# 2019 Bike Accessibility Report: Florida

Prepared for the state of Florida by the **Accessibility Observatory at the University of Minnesota** 

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University of Minnesota Driven to Discover<sup>sm</sup>

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#### **1** Introduction

This report presents the results of an evaluation of accessibility to jobs by bike throughout the state of Florida. *Accessibility* refers to the ease of reaching valued 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 various 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 highly comprehensible and transparent — as well as the most directly comparable across locations.

This study focuses on access to jobs, one of the most significant non-home travel destinations. Accessibility is calculated at the Census block level by computing the travel time from each block to surrounding blocks, and then adding up the total number of jobs that can be reached within different travel time thresholds. This process is repeated for every block within the state of Florida, and the results are aggregated to provide accessibility summaries for each county, and the jurisdiction of each metropolitan planning organization (MPO), within the state.

Section 2 presents these results, summarized statewide, by MPO, and by county. Section 3 provides an overview of the data sources and methodology used in this study. A separate document, *Access Across America: Bike 2019 Methodology*, describes the methodology and data sources in greater detail.

### **2** Accessibility Evaluation Results

#### 2.1 Statewide Accessibility

#### Florida

Job Accessibility Results-Bike, 2019

Total Jobs	8,452,404	
Average Job Density (per mi <sup>2</sup> )	155	
Total Workers	8,453,506	
Average Worker Density (per mi <sup>2</sup> )	155	
Job and worker totals are based on LEHD estimates a	nd may not match o	other sources

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)





### Florida



#### Weighted Biking Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### 2.2 Accessibility in Metropolitan Areas

The following sections analyze accessibility in the metropolitan areas (as defined by jurisdictions of MPOs that lie within or partially within the state of Florida). The following MPO jurisdictions are included:

- Bay County Transportation Planning Organization
- Broward MPO
- Capital Region Transportation Planning Agency
- Charlotte-Punta Gorda MPO
- Collier MPO
- Florida-Alabama Transportation Planning Organization
- Forward Pinellas
- Gainesville MTPO
- Heartland Regional TPO
- Hernando/Citrus MPO
- Hillsborough MPO
- Indian River County MPO
- Lake-Sumter MPO
- Lee County MPO
- METROPLAN Orlando
- Martin MPO
- Miami-Dade TPO
- North Florida Transportation Planning Organization
- Ocala Marion County Tranportation Planning Organization
- Okaloosa-Walton Transportation Planning Organization
- Palm Beach MPO
- Pasco County MPO

- Polk County Transportation Planning Organization
- River to Sea Transporation Planning Organization
- Sarasota-Manatee MPO
- Space Coast Transportation Planning Organization
- St. Lucie Transportation Planning Organization

Table 1 provides the average (worker-weighted; see Section 3.5) job accessibility by bike for each MPO on low-stress bicycle networks, and Table 2 provides the average job accessibility by bike for each MPO on medium-stress bicycle networks (see Section 3.1 for bike network definitions and discussion of Level of Traffic Stress (LTS)). Table 3 and Table 4 show the 1-year change in access to jobs on LTS 2 and LTS 3 networks, respectively. The following pages provide additional details and maps for each MPO. The first map for each MPO jurisdiction shows 30-minute biking accessibility values at the Census block level, on medium-stress bicycle networks; areas of more intense color have higher access to jobs. The second map shows the ratio of low-stress accessibility to "open streets" (LTS 4) accessibility; areas of more intense, deeper color have lower access to jobs on low-stress bicycle networks as a percentage of the maximum access possible (LTS 4), and lighter-colored areas have higher relative low-stress access to jobs. Areas colored in light grey on the second map reflect census blocks where "open streets" bicycle accessibility is 0.

On the data summary pages, up to four different chart scales are used in the first chart to accommodate the wide range of accessibility values across MPO jurisdictions. The second chart for each MPO shows the accessibility ratios for lowest-stress, low-stress, and medium-stress bicycle networks compared to the maximum of "open streets" access. MPOs with lower percentages for low-stress and medium-stress accessibility may have lower-performing bicycle networks, and areas with higher percentage ratios for low-stress and medium-stress accessibility may have more extensive, well-performing bicycle networks.

МРО	10 min	20 min	30 min	40 min	50 min	60 min
Bay County Transportation Planning Organization	674	1,270	1,422	1,473	1,481	1,483
Broward MPO	1,996	4,121	4,550	4,673	4,730	4,736
Capital Region Transportation Planning Agency	977	2,150	2,601	2,942	3,165	3,444
Charlotte-Punta Gorda MPO	503	988	1,095	1,113	1,113	1,113
Collier MPO	873	2,039	2,855	3,130	3,186	3,197
Florida-Alabama Transportation Planning Organization	668	1,236	1,336	1,359	1,372	1,380
Forward Pinellas	1,773	3,233	3,884	4,291	4,516	4,587
Gainesville MTPO	2,881	14,628	31,356	45,869	54,800	58,045
Heartland Regional TPO	309	430	446	447	447	447
Hernando/Citrus MPO	239	453	501	508	509	510
Hillsborough MPO	1,442	2,304	2,509	2,562	2,581	2,582
Indian River County MPO	410	649	682	696	705	708
Lake-Sumter MPO	429	802	934	979	979	979
Lee County MPO	860	1,978	2,794	3,219	3,386	3,498
METROPLAN Orlando	1,244	2,265	2,671	2,893	2,983	3,037
Martin MPO	663	1,046	1,084	1,086	1,086	1,086
Miami-Dade TPO	3,473	6,346	7,873	9,675	11,243	12,178
North Florida Transportation Planning Organization	983	1,814	2,084	2,211	2,278	2,325
Ocala - Marion County Tranportation Planning Organization	289	416	441	451	453	453
Okaloosa-Walton Transportation Planning Organization	1,291	2,542	3,003	3,240	3,365	3,423
Palm Beach MPO	1,535	2,675	2,915	2,984	3,007	3,017
Pasco County MPO	360	552	577	584	591	594
Polk County Transportation Planning Organization	656	1,450	2,199	2,726	3,034	3,223
River to Sea Transporation Planning Organization	462	770	850	872	878	882
Sarasota-Manatee MPO	836	1,259	1,343	1,358	1,362	1,367
Space Coast Transportation Planning Organization	552	845	918	995	1,008	1,009
St. Lucie Transportation Planning Organization	425	606	625	636	636	637

Table 1: Average Job Accessibility by Travel Time Threshold for Metropolitan Areas (Bike, Low-Stress)

Table 2: Average Job Accessibility by Travel Time Threshold for Metropolitan Areas (Bike, Medium-Stress)

MPO	10 min	20 min	30 min	40 min	50 min	60 min
Bay County Transportation Planning Organization	1,260	5,755	11,518	16,732	21,125	24,584
Broward MPO	3,535	15,551	32,343	52,588	76,699	101,785
Capital Region Transportation Planning Agency	2,360	10,891	22,617	34,006	43,802	51,696
Charlotte-Punta Gorda MPO	945	4,213	8,256	11,902	14,463	16,305
Collier MPO	1,287	4,459	7,628	10,007	11,693	13,123
Florida-Alabama Transportation Planning Organization	1,380	6,066	11,372	16,639	20,396	22,833
Forward Pinellas	3,478	15,502	33,546	54,859	73,666	89,985
Gainesville MTPO	3,622	17,694	37,282	55,031	69,224	80,880
Heartland Regional TPO	635	1,696	2,593	3,441	4,312	5,119
Hernando/Citrus MPO	398	1,476	2,632	3,638	4,535	5,423
Hillsborough MPO	3,282	16,345	37,248	63,490	92,856	122,497
Indian River County MPO	1,195	5,139	10,387	16,253	20,890	24,166
Lake-Sumter MPO	713	2,614	4,641	6,528	8,031	9,123
Lee County MPO	1,383	5,310	10,266	15,544	20,804	25,264
METROPLAN Orlando	2,537	10,207	20,921	33,740	47,971	62,847
Martin MPO	1,315	3,895	6,817	10,093	12,670	15,261
Miami-Dade TPO	6,763	26,020	54,654	89,308	128,119	171,493
North Florida Transportation Planning Organization	1,812	7,035	14,027	20,752	26,357	31,405
Ocala - Marion County Tranportation Planning Organization	750	3,171	6,561	10,112	13,931	18,075
Okaloosa-Walton Transportation Planning Organization	1,620	4,547	6,316	7,632	8,656	9,318
Palm Beach MPO	2,557	9,712	19,370	29,361	40,866	52,245
Pasco County MPO	748	2,937	5,478	8,342	11,188	14,190
Polk County Transportation Planning Organization	1,306	5,071	9,643	14,659	20,226	26,366
River to Sea Transporation Planning Organization	1,066	4,453	8,151	11,467	14,456	17,667
Sarasota-Manatee MPO	1,907	8,492	17,909	28,138	37,900	47,091
Space Coast Transportation Planning Organization	982	3,410	6,021	8,060	9,604	10,898
St. Lucie Transportation Planning Organization	1,072	4,541	7,989	11,456	15,736	19,896

Table 3: 1-Year Change in Time-Weighted Average Job Accessibility for Metropolitan Areas (Bike, Low-Stress)

МРО	10 min	20 min	30 min	40 min	50 min	60 min
Bay County Transportation Planning Organization	-16	+7	+39	+69	+76	+78
Broward MPO	+30	+272	+251	+231	+181	+130
Capital Region Transportation Planning Agency	+49	+336	+647	+945	+1,156	+1,430
Charlotte-Punta Gorda MPO	+72	+104	+114	+114	+112	+112
Collier MPO	+38	-131	-431	-594	-635	-646
Florida-Alabama Transportation Planning Organization	+51	+177	+218	+236	+249	+257
Forward Pinellas	+109	+318	+407	+491	+564	+601
Gainesville MTPO	+97	+512	+2,151	+3,438	+3,263	+2,029
Heartland Regional TPO	+19	+28	+33	+33	+33	+33
Hernando/Citrus MPO	+7	+15	+17	+15	+14	+14
Hillsborough MPO	+43	+87	+106	+120	+130	+129
Indian River County MPO	+58	+148	+157	+160	+162	+162
Lake-Sumter MPO	+16	+31	+32	+33	+31	+30
Lee County MPO	+14	-23	-58	-127	-251	-340
METROPLAN Orlando	+73	+139	+160	+212	+252	+293
Martin MPO	+46	+93	+105	+106	+106	+106
Miami-Dade TPO	+132	+569	+1,034	+1,776	+2,537	+3,223
North Florida Transportation Planning Organization	+50	+54	+54	+56	+54	+78
Ocala - Marion County Tranportation Planning Organization	+8	+9	+12	+14	+15	+14
Okaloosa-Walton Transportation Planning Organization	+196	+314	+363	+444	+533	+584
Palm Beach MPO	-3	-48	-93	-104	-110	-109
Pasco County MPO	+14	+27	+29	+30	+31	+30
Polk County Transportation Planning Organization	+26	+108	+90	-87	-259	-442
River to Sea Transporation Planning Organization	+30	+99	+143	+147	+132	+128
Sarasota-Manatee MPO	+28	-6	-1	0	-3	-3
Space Coast Transportation Planning Organization	-5	+38	+65	+124	+134	+134
St. Lucie Transportation Planning Organization	+7	+15	+18	+19	+19	+20

Table 4: 1-Year Change in Time-Weighted Average Job Accessibility for Metropolitan Areas (Bike, Medium-Stress)

МРО	10 min	20 min	30 min	40 min	50 min	60 min
Bay County Transportation Planning Organization	-20	-12	-14	+6	+28	-14
Broward MPO	+111	+286	+495	+579	+883	+1,263
Capital Region Transportation Planning Agency	+142	+643	+1,277	+1,947	+2,463	+2,700
Charlotte-Punta Gorda MPO	+76	+101	+143	+196	+275	+403
Collier MPO	+20	-383	-1,201	-2,257	-3,665	-5,339
Florida-Alabama Transportation Planning Organization	+98	+512	+1,227	+2,026	+2,472	+2,824
Forward Pinellas	+92	+301	+306	+14	-1,014	-2,603
Gainesville MTPO	+190	+799	+1,833	+2,573	+2,671	+3,160
Heartland Regional TPO	+47	+201	+313	+467	+675	+804
Hernando/Citrus MPO	+9	+47	+99	+156	+192	+212
Hillsborough MPO	+32	+250	+522	+912	+699	+259
Indian River County MPO	+93	+278	+546	+811	+1,161	+1,380
Lake-Sumter MPO	+18	+39	+66	+192	+286	+383
Lee County MPO	+33	+27	+19	+42	-29	-244
METROPLAN Orlando	+103	+289	+521	+846	+1,212	+1,376
Martin MPO	+40	-14	-33	+496	+716	+776
Miami-Dade TPO	+185	+844	+1,374	-469	-3,241	-4,552
North Florida Transportation Planning Organization	+89	+161	+442	+1,000	+1,530	+2,137
Ocala - Marion County Tranportation Planning Organization	+11	+101	+166	+331	+845	+1,613
Okaloosa-Walton Transportation Planning Organization	+180	+312	+435	+643	+988	+1,198
Palm Beach MPO	+58	+232	+549	+737	+914	+1,059
Pasco County MPO	+14	+48	+111	+200	+316	+464
Polk County Transportation Planning Organization	-1	-58	-35	+133	+532	+889
River to Sea Transporation Planning Organization	+62	+248	+462	+428	+315	+370
Sarasota-Manatee MPO	+30	+68	-46	-506	-692	-253
Space Coast Transportation Planning Organization	-42	-465	-1,277	-2,624	-4,527	-6,314
St. Lucie Transportation Planning Organization	+27	+98	+223	+381	+473	+613

Job Accessibility Results-Bike, 2019

Total Jobs	77,610
Average Job Density (per mi <sup>2</sup> )	194
Total Workers	72,621
Average Worker Density (per mi <sup>2</sup> )	182

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





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Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



13

Job Accessibility Results-Bike, 2019

Total Jobs	825,858
Average Job Density (per mi <sup>2</sup> )	1746
Total Workers	839,117
Average Worker Density (per mi <sup>2</sup> )	1774

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







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Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	179,612
Average Job Density (per mi <sup>2</sup> )	189
Total Workers	156,596
Average Worker Density (per $mi^2$ )	165

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







MPO boundary -



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	49,032
Average Job Density (per mi <sup>2</sup> )	177
Total Workers	56,983
Average Worker Density (per $mi^2$ )	206

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







MPO boundary -



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets) 0-10% 10% - 20% 20% - 30% 30% - 40% 40% - 50% 50% - 60% 60% - 70%

70% - 80%

80% - 90% 90% - 100%

No Data \_\_\_\_\_

MPO boundary —



Job Accessibility Results-Bike, 2019

Total Jobs	140,836
Average Job Density (per mi <sup>2</sup> )	176
Total Workers	140,245
Average Worker Density (per $mi^2$ )	175

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







MPO boundary —



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### Florida-Alabama Transportation Planning Organization

Job Accessibility Results-Bike, 2019

Total Jobs	195,961
Average Job Density (per mi <sup>2</sup> )	424
Total Workers	182,698
Average Worker Density (per mi <sup>2</sup> )	395

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)





#### Florida-Alabama Transportation Planning Organization



#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





### **Florida-Alabama Transportation Planning Organization**



MPO boundary -

## Florida-Alabama Transportation Planning Organization



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)


Job Accessibility Results-Bike, 2019

Total Jobs	438,474
Average Job Density (per mi <sup>2</sup> )	3906
Total Workers	412,029
Average Worker Density (per mi <sup>2</sup> )	3671

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)







State border —— MPO boundary ——



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	109,649
Average Job Density (per mi <sup>2</sup> )	1508
Total Workers	79,521
Average Worker Density (per mi <sup>2</sup> )	1094

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)







MPO boundary ——



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	68,487
Average Job Density (per mi <sup>2</sup> )	35
Total Workers	85,853
Average Worker Density (per mi <sup>2</sup> )	43

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)







### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)











0-10% 10% - 20% 20% - 30% 30% - 40% 40% - 50% 50% - 60% 60% - 70% 70% - 80% 80% - 90% 90% - 100% No Data State border -MPO boundary –

Job Accessibility Results-Bike, 2019

Total Jobs	76,965
Average Job Density (per mi <sup>2</sup> )	178
Total Workers	106,460
Average Worker Density (per $mi^2$ )	246

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)







### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)







MPO boundary —

48



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	702,623
Average Job Density (per mi <sup>2</sup> )	1638
Total Workers	609,745
Average Worker Density (per $mi^2$ )	1422

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







State border — MPO boundary —



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	48,133
Average Job Density (per mi <sup>2</sup> )	712
Total Workers	54,700
Average Worker Density (per $mi^2$ )	809

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)







Job Accessibility Results-Bike, 2019

Total Jobs	123,015
Average Job Density (per mi <sup>2</sup> )	184
Total Workers	160,915
Average Worker Density (per mi <sup>2</sup> )	241

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)





Jobs within 30 minutes (Biking, medium stress) 0 - 1,000 1,000 - 2,500 2,500 - 5,000 5,000 - 7,500 7,500 - 10,000 10,000 - 25,000 25,000 - 50,000 50,000 - 75,000 75,000 - 100,000 100,000 - 250,000 250,000 - 500,000 500,000 - 750,000 750,000 - 1,000,000 1,000,000 - 2,500,000 2,500,000 - 5,000,000 5,000,000 - 7,500,000 7,500,000 - 10,000,000 10,000,000 + State border

MPO boundary —



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



# **Lee County MPO** Job Accessibility Results–Bike, 2019

Total Jobs	247,684
Average Job Density (per mi <sup>2</sup> )	777
Total Workers	264,790
Average Worker Density (per mi <sup>2</sup> )	830

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)





### Lee County MPO



### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)



### Lee County MPO



Jobs within 30 minutes (Biking, medium stress) 0 - 1,000 1,000 - 2,500 2,500 - 5,000 5,000 - 7,500 7,500 - 10,000 10,000 - 25,000 25,000 - 50,000 50,000 - 75,000 75,000 - 100,000 100,000 - 250,000 250,000 - 500,000 500,000 - 750,000 750,000 - 1,000,000 1,000,000 - 2,500,000 2,500,000 - 5,000,000 5,000,000 - 7,500,000 7,500,000 - 10,000,000 10,000,000 + State border

# Lee County MPO



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	1,164,787
Average Job Density (per mi <sup>2</sup> )	1055
Total Workers	998,633
Average Worker Density (per mi <sup>2</sup> )	905

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)







MPO boundary —

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Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)


Job Accessibility Results-Bike, 2019

Total Jobs	66,473
Average Job Density (per mi <sup>2</sup> )	316
Total Workers	60,224
Average Worker Density (per mi <sup>2</sup> )	286

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets) 0-10% 10% - 20%



Job Accessibility Results-Bike, 2019

Total Jobs	1,123,350
Average Job Density (per mi <sup>2</sup> )	1440
Total Workers	1,081,941
Average Worker Density (per mi <sup>2</sup> )	1387

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







MPO boundary —



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	687,323
Average Job Density (per mi <sup>2</sup> )	664
Total Workers	652,213
Average Worker Density (per mi <sup>2</sup> )	630

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





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 Ratio of Weighted Jobs

 (Biking, Low-Stress to Open Streets)

 0-10%

 10% - 20%

 20% - 30%

 20% - 30%

 30% - 40%

 40% - 50%

 50% - 60%

 60% - 70%

 70% - 80%

 80% - 90%

 90% - 100%

 No Data

 State border

 MPO boundary

#### Ocala - Marion County Tranportation Planning Organization

Job Accessibility Results-Bike, 2019

Total Jobs	101,552
Average Job Density (per mi <sup>2</sup> )	158
Total Workers	120,513
Average Worker Density (per mi <sup>2</sup> )	188

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)





# Ocala - Marion County Tranportation Planning Organization



#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





### **Ocala - Marion County Tranportation Planning Organization**



Jobs within 30 minutes

State border — MPO boundary —

### **Ocala - Marion County Tranportation Planning Organization**



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



#### **Okaloosa-Walton Transportation Planning Organization**

Job Accessibility Results-Bike, 2019

Total Jobs	112,618
Average Job Density (per mi <sup>2</sup> )	200
Total Workers	94,338
Average Worker Density (per mi <sup>2</sup> )	167

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)





#### Okaloosa-Walton Transportation Planning Organization



#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





### **Okaloosa-Walton Transportation Planning Organization**



Jobs within 30 minutes

MPO boundary -



### **Okaloosa-Walton Transportation Planning Organization**

Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	604,516
Average Job Density (per mi <sup>2</sup> )	791
Total Workers	578,036
Average Worker Density (per $mi^2$ )	756

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







State border —— MPO boundary ——



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	118,991
Average Job Density (per mi <sup>2</sup> )	402
Total Workers	199,646
Average Worker Density (per mi <sup>2</sup> )	674

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

#### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







MPO boundary -

96



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



97

Job Accessibility Results-Bike, 2019

Total Jobs	232,441
Average Job Density (per mi <sup>2</sup> )	299
Total Workers	272,961
Average Worker Density (per mi <sup>2</sup> )	351

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







Jobs within 30 minutes

100



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	191,122
Average Job Density (per mi <sup>2</sup> )	365
Total Workers	249,393
Average Worker Density (per $mi^2$ )	476

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)







#### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





104


Job Accessibility Results-Bike, 2019

Total Jobs	283,010
Average Job Density (per mi <sup>2</sup> )	549
Total Workers	296,353
Average Worker Density (per mi <sup>2</sup> )	575

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

### Average Job Accessibility by Travel Time Threshold (worker-weighted)



# 1-Year Change in Biking Job Accessibility by Travel Time Threshold (worker-weighted)





### Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

### Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)







MPO boundary —



Ratio of Weighted Jobs (Biking, Low-Stress to Open Streets)



Job Accessibility Results-Bike, 2019

Total Jobs	200,563
Average Job Density (per mi <sup>2</sup> )	487
Total Workers	227,237
Average Worker Density (per mi <sup>2</sup> )	552

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)



# 1-Year Change in Biking Job Accessibility by Travel Time Threshold (worker-weighted)





Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





112



Ratio of Weighted Jobs

0-10%

10% - 20% 20% - 30% 30% - 40% 40% - 50% 50% - 60% 60% - 70% 70% - 80%

80% - 90% 90% - 100% No Data State border -MPO boundary -

Job Accessibility Results-Bike, 2019

Total Jobs	74,914
Average Job Density (per mi <sup>2</sup> )	334
Total Workers	115,548
Average Worker Density (per $mi^2$ )	516

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

#### Average Job Accessibility by Travel Time Threshold (worker-weighted)



# 1-Year Change in Biking Job Accessibility by Travel Time Threshold (worker-weighted)





Weighted Job Accessibility Ratio, Bike Networks to Open Streets (LTS 4)

Kilometers of Bikeable Streets by LTS Category (Percent Change from 2018)





116





### 2.3 Bicycle Network Characteristics in MPOs

The length-wise proportion of bicycle travel network facilities which fall into each of the four LTS categories can be computed and tracked year-to-year. As cities continue to build additional bike lanes and paths, additional destinations become accessible by bike on lower-stress bicycle routes, and tracking the kilometers of facilities in each category allows assessment of the accessibility benefits associated with upgrading bicycle networks.

Table 5 shows the proportion of bicycle travel networks categorized as each LTS level within the included areas, for the OpenStreetMap data used in this report.

МРО	Lowest Stress	Low Stress	Medium Stress	Highest Stress
Bay County Transportation Planning Organization	71.8%	2.3%	9.0%	16.8%
Broward MPO	70.0%	2.5%	11.8%	15.7%
Capital Region Transportation Planning Agency	65.7%	3.1%	15.3%	15.9%
Charlotte-Punta Gorda MPO	80.1%	1.5%	10.7%	7.7%
Collier MPO	72.1%	3.4%	10.3%	14.1%
Florida-Alabama Transportation Planning Organization	74.5%	2.0%	13.4%	10.2%
Forward Pinellas	74.4%	2.1%	11.5%	12.0%
Gainesville MTPO	73.5%	4.4%	12.4%	9.7%
Heartland Regional TPO	68.0%	2.8%	12.7%	16.5%
Hernando/Citrus MPO	78.9%	1.4%	9.1%	10.5%
Hillsborough MPO	71.6%	2.4%	15.9%	10.0%
Indian River County MPO	75.3%	1.0%	13.8%	9.9%
Lake-Sumter MPO	72.5%	4.0%	9.2%	14.3%
Lee County MPO	80.9%	2.1%	7.5%	9.5%
METROPLAN Orlando	62.9%	5.3%	12.1%	19.7%
Martin MPO	68.6%	3.1%	11.0%	17.3%
Miami-Dade TPO	67.9%	2.7%	15.6%	13.8%
North Florida Transportation Planning Organization	70.2%	4.3%	13.4%	12.2%
Ocala - Marion County Tranportation Planning Organization	70.6%	6.9%	11.0%	11.5%
<b>Okaloosa-Walton Transportation Planning Organization</b>	72.5%	3.7%	9.4%	14.3%
Palm Beach MPO	72.5%	2.3%	9.9%	15.3%
Pasco County MPO	75.7%	1.9%	10.4%	12.0%
Polk County Transportation Planning Organization	66.4%	2.1%	16.5%	15.1%
<b>River to Sea Transporation Planning Organization</b>	73.4%	1.2%	11.9%	13.5%
Sarasota-Manatee MPO	76.4%	1.9%	11.4%	10.3%
Space Coast Transportation Planning Organization	69.9%	5.3%	9.7%	15.1%
St. Lucie Transportation Planning Organization	73.0%	1.4%	13.2%	12.4%

Table 5: Proportion of Distance of Bicycle Networks By LTS Category, MPOs, 2019

## 2.4 Accessibility by County

Table 6 provides the average job accessibility by bike for each county on low-stress bicycle networks, and Table 7 provides the average job accessibility by bike for each county on medium-stress bicycle networks. Table 8 and Table 9 show the 1-year change in access to jobs on LTS 2 and LTS 3 networks, respectively.

Table 6: Average Job Accessibility by Travel Time Threshold for Counties (Bike, Low Stress)

County	10 min	20 min	30 min	40 min	50 min	60 min
Alachua	2,307	11,622	24,880	36,389	43,484	46,078
Baker	177	206	206	206	206	206
Bay	674	1,270	1,422	1,473	1,481	1,483
Bradford	177	245	248	248	248	248
Brevard	551	844	916	993	1,006	1,007
Broward	1,996	4,121	4,550	4,673	4,730	4,736
Calhoun	64	90	97	97	97	97
Charlotte	505	992	1,100	1,118	1,118	1,118
Citrus	149	274	308	317	318	318
Clay	727	1,469	1,722	1,843	1,978	2,091
Collier	872	2,038	2,852	3,126	3,182	3,192
Columbia	276	469	477	478	478	478
DeSoto	242	298	298	298	298	298
Dixie	82	95	97	97	97	98
Duval	1,176	2,166	2,471	2,584	2,643	2,686
Escambia	823	1,466	1,528	1,531	1,531	1,531
Flagler	229	689	961	1,090	1,131	1,156
Franklin	281	401	418	418	424	433
Gadsden	257	360	361	361	361	361
Gilchrist	73	79	83	84	85	93
Glades	109	135	135	135	135	135
Gulf	195	262	267	267	267	267
Hamilton	156	216	218	219	220	220
Hardee	194	218	219	219	219	219
Hendry	737	1,094	1,109	1,110	1,110	1,110
Hernando	302	578	636	640	642	644
Highlands	229	346	379	381	381	381
Hillsborough	1,441	2,304	2,508	2,561	2,580	2,582
Holmes	121	153	154	154	154	154
Indian River	404	641	674	688	697	699
Jackson	239	325	328	332	333	335
Jefferson	73	136	149	149	149	149
Lafayette	70	72	72	72	72	72
Lake	449	786	905	952	952	952

Table 6: (continued)						
Lee	862	1,969	2,779	3,200	3,366	3,478
Leon	1,218	2,710	3,291	3,730	4,018	4,379
Levy	88	128	146	154	156	156
Liberty	33	36	36	36	36	36
Madison	189	218	222	228	243	251
Manatee	732	1,113	1,207	1,232	1,240	1,249
Marion	289	410	435	444	446	446
Martin	664	1,046	1,084	1,086	1,086	1,086
Miami-Dade	3,495	6,396	7,919	9,718	11,291	12,229
Monroe	1,991	3,731	5,097	5,525	5,554	5,563
Nassau	266	350	355	355	355	355
Okaloosa	1,462	2,829	3,302	3,540	3,684	3,749
Okeechobee	245	279	280	280	280	280
Orange	1,519	2,726	3,131	3,307	3,355	3,370
Osceola	498	985	1,133	1,175	1,184	1,184
Palm Beach	1,535	2,675	2,915	2,984	3,007	3,017
Pasco	360	552	577	584	591	594
Pinellas	1,751	3,195	3,843	4,245	4,481	4,558
Polk	656	1,450	2,199	2,725	3,033	3,222
Putnam	259	322	323	325	326	327
Santa Rosa	312	685	847	906	941	962
Sarasota	938	1,403	1,475	1,482	1,482	1,482
Seminole	998	1,873	2,471	2,957	3,225	3,431
St. Johns	606	1,074	1,296	1,529	1,599	1,618
St. Lucie	425	606	625	636	636	636
Sumter	317	912	1,125	1,159	1,160	1,162
Suwannee	148	191	197	198	202	203
Taylor	201	282	284	284	284	284
Union	110	123	123	123	123	123
Volusia	496	772	819	821	821	821
Wakulla	95	223	262	296	309	314
Walton	308	764	1,030	1,185	1,205	1,219
Washington	256	382	386	387	387	388

Table 7: Average Medium-Stress Job Accessibility by Travel Time Threshold for Counties (Bike, Medium Stress)

County	10 min	20 min	30 min	40 min	50 min	60 min
Alachua	2,897	14,064	29,598	43,694	54,992	64,326
Baker	253	526	696	749	774	781
Bay	1,260	5,755	11,518	16,732	21,125	24,584
Bradford	241	381	424	438	441	451
Brevard	980	3,408	6,013	8,045	9,581	10,868
Broward	3,535	15,550	32,342	52,588	76,700	101,788
Calhoun	100	189	224	225	226	229
Charlotte	950	4,235	8,302	11,968	14,543	16,396
Citrus	287	1,116	2,024	2,760	3,395	4,019
Clay	980	3,239	5,451	7,765	10,219	12,831
Collier	1,287	4,454	7,616	9,995	11,686	13,123
Columbia	481	1,379	2,049	2,893	3,863	4,870
DeSoto	660	1,694	2,272	2,504	2,742	2,918
Dixie	82	96	100	103	105	107
Duval	2,291	9,227	18,862	28,185	35,835	42,710
Escambia	1,799	8,069	15,222	22,332	27,133	29,890
Flagler	297	1,532	3,374	4,869	6,098	7,415
Franklin	350	543	621	626	632	641
Gadsden	375	873	1,101	1,248	1,343	1,540
Gilchrist	73	80	86	92	102	126
Glades	119	143	144	145	146	153
Gulf	229	413	437	440	442	443
Hamilton	169	244	250	253	266	273
Hardee	447	933	1,194	1,318	1,422	1,698
Hendry	1,033	1,893	2,329	2,420	2,433	2,434
Hernando	475	1,726	3,056	4,249	5,329	6,400
Highlands	580	2,003	3,495	5,369	7,444	9,345
Hillsborough	3,281	16,343	37,243	63,482	92,845	122,482
Holmes	126	189	201	213	242	281
Indian River	1,176	5,056	10,221	16,027	20,644	23,903
Jackson	394	792	869	879	885	896
Jefferson	75	149	180	198	229	251
Lafayette	79	84	86	94	95	97
Lake	761	2,814	5,120	7,284	9,015	10,272
Lee	1,381	5,296	10,282	15,575	20,830	25,290
Leon	2,992	13,965	29,141	43,890	56,587	66,789
Levy	128	224	313	406	473	538
Liberty	34	48	61	62	62	63
Madison	253	337	348	354	369	378

		Table 7	: (contin	ued)		
Manatee	1,574	7,354	14,854	22,985	31,018	38,820
Marion	750	3,165	6,553	10,103	13,919	18,063
Martin	1,316	3,892	6,798	10,021	12,568	15,155
Miami-Dade	6,776	26,036	54,605	89,190	127,930	171,225
Monroe	2,277	4,007	5,528	5,929	5,959	5,970
Nassau	664	1,925	2,817	3,458	4,039	4,292
Okaloosa	1,849	5,157	7,104	8,531	9,670	10,396
Okeechobee	586	1,613	2,423	2,723	2,760	2,771
Orange	3,249	13,033	27,057	44,005	62,632	80,834
Osceola	936	3,503	5,591	6,438	6,815	6,962
Palm Beach	2,557	9,712	19,370	29,361	40,866	52,245
Pasco	748	2,937	5,478	8,342	11,187	14,189
Pinellas	3,426	15,283	33,089	54,163	72,824	89,008
Polk	1,306	5,070	9,642	14,658	20,225	26,364
Putnam	583	1,766	2,598	2,866	2,920	2,953
Santa Rosa	459	1,743	3,091	4,414	5,876	7,504
Sarasota	2,234	9,602	20,898	33,184	44,637	55,182
Seminole	1,656	6,975	14,466	24,152	35,852	51,905
St. Johns	837	2,503	4,205	5,523	6,699	7,596
St. Lucie	1,073	4,539	7,991	11,480	15,769	19,925
Sumter	438	1,481	1,913	2,212	2,415	2,558
Suwannee	281	513	597	695	745	786
Taylor	356	921	1,300	1,464	1,547	1,571
Union	139	177	183	199	201	213
Volusia	1,185	4,900	8,871	12,458	15,720	19,223
Wakulla	138	419	587	776	879	1,060
Walton	341	1,060	1,663	2,181	2,514	2,805
Washington	357	770	954	1,085	1,156	1,228

County	10 min	20 min	30 min	40 min	50 min	60 min
Alachua	+73	+367	+1,618	+2,597	+2,431	+1,437
Baker	+10	+12	+12	+12	+12	+12
Bay	-16	+7	+39	+69	+76	+78
Bradford	-5	+4	+5	+5	+5	+5
Brevard	-5	+38	+65	+124	+133	+133
Broward	+30	+272	+251	+231	+181	+130
Calhoun	-13	-16	-16	-17	-17	-17
Charlotte	+73	+104	+114	+114	+112	+112
Citrus	+4	+17	+25	+27	+27	+27
Clay	-25	-234	-355	-440	-556	-570
Collier	+38	-130	-428	-591	-631	-644
Columbia	-10	-9	-9	-9	-9	-9
DeSoto	+13	+19	+19	+19	+19	+19
Dixie	-26	-50	-60	-62	-63	-62
Duval	+68	+108	+127	+138	+160	+198
Escambia	+65	+215	+232	+232	+232	+232
Flagler	+59	+376	+597	+701	+719	+725
Franklin	+11	+8	+9	+8	+8	+6
Gadsden	+17	+24	+24	+24	+24	+24
Gilchrist	-5	-8	-7	-7	-7	-8
Glades	+15	+28	+27	+27	+27	+27
Gulf	+8	+9	+9	+9	+9	+9
Hamilton	+13	+14	+15	+16	+16	+15
Hardee	-9	-11	-11	-11	-11	-11
Hendry	+46	+55	+62	+63	+63	+63
Hernando	+8	+13	+11	+3	+3	+3
Highlands	+16	+34	+41	+41	+41	+41
Hillsborough	+42	+87	+106	+120	+129	+129
Holmes	+45	+55	+55	+55	+55	+55
Indian River	+56	+145	+154	+157	+159	+159
Jackson	-11	-16	-15	-15	-15	-15
Jefferson	-5	-9	-10	-10	-10	-10
Lafayette	-2	-1	-1	-1	-1	-1
Lake	+19	+36	+36	+37	+34	+34
Lee	+13	-23	-54	-122	-245	-333
Leon	+65	+441	+845	+1,232	+1,506	+1,861
Levy	+2	+3	+3	+2	+2	+1
Liberty	+4	+5	+5	+5	+5	+5
Madison	+4	+3	+3	+3	+3	+3
Manatee	+18	-47	-46	-41	-44	-38

Table 8: 1-Year Change in Time-Weighted Average Job Accessibility for Counties (Bike, Low Stress)

		Table 8:	(continu	ed)		
Marion	+9	+8	+12	+13	+14	+13
Martin	+47	+93	+104	+105	+105	+105
Miami-Dade	+129	+567	+1,031	+1,771	+2,530	+3,215
Monroe	-4	-386	-1,243	-1,923	-1,984	-1,984
Nassau	+42	+56	+56	+56	+56	+56
Okaloosa	+236	+374	+430	+519	+627	+688
Okeechobee	+24	+24	+24	+24	+24	+24
Orange	+96	+144	+96	+76	+77	+75
Osceola	+12	-1	-23	-34	-60	-71
Palm Beach	-3	-48	-93	-104	-110	-109
Pasco	+14	+27	+29	+30	+31	+30
Pinellas	+109	+317	+408	+491	+566	+606
Polk	+26	+108	+91	-88	-260	-443
Putnam	+25	+27	+27	+28	+28	+29
Santa Rosa	+26	+97	+177	+228	+263	+284
Sarasota	+38	+38	+44	+43	+39	+33
Seminole	+57	+237	+486	+795	+994	+1,195
St. Johns	+38	+78	+98	+140	+134	+138
St. Lucie	+8	+16	+18	+20	+20	+20
Sumter	+5	+3	+11	+14	+14	+15
Suwannee	+4	+5	+4	+3	+1	+1
Taylor	-7	-3	-2	-2	-2	-3
Union	+9	+10	+10	+10	+10	+10
Volusia	+25	+47	+62	+46	+27	+20
Wakulla	+5	+5	+6	+6	+4	+5
Walton	+27	+54	+68	+95	+94	+93
Washington	+8	+19	+19	+19	+18	+19

Table 9: 1-Year Change in Time-Weighted Average Job Accessibility for Counties (Bike, Medium Stress)

County	10 min	20 min	30 min	40 min	50 min	60 min
Alachua	+146	+588	+1,354	+1,896	+1,941	+2,312
Baker	+26	+60	+63	+61	+61	+60
Bay	-20	-12	-14	+6	+28	-14
Bradford	+3	+15	+29	+33	+34	+40
Brevard	-41	-459	-1,265	-2,604	-4,496	-6,272
Broward	+111	+286	+494	+579	+884	+1,265
Calhoun	-13	-23	-22	-22	-22	-21
Charlotte	+77	+101	+144	+197	+276	+405
Citrus	+2	+37	+58	+74	+93	+110
Clay	+22	-6	-236	-420	-643	-1,035
Collier	+21	-381	-1,197	-2,251	-3,659	-5,335
Columbia	-20	-67	-209	-388	-477	-572
DeSoto	+28	+67	+73	+80	+96	+115
Dixie	-26	-50	-63	-69	-90	-134
Duval	+118	+216	+676	+1,504	+2,324	+3,300
Escambia	+130	+706	+1,701	+2,835	+3,432	+3,894
Flagler	+56	+561	+1,303	+1,580	+1,514	+1,721
Franklin	+9	-15	-11	-12	-13	-14
Gadsden	+23	+30	+47	+64	+95	+97
Gilchrist	-5	-7	-7	-8	-35	-57
Glades	+15	+29	+30	+29	+28	+30
Gulf	+9	+11	+13	+12	+12	+12
Hamilton	+17	+12	+12	+14	+16	+17
Hardee	-15	-56	-79	-82	-76	-71
Hendry	+54	+70	+129	+150	+155	+155
Hernando	+13	+50	+122	+206	+251	+269
Highlands	+61	+357	+553	+884	+1,371	+1,659
Hillsborough	+31	+250	+521	+912	+699	+259
Holmes	+46	+69	+72	+77	+86	+102
Indian River	+92	+273	+537	+793	+1,139	+1,356
Jackson	-26	-49	-49	-49	-49	-49
Jefferson	-4	-9	-8	-7	-8	-5
Lafayette	-4	-4	-6	-6	-6	-6
Lake	+20	+42	+69	+213	+321	+434
Lee	+32	+28	+26	+51	-15	-224
Leon	+190	+876	+1,749	+2,669	+3,380	+3,722
Levy	+4	+5	+2	-2	-6	-11
Liberty	+4	+6	+5	+5	+5	+5
Madison	+3	0	+1	0	0	0

		Table 9:	(continu	ed)		
Manatee	+18	+38	-155	-397	-570	-550
Marion	+11	+100	+165	+331	+843	+1,613
Martin	+40	-14	-25	+498	+721	+782
Miami-Dade	+184	+845	+1,332	-458	-3,233	-4,512
Monroe	-10	-491	-1,728	-2,258	-2,258	-2,258
Nassau	+60	+197	+346	+520	+689	+775
Okaloosa	+221	+401	+541	+767	+1,184	+1,435
Okeechobee	+68	+256	+374	+423	+429	+428
Orange	+145	+400	+649	+865	+1,119	+1,311
Osceola	+4	-15	-4	+45	+110	+78
Palm Beach	+58	+232	+549	+737	+914	+1,059
Pasco	+14	+48	+111	+201	+315	+463
Pinellas	+94	+313	+339	+75	-901	-2,427
Polk	-1	-59	-35	+133	+533	+889
Putnam	+51	+117	+140	+150	+162	+160
Santa Rosa	+38	+165	+331	+479	+632	+757
Sarasota	+46	+109	+95	-554	-734	+130
Seminole	+60	+233	+638	+1,574	+2,604	+2,996
St. Johns	+33	+61	+76	+265	+349	+438
St. Lucie	+28	+98	+219	+381	+472	+613
Sumter	+8	+11	+32	+56	+63	+62
Suwannee	+11	+18	+24	+19	+4	-25
Taylor	-11	+28	+64	+80	+89	+93
Union	+9	+20	+23	+25	+25	+22
Volusia	+61	+188	+306	+217	+98	+128
Wakulla	+5	+9	+15	+11	+7	+7
Walton	+18	+10	+64	+160	+169	+182
Washington	+15	+47	+60	+69	+73	+80

## **3** Data Sources and Methodology

The following sections provide a brief overview of the data sources and methodology used to prepare this report. For a detailed description, please consult the Accessibility Observatory's *Access Across America: Bike 2019 Methodology* report.

### 3.1 Bicycle Level of Traffic Stress

Bicycle Level of Traffic Stress (LTS) evaluation is a method for classifying street segments' suitability for bicycling based on the physical characteristics of the roadway, such as speed limits, lane configurations, and the types of bicycle facilities present, if any. A value of 1 (lowest stress) to 4 (highest stress) is assigned to each street segment based on these characteristics. In this study, roadway characteristics are determined by street segment tag data in the OpenStreetMap network data used for routing computations. We define the LTS 1 network as "lowest-stress", LTS 2 network as "low-stress", the LTS 3 network as "medium-stress", and the LTS 4 network as the "open streets" network — i.e. if a person feels comfortable riding a bicycle on all streets (except limited-access highways, such as interstates and freeways), including arterials, they would experience "open streets" access.

### 3.2 Travel Times by Bike

Travel times by biking were calculated using detailed road networks for the entire country, with individual street links and intersections classified by LTS score. A constant bicycle speed of 5 m/s (11.2 mi/h) is used. Travel times were calculated for each of the four LTS levels, which are cumulative — i.e. the low-stress network includes facilities in both LTS 1 and LTS 2 classifications, the medium-stress network includes facilities in LTS classifications 1, 2, or 3, etc.

### 3.3 Geography

Census blocks are the fundamental unit for travel time and accessibility calculation, and block-level accessibility results are aggregated over larger areas for analysis. When calculating accessibility for an individual origin, all potential destinations within 20 km (12.4 miles) are included, even if those destinations are located in a different state or other jurisdiction. Only locations within the United States are included. The MPO jurisdictions used for aggregate analysis are based on data provided in the US Department of Transportation's National Transportation Atlas Database 2016<sup>1</sup>.

### 3.4 Population and Job Distribution

Data describing the distribution of labor and employment in the region are drawn from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics program (LEHD)<sup>2</sup>. The LEHD Origin-Destination Employment Statistics (LODES) dataset, which is updated annually, provides Census

<sup>&</sup>lt;sup>1</sup>http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\_transportation\_ atlas\_database/index.html

<sup>&</sup>lt;sup>2</sup>http://lehd.ces.census.gov/data/

block-level estimates of employee home and work locations. This analysis uses LODES data from 2017, the most recent available as of this writing.

#### 3.5 Accessibility Calculation

The accessibility metrics presented in this analysis are *cumulative opportunity* metrics — they reflect the total amount of opportunities (in this case, jobs) reachable within given travel time thresholds from an origin location. To calculate these metrics, the travel time calculations described above are performed first to identify the travel time from one origin to all surrounding destinations, for each LTS level. Next, the number of jobs at each destination is summed for all destinations that can be reached within a given travel time threshold, providing the accessibility value for a single origin at a single departure time, for a given LTS level.

This process provides accessibility values for individual Census blocks. To summarize this blocklevel data to larger areas such as MPOs and states, the accessibility values for the relevant blocks are weighted by the number of workers living in each block and then averaged. This person-weighted approach allows the summary metric to reflect the distribution of residents within the area. For example, a person-weighted accessibility value of 134,173 indicates that a typical resident within the area can reach 134,173 jobs.

In the case of accessibility by biking, local accessibility levels are very sensitive to the presence or absence of good bicycle facilities, and the willingness of a rider to use more stressful roadways. A person willing to ride on more stressful roadways will gain significantly more access to valuable destinations, while a person who is more cautious may be forced to take more circuitous routes to their destinations, or be unable to reach them entirely.

### 4 Comparisons With Previous Years

Beginning in data year 2018, federal jobs and federal workers are not included due to changes in underlying datasets from the U.S. Census Bureau. As a result, comparisons between 2018 and 2019 accessibility results are possible, and provide a way to monitor changes in accessibility over time. We compare both low-stress and medium-stress accessibility between the data for *Access Across America: Bike 2018*, as well as comparing the bicycle network compositions in terms of kilometers of facility length by LTS category.

It is worth noting that bicycle network changes assigned to a given year may have existed previously, but never had been entered into OpenStreetMap by its user community. If, for instance, a group of community members in a city undertakes an effort to edit OpenStreetMap to include the city's bike network, which largely had not been tracked previously, then the data will reflect a large 1-year jump in kilometers of bicycle facilities, as well as potentially large changes in bicycle access. Thus, if not all existing bicycle facilities were tracked in previous years, then bicycle access may have been underreported, leading to larger changes in access than actually experienced by workers.

## **5** Conclusions

Insights for bicycle urban planning can be found in comparing bicycle access at different LTS tolerances. "Open streets" accessibility indicates the level of bike accessibility that everyone would experience if every street were made comfortable for biking on. Thus, comparing the access currently experienced on the low-stress network with that on the "open streets" network quantifies the degree to which job access could be improved by providing low-stress bicycle facilities on high-stress routes. This ratio is graphed in the second chart on the MPO data pages in Section 2.2, and also mapped for the MPO jurisdictions included in the study; areas with a lower ratio of low-stress access to "open streets" access are colored more intensely. Such areas may lack good connections to the low-stress bike network, and aggregate analysis at the neighborhood level may offer planners a tool to identify where investments in low-stress bicycle facilities would have the greatest benefit in improving access to destinations.

The ratios comparing low-stress and medium-stress accessibility to "open streets" accessibility allow comparisons of bicycle network performance between MPOs of different sizes. The MPOs which perform the best when comparing medium-stress access to the maximum possible bike access all have bicycle networks which, on average, allow their residents to access a greater percentage of the job opportunities which can be accessed by biking on the "open streets" network. This performance metric assesses how well an MPO's bicycle network allows people to reach the available valuable opportunities.