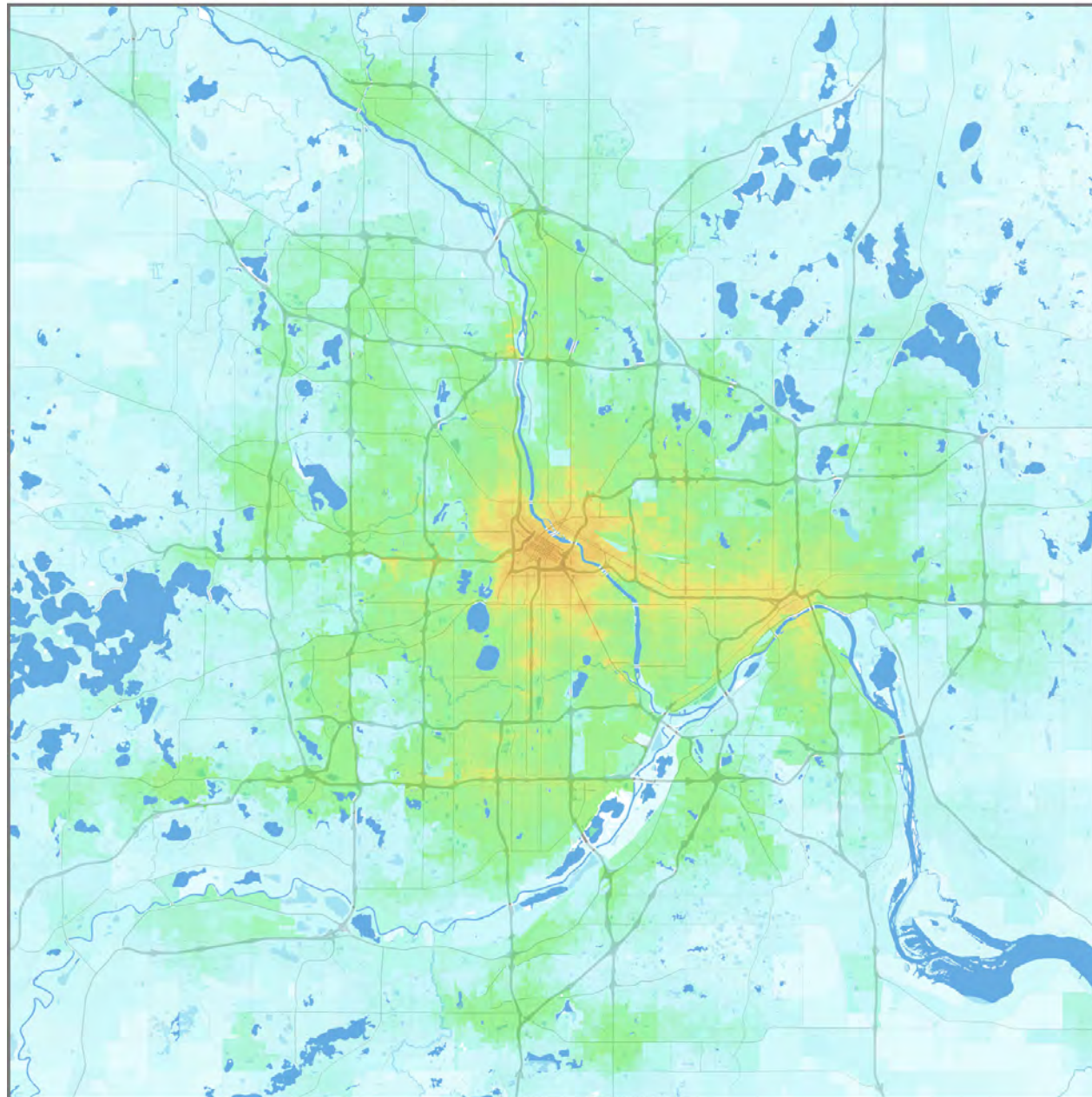
Minneapolis-St. Paul-Bloomington, MN-WI

Transit Schedules Included

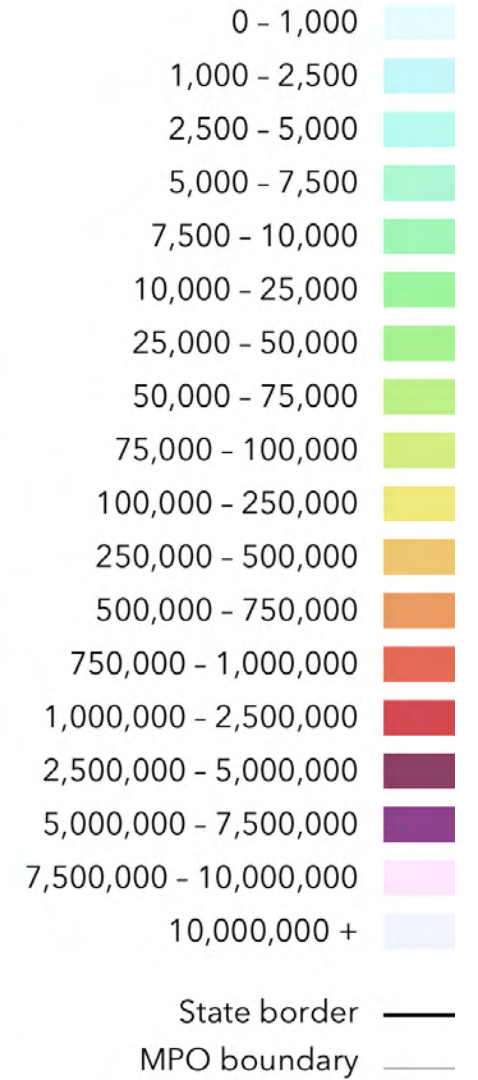
Agency	Dates
Airport (MAC)	March 11, 2017 - June 16, 2017
MVTA	November 7, 2016 - February 17, 2017
Maple Grove	March 13, 2017 - June 16, 2017
Metro	August 1, 2016 - November 18, 2016
Metro Bus	November 24, 2016 - January 14, 2017
Metro Transit	March 11, 2017 - June 16, 2017
Plymouth	March 13, 2017 - June 16, 2017
Prior Lake	January 12, 2015 - March 6, 2015
Scott County	January 12, 2015 - March 6, 2015
SouthWest Transit	March 13, 2017 - June 16, 2017
St. Cloud Link	March 11, 2017 - June 16, 2017
University of Minnesota	March 11, 2017 - June 16, 2017

Minneapolis

Minneapolis-St. Paul-Bloomington, MN-WI



Jobs within 30 minutes
(Transit, AM peak)



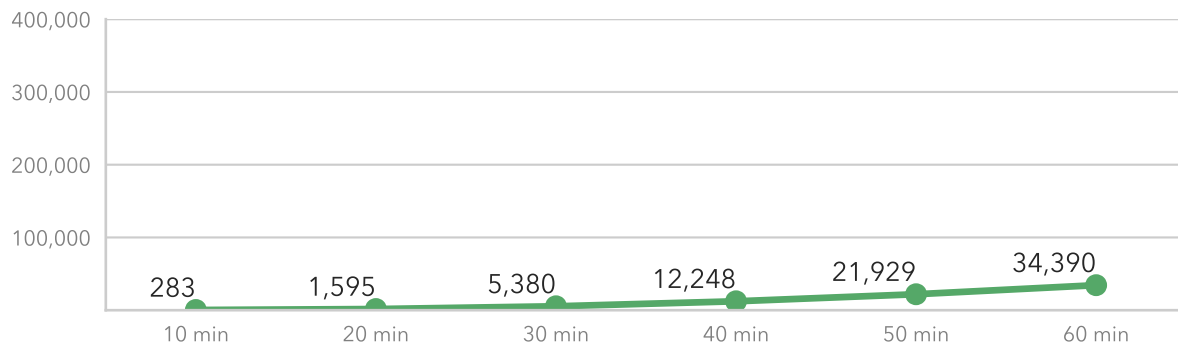
Nashville

Nashville-Davidson-Murfreesboro-Franklin, TN

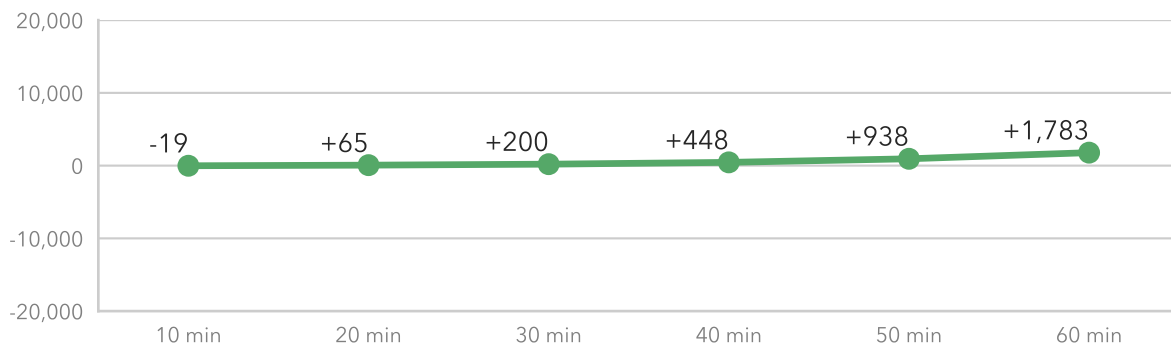
Rank by Weighted Accessibility	43
Rank by Total Employment	36
Rank by 1-Year Change in Weighted Accessibility	25
1-Year Change in Weighted Accessibility	+3.74%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+8.25%
Total Jobs	867,546
Average Job Density (per km ²)	59
Total Workers	801,589
Average Worker Density (per km ²)	54

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Nashville

Nashville-Davidson-Murfreesboro-Franklin, TN

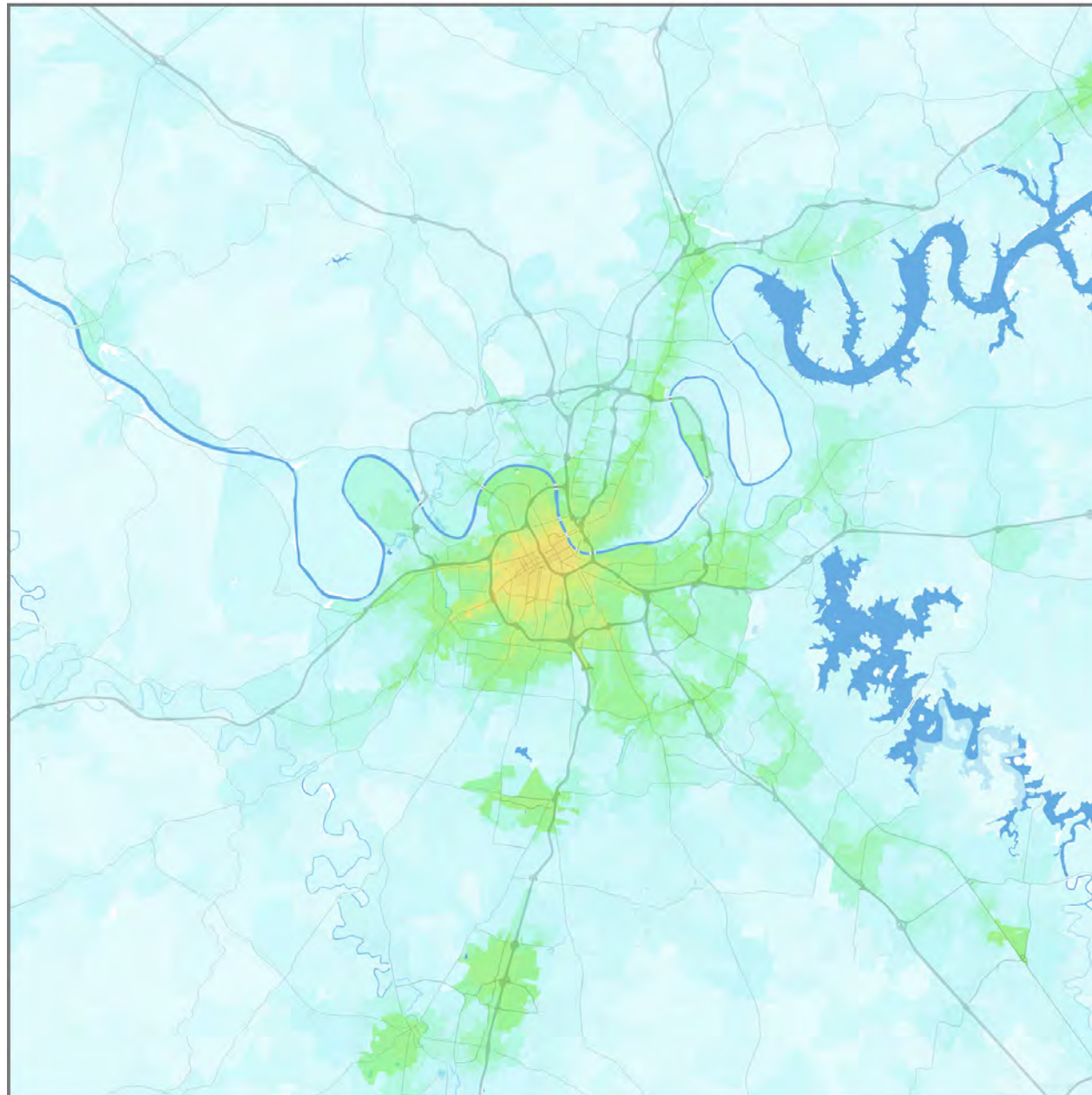
Transit Schedules Included

Agency	Dates
Nashville Metropolitan Transit Authority	September 25, 2016 - September 30, 2017

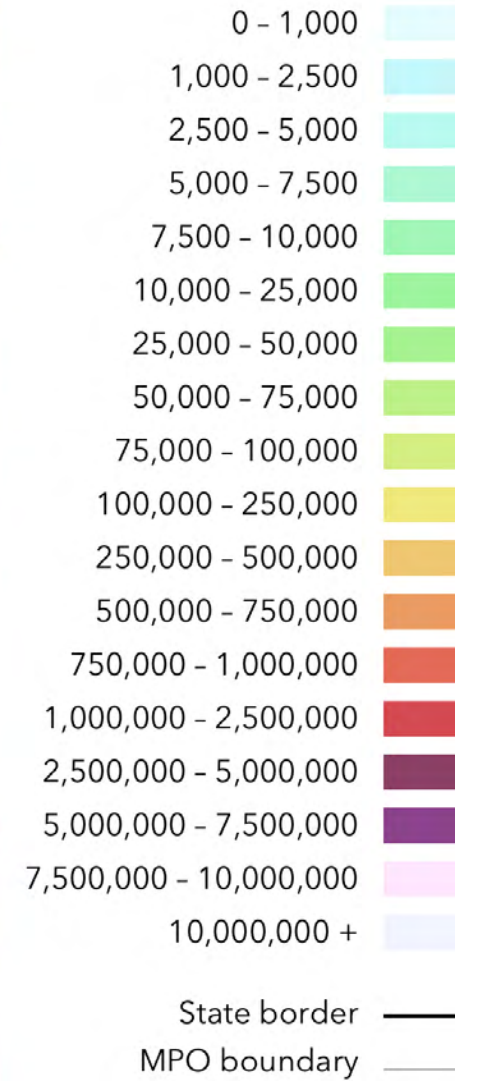
Nashville

Nashville-Davidson--Murfreesboro--Franklin, TN

96



Jobs within 30 minutes
(Transit, AM peak)



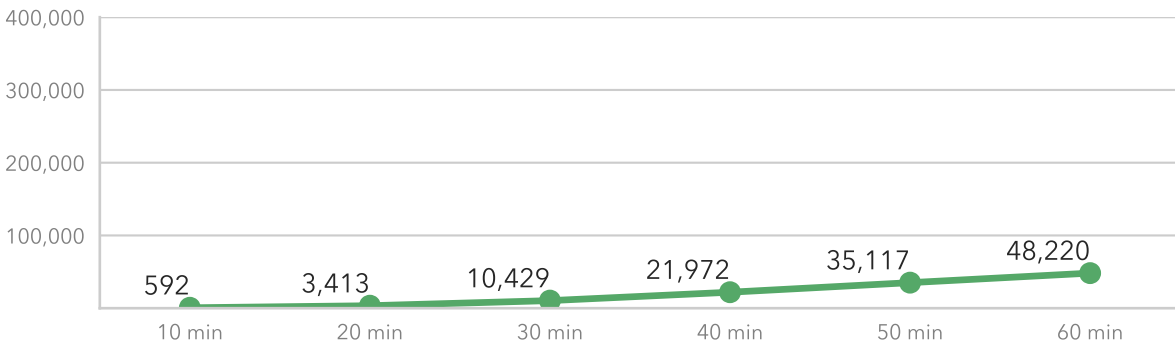
New Orleans

New Orleans-Metairie-Kenner, LA

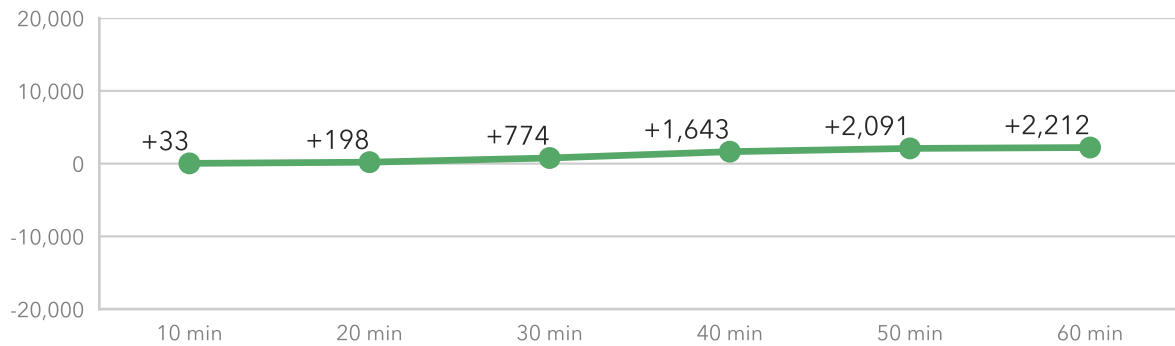
Rank by Weighted Accessibility	30
Rank by Total Employment	49
Rank by 1-Year Change in Weighted Accessibility	11
1-Year Change in Weighted Accessibility	+6.76%
1-Year Change in Weighted Accessibility Rank	+1
2-Year Change in Weighted Accessibility	+13.36%
Total Jobs	540,982
Average Job Density (per km ²)	71
Total Workers	513,830
Average Worker Density (per km ²)	67

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



New Orleans

New Orleans-Metairie-Kenner, LA

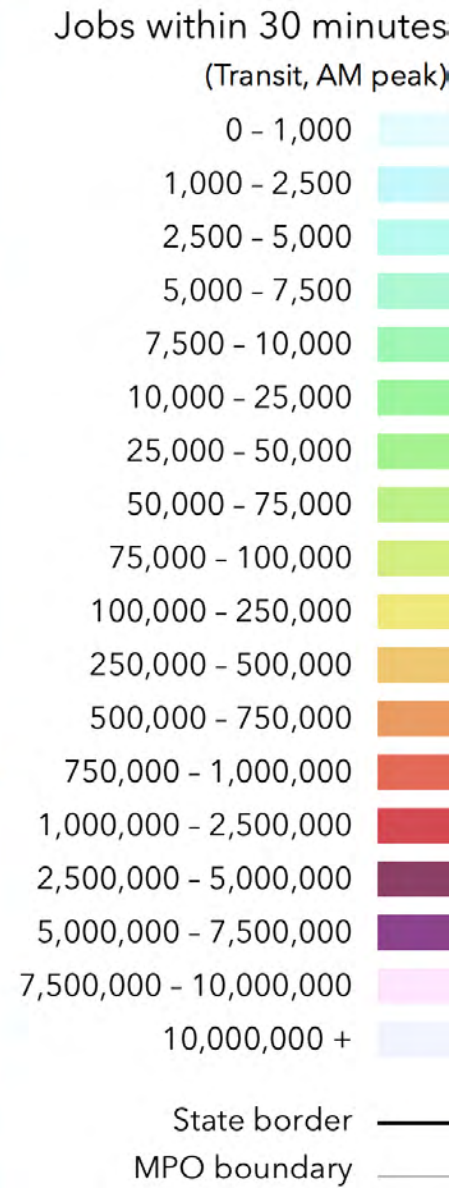
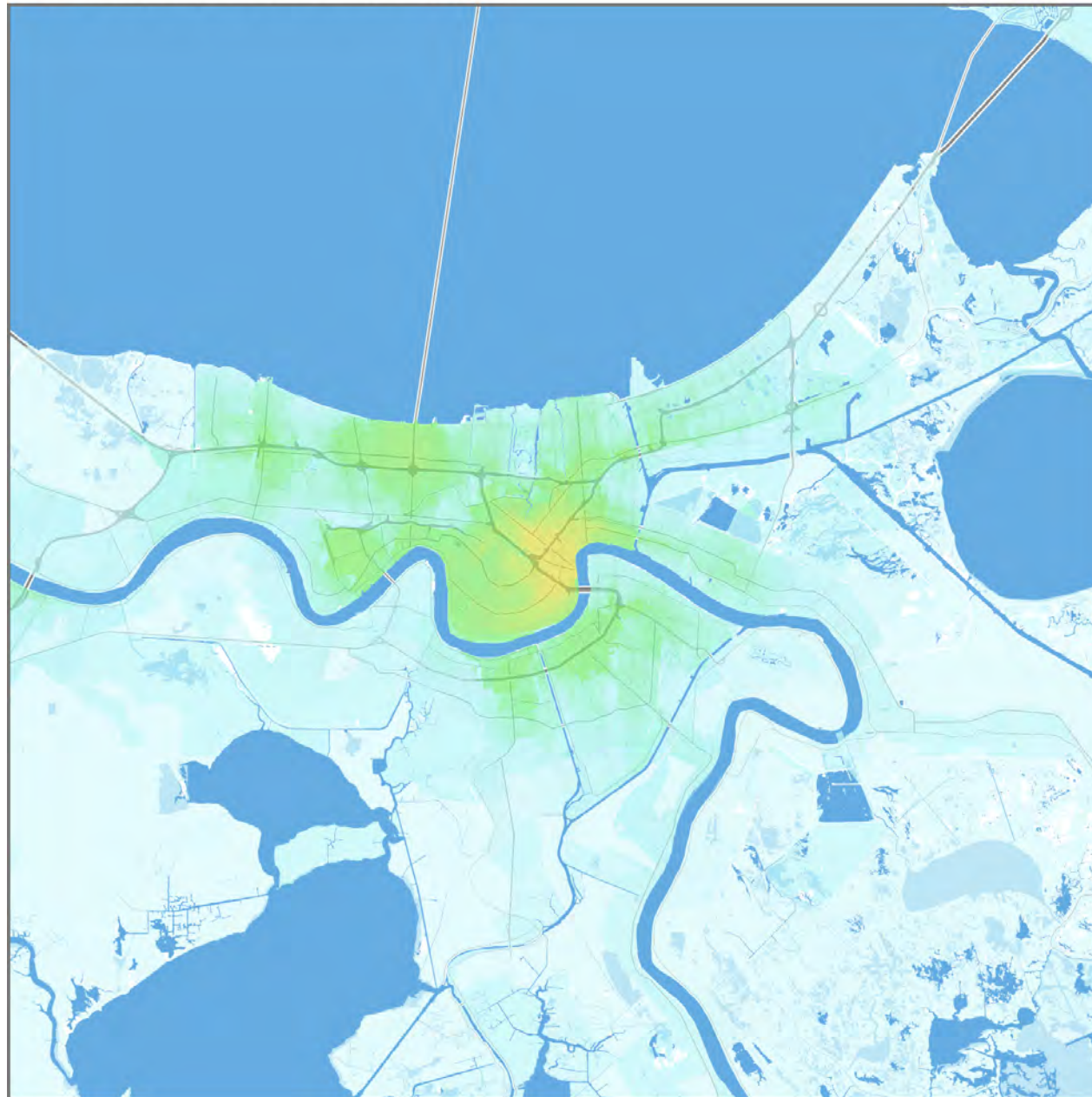
Transit Schedules Included

Agency	Dates
New Orleans RTA	January 1, 2017 - May 27, 2017

New Orleans

New Orleans-Metairie-Kenner, LA

93



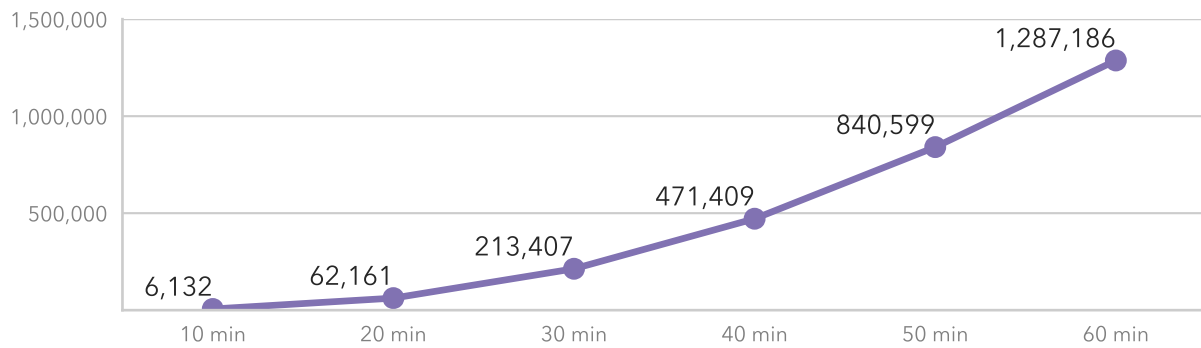
New York

New York-Northern New Jersey-Long Island, NY-NJ-PA

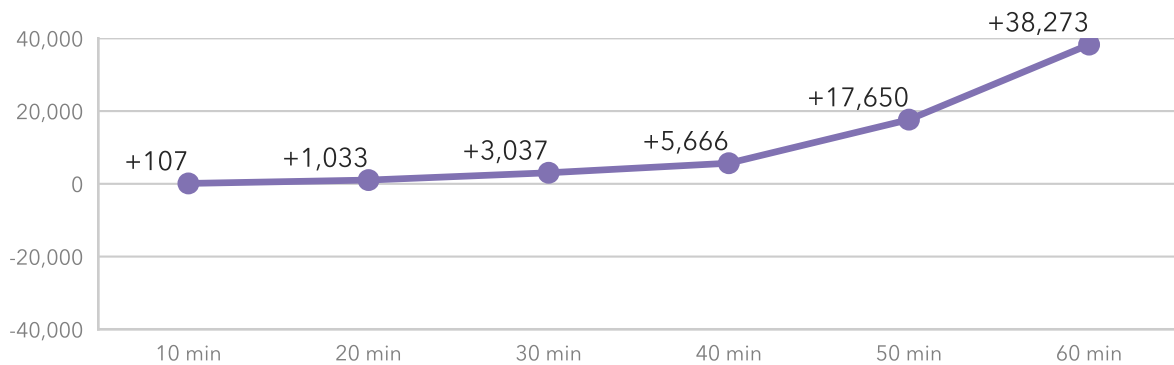
Rank by Weighted Accessibility	1
Rank by Total Employment	1
Rank by 1-Year Change in Weighted Accessibility	36
1-Year Change in Weighted Accessibility	+1.91%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+4.62%
Total Jobs	8,848,900
Average Job Density (per km ²)	511
Total Workers	8,654,470
Average Worker Density (per km ²)	500

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



New York

New York-Northern New Jersey-Long Island, NY-NJ-PA

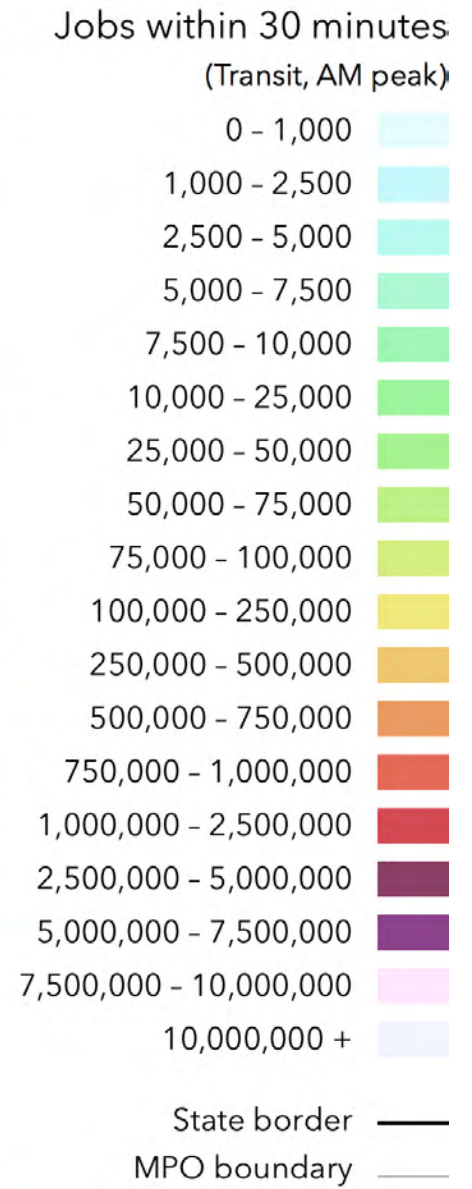
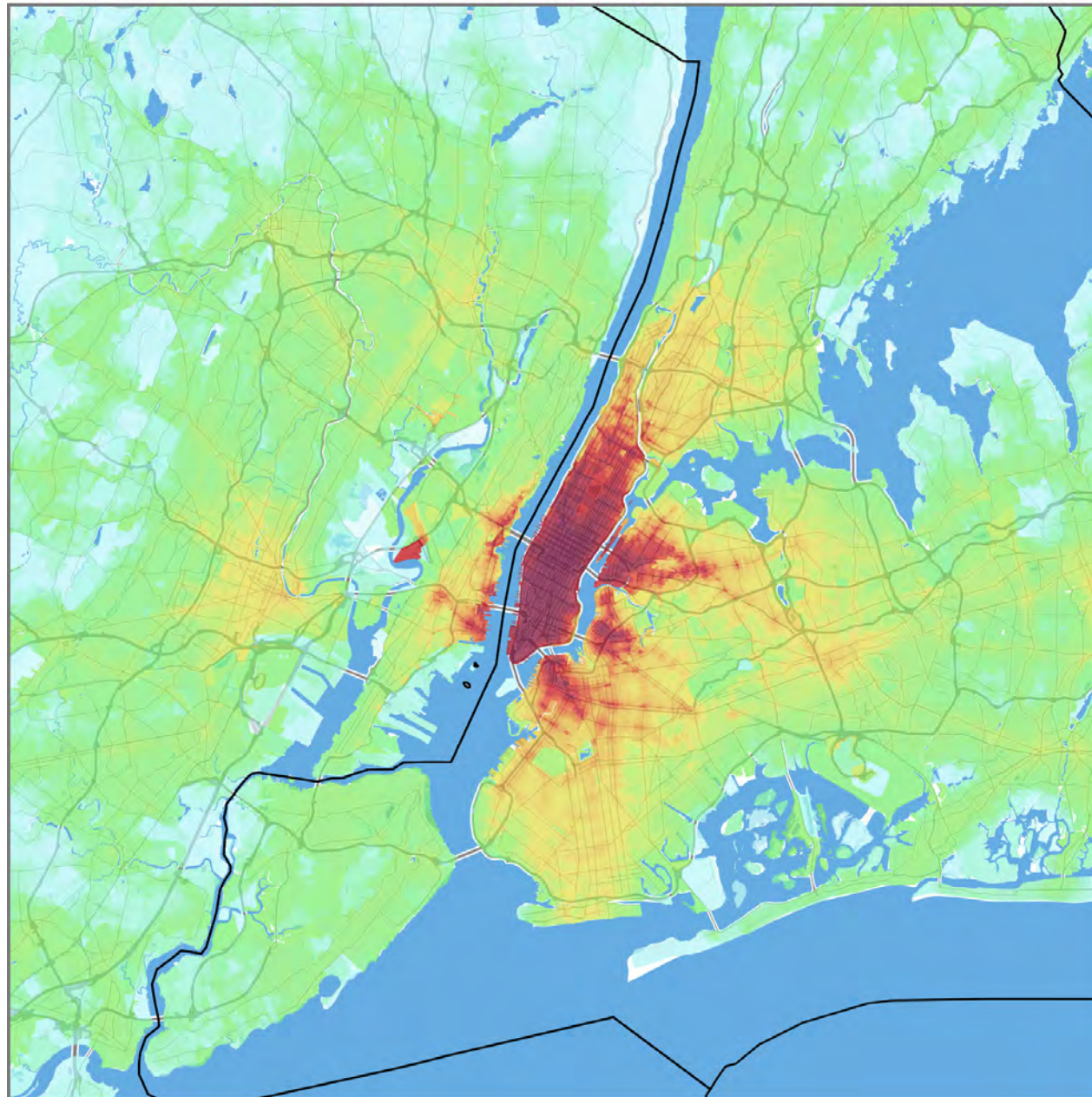
Transit Schedules Included

Agency	Dates
CTTransit- Stamford	December 4, 2016 - March 25, 2017
JFK Airtrain	July 21, 2015 - July 9, 2016
Long Island Rail Road	November 14, 2016 - May 21, 2017
MTA Bus Company	January 8, 2017 - April 8, 2017
MTA New York City Transit	November 6, 2016 - December 31, 2017
MTA New York City Transit - Bronx	January 7, 2017 - April 1, 2017
MTA New York City Transit - Brooklyn	January 7, 2017 - April 1, 2017
MTA New York City Transit - Manhattan	January 7, 2017 - April 1, 2017
MTA New York City Transit - Queens	January 7, 2017 - April 1, 2017
MTA New York City Transit - Staten Island	January 8, 2017 - April 1, 2017
Metro-North Railroad	October 12, 2016 - April 1, 2017
NJ TRANSIT BUS	December 28, 2016 - June 25, 2017
NJ TRANSIT RAIL	December 20, 2016 - June 17, 2017
NY Waterway	November 10, 2015 - April 3, 2016
Nassau Inter-County Express	January 15, 2017 - April 8, 2017
New York City Department of Transportation	April 30, 2014 - December 31, 2021
Port Authority Trans-Hudson Corporation	January 1, 2017 - January 1, 2018
Port Authority of NY and NJ	February 8, 2017 - January 1, 2018
Seastreak	June 15, 2015 - July 20, 2017
Shore Line East	November 5, 2016 - May 1, 2017
Suffolk County Transit	January 1, 2015 - December 31, 2017
Sussex County Skylands Ride	April 1, 2012 - January 2, 2019
Westchester County Bee-Line System	June 20, 2016 - March 19, 2017

New York

New York-Northern New Jersey-Long Island, NY-NJ-PA

96



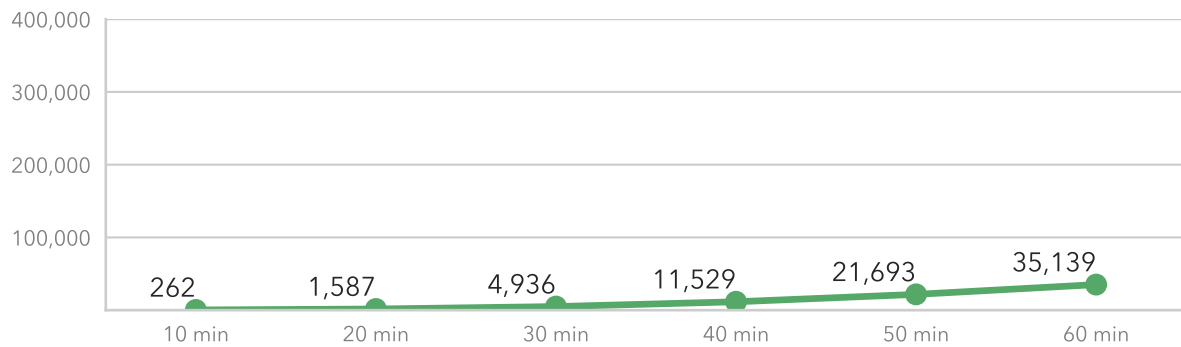
Oklahoma City

Oklahoma City, OK

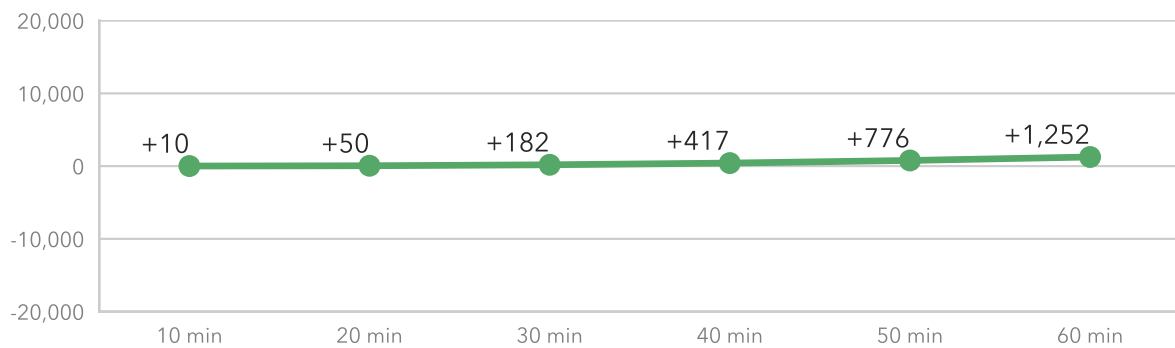
Rank by Weighted Accessibility	44
Rank by Total Employment	47
Rank by 1-Year Change in Weighted Accessibility	27
1-Year Change in Weighted Accessibility	+3.69%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+2.36%
Total Jobs	609,953
Average Job Density (per km ²)	43
Total Workers	574,561
Average Worker Density (per km ²)	40

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Oklahoma City

Oklahoma City, OK

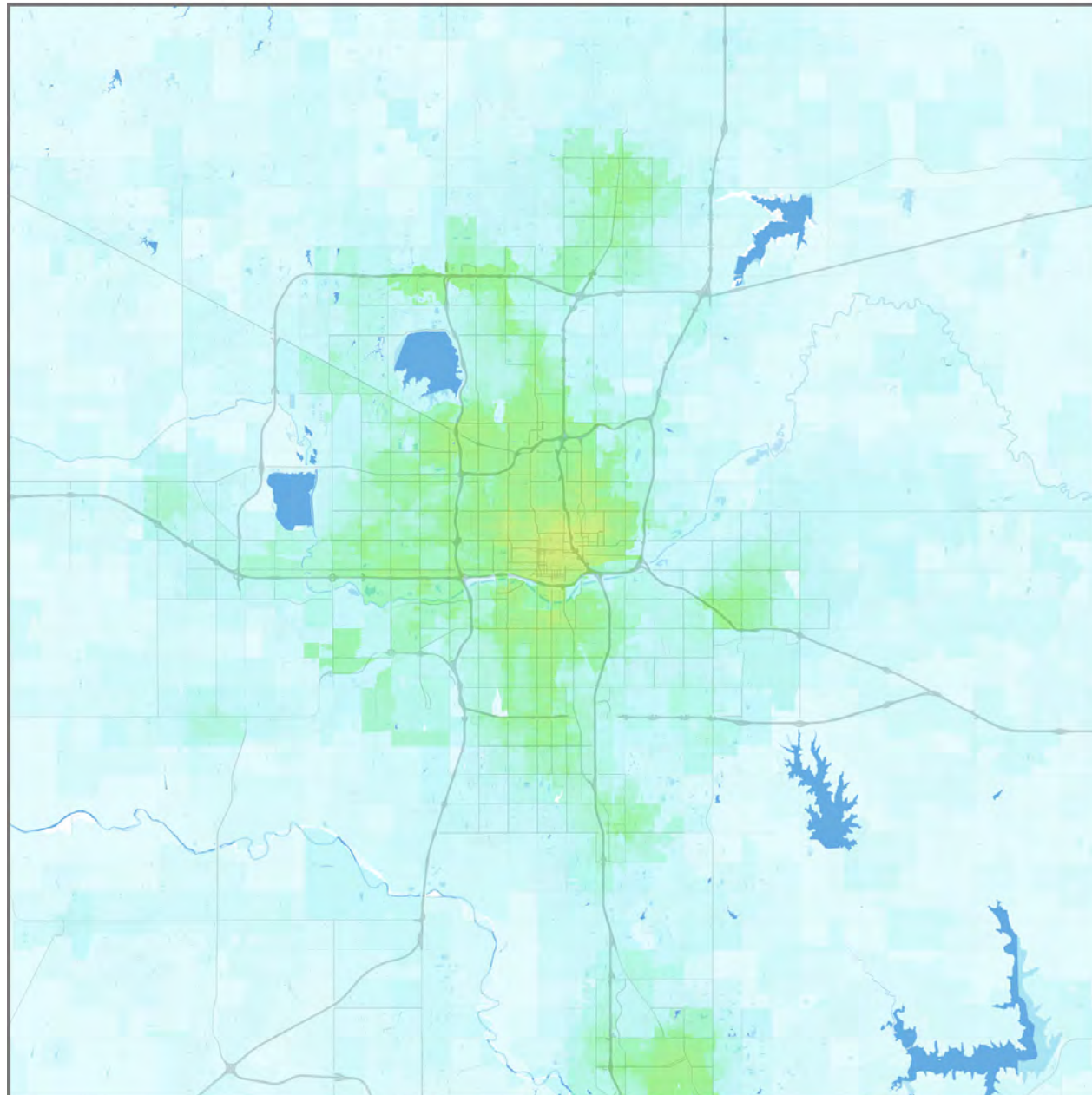
Transit Schedules Included

Agency	Dates
Embark	July 31, 2016 - July 30, 2017

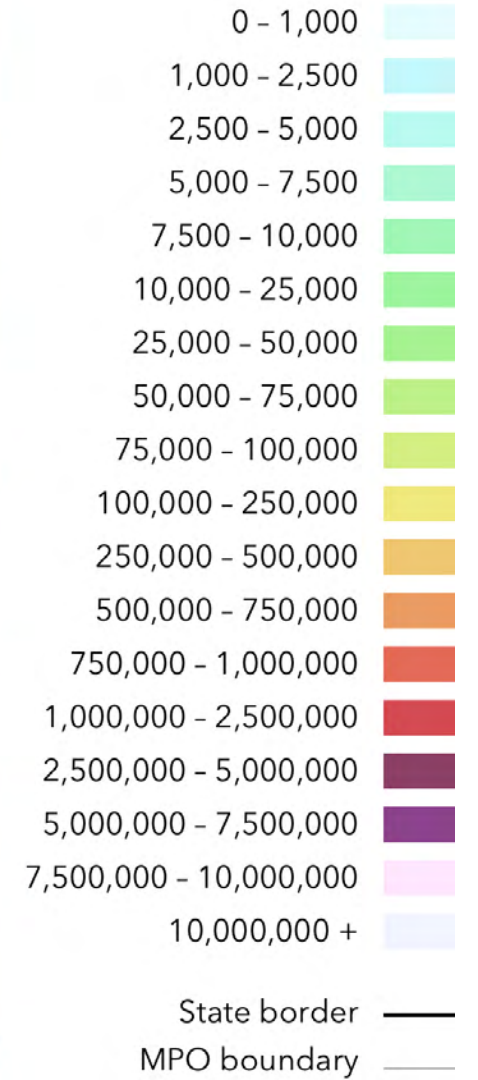
Oklahoma City

Oklahoma City, OK

69



Jobs within 30 minutes
(Transit, AM peak)



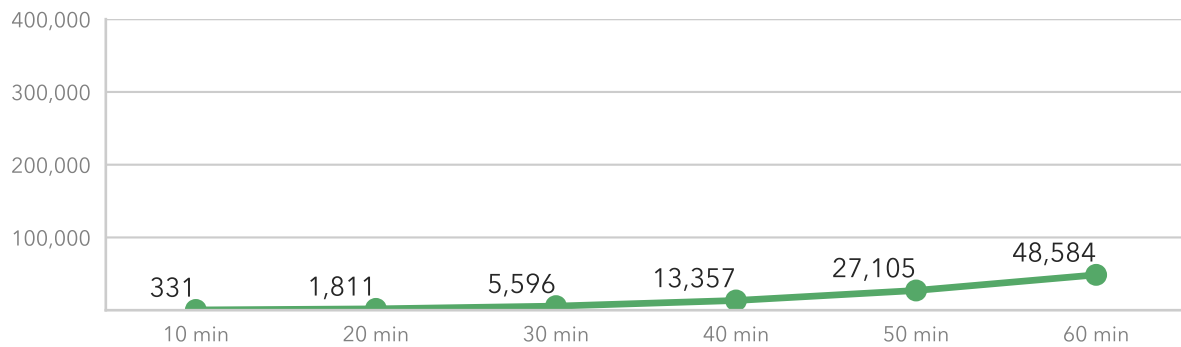
Orlando

Orlando-Kissimmee-Sanford, FL

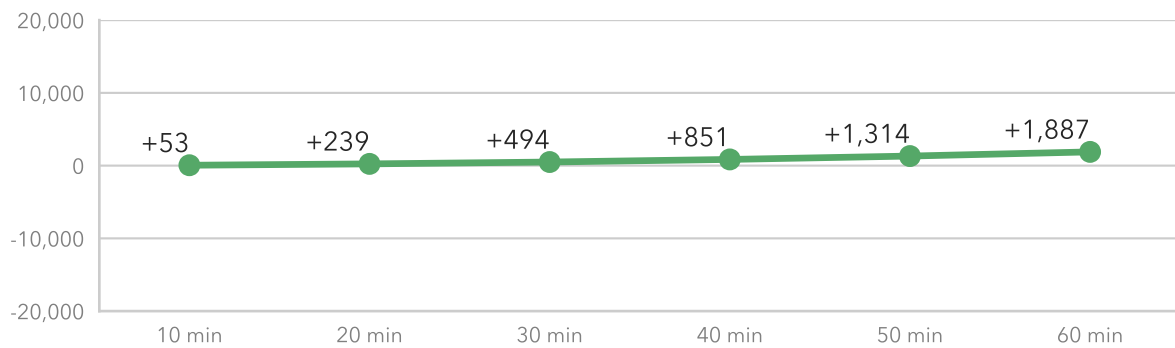
Rank by Weighted Accessibility	41
Rank by Total Employment	24
Rank by 1-Year Change in Weighted Accessibility	6
1-Year Change in Weighted Accessibility	+7.88%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+19.57%
Total Jobs	1,157,075
Average Job Density (per km ²)	128
Total Workers	1,050,065
Average Worker Density (per km ²)	117

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Orlando

Orlando-Kissimmee-Sanford, FL

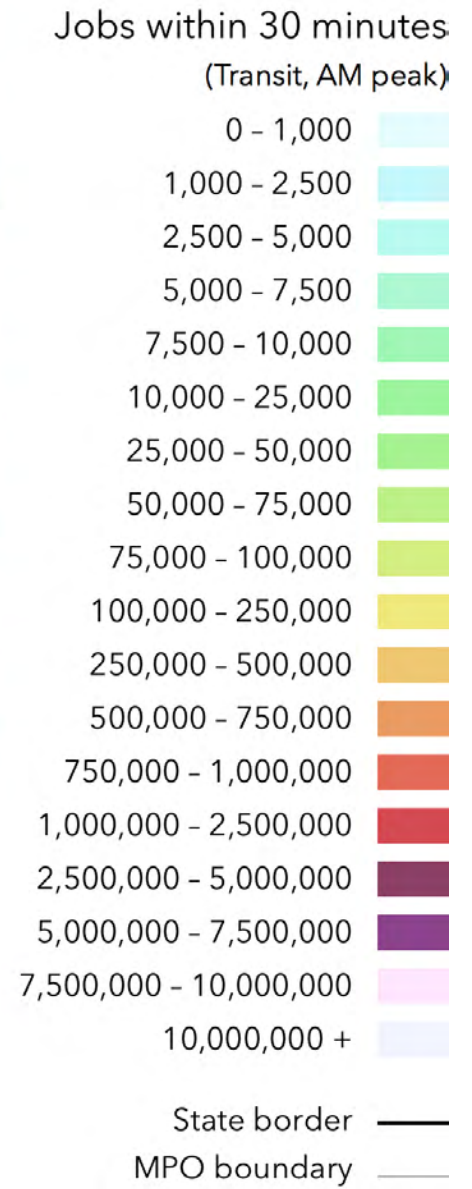
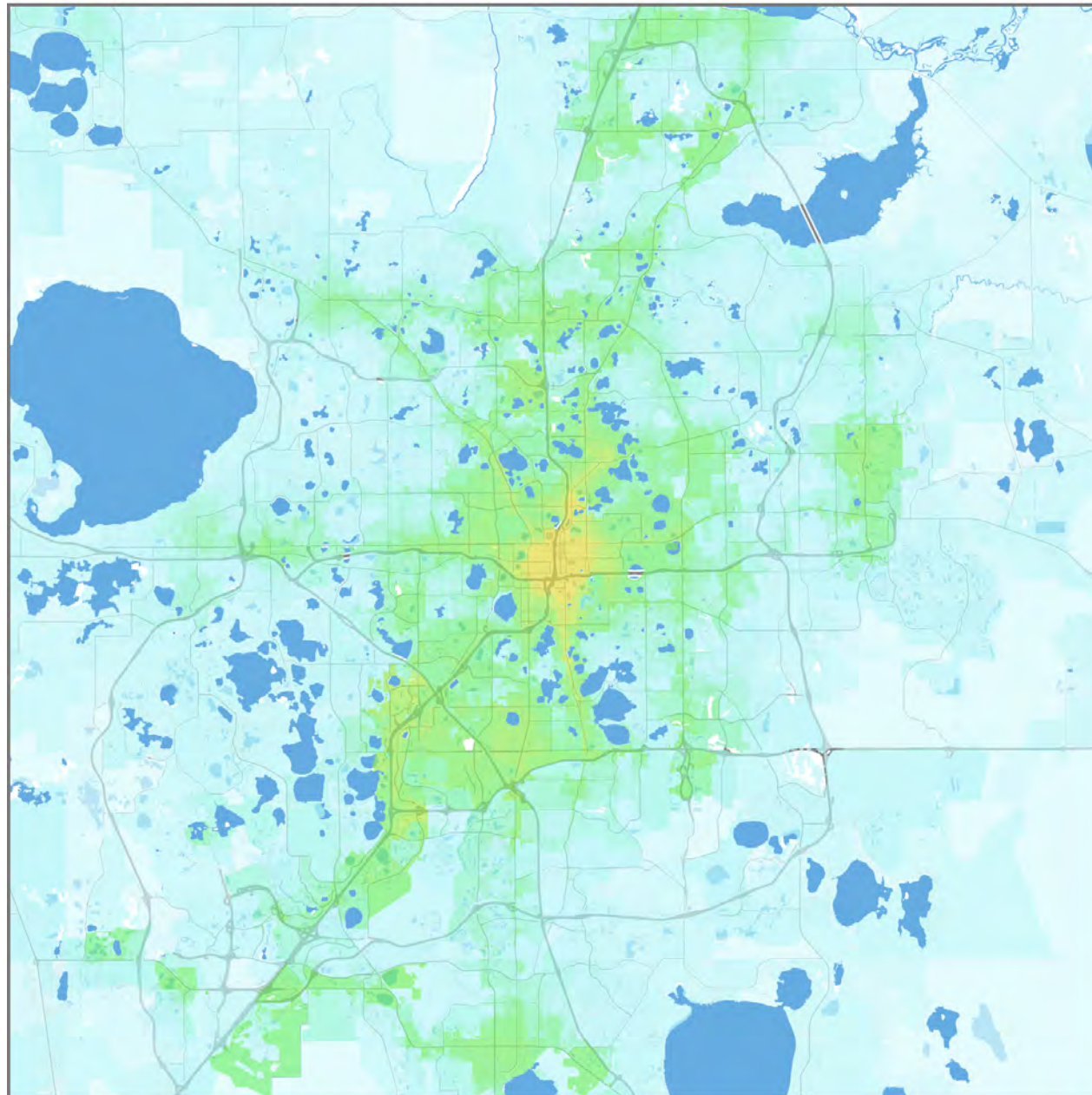
Transit Schedules Included

Agency	Dates
Central Florida Regional Transit Authority	January 10, 2017 - April 29, 2017
Florida Department of Transportation	December 21, 2015 - December 31, 2017
Polk County Transit Services	July 3, 2015 - December 31, 2015
Winter Haven Area Transit	July 3, 2015 - December 31, 2015

Orlando

Orlando-Kissimmee-Sanford, FL

102



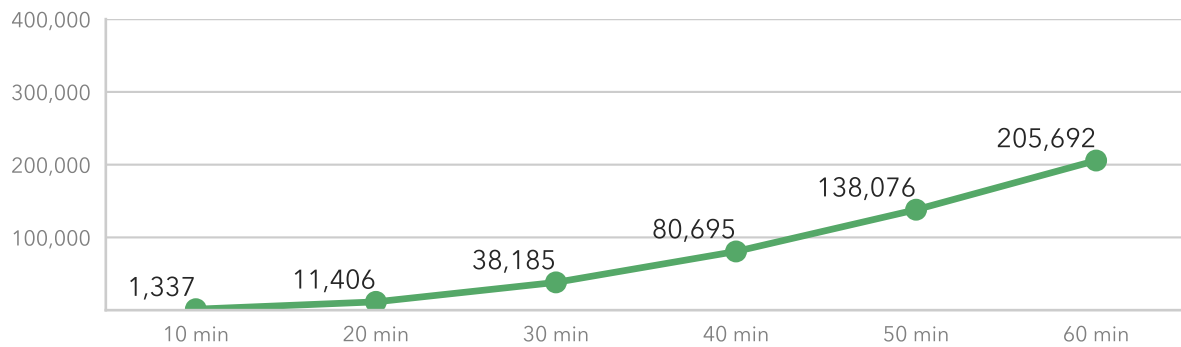
Philadelphia

Philadelphia-Camden-Wilmington, PA-NJ-DE-MD

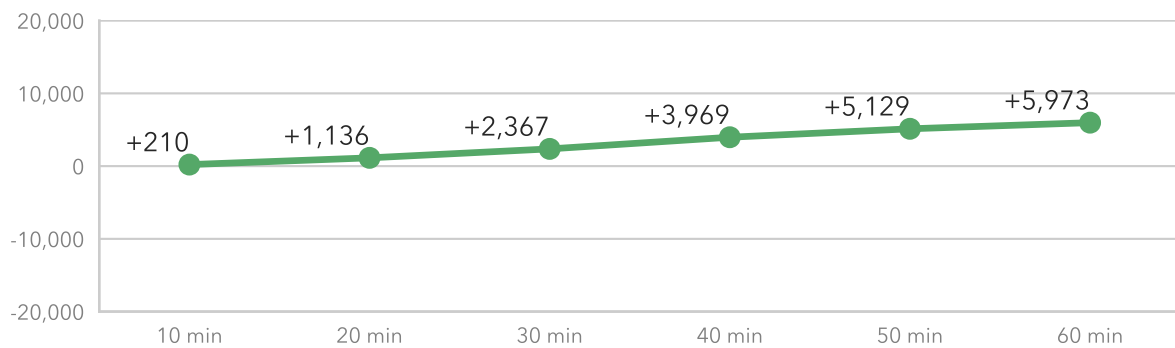
Rank by Weighted Accessibility	7
Rank by Total Employment	6
Rank by 1-Year Change in Weighted Accessibility	15
1-Year Change in Weighted Accessibility	+6.14%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+7.83%
Total Jobs	2,774,614
Average Job Density (per km ²)	233
Total Workers	2,793,982
Average Worker Density (per km ²)	234

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Philadelphia

Philadelphia-Camden-Wilmington, PA-NJ-DE-MD

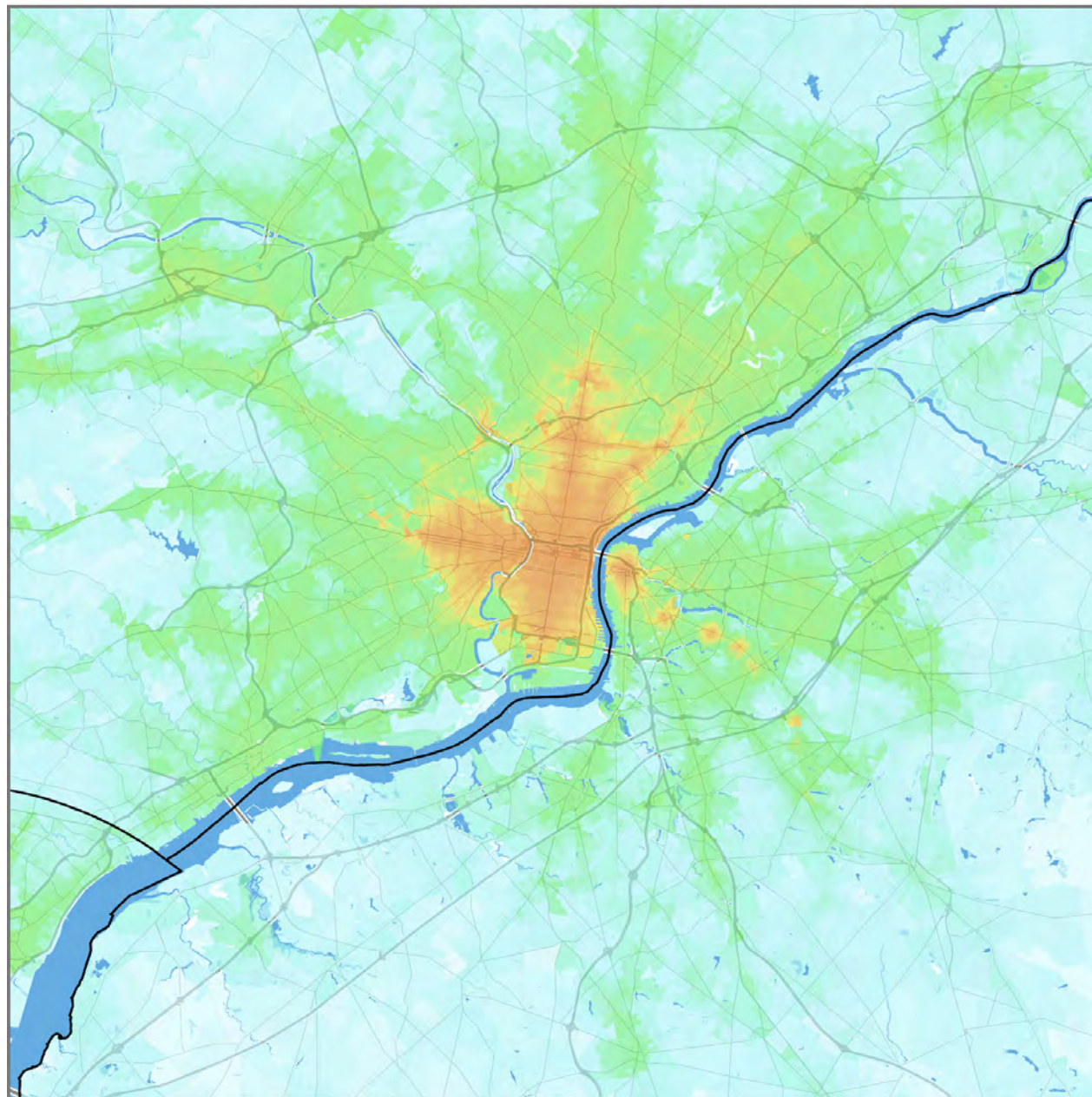
Transit Schedules Included

Agency	Dates
Cecil Transit	September 1, 2015 - September 19, 2017
Dart First State	December 11, 2016 - May 21, 2017
Harford Transit LINK	October 1, 2015 - December 31, 2017
MTA Office of Local Transit Support	August 28, 2016 - February 4, 2017
Maryland Transit Administration	February 5, 2017 - September 2, 2017
NJ TRANSIT BUS	December 28, 2016 - June 25, 2017
NJ TRANSIT RAIL	December 20, 2016 - June 17, 2017
Port Authority Transit Corporation	July 2, 2015 - November 29, 2016
SEPTA-bus	September 4, 2016 - February 25, 2017
SEPTA-rail	December 11, 2016 - January 28, 2017

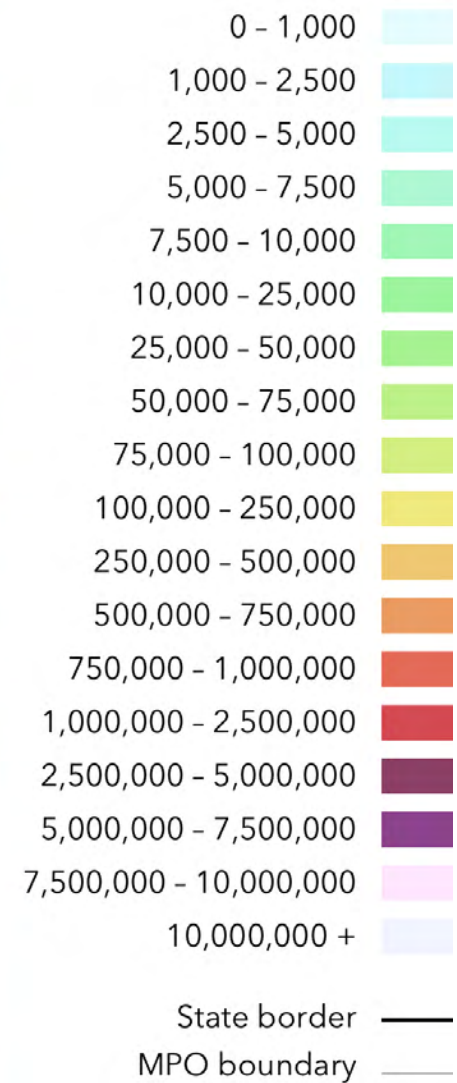
Philadelphia

Philadelphia-Camden-Wilmington, PA-NJ-DE-MD

105



Jobs within 30 minutes
(Transit, AM peak)



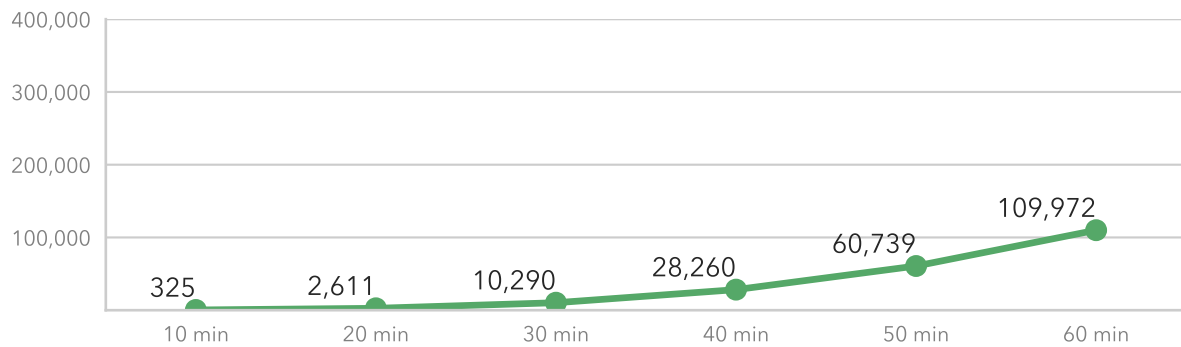
Phoenix

Phoenix-Mesa-Glendale, AZ

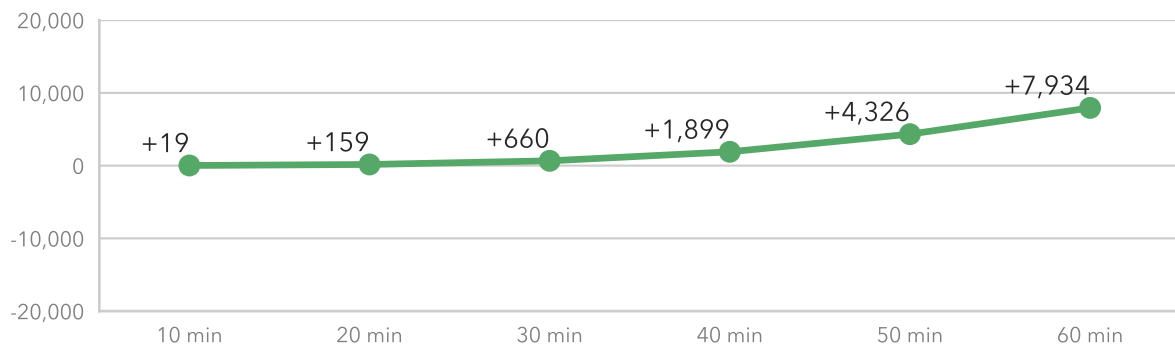
Rank by Weighted Accessibility	19
Rank by Total Employment	13
Rank by 1-Year Change in Weighted Accessibility	8
1-Year Change in Weighted Accessibility	+7.31%
1-Year Change in Weighted Accessibility Rank	+2
2-Year Change in Weighted Accessibility	+15.37%
Total Jobs	1,913,898
Average Job Density (per km ²)	51
Total Workers	1,865,829
Average Worker Density (per km ²)	49

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Phoenix

Phoenix-Mesa-Glendale, AZ

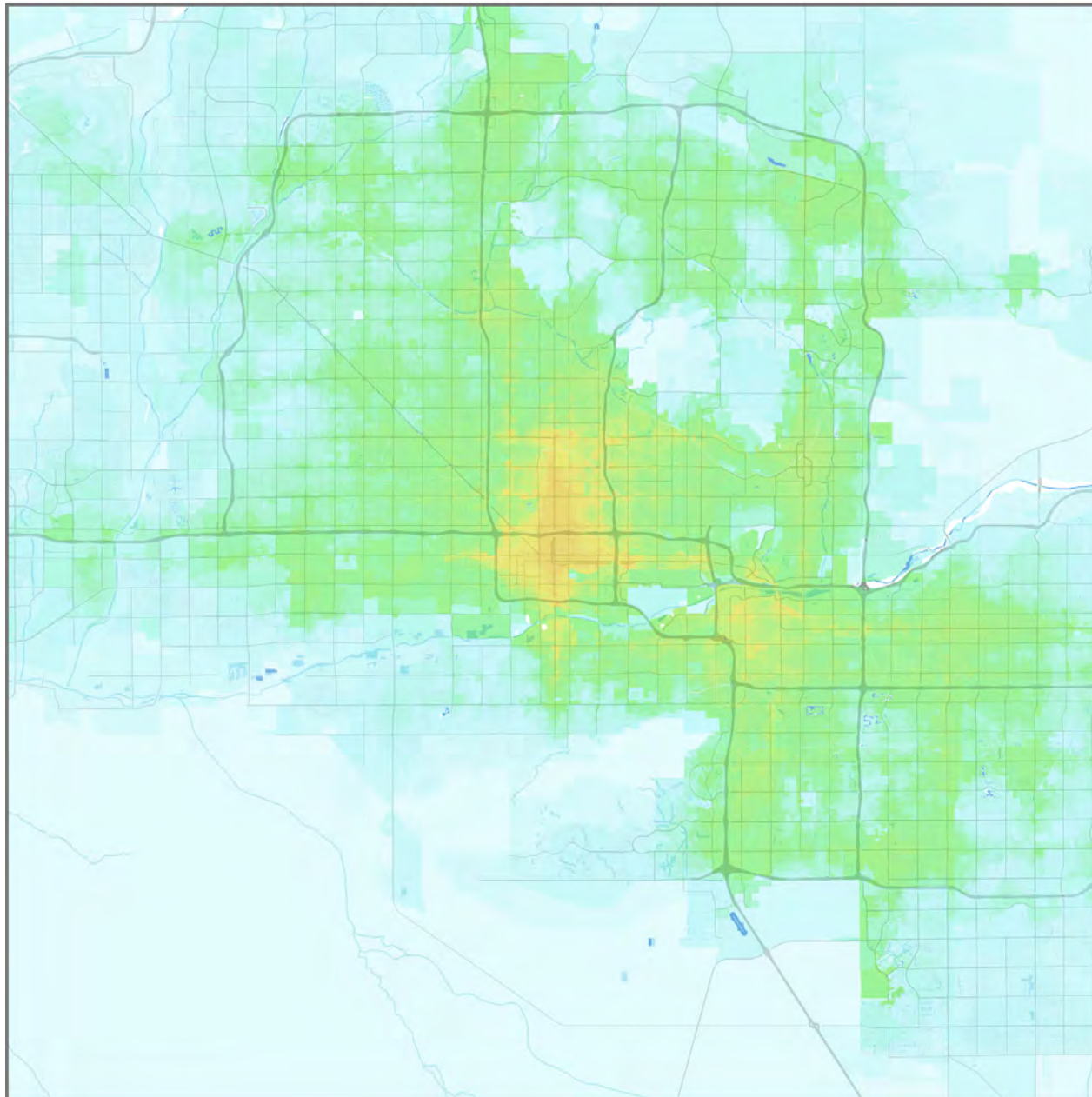
Transit Schedules Included

Agency	Dates
Valley Metro	September 20, 2016 - April 23, 2017

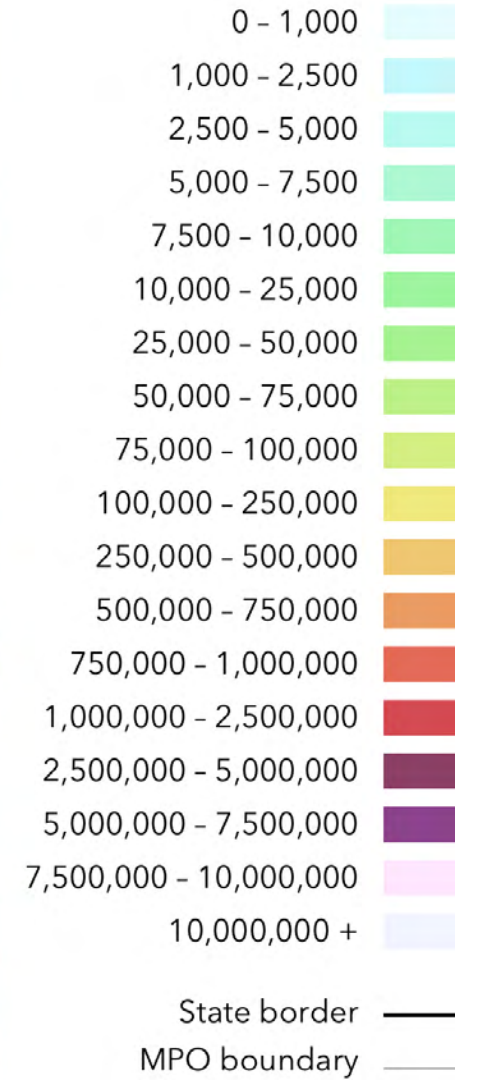
Phoenix

Phoenix-Mesa-Glendale, AZ

108



Jobs within 30 minutes
(Transit, AM peak)



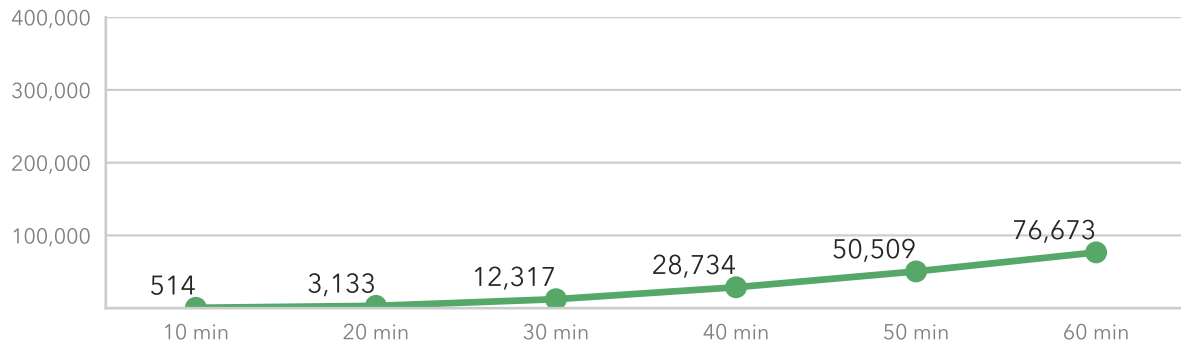
Pittsburgh

Pittsburgh, PA

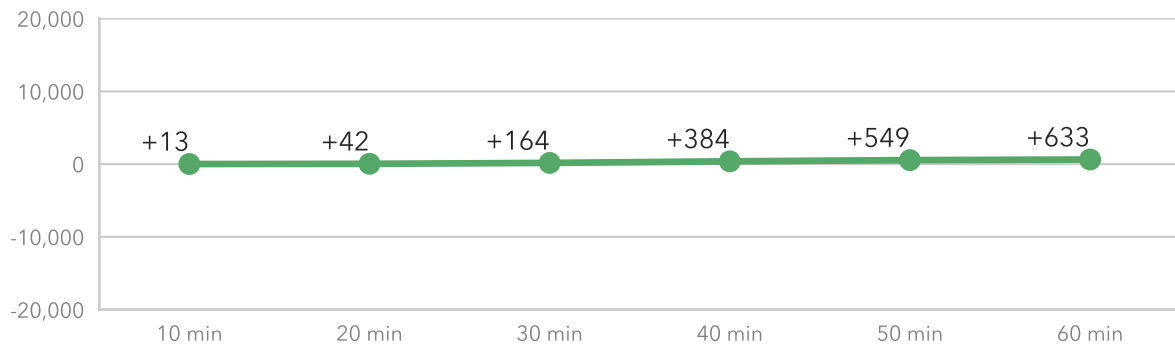
Rank by Weighted Accessibility	21
Rank by Total Employment	22
Rank by 1-Year Change in Weighted Accessibility	39
1-Year Change in Weighted Accessibility	+1.25%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	-4.05%
Total Jobs	1,122,707
Average Job Density (per km ²)	82
Total Workers	1,100,915
Average Worker Density (per km ²)	80

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Pittsburgh

Pittsburgh, PA

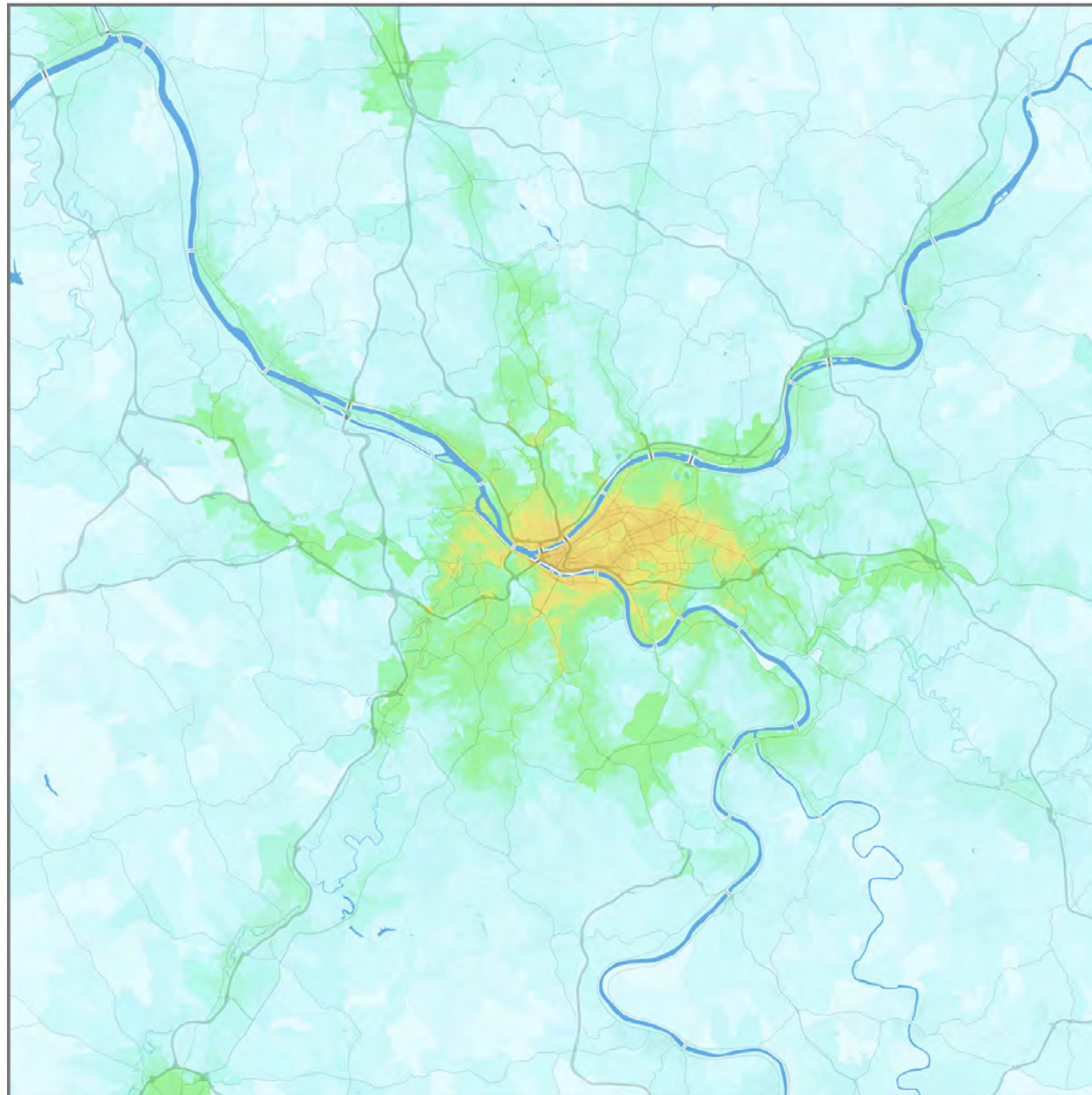
Transit Schedules Included

Agency	Dates
Port Authority of Allegheny County	November 20, 2016 - March 18, 2017

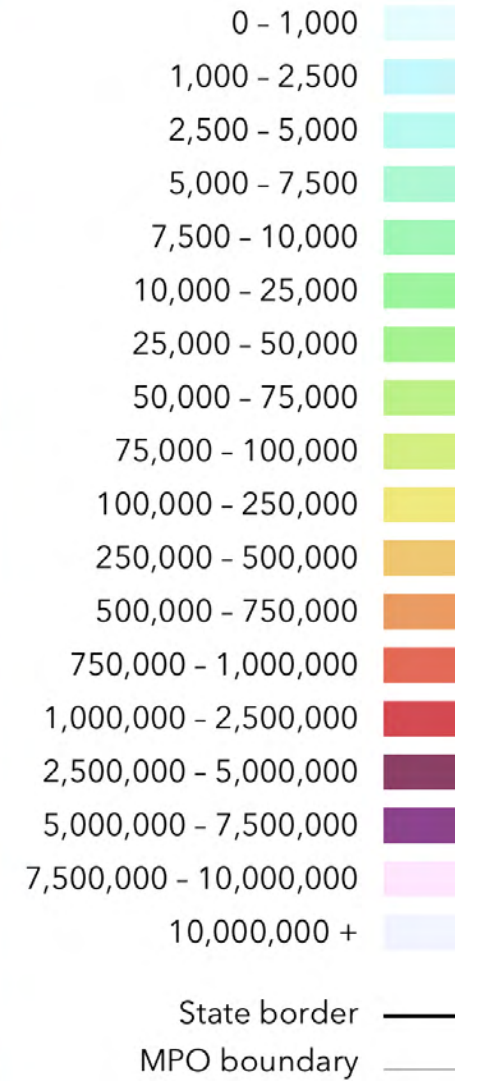
Pittsburgh

Pittsburgh, PA

111



Jobs within 30 minutes
(Transit, AM peak)



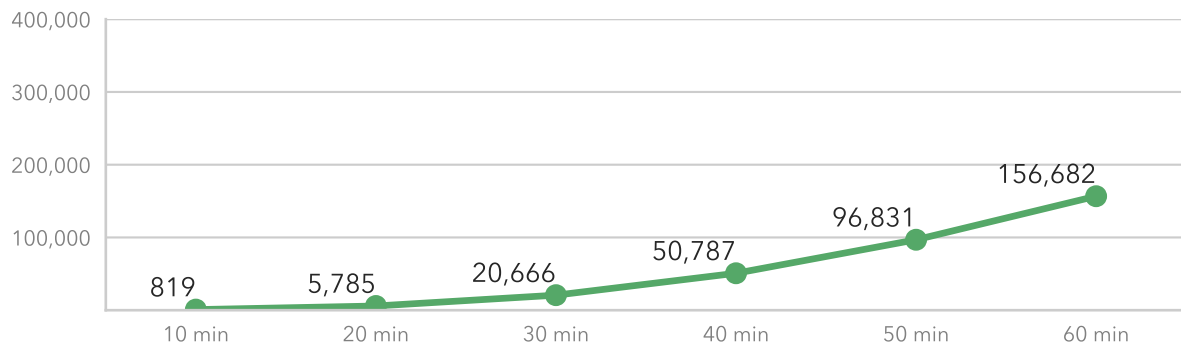
Portland

Portland-Vancouver-Hillsboro, OR-WA

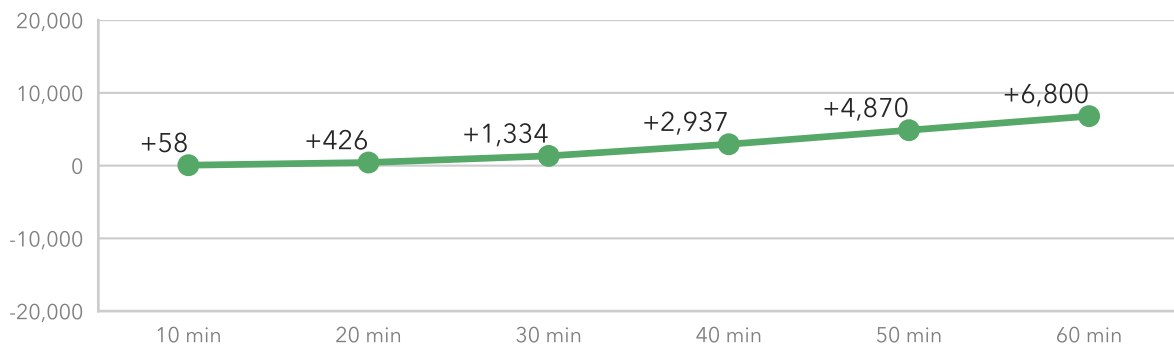
Rank by Weighted Accessibility	11
Rank by Total Employment	23
Rank by 1-Year Change in Weighted Accessibility	16
1-Year Change in Weighted Accessibility	+6.01%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+9.00%
Total Jobs	1,115,646
Average Job Density (per km ²)	64
Total Workers	1,093,778
Average Worker Density (per km ²)	63

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Portland

Portland-Vancouver-Hillsboro, OR-WA

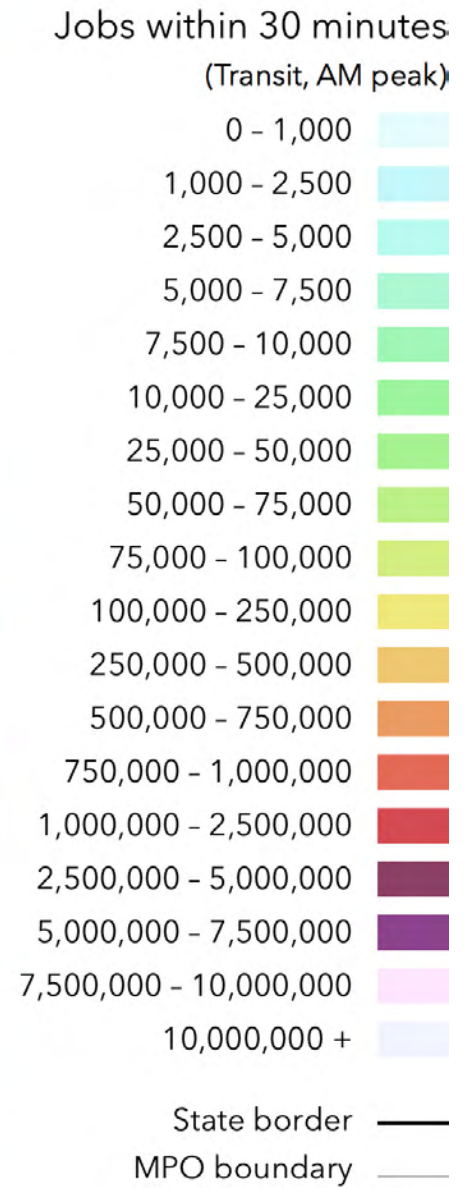
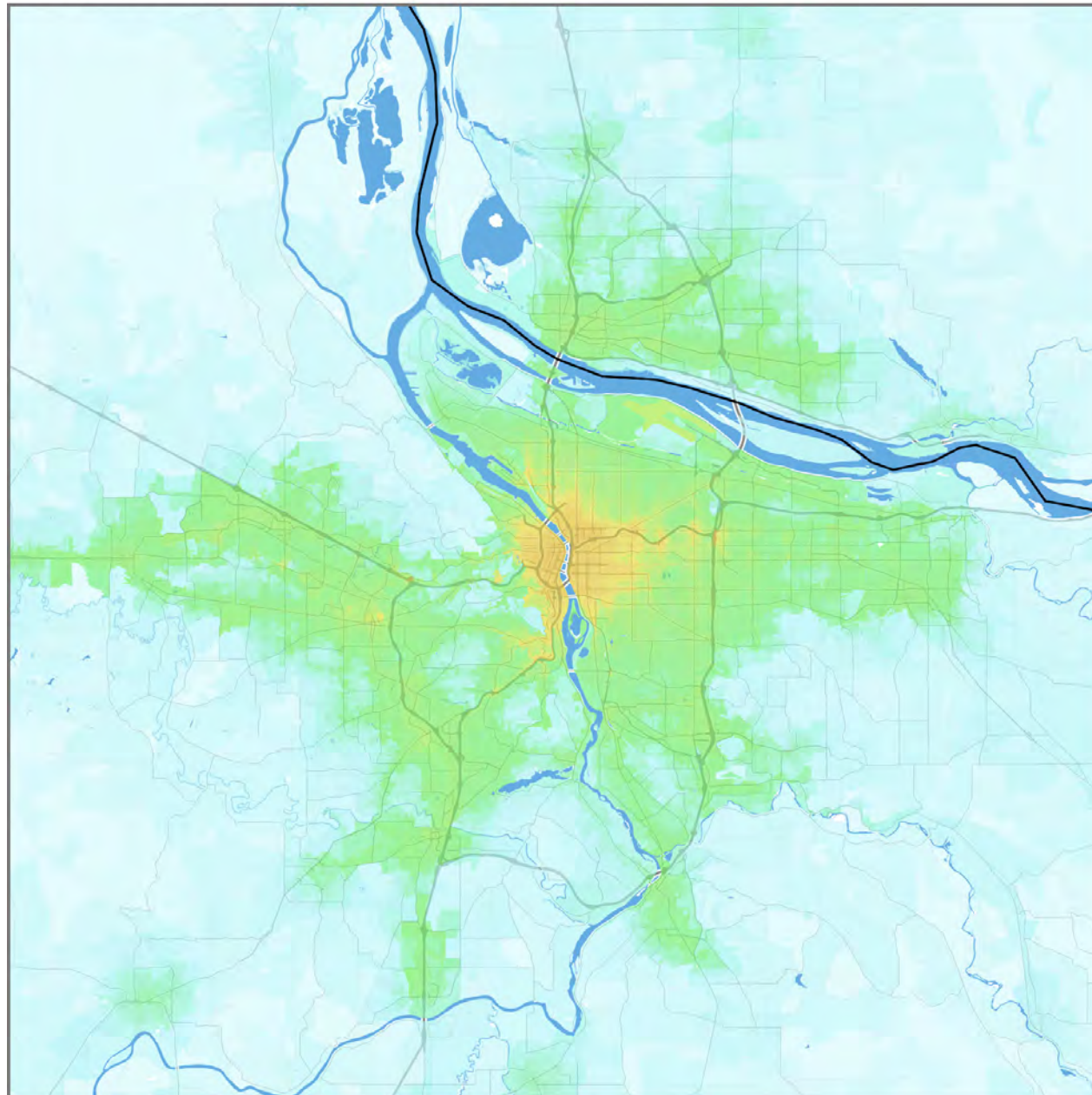
Transit Schedules Included

Agency	Dates
Blue Star Bus	January 1, 2013 - January 1, 2018
C-TRAN	December 30, 2016 - September 30, 2017
CCC Xpress	January 9, 2017 - June 14, 2017
Canby Area Transit	January 1, 2014 - January 1, 2018
Caravan Airport Transportation	January 1, 2015 - January 1, 2018
Cascades POINT	January 1, 2015 - January 1, 2017
Central Oregon Breeze	January 1, 2014 - June 1, 2018
Cherriots	March 4, 2012 - July 1, 2023
City2City Shuttle	January 1, 2015 - January 1, 2018
Columbia Area Transit	January 1, 2012 - January 1, 2018
Columbia County Rider	January 1, 2012 - January 1, 2017
Columbia Gorge Express	May 27, 2016 - September 25, 2016
NorthWest POINT	October 24, 2016 - January 1, 2018
Portland Aerial Tram	September 4, 2016 - March 4, 2017
Portland Streetcar	September 12, 2016 - March 4, 2017
Ride Connection	January 1, 2015 - January 1, 2018
Sandy Area Metro	December 1, 2016 - December 1, 2018
Skamania County Public Transit (Gorge WET Bus)	January 1, 2015 - January 1, 2018
South Clackamas Transportation District	November 1, 2015 - January 1, 2018
South Metro Area Regional Transit	January 1, 2013 - January 1, 2018
Sunset Empire Transportation District	July 1, 2015 - January 1, 2018
Swan Island TMA	January 1, 2013 - January 1, 2018
Tillamook County Transportation District	January 1, 2012 - January 1, 2018
TriMet	January 15, 2017 - June 3, 2017
Valley Retriever	January 1, 2013 - January 1, 2018
Washington Park Shuttle	May 1, 2016 - October 31, 2017
Yamhill County Transit Area	January 1, 2015 - January 1, 2018

Portland

Portland-Vancouver-Hillsboro, OR-WA

114



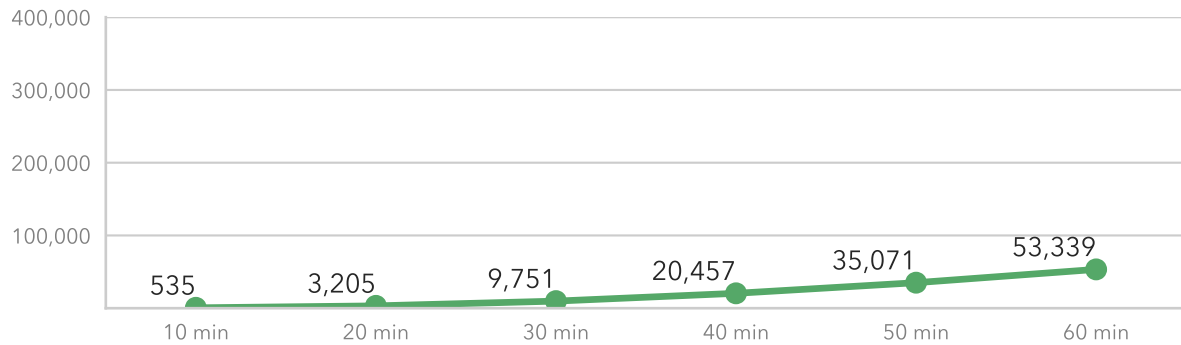
Providence

Providence-New Bedford-Fall River, RI-MA

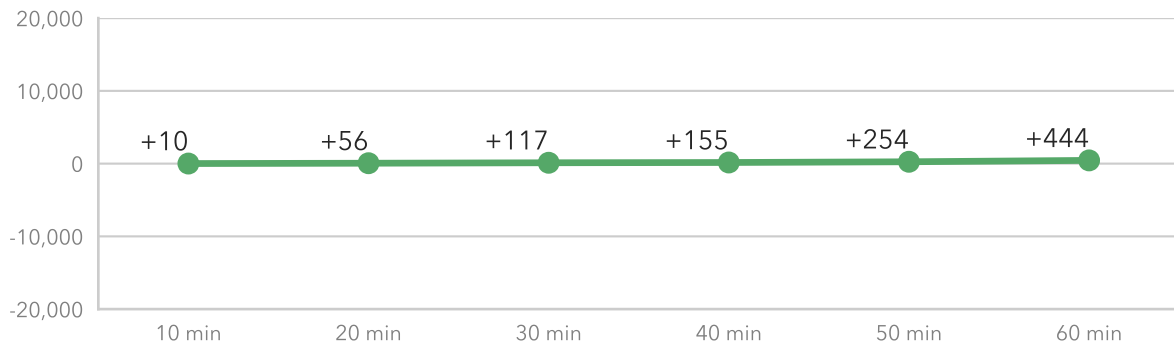
Rank by Weighted Accessibility	31
Rank by Total Employment	38
Rank by 1-Year Change in Weighted Accessibility	40
1-Year Change in Weighted Accessibility	+1.10%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	+11.87%
Total Jobs	682,358
Average Job Density (per km ²)	166
Total Workers	757,913
Average Worker Density (per km ²)	184

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Providence

Providence-New Bedford-Fall River, RI-MA

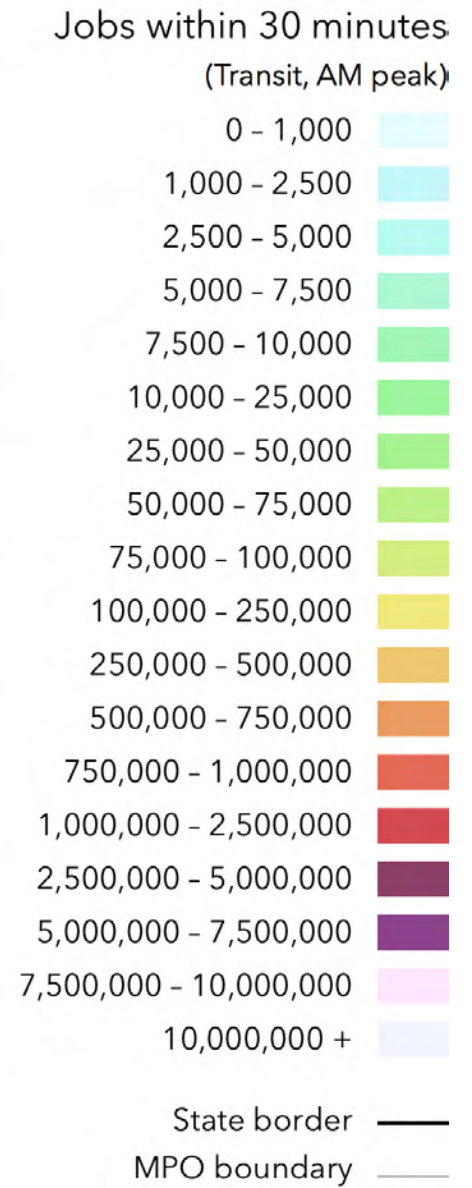
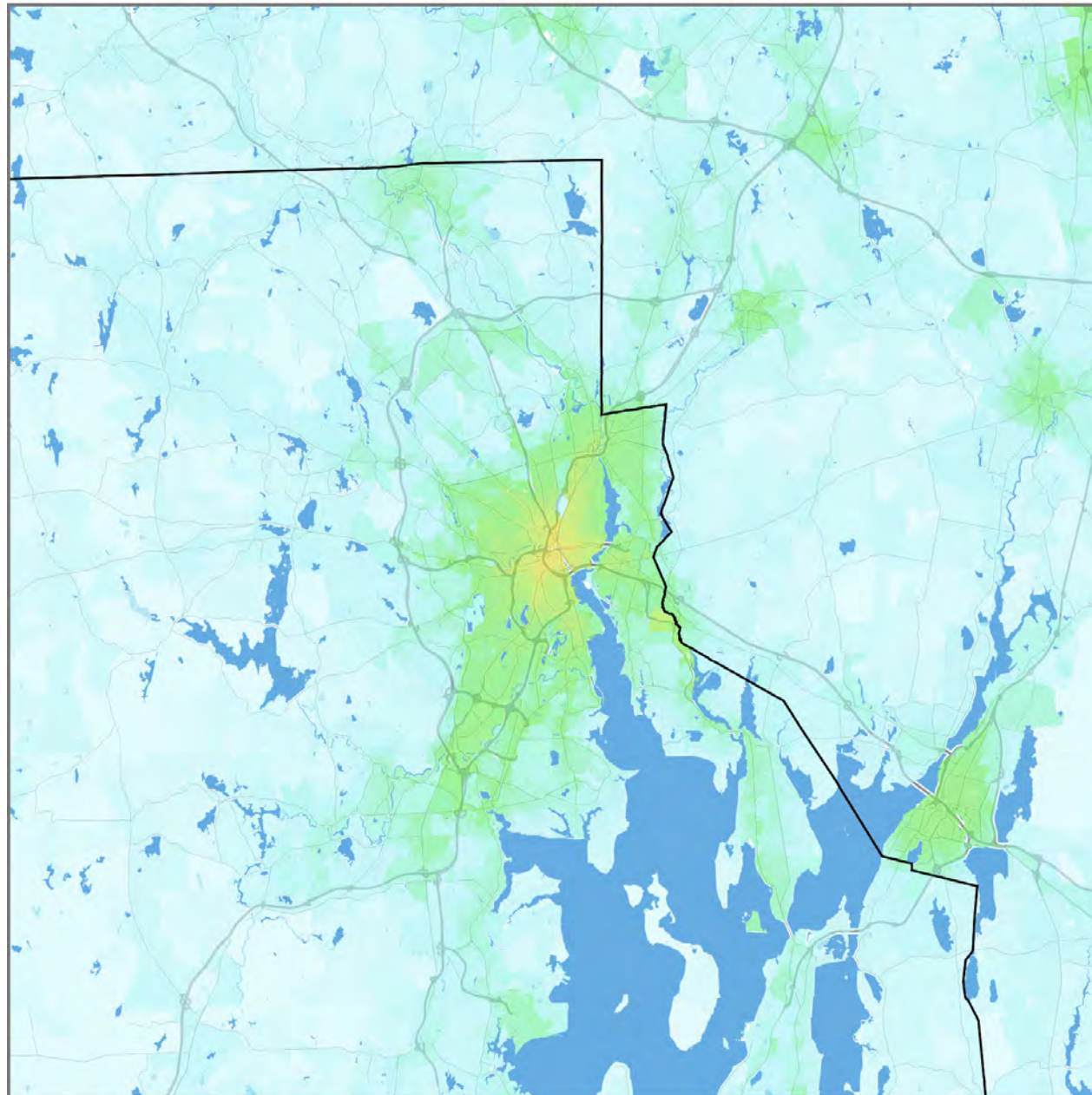
Transit Schedules Included

Agency	Dates
Block Island Ferry	December 19, 2016 - December 31, 2017
Bloom Bus	January 2, 2015 - January 2, 2016
Brockton Area Transit Authority	April 21, 2014 - January 8, 2020
Cuttyhunk Ferry Co.	October 17, 2016 - April 13, 2018
DATTCO	January 2, 2015 - January 2, 2016
MBTA	January 23, 2017 - March 24, 2017
MetroWest Regional Transit Authority	September 24, 2013 - September 23, 2020
Plymouth & Brockton Street Railway Co.	June 28, 2014 - June 28, 2015
Rhode Island Public Transit Authority	December 24, 2016 - June 16, 2017
Seastreak	June 15, 2015 - July 20, 2017
Southeastern Regional Transit Authority	January 1, 2015 - January 1, 2018
The Greater Attleboro Taunton Regional Transit Authority	January 1, 2016 - January 1, 2017
Vineyard Fast Ferry	May 27, 2016 - October 10, 2016

Providence

Providence-New Bedford-Fall River, RI-MA

117



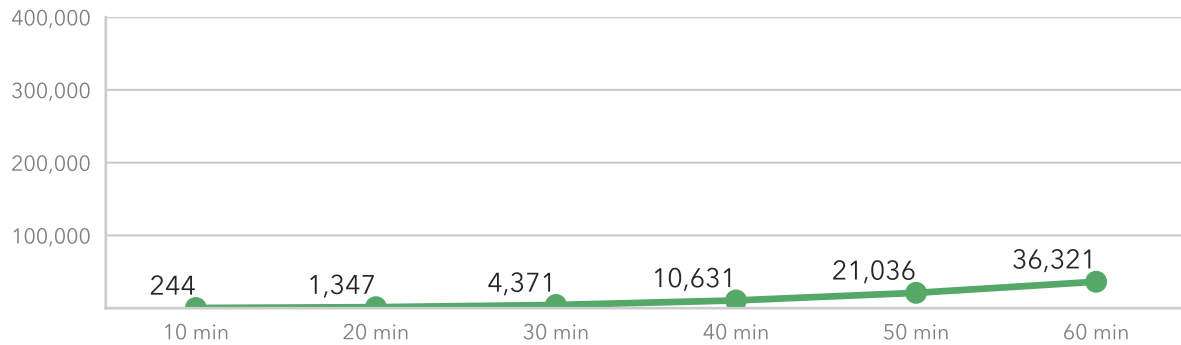
Raleigh

Raleigh-Cary, NC

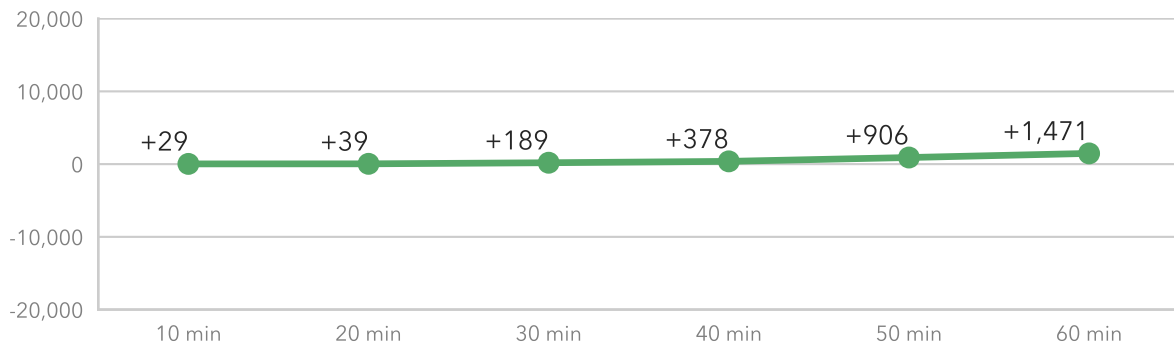
Rank by Weighted Accessibility	47
Rank by Total Employment	44
Rank by 1-Year Change in Weighted Accessibility	23
1-Year Change in Weighted Accessibility	+4.49%
1-Year Change in Weighted Accessibility Rank	+1
2-Year Change in Weighted Accessibility	+1.41%
Total Jobs	645,722
Average Job Density (per km ²)	118
Total Workers	583,916
Average Worker Density (per km ²)	106

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Raleigh

Raleigh-Cary, NC

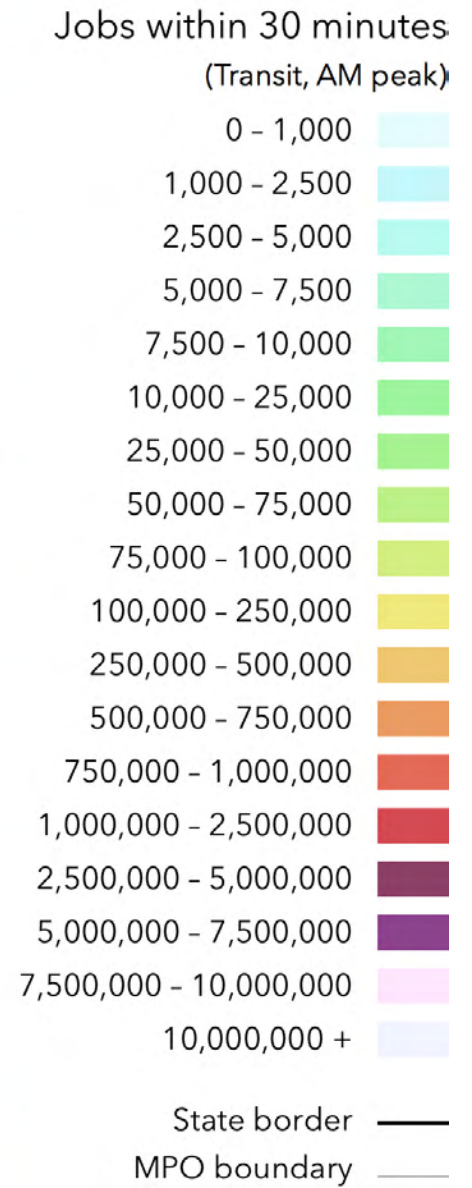
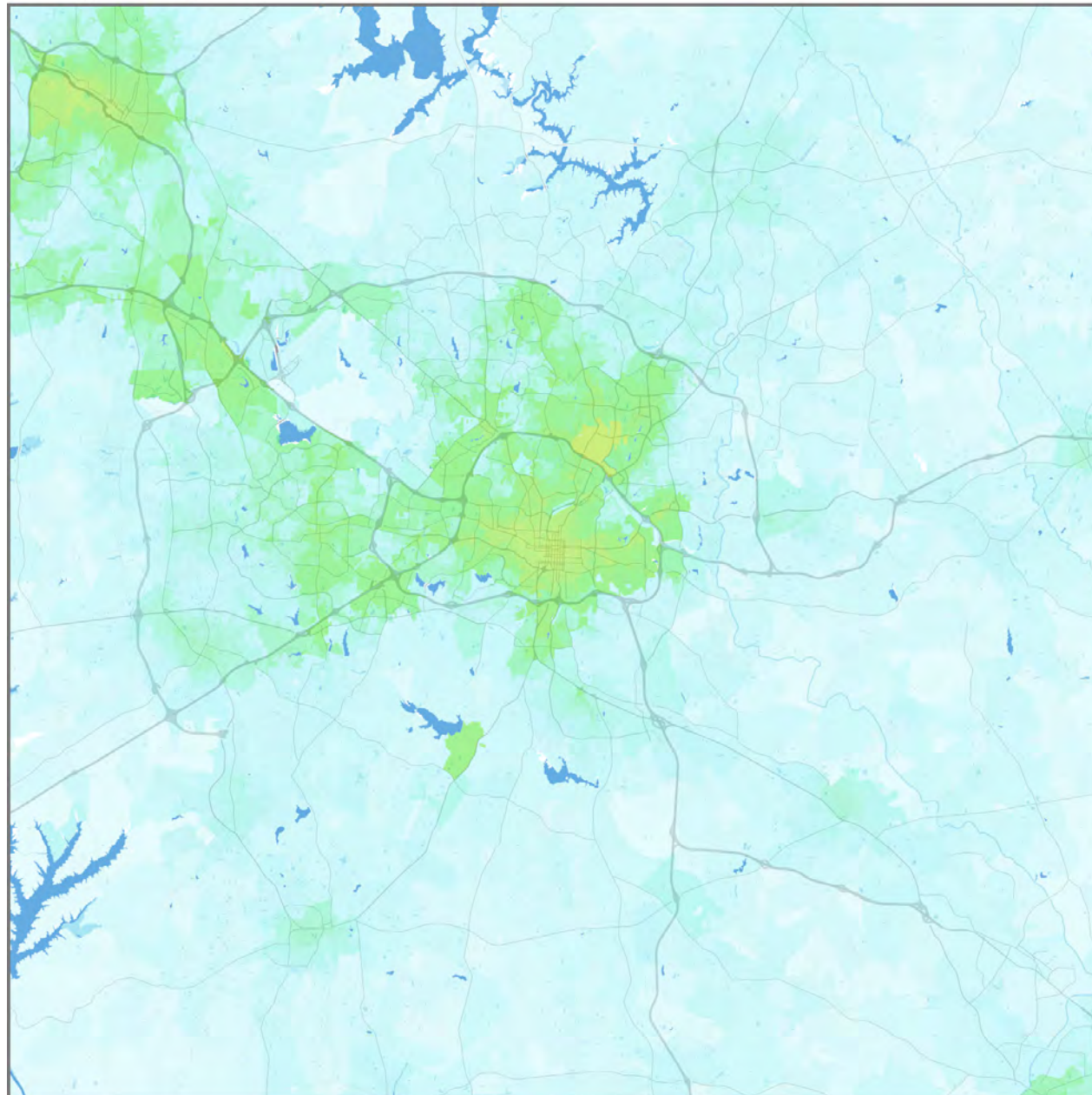
Transit Schedules Included

Agency	Dates
GoCary	January 1, 2015 - December 31, 2018
GoDurham	January 1, 2014 - January 1, 2018
GoRaleigh	December 25, 2016 - December 31, 2018
GoTriangle	January 1, 2014 - December 31, 2018
NCSU Wolfline	January 9, 2017 - September 6, 2017

Raleigh

Raleigh-Cary, NC

120



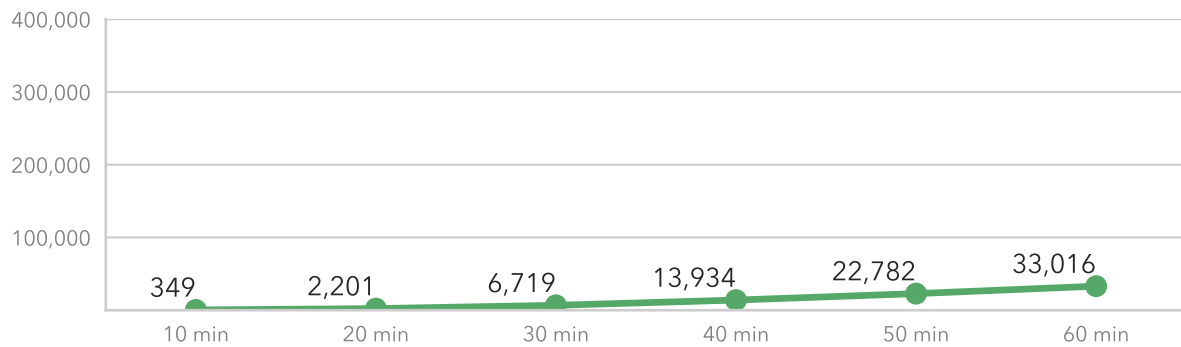
Richmond

Richmond, VA

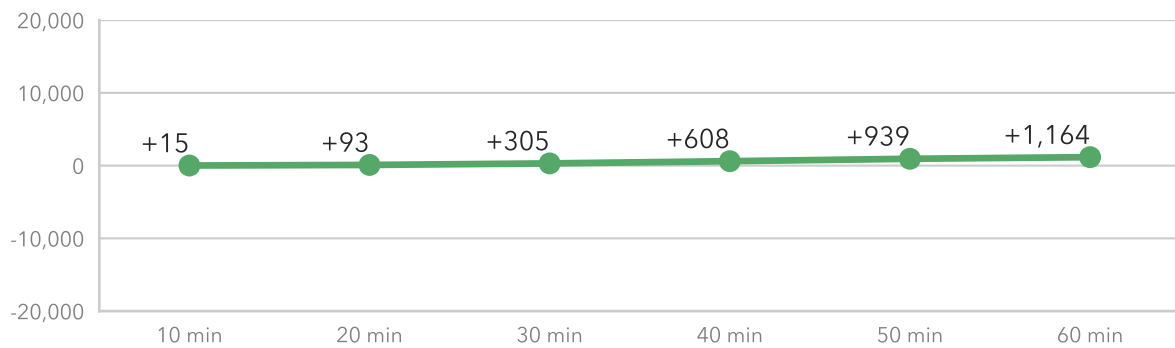
Rank by Weighted Accessibility	42
Rank by Total Employment	42
Rank by 1-Year Change in Weighted Accessibility	24
1-Year Change in Weighted Accessibility	+4.37%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	-0.10%
Total Jobs	639,299
Average Job Density (per km ²)	43
Total Workers	617,617
Average Worker Density (per km ²)	42

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Richmond

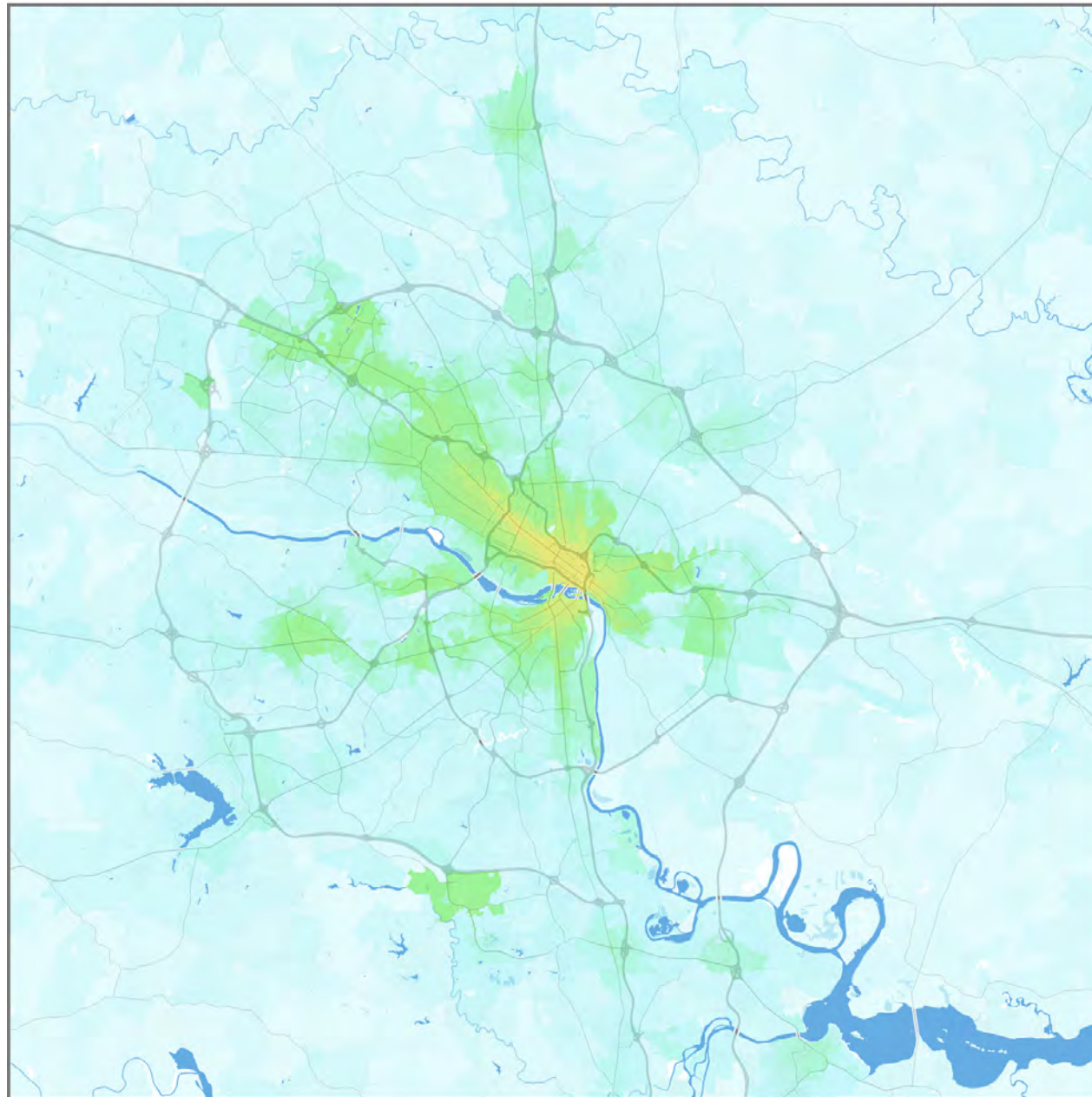
Richmond, VA

Transit Schedules Included

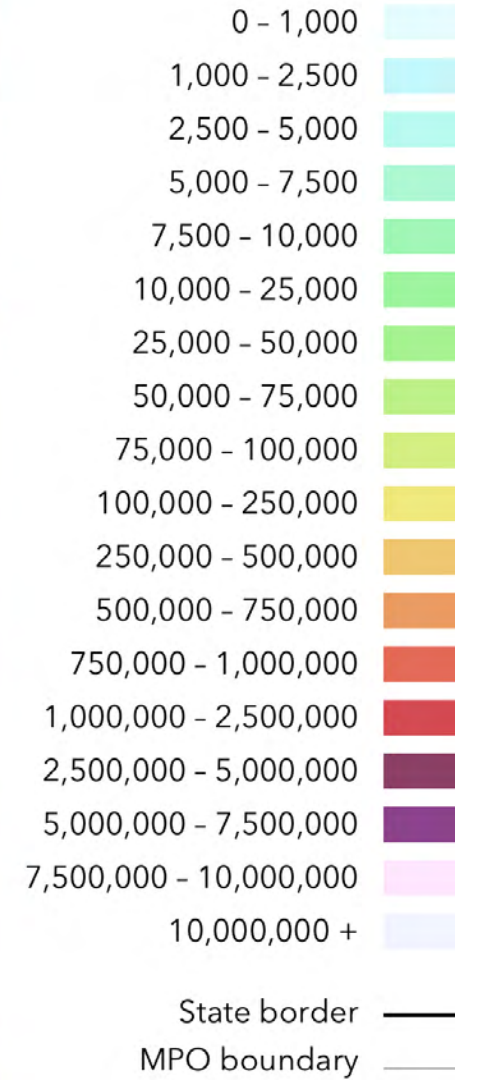
Agency	Dates
GRTC Transit System	May 14, 2017 - August 19, 2017

Richmond

Richmond, VA



Jobs within 30 minutes
(Transit, AM peak)



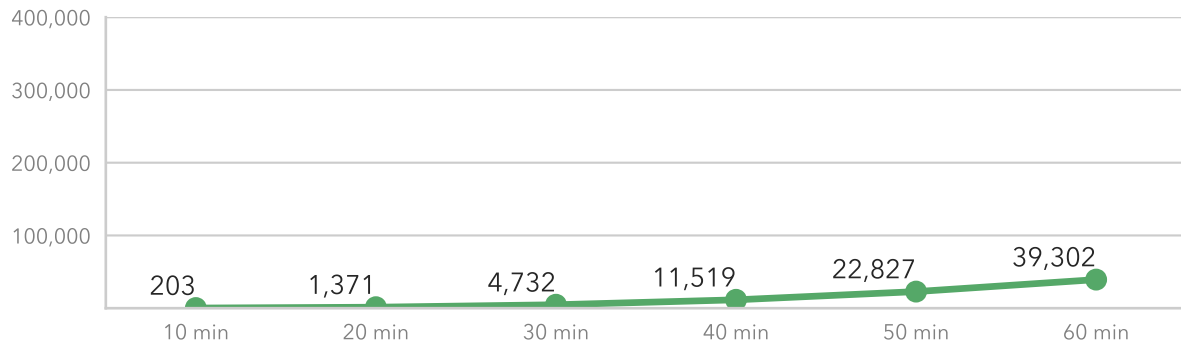
Riverside

Riverside-San Bernardino-Ontario, CA

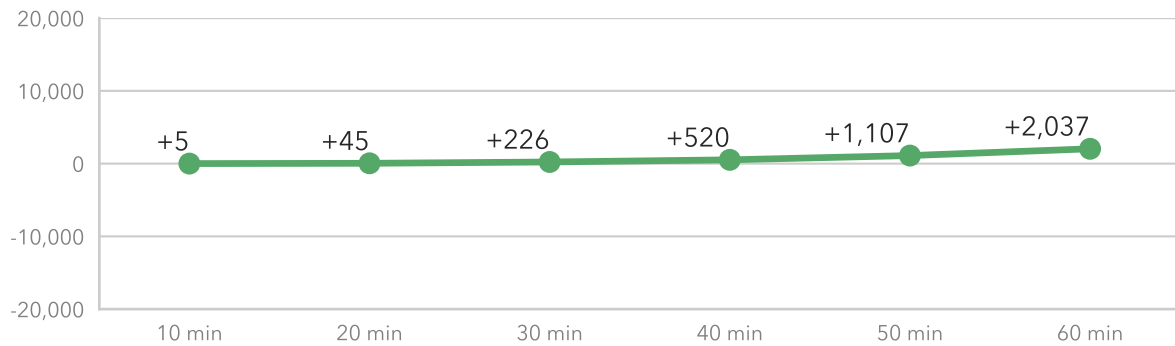
Rank by Weighted Accessibility	45
Rank by Total Employment	16
Rank by 1-Year Change in Weighted Accessibility	21
1-Year Change in Weighted Accessibility	+4.78%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+11.69%
Total Jobs	1,335,442
Average Job Density (per km ²)	19
Total Workers	1,635,100
Average Worker Density (per km ²)	23

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Riverside

Riverside-San Bernardino-Ontario, CA

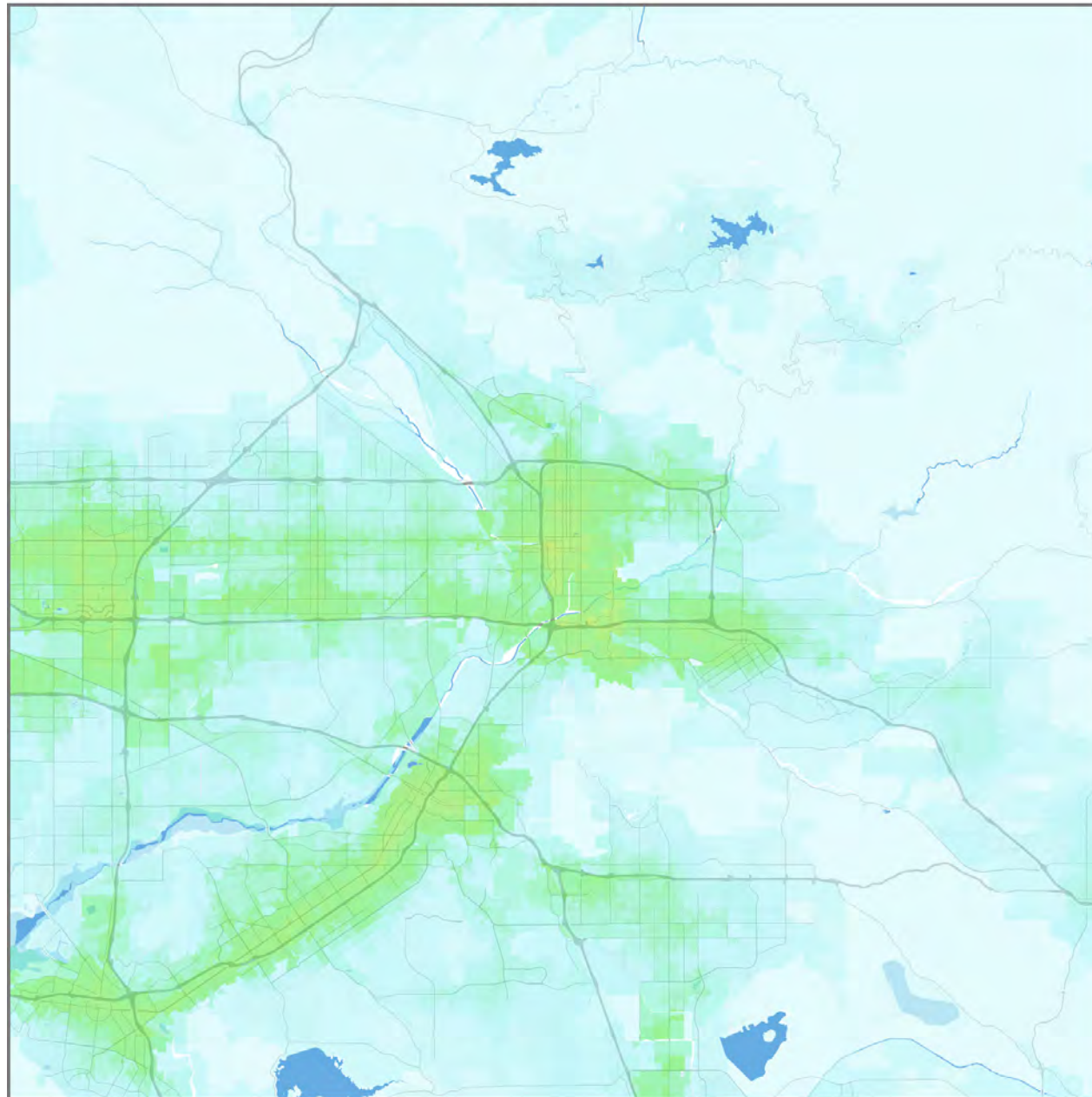
Transit Schedules Included

Agency	Dates
Beaumont Transit System	January 1, 2013 - January 1, 2018
Corona Cruiser	January 1, 2013 - January 1, 2018
Foothill Transit	October 30, 2016 - July 1, 2017
Metrolink Trains	April 2, 2016 - December 31, 2017
Mountain Transit	January 1, 2014 - January 1, 2018
OMNITRANS	January 2, 2017 - September 3, 2017
Orange County Transportation Authority	June 12, 2016 - June 10, 2017
Palo Verde Valley Transit Agency	January 1, 2013 - January 1, 2018
Riverside Transit Agency	October 3, 2016 - May 13, 2017
Sunline Transit Agency	September 4, 2016 - March 4, 2017
Victor Valley Transit Authority	January 1, 2016 - January 1, 2018

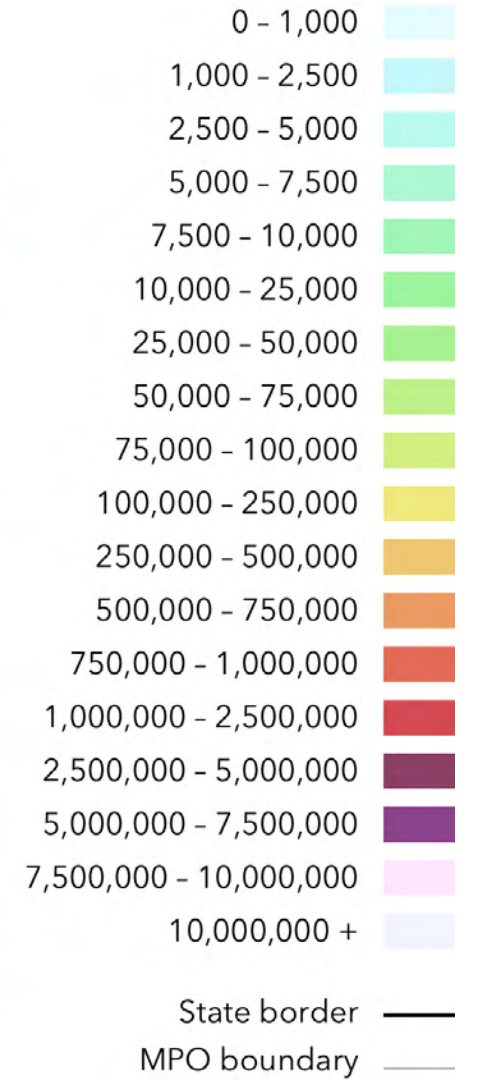
Riverside

Riverside-San Bernardino-Ontario, CA

126



Jobs within 30 minutes
(Transit, AM peak)



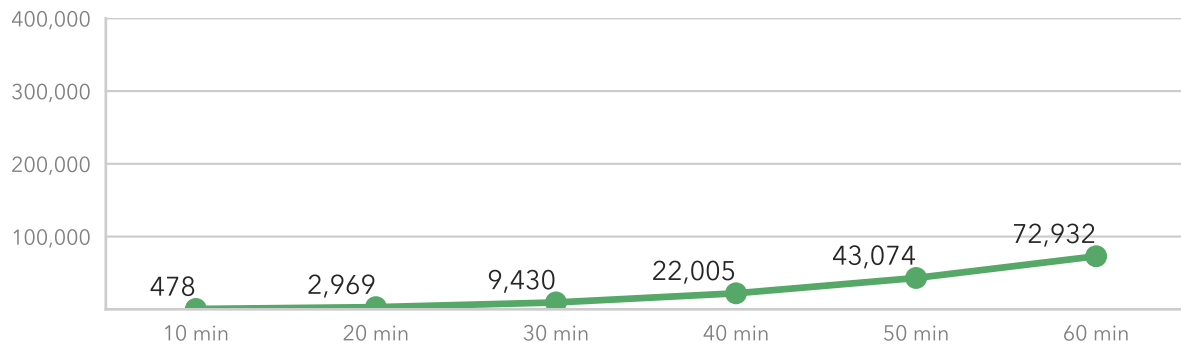
Sacramento

Sacramento-Arden-Arcade-Roseville, CA

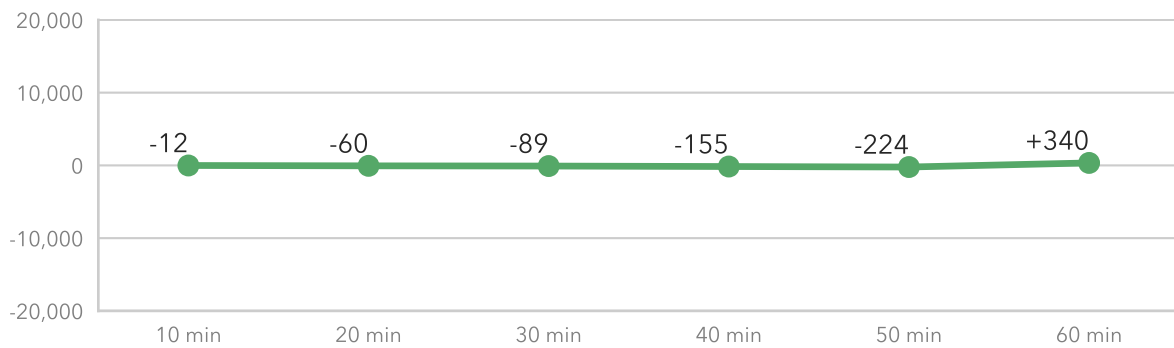
Rank by Weighted Accessibility	28
Rank by Total Employment	30
Rank by 1-Year Change in Weighted Accessibility	44
1-Year Change in Weighted Accessibility	-0.69%
1-Year Change in Weighted Accessibility Rank	-2
2-Year Change in Weighted Accessibility	-0.47%
Total Jobs	903,212
Average Job Density (per km ²)	68
Total Workers	915,759
Average Worker Density (per km ²)	69

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Sacramento

Sacramento-Arden-Arcade-Roseville, CA

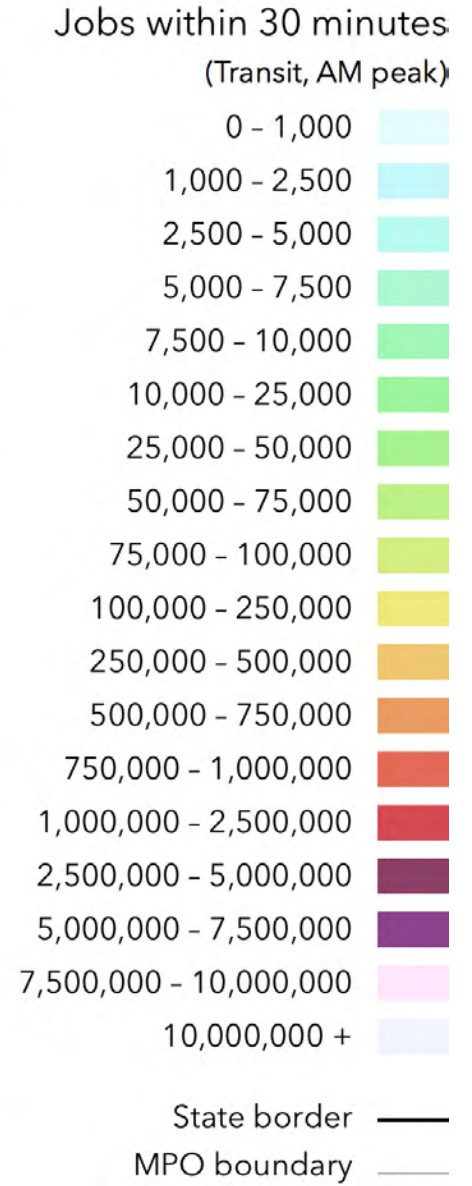
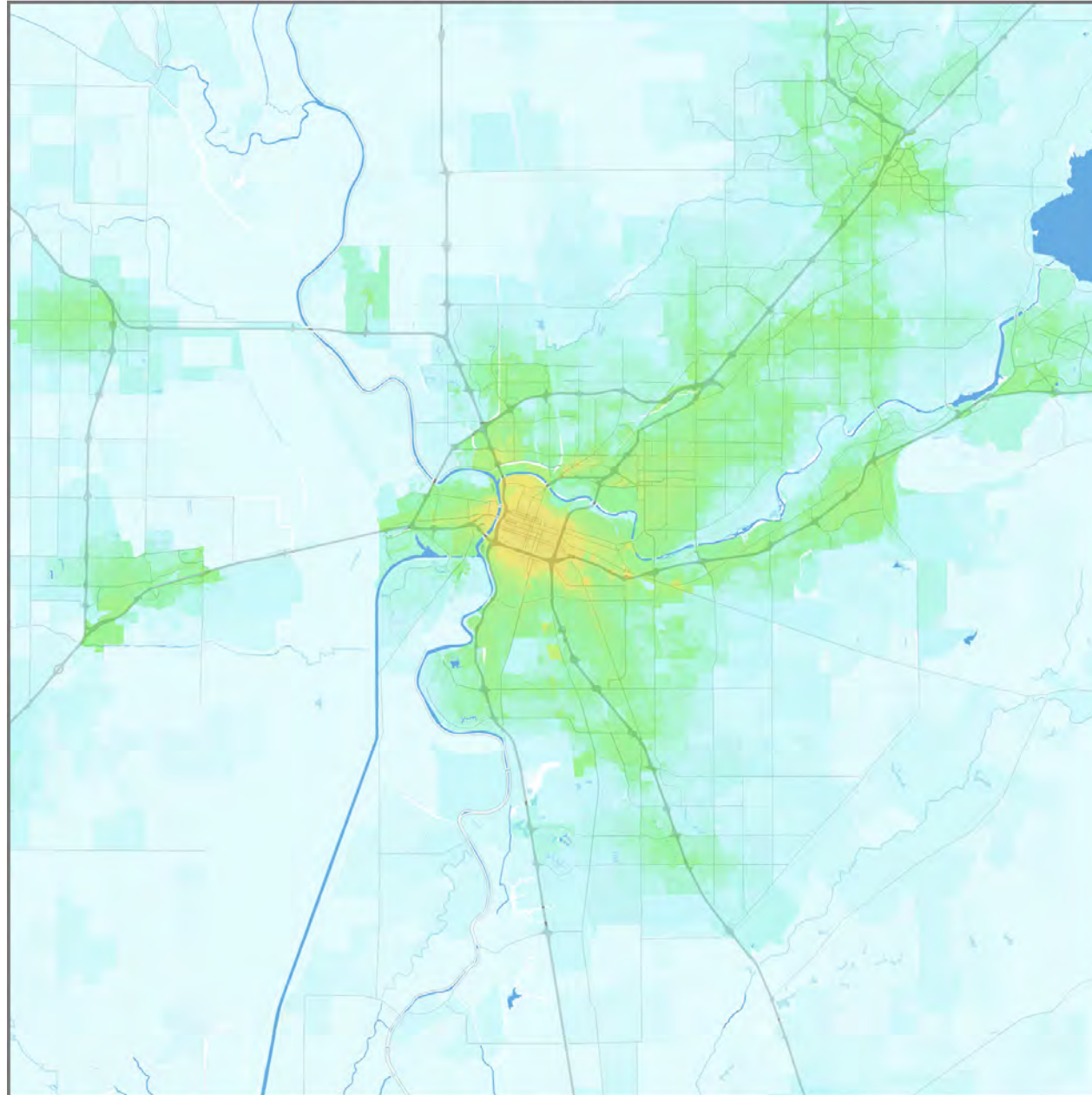
Transit Schedules Included

Agency	Dates
Amador Transit	January 1, 2012 - January 1, 2018
BlueGo	September 5, 2015 - January 1, 2017
Capitol Corridor	August 22, 2016 - May 29, 2017
El Dorado Transit	January 1, 2015 - January 1, 2018
Fairfield and Suisun Transit	January 1, 2013 - January 1, 2018
Mountain Line	January 1, 2014 - January 1, 2017
Nevada County Gold Country Stage	July 5, 2016 - December 31, 2017
Night Rider (Airport Minibus)	July 1, 2015 - September 6, 2015
Rio Vista Delta Breeze	February 1, 2017 - December 31, 2018
Roseville Transit	August 8, 2016 - December 31, 2017
Sacramento Regional Transit	January 1, 2017 - June 17, 2017
San Joaquin Regional Transit District (RTD)	August 7, 2016 - January 28, 2017
Tahoe Area Regional Transit	December 3, 2015 - March 27, 2016
Tahoe Truckee Area Regional Transit	March 14, 2016 - March 1, 2017
Unitrans (Davis)	January 8, 2017 - June 10, 2017
Verde Lynx	January 1, 2013 - January 1, 2017
Yolo County Transportation District	September 27, 2016 - February 1, 2017
Yuba-Sutter Transit	January 1, 2013 - January 1, 2018

Sacramento

Sacramento--Arden-Arcade--Roseville, CA

129



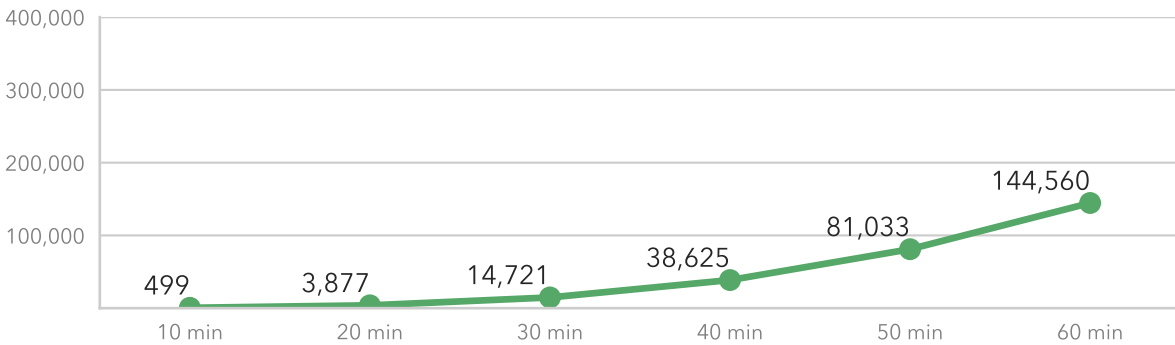
Salt Lake City

Salt Lake City, UT

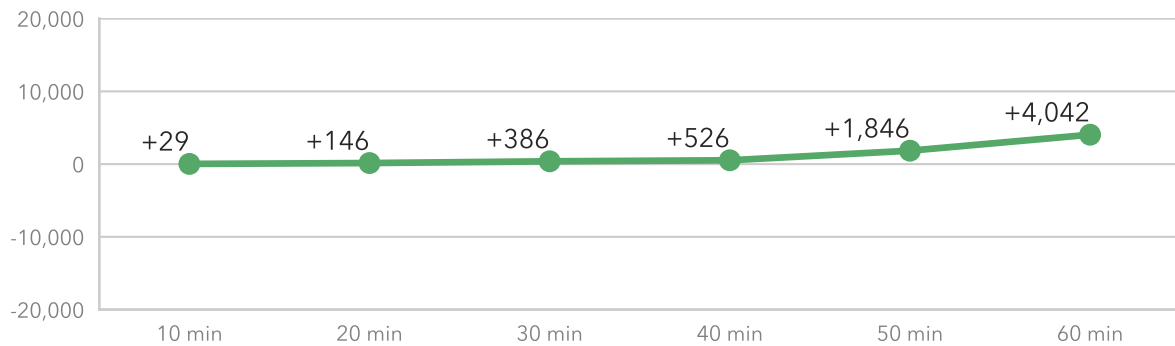
Rank by Weighted Accessibility	14
Rank by Total Employment	46
Rank by 1-Year Change in Weighted Accessibility	34
1-Year Change in Weighted Accessibility	+2.62%
1-Year Change in Weighted Accessibility Rank	+1
2-Year Change in Weighted Accessibility	+6.13%
Total Jobs	682,296
Average Job Density (per km ²)	28
Total Workers	576,320
Average Worker Density (per km ²)	23

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Salt Lake City

Salt Lake City, UT

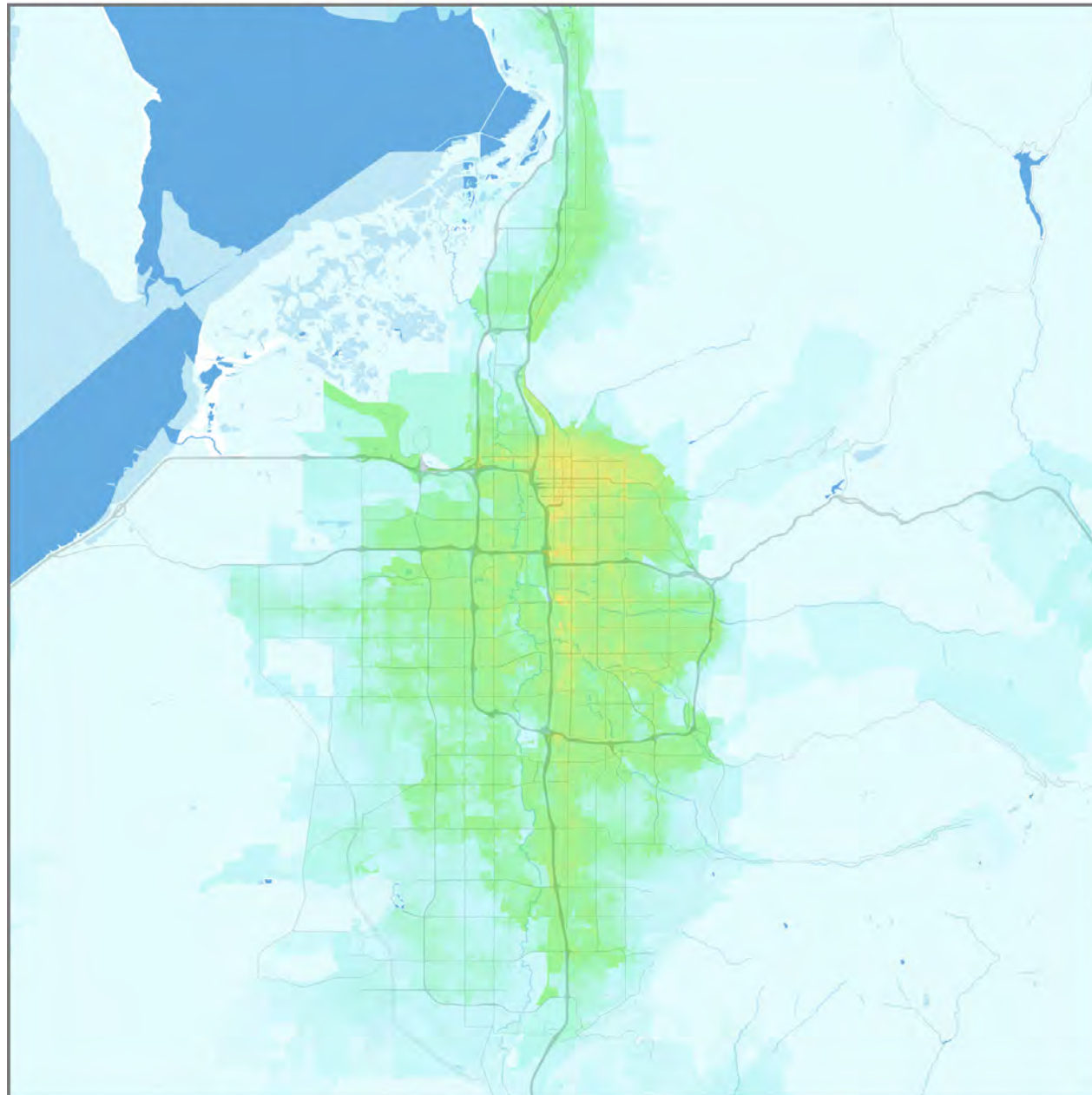
Transit Schedules Included

Agency	Dates
Elevated Transit	November 20, 2014 - January 1, 2018
Utah Transit Authority	December 18, 2016 - August 12, 2017

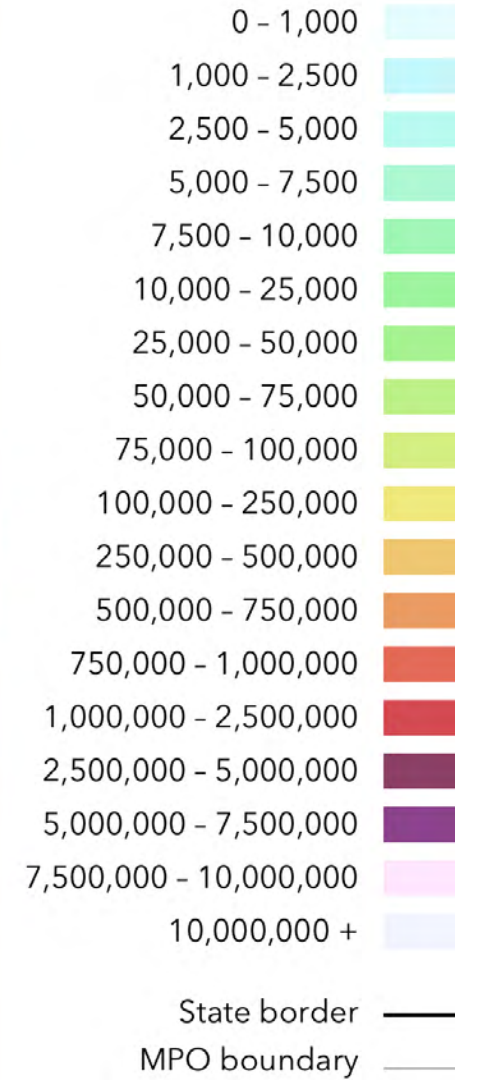
Salt Lake City

Salt Lake City, UT

132



Jobs within 30 minutes
(Transit, AM peak)



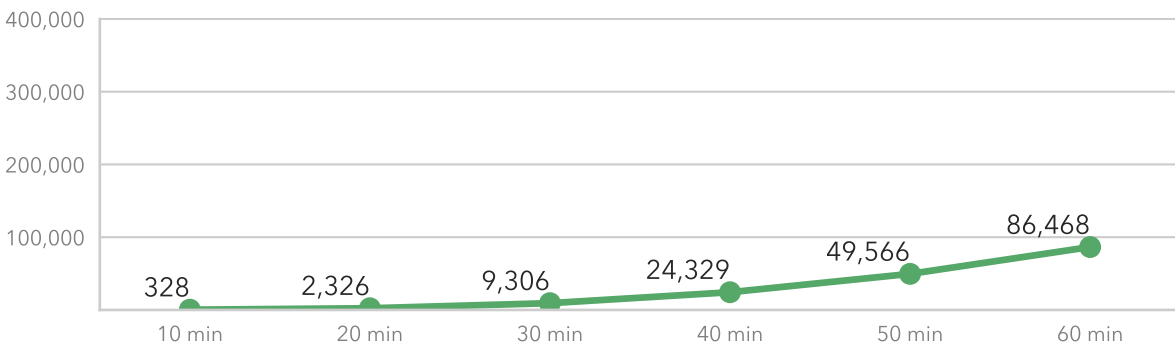
San Antonio

San Antonio-New Braunfels, TX

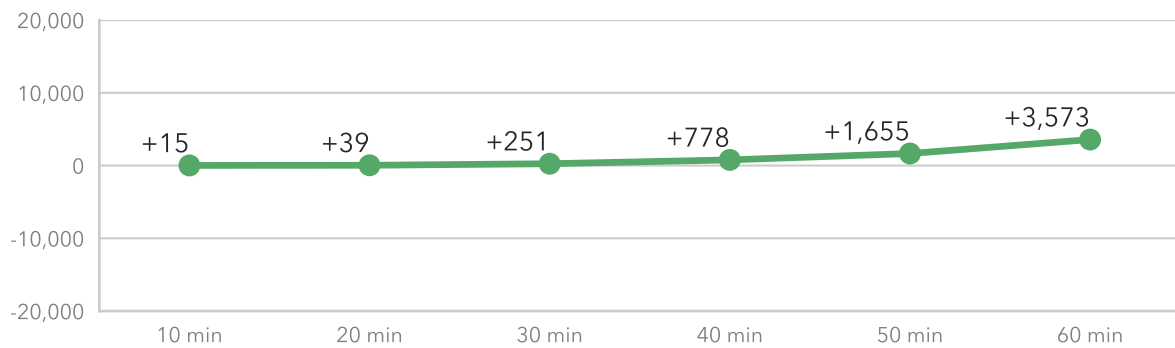
Rank by Weighted Accessibility	26
Rank by Total Employment	27
Rank by 1-Year Change in Weighted Accessibility	29
1-Year Change in Weighted Accessibility	+3.40%
1-Year Change in Weighted Accessibility Rank	-1
2-Year Change in Weighted Accessibility	-0.68%
Total Jobs	949,296
Average Job Density (per km ²)	50
Total Workers	986,091
Average Worker Density (per km ²)	52

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



San Antonio

San Antonio-New Braunfels, TX

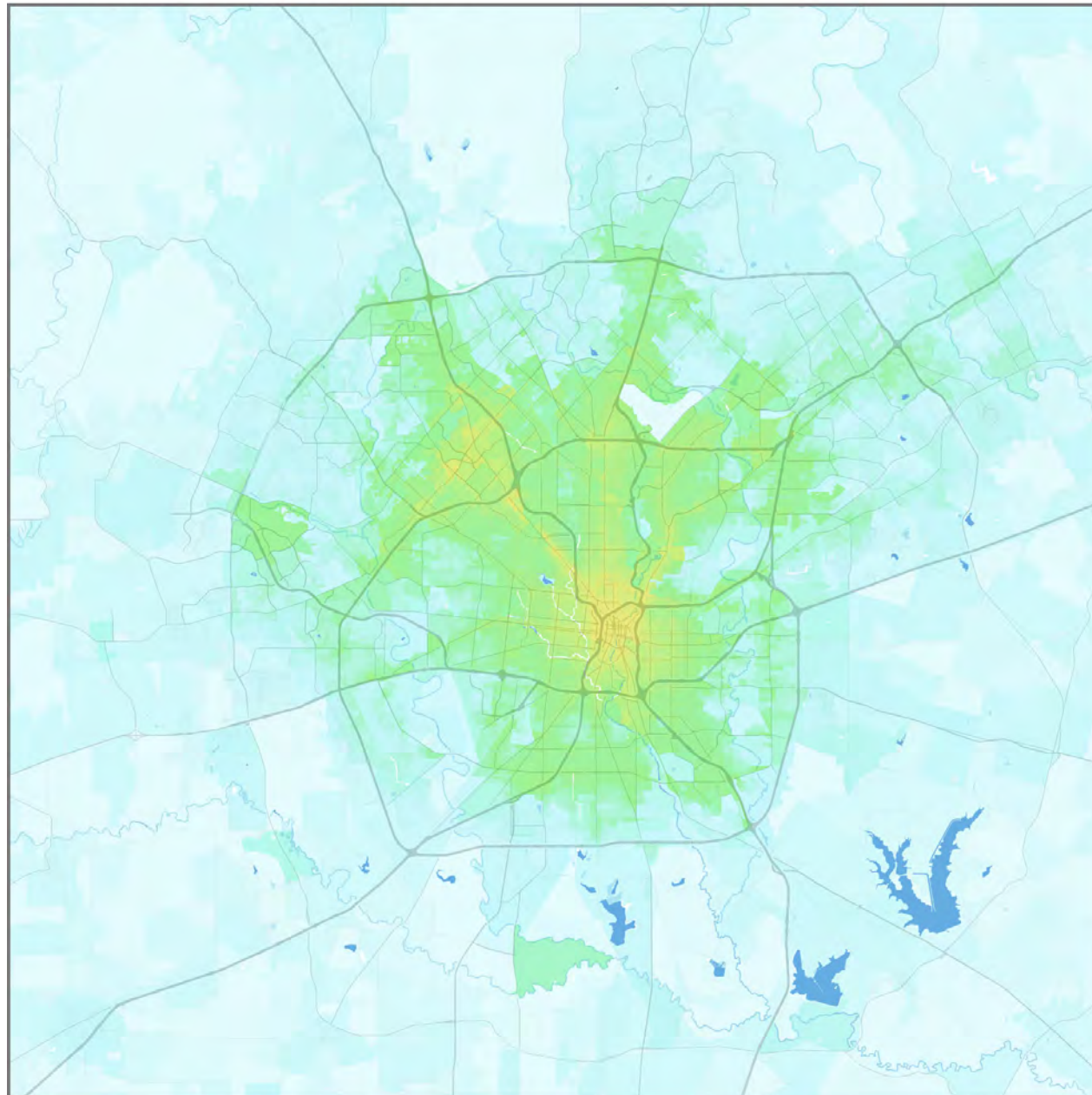
Transit Schedules Included

Agency	Dates
VIA Metropolitan Transit	January 9, 2017 - August 27, 2017

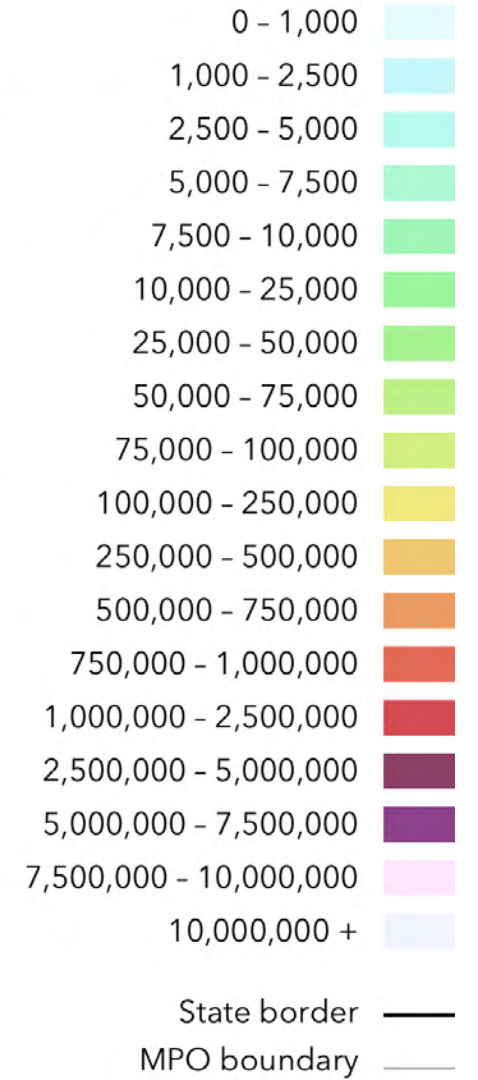
San Antonio

San Antonio-New Braunfels, TX

135



Jobs within 30 minutes
(Transit, AM peak)



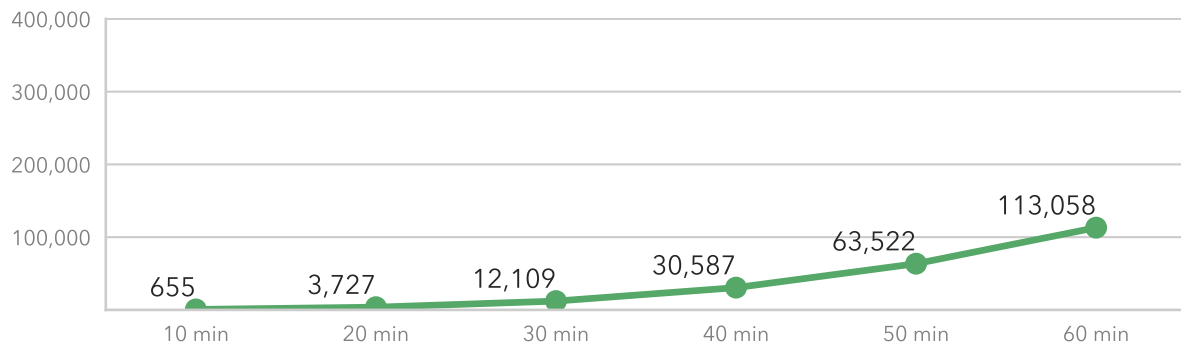
San Diego

San Diego-Carlsbad-San Marcos, CA

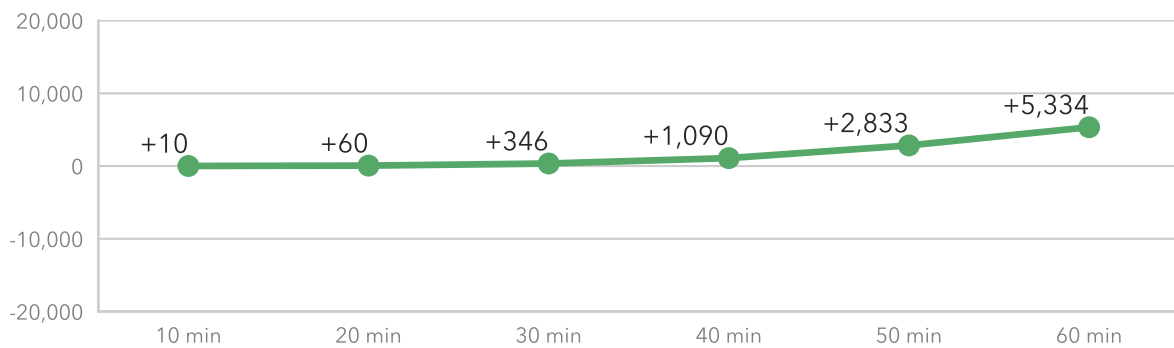
Rank by Weighted Accessibility	18
Rank by Total Employment	17
Rank by 1-Year Change in Weighted Accessibility	26
1-Year Change in Weighted Accessibility	+3.72%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+2.92%
Total Jobs	1,338,649
Average Job Density (per km ²)	123
Total Workers	1,363,986
Average Worker Density (per km ²)	125

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



San Diego

San Diego-Carlsbad-San Marcos, CA

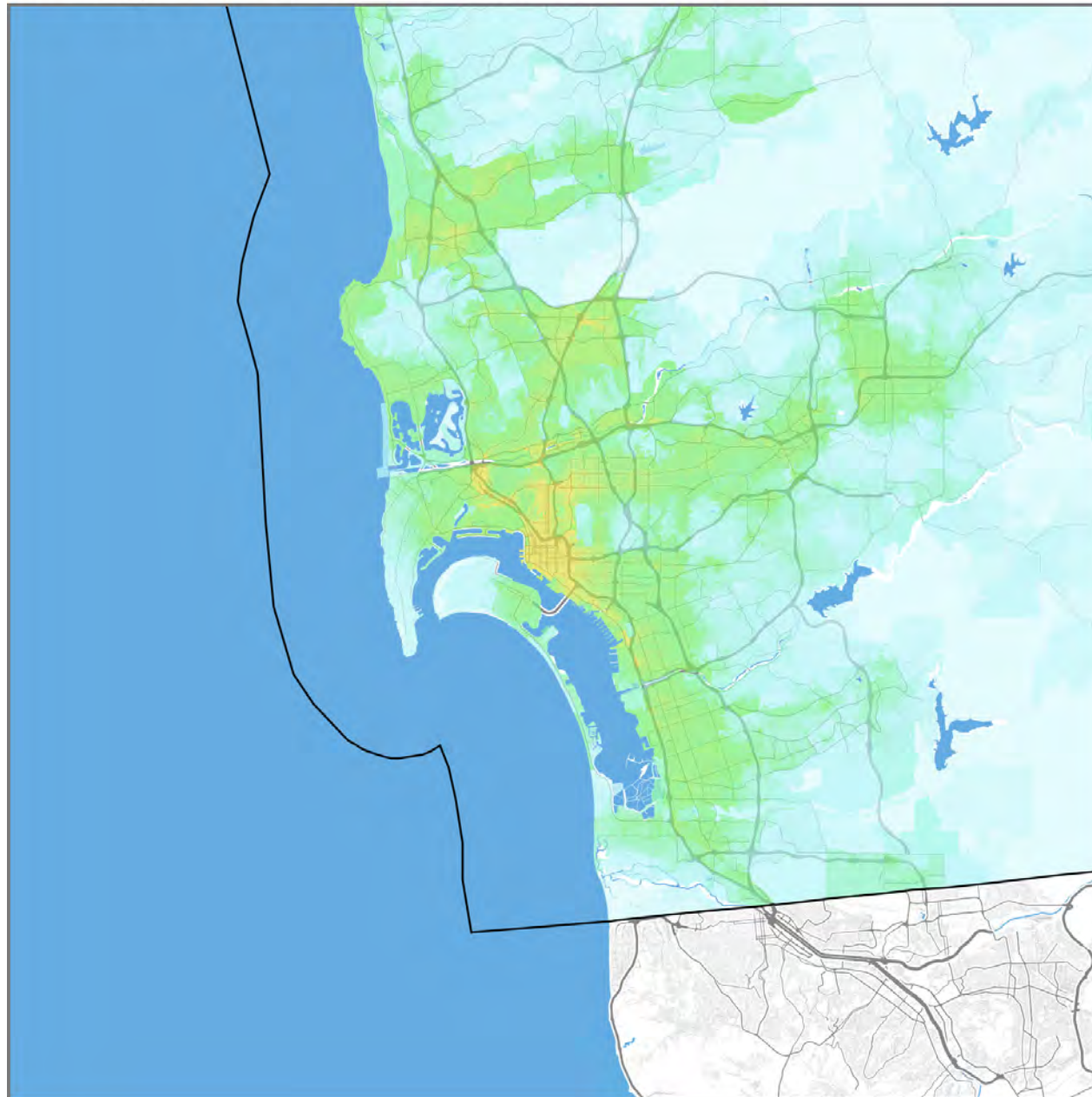
Transit Schedules Included

Agency	Dates
MTS	September 4, 2016 - June 10, 2017
Metrolink Trains	April 2, 2016 - December 31, 2017
North County Transit District	October 2, 2016 - April 2, 2017
Riverside Transit Agency	October 3, 2016 - May 13, 2017
San Diego International Airport	September 12, 2016 - January 28, 2017

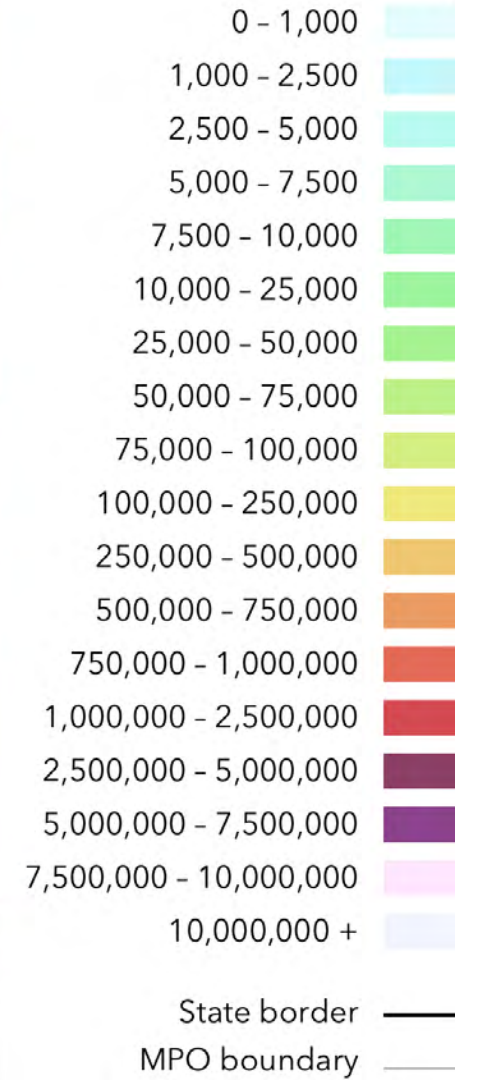
San Diego

San Diego-Carlsbad-San Marcos, CA

138



Jobs within 30 minutes
(Transit, AM peak)



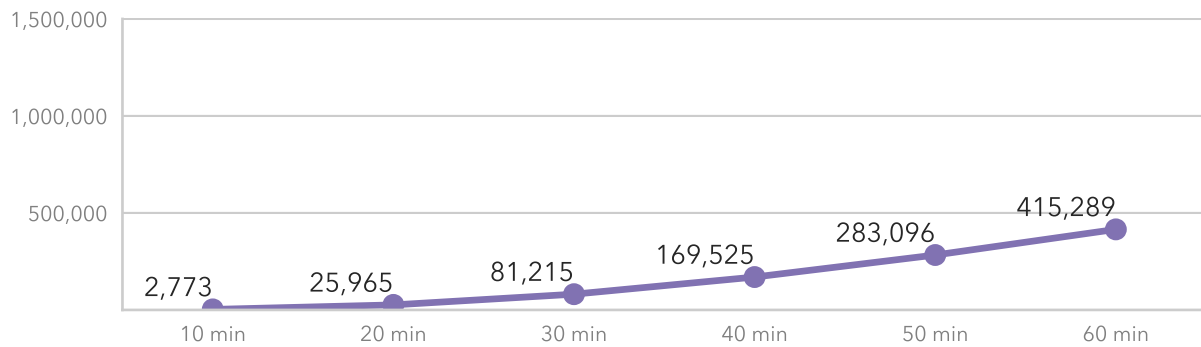
San Francisco

San Francisco-Oakland-Fremont, CA

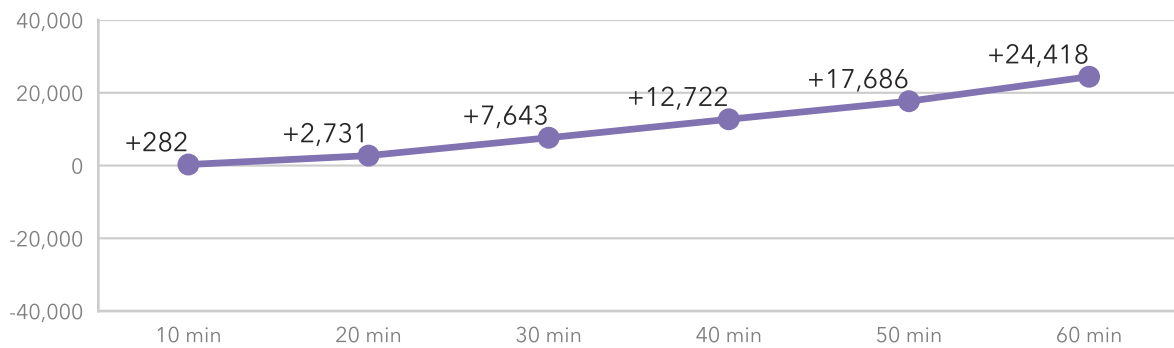
Rank by Weighted Accessibility	2
Rank by Total Employment	11
Rank by 1-Year Change in Weighted Accessibility	5
1-Year Change in Weighted Accessibility	+8.72%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+13.54%
Total Jobs	2,312,021
Average Job Density (per km ²)	361
Total Workers	2,164,298
Average Worker Density (per km ²)	338

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



San Francisco

San Francisco-Oakland-Fremont, CA

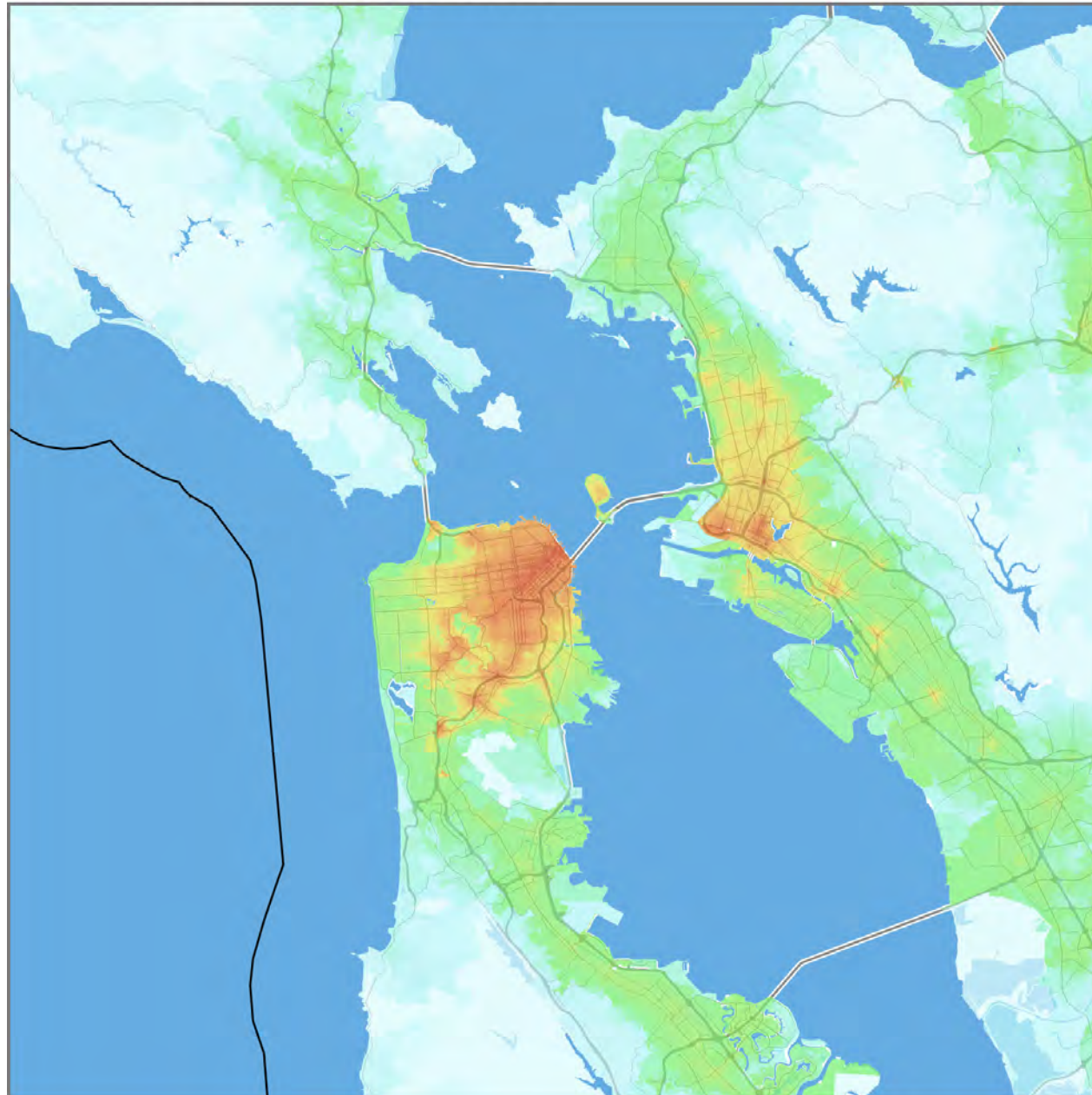
Transit Schedules Included

Agency	Dates
AC Transit	December 17, 2016 - March 18, 2017
ACE Altamont Corridor Express	March 11, 2013 - May 19, 2019
Bay Area Rapid Transit	March 28, 2016 - January 1, 2018
Bear Transit - UC Berkeley Shuttle	January 7, 2015 - January 31, 2018
Caltrain	October 5, 2014 - October 5, 2024
Capitol Corridor	August 22, 2016 - May 29, 2017
County Connection	November 20, 2016 - June 10, 2017
Fairfield and Suisun Transit	January 1, 2013 - January 1, 2018
Golden Gate Transit	December 11, 2016 - March 11, 2017
Livermore Amador Valley Transit Authority	August 30, 2016 - March 1, 2017
Marin Transit	December 11, 2016 - June 11, 2017
Modesto Area Express	January 1, 2014 - July 1, 2018
Rio Vista Delta Breeze	February 1, 2017 - December 31, 2018
SamTrans	January 22, 2017 - June 10, 2017
San Francisco Municipal Transportation Agency	August 13, 2016 - February 24, 2017
San Joaquin Regional Transit District (RTD)	August 7, 2016 - January 28, 2017
SolTrans	December 1, 2014 - December 31, 2018
Sonoma County Transit	January 4, 2016 - January 1, 2018
Stanford Marguerite Shuttle	December 20, 2016 - March 31, 2017
VTA	April 11, 2016 - July 3, 2016
WestCat (Western Contra Costa)	June 1, 2016 - June 9, 2017
Wheels Bus	January 23, 2016 - December 1, 2016

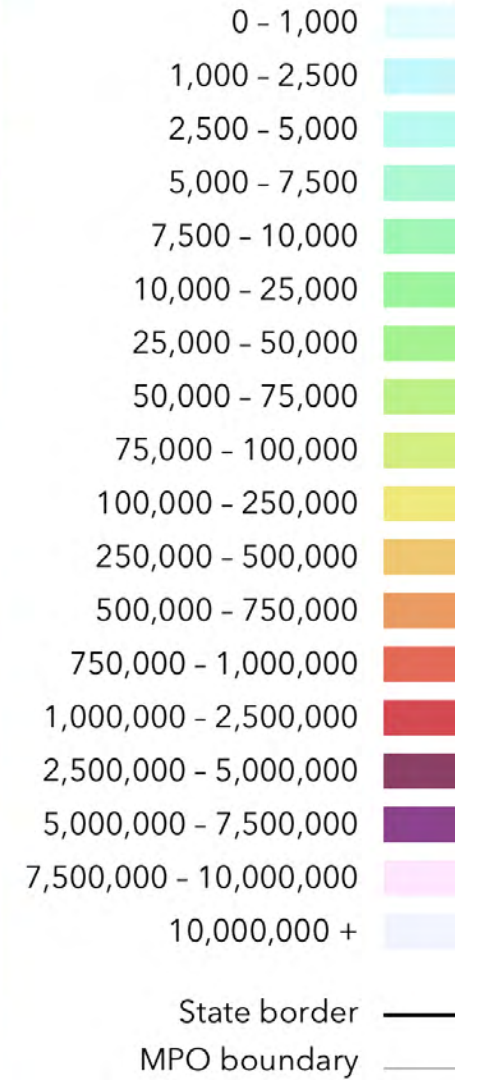
San Francisco

San Francisco-Oakland-Fremont, CA

141



Jobs within 30 minutes
(Transit, AM peak)



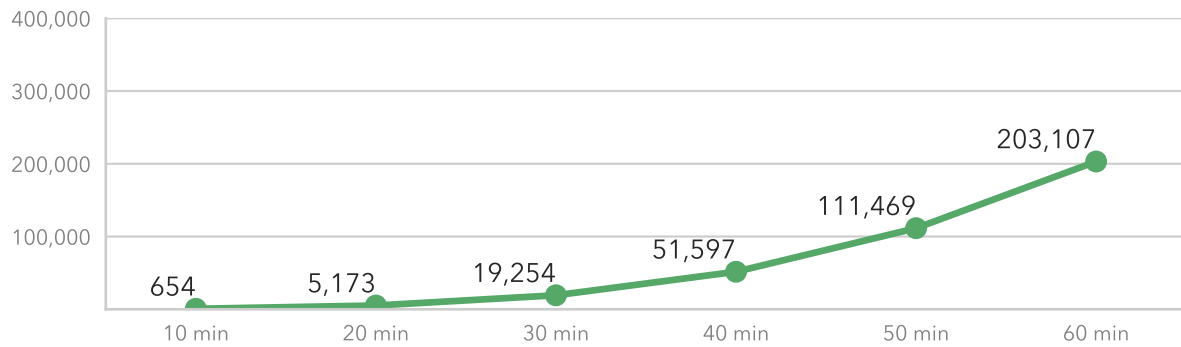
San Jose

San Jose-Sunnyvale-Santa Clara, CA

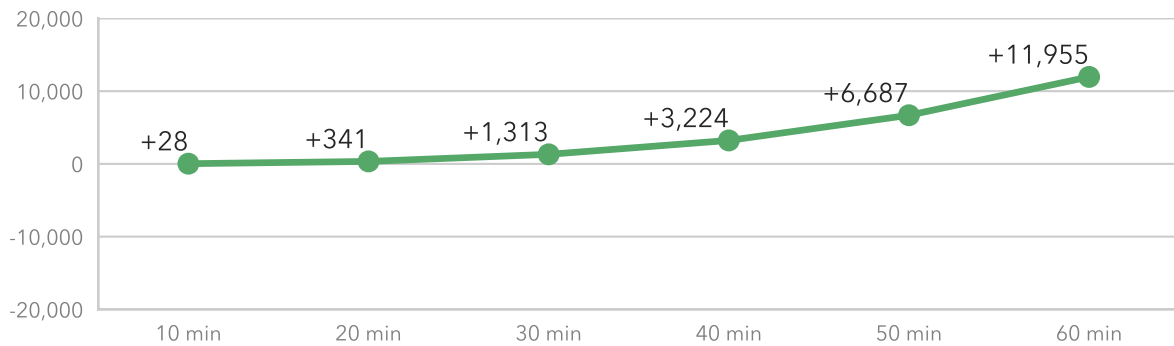
Rank by Weighted Accessibility	9
Rank by Total Employment	32
Rank by 1-Year Change in Weighted Accessibility	13
1-Year Change in Weighted Accessibility	+6.57%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+12.38%
Total Jobs	1,022,079
Average Job Density (per km ²)	147
Total Workers	909,053
Average Worker Density (per km ²)	131

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



San Jose

San Jose-Sunnyvale-Santa Clara, CA

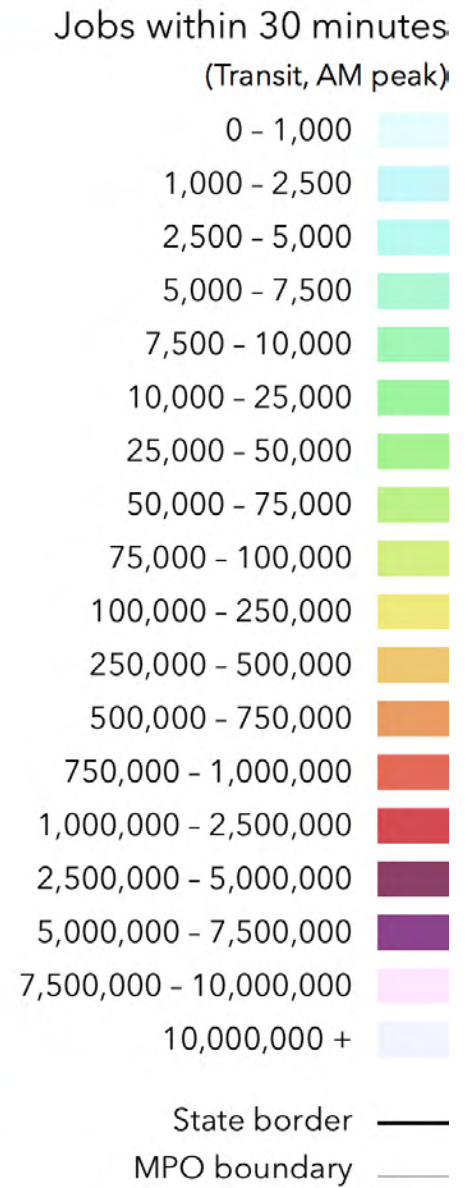
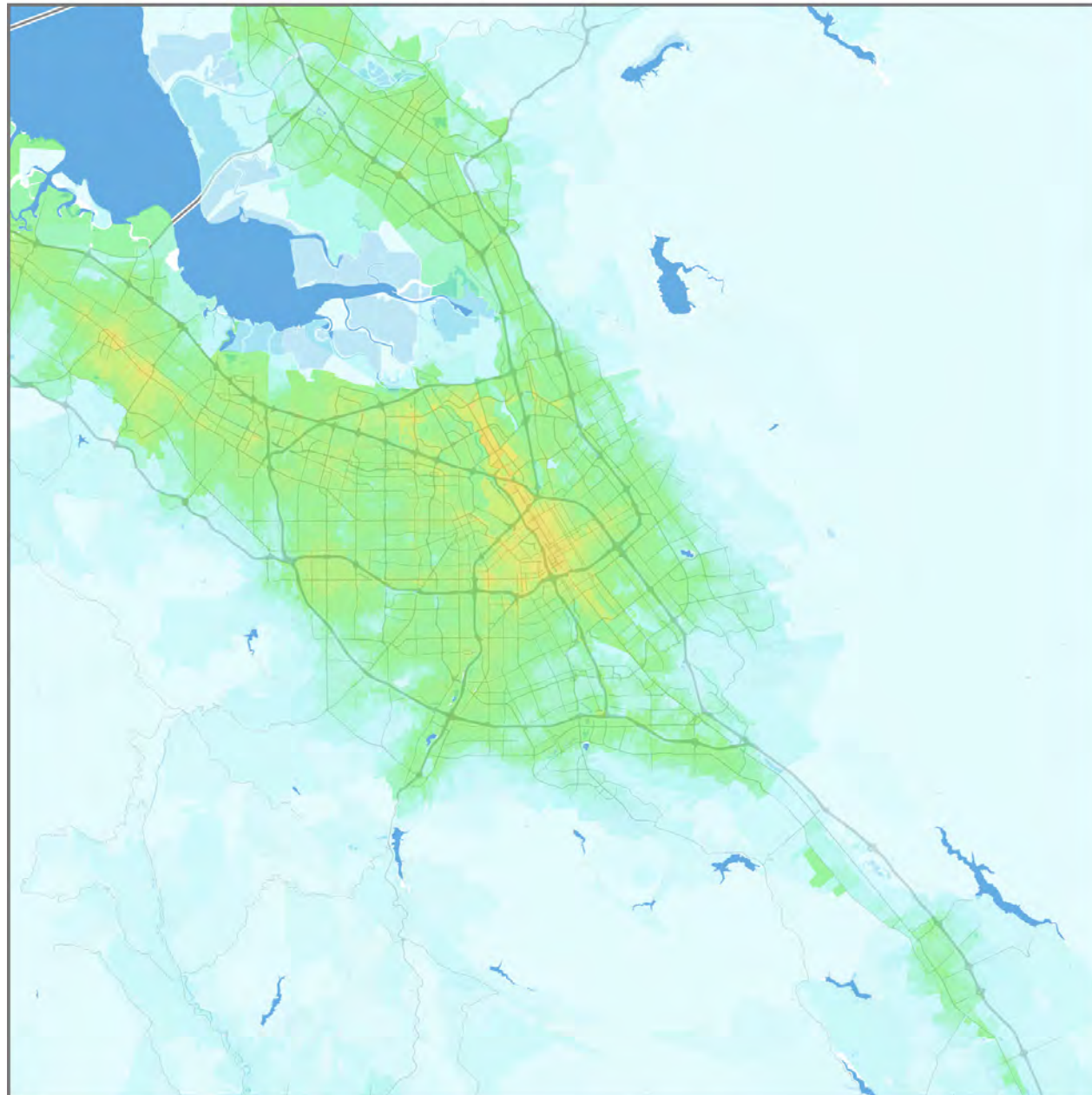
Transit Schedules Included

Agency	Dates
AC Transit	December 17, 2016 - March 18, 2017
ACE Altamont Corridor Express	March 11, 2013 - May 19, 2019
Caltrain	October 5, 2014 - October 5, 2024
Capitol Corridor	August 22, 2016 - May 29, 2017
MVgo Mountain View	May 1, 2016 - January 1, 2018
SamTrans	January 22, 2017 - June 10, 2017
San Benito County Express	January 1, 2014 - January 1, 2018
San Joaquin Regional Transit District (RTD)	August 7, 2016 - January 28, 2017
Santa Cruz Metro	November 22, 2016 - March 8, 2017
Stanford Marguerite Shuttle	December 20, 2016 - March 31, 2017
VTA	April 11, 2016 - July 3, 2016

San Jose

San Jose-Sunnyvale-Santa Clara, CA

144



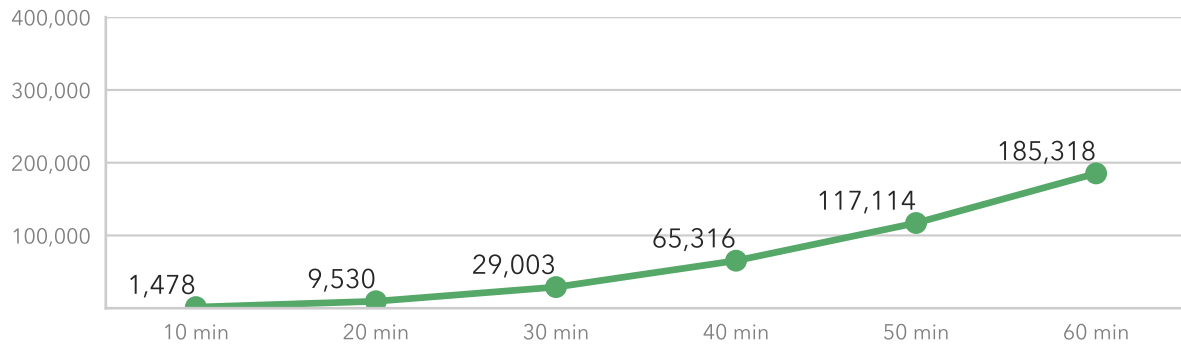
Seattle

Seattle-Tacoma-Bellevue, WA

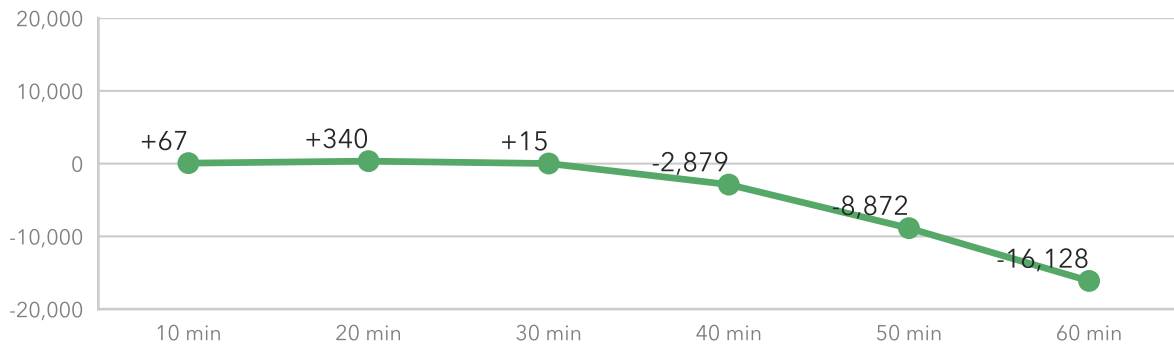
Rank by Weighted Accessibility	8
Rank by Total Employment	15
Rank by 1-Year Change in Weighted Accessibility	46
1-Year Change in Weighted Accessibility	-3.18%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+7.27%
Total Jobs	1,817,683
Average Job Density (per km ²)	120
Total Workers	1,709,920
Average Worker Density (per km ²)	112

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Seattle

Seattle-Tacoma-Bellevue, WA

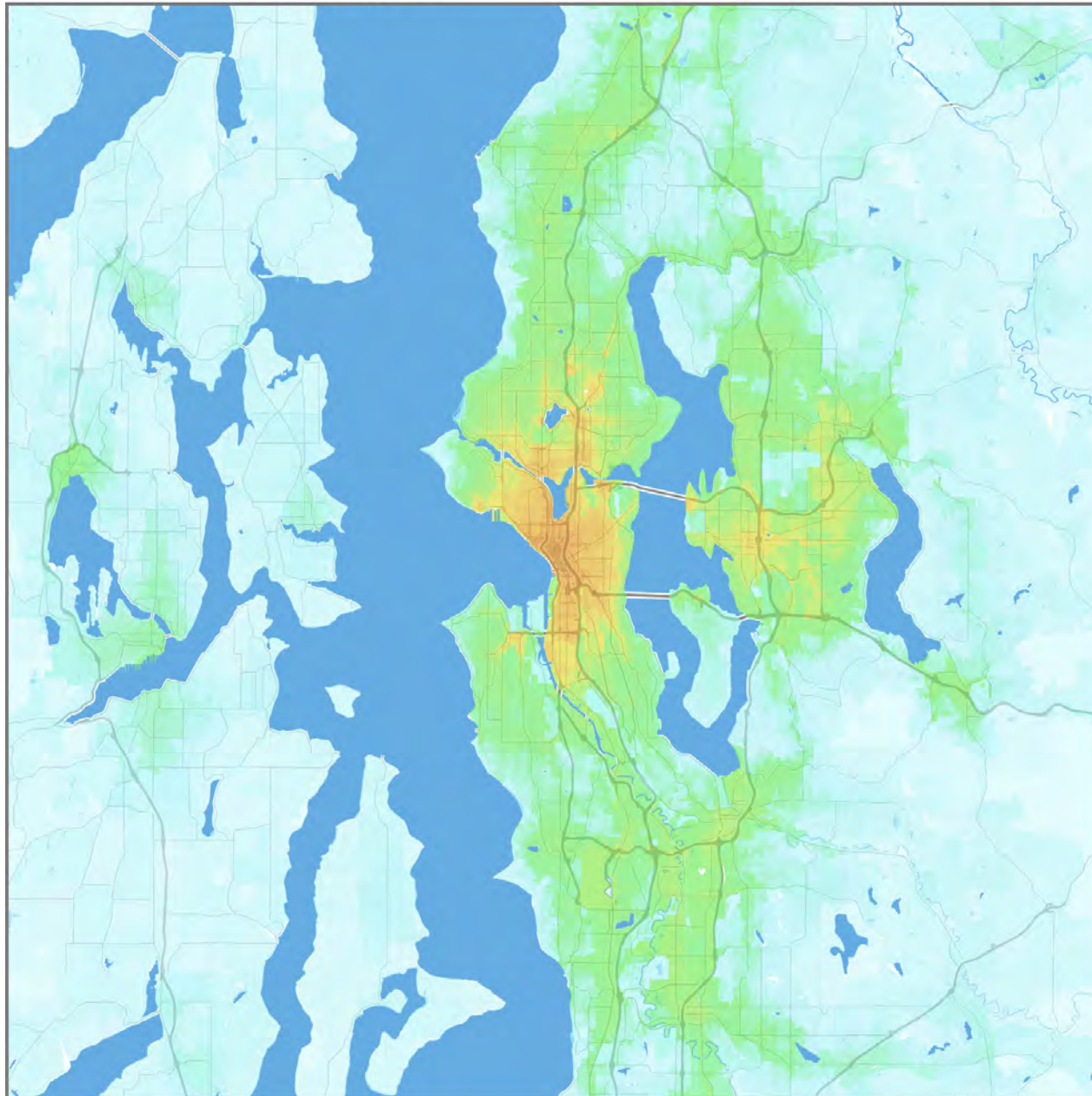
Transit Schedules Included

Agency	Dates
City of Seattle	September 1, 2016 - March 10, 2017
Community Transit	November 7, 2016 - March 10, 2017
Everett Transit	January 10, 2017 - March 18, 2017
Intercity Transit	December 14, 2016 - December 14, 2021
Island Transit	August 20, 2014 - May 31, 2015
Kingcounty Marine Divison	November 29, 2016 - June 16, 2017
Kitsap Transit	July 1, 2016 - August 30, 2017
Metro Transit	September 22, 2016 - March 10, 2017
Pierce Transit	September 11, 2016 - March 11, 2017
Seattle Children's Hospital Shuttle	March 20, 2016 - December 31, 2017
Sound Transit	September 10, 2016 - September 23, 2017
Washington State Ferries	November 3, 2016 - April 1, 2017

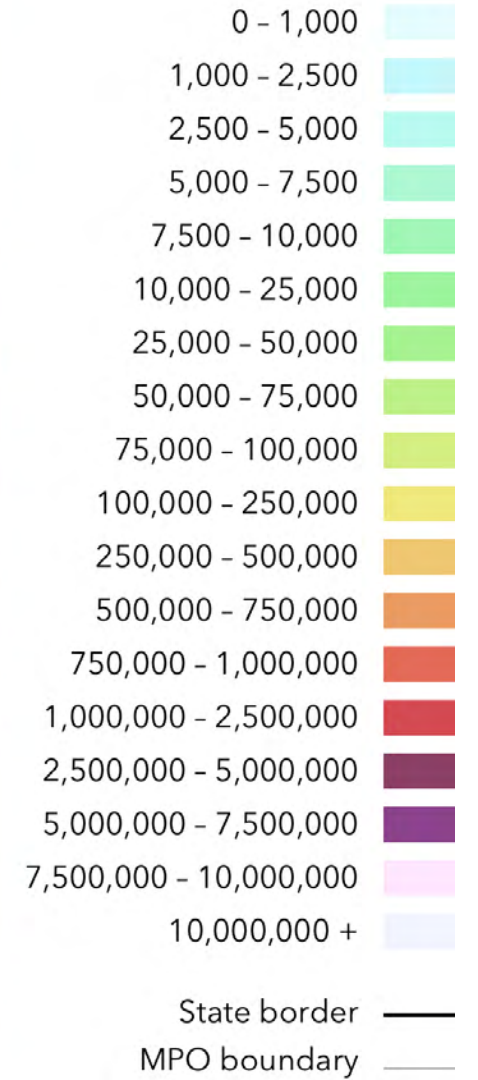
Seattle

Seattle-Tacoma-Bellevue, WA

147



Jobs within 30 minutes
(Transit, AM peak)



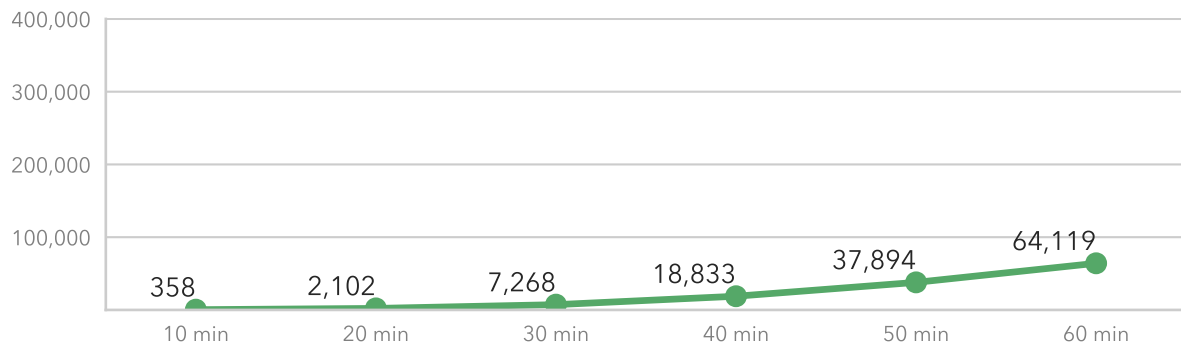
St. Louis

St. Louis, MO-IL

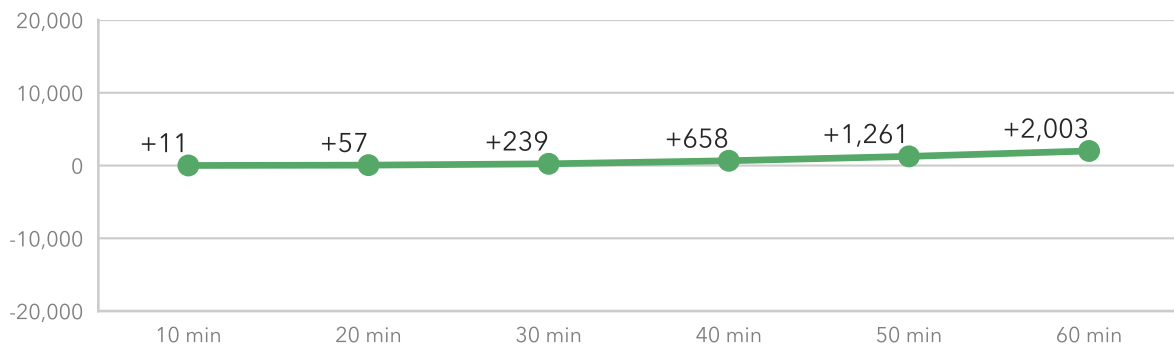
Rank by Weighted Accessibility	33
Rank by Total Employment	19
Rank by 1-Year Change in Weighted Accessibility	30
1-Year Change in Weighted Accessibility	+3.33%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+1.13%
Total Jobs	1,327,533
Average Job Density (per km ²)	59
Total Workers	1,310,349
Average Worker Density (per km ²)	59

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



St. Louis

St. Louis, MO-IL

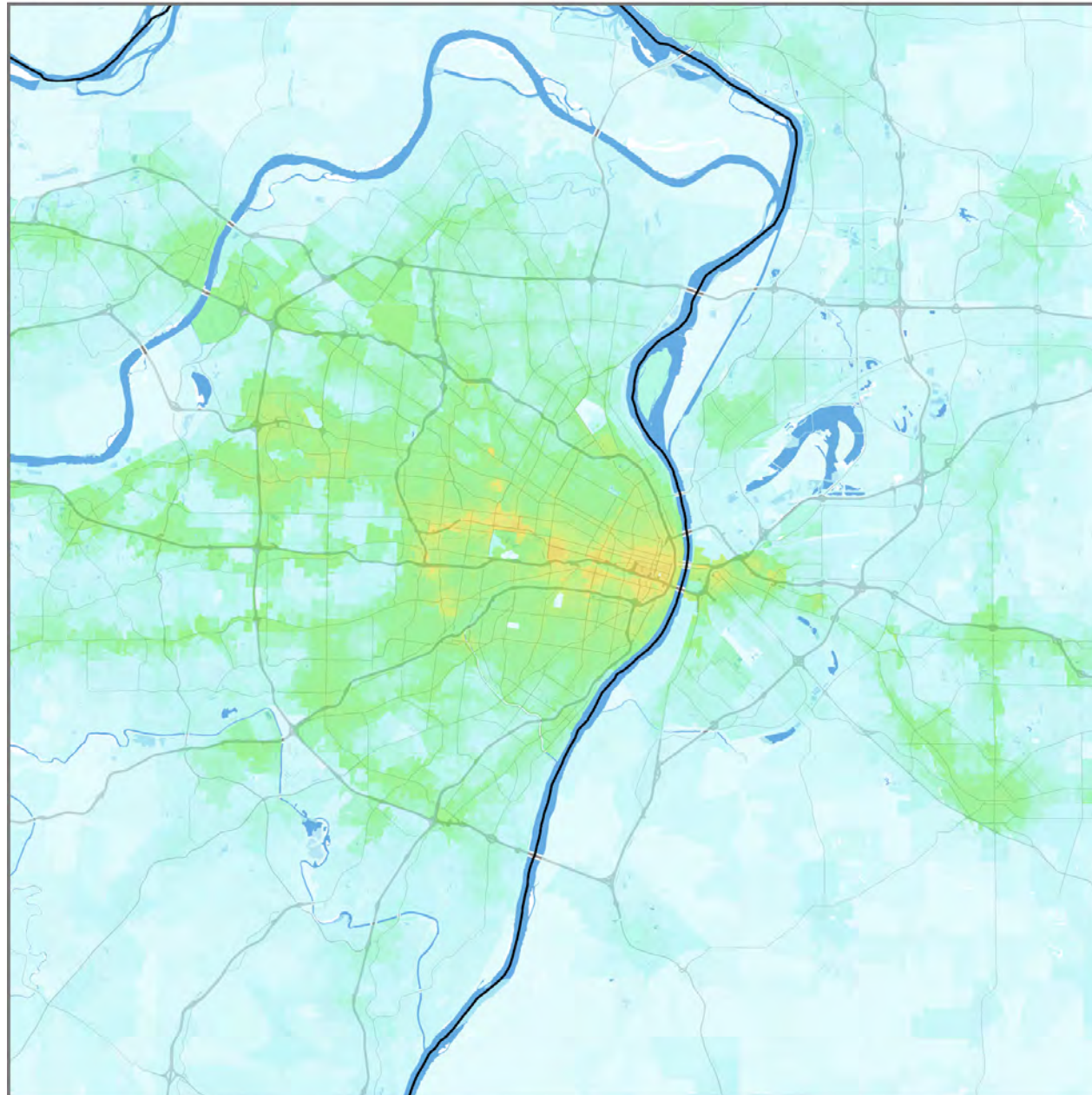
Transit Schedules Included

Agency	Dates
JeffCo Express	May 1, 2015 - January 1, 2018
Metro St. Louis	November 28, 2016 - June 11, 2017

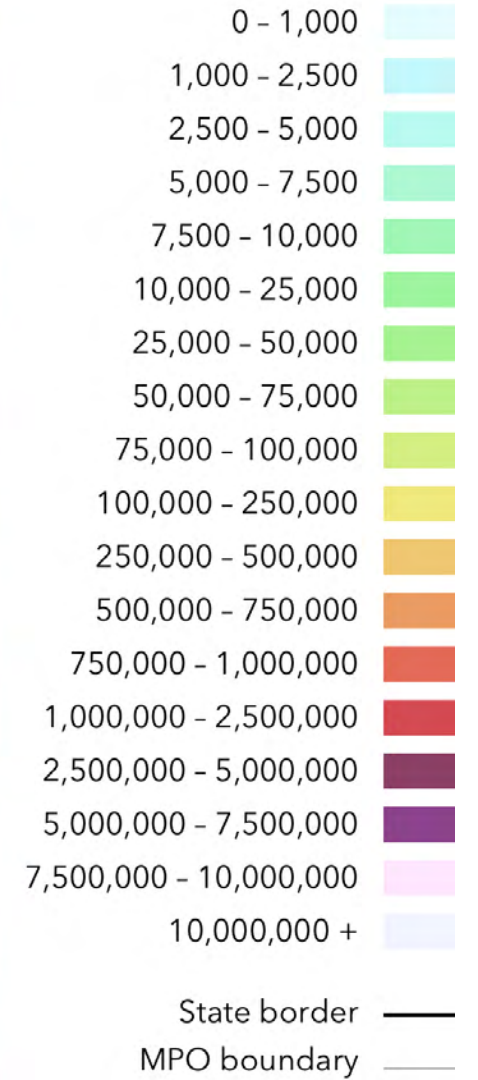
St. Louis

St. Louis, MO-IL

150



Jobs within 30 minutes
(Transit, AM peak)



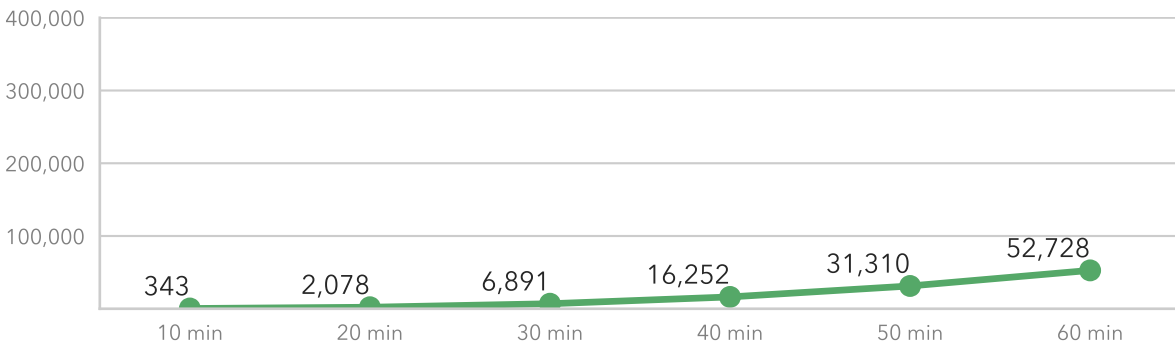
Tampa

Tampa-St. Petersburg-Clearwater, FL

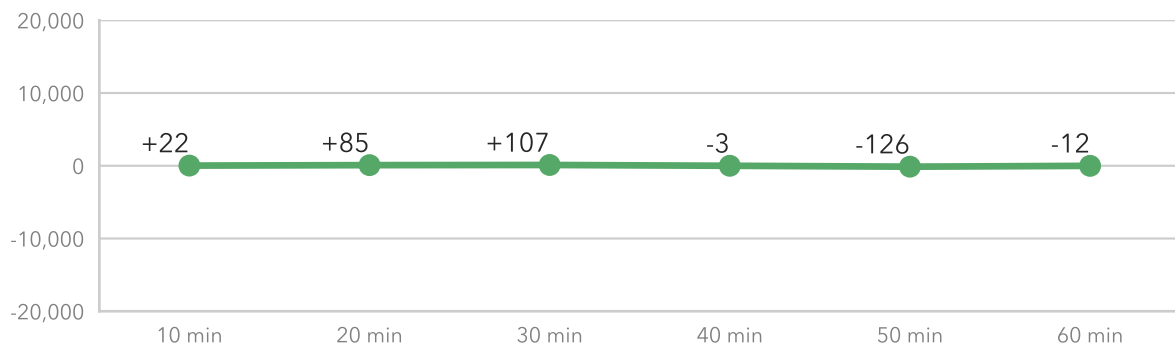
Rank by Weighted Accessibility	38
Rank by Total Employment	21
Rank by 1-Year Change in Weighted Accessibility	41
1-Year Change in Weighted Accessibility	+1.07%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+2.50%
Total Jobs	1,254,396
Average Job Density (per km ²)	193
Total Workers	1,227,356
Average Worker Density (per km ²)	189

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Tampa

Tampa-St. Petersburg-Clearwater, FL

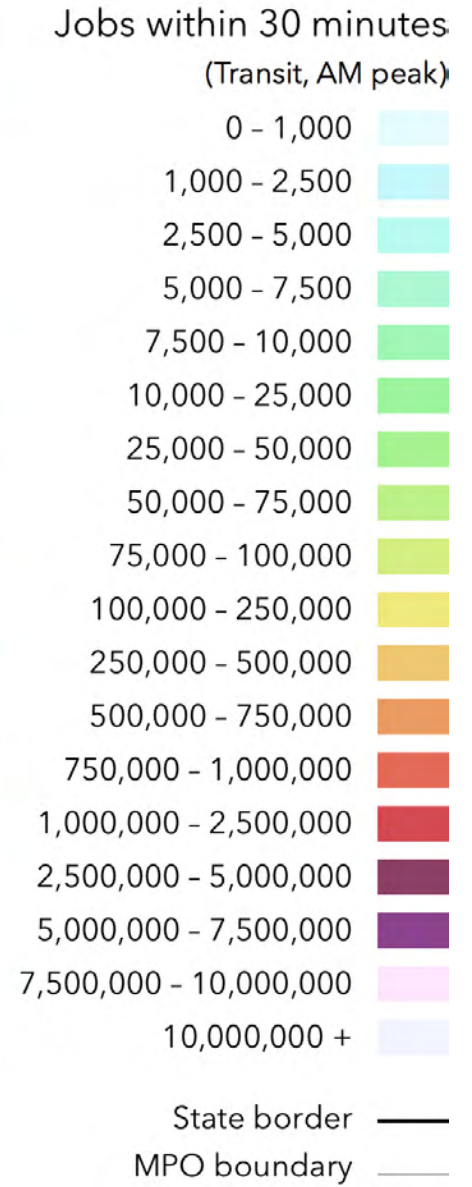
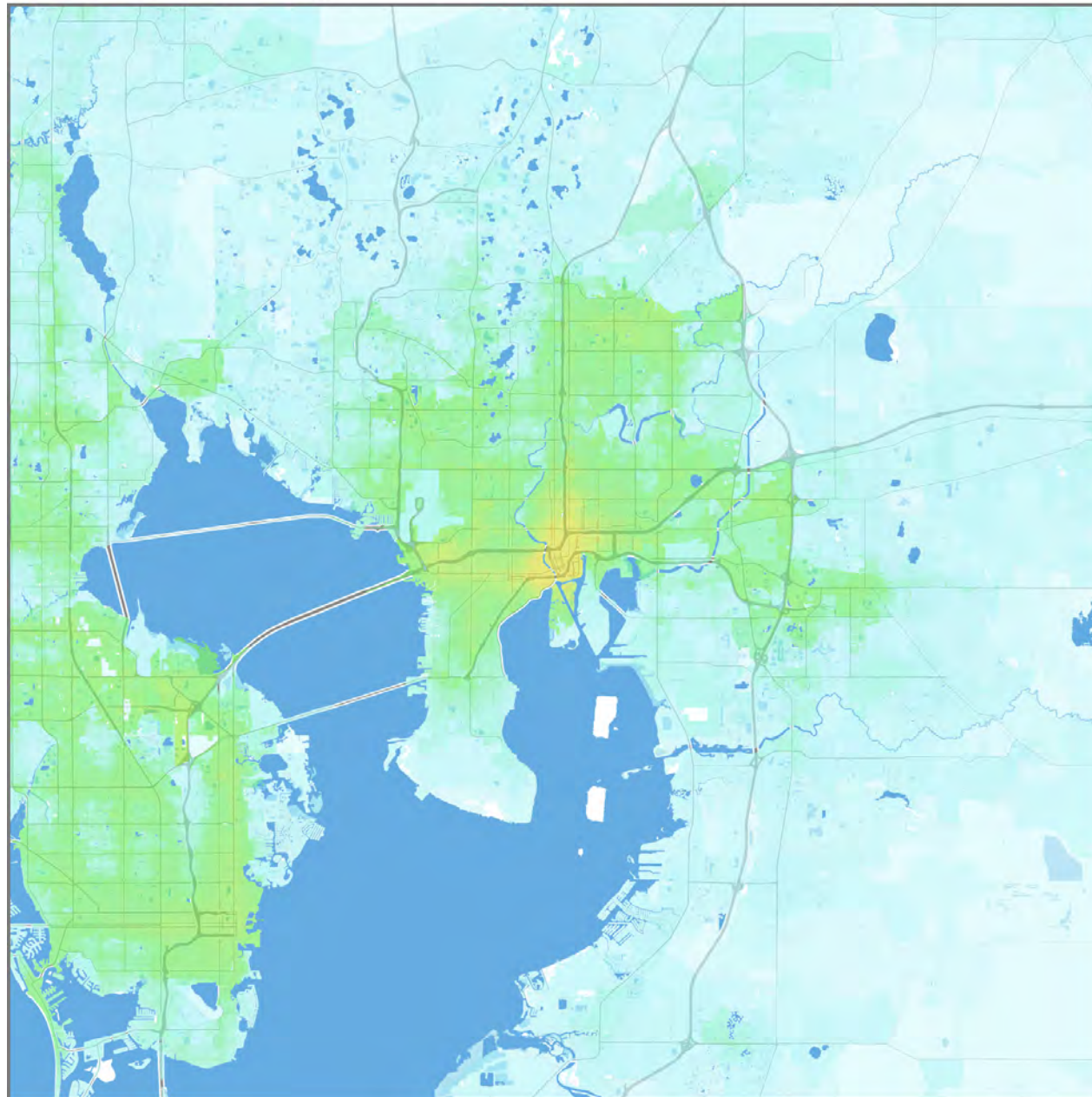
Transit Schedules Included

Agency	Dates
Hillsborough Area Regional Transit	December 4, 2016 - July 15, 2017
Manatee County Area Transit	November 12, 2016 - April 15, 2018
PSTA	June 5, 2016 - February 4, 2017
Pinellas Suncoast Transit Authority	October 9, 2016 - June 3, 2017
The Hernando Express	January 1, 2015 - January 1, 2017

Tampa

Tampa-St. Petersburg-Clearwater, FL

153



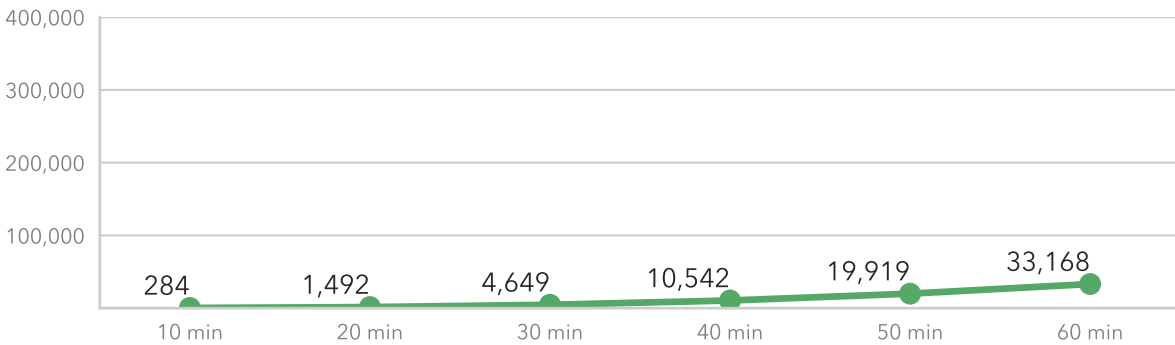
Virginia Beach

Virginia Beach-Norfolk-Newport News, VA-NC

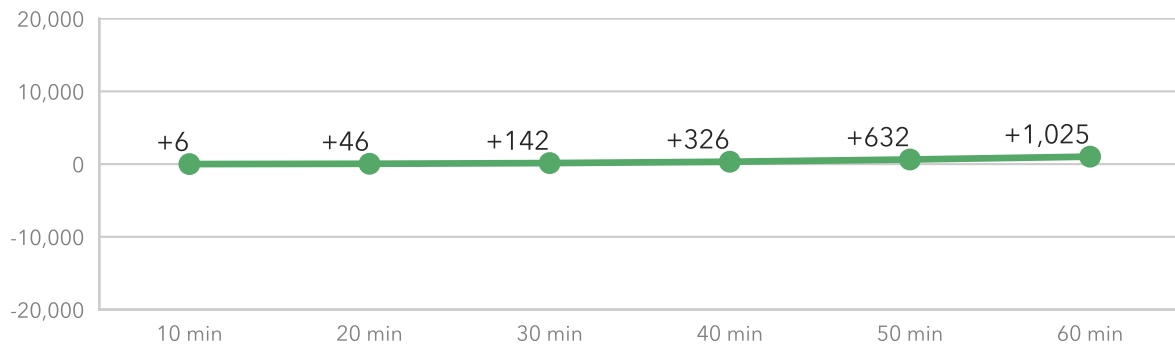
Rank by Weighted Accessibility	46
Rank by Total Employment	39
Rank by 1-Year Change in Weighted Accessibility	31
1-Year Change in Weighted Accessibility	+3.13%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+4.62%
Total Jobs	706,028
Average Job Density (per km ²)	104
Total Workers	707,752
Average Worker Density (per km ²)	104

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Virginia Beach

Virginia Beach-Norfolk-Newport News, VA-NC

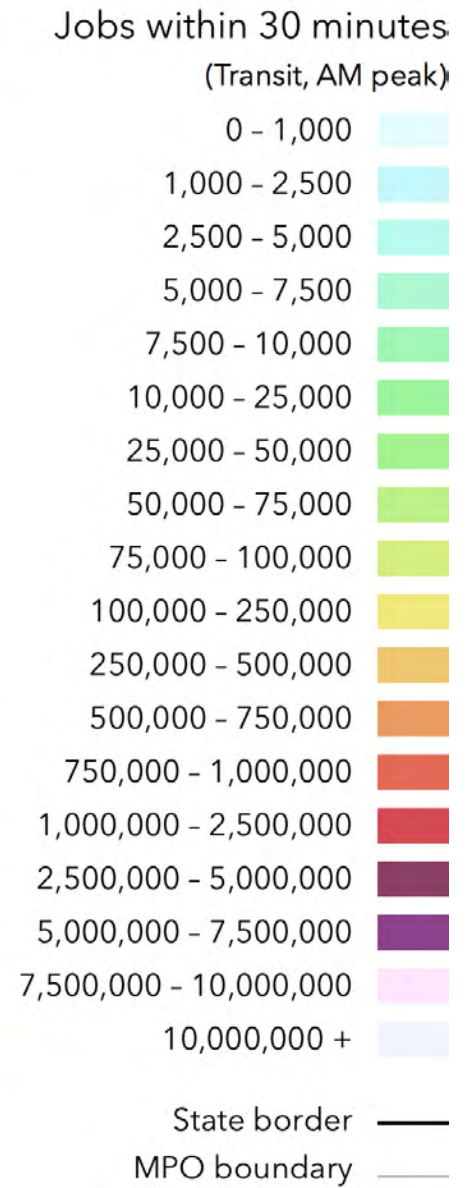
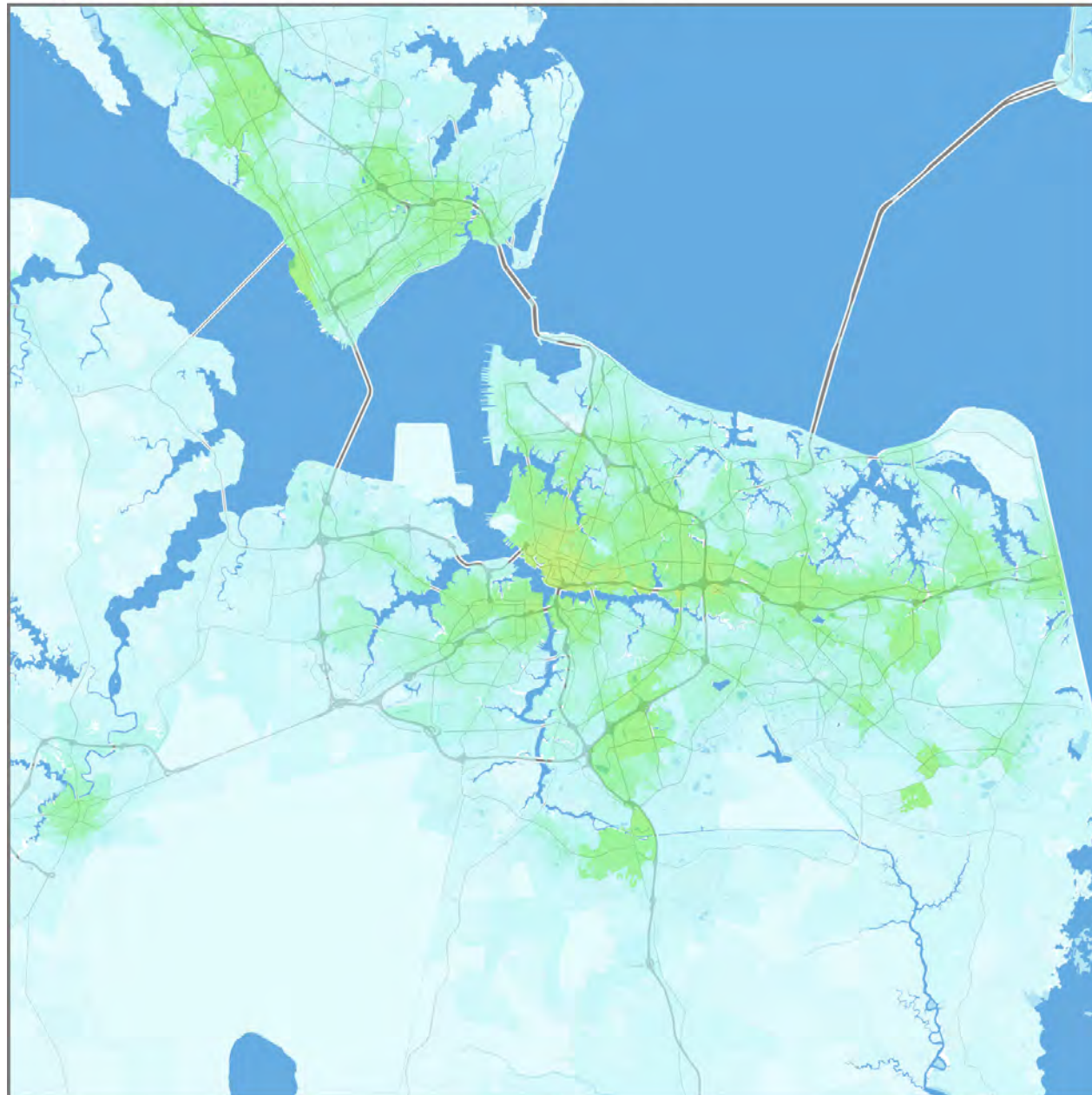
Transit Schedules Included

Agency	Dates
Hampton Roads Transit (HRT)	October 1, 2016 - April 30, 2017
WATA	November 17, 2016 - June 17, 2017

Virginia Beach

Virginia Beach-Norfolk-Newport News, VA-NC

156



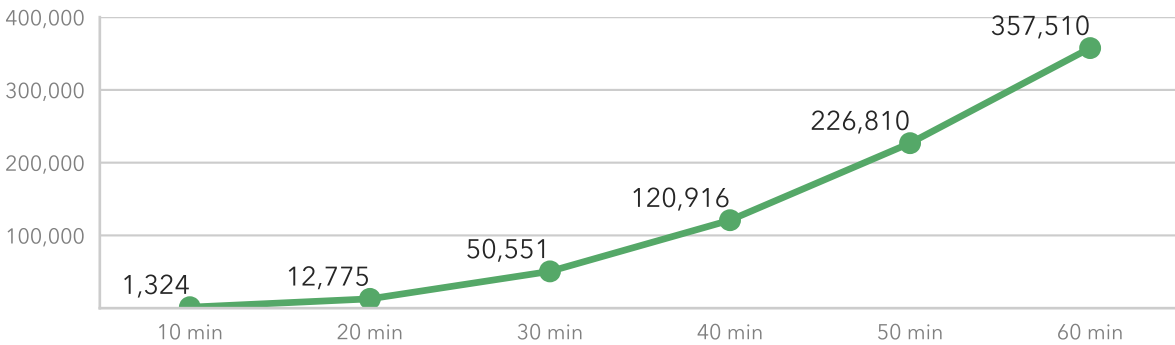
Washington

Washington-Arlington-Alexandria, DC-VA-MD-WV

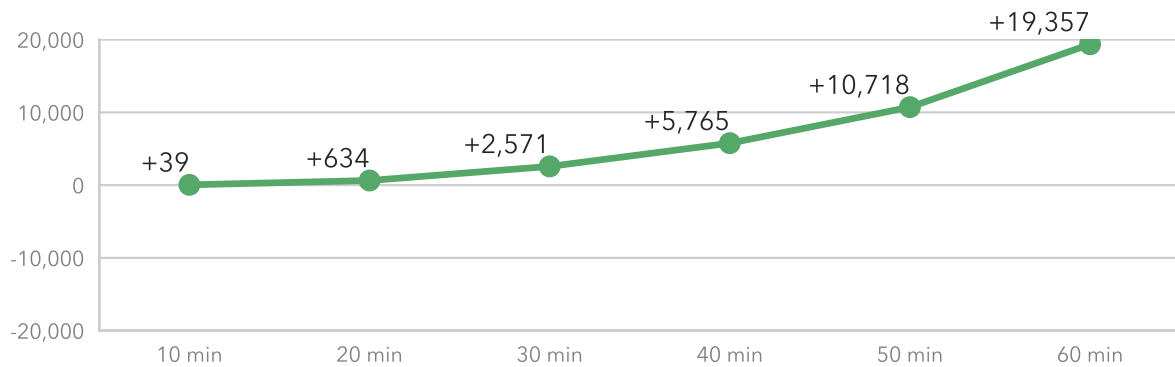
Rank by Weighted Accessibility	4
Rank by Total Employment	7
Rank by 1-Year Change in Weighted Accessibility	20
1-Year Change in Weighted Accessibility	+5.21%
1-Year Change in Weighted Accessibility Rank	0
2-Year Change in Weighted Accessibility	+8.50%
Total Jobs	2,939,000
Average Job Density (per km ²)	203
Total Workers	2,776,148
Average Worker Density (per km ²)	191

Job and worker totals are based on LEHD estimates and may not match other sources.

Job Accessibility by Travel Time Threshold



1-Year Change in Weighted Accessibility by Travel Time Threshold



Washington

Washington-Arlington-Alexandria, DC-VA-MD-WV

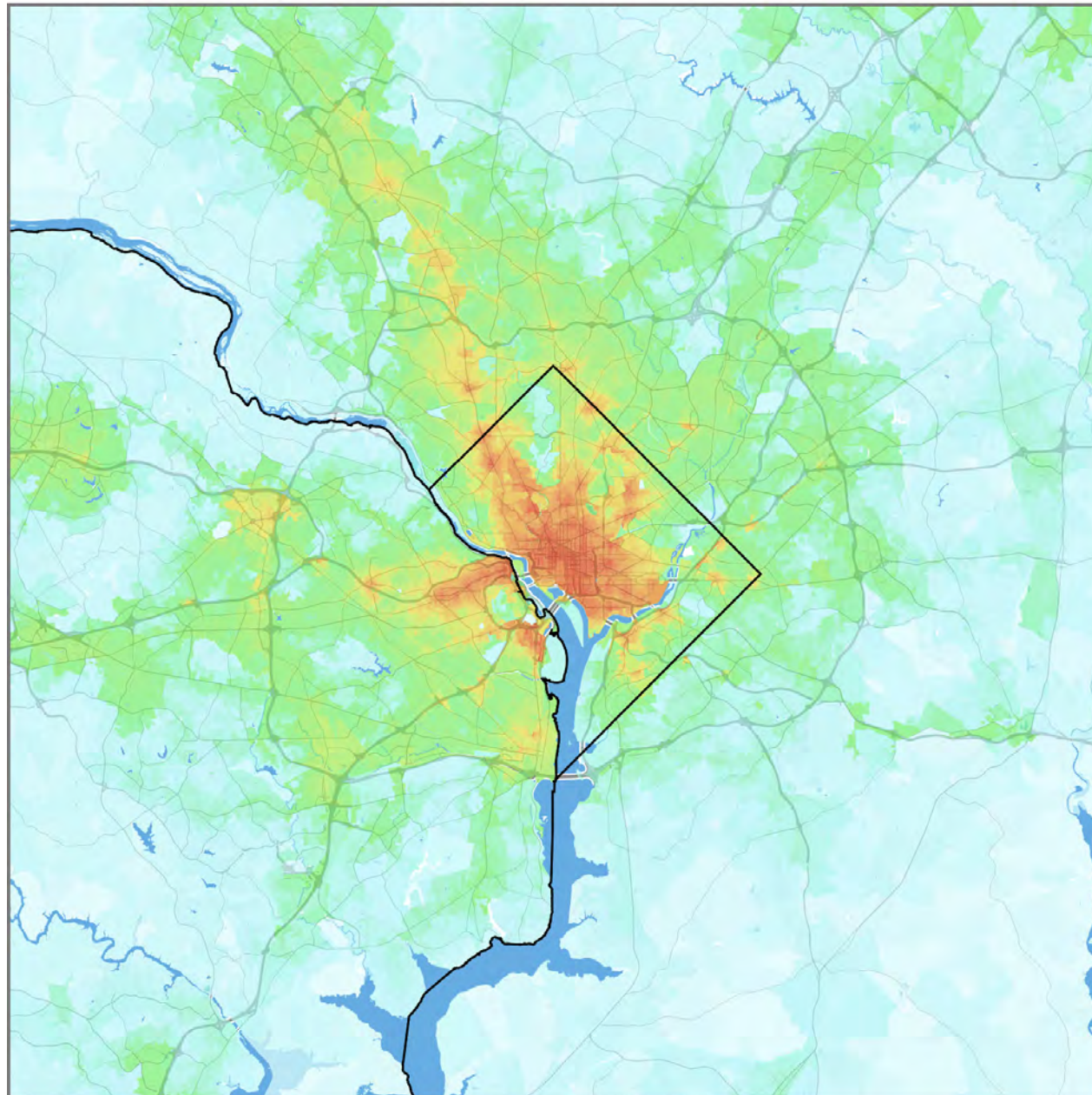
Transit Schedules Included

Agency	Dates
Alexandria Transit Company (DASH)	November 27, 2016 - February 25, 2017
Arlington Transit	January 3, 2017 - December 31, 2018
Calvert County Public Transportation	August 1, 2014 - December 31, 2017
Charles County VanGo	January 1, 2014 - December 31, 2017
DC Circulator	February 22, 2017 - August 20, 2017
Fairfax Connector	August 10, 2016 - September 1, 2017
MTA Office of Local Transit Support	August 28, 2016 - February 4, 2017
Maryland Transit Administration	February 5, 2017 - September 2, 2017
Montgomery County MD Ride On	January 8, 2017 - September 16, 2017
Potomac and Rappahannock Transportation Commission	February 23, 2017 - July 2, 2017
Regional Transportation Agency of Central Maryland	June 1, 2016 - March 1, 2018
St. Mary's Transit System	August 1, 2014 - December 31, 2017
The Bus of Prince George's County	September 25, 2016 - December 31, 2017
Virginia Railway Express	March 6, 2017 - June 14, 2017
WMATA	February 22, 2017 - August 20, 2017

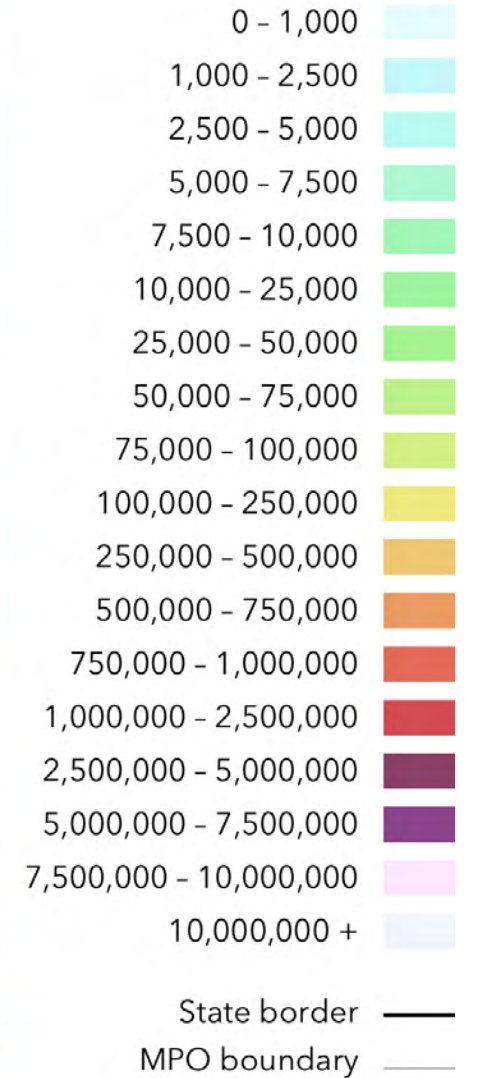
Washington

Washington-Arlington-Alexandria, DC-VA-MD-WV

159



Jobs within 30 minutes
(Transit, AM peak)



References

- Geurs, K. and Van Eck, J. (2001). Accessibility measures: Review and applications. Technical Report 408505 006, National Institute of Public Health and the Environment.
- Handy, S. L. and Niemeier, D. A. (1997). Measuring accessibility: An exploration of issues and alternatives. *Environment and planning A*, 29(7):1175–1194.
- Hansen, W. (1959). How accessibility shapes land use. *Journal of the American Institute of Planners*, 25(2):73–76.
- Levine, J., Grengs, J., Shen, Q., and Shen, Q. (2012). Does accessibility require density or speed? A comparison of fast versus close in getting where you want to go in U.S. metropolitan regions. *Journal of the American Planning Association*, 78(2):157–172.
- Levinson, D. M. (2013). Access across America. Technical Report CTS 13-20, University of Minnesota Center for Transportation Studies, <http://www.cts.umn.edu/Publications/ResearchReports/pdfdownload.pl?id=2334>.
- McKenzie, B. (2014). Modes less traveled — bicycling and walking to work in the United States: 2008–2012. Technical Report ACS-25, U.S. Census Bureau.
- Ramsey, K. and Bell, A. (2014). The smart location database: A nationwide data resource characterizing the built environment and destination accessibility at the neighborhood scale and destination accessibility at the neighborhood scale. *Cityscape: A Journal of Policy Development and Research*, 16(2).
- Tomer, A., Kneebone, E., Puentes, R., and Berube, A. (2011). Missed opportunity: Transit and jobs in metropolitan america. Technical report, Brookings Institution, http://www.brookings.edu/~media/research/files/reports/2011/5/12%20jobs%20and%20transit/0512_jobs_transit.pdf.
- Walker, J. (2012). *Human Transit*. Island Press.