

TRANSPORTATION LEADERSHIP ACADEMY



Transportation
for America



U.S. Department of Transportation
**Federal Highway
Administration**

BEYOND MAP-21: MEASURES THAT FOCUS ON YOUR COMMUNITY

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Performance Measure Exercise



Assignment: Come up with a performance measure for 1) low-income residents' access to jobs and/or 2) riders' access to transit stations (or bus stops).

Your measure(s) should be designed to show how well the region is doing, as well as inform incremental decision-making within your agency.

Things to think about:

- Data needs and sources
- How to perform the analysis to calculate the measure(s)
- What the target(s) should be, and why
- How to communicate the measure(s)



State
Smart Transportation
Initiative

Practical Solutions to Move America Forward



Measuring performance through accessibility

Eric Sundquist
T4A Academy
May 20, 2016



Why performance measures?

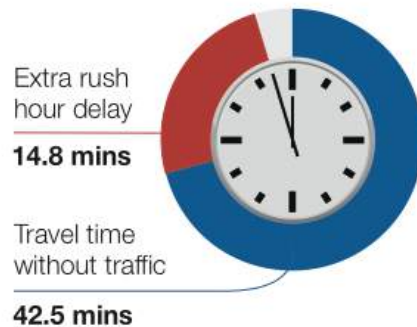
- Scan for conditions
- Track changes over time
- Diagnose problems
- Assess solutions
- Communicate

Accessibility

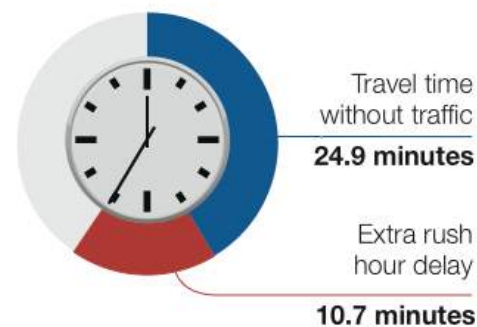


- Time or distance to reach destinations
- Better addresses travel needs than mobility measures alone
- Addresses speed and proximity
- Can assess land use or transportation questions
- Applies to all modes

Atlanta Travel Time
57.4 minutes



Chicago Travel Time
35.6 minutes



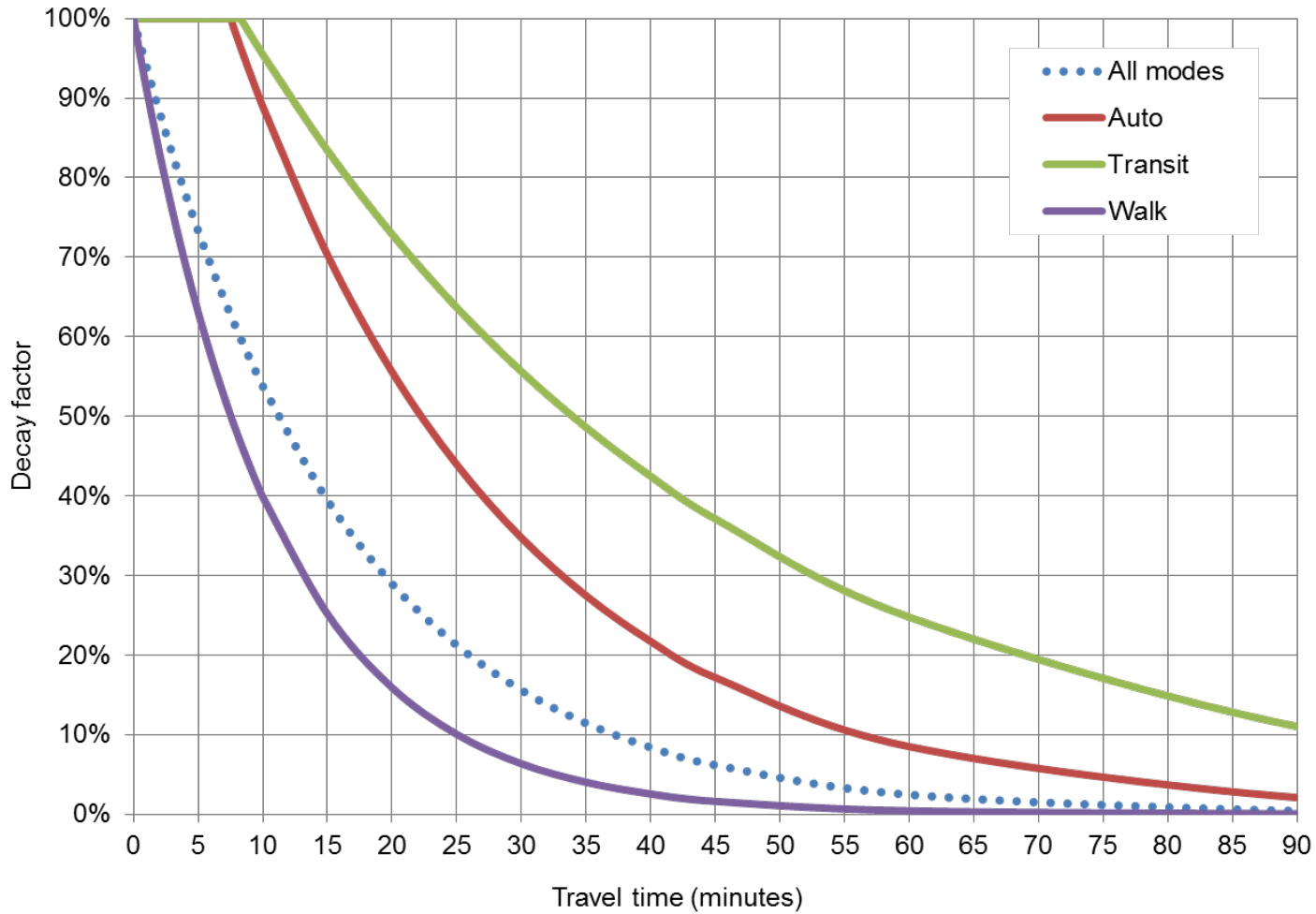
Calculating accessibility



- Network
- Land uses
- Method to calculate distances/times



Calculating accessibility

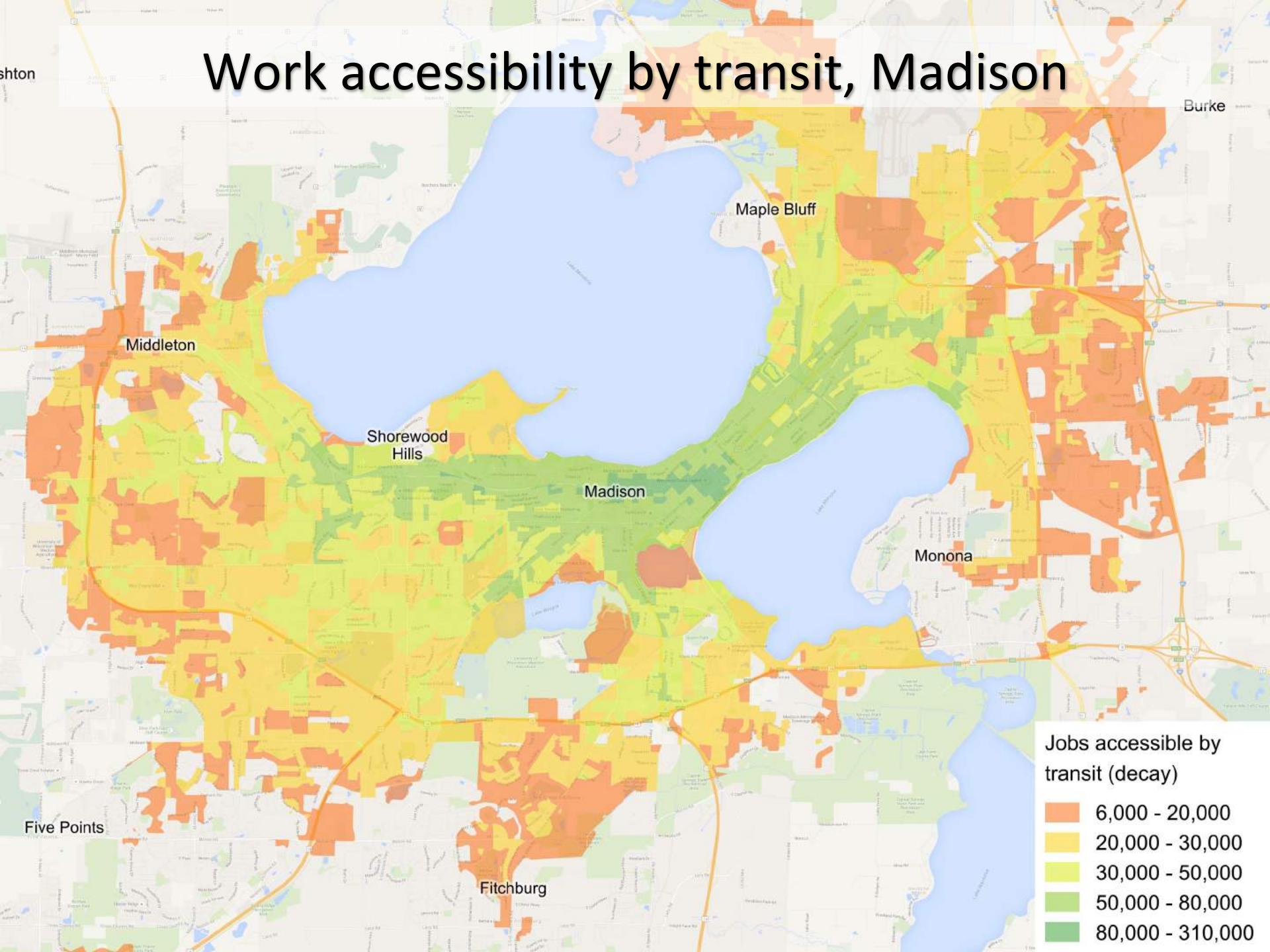




Two metrics

- Work: access to jobs or a subset of jobs
 - 20 percent of trips, 30 percent of VMT
 - Unit is decay-weighted jobs
- Non-work: access to groceries, parks, banks, restaurants and other non-work destinations
 - 80 percent of trips, 70 percent of VMT
 - Unit is a score up to 100

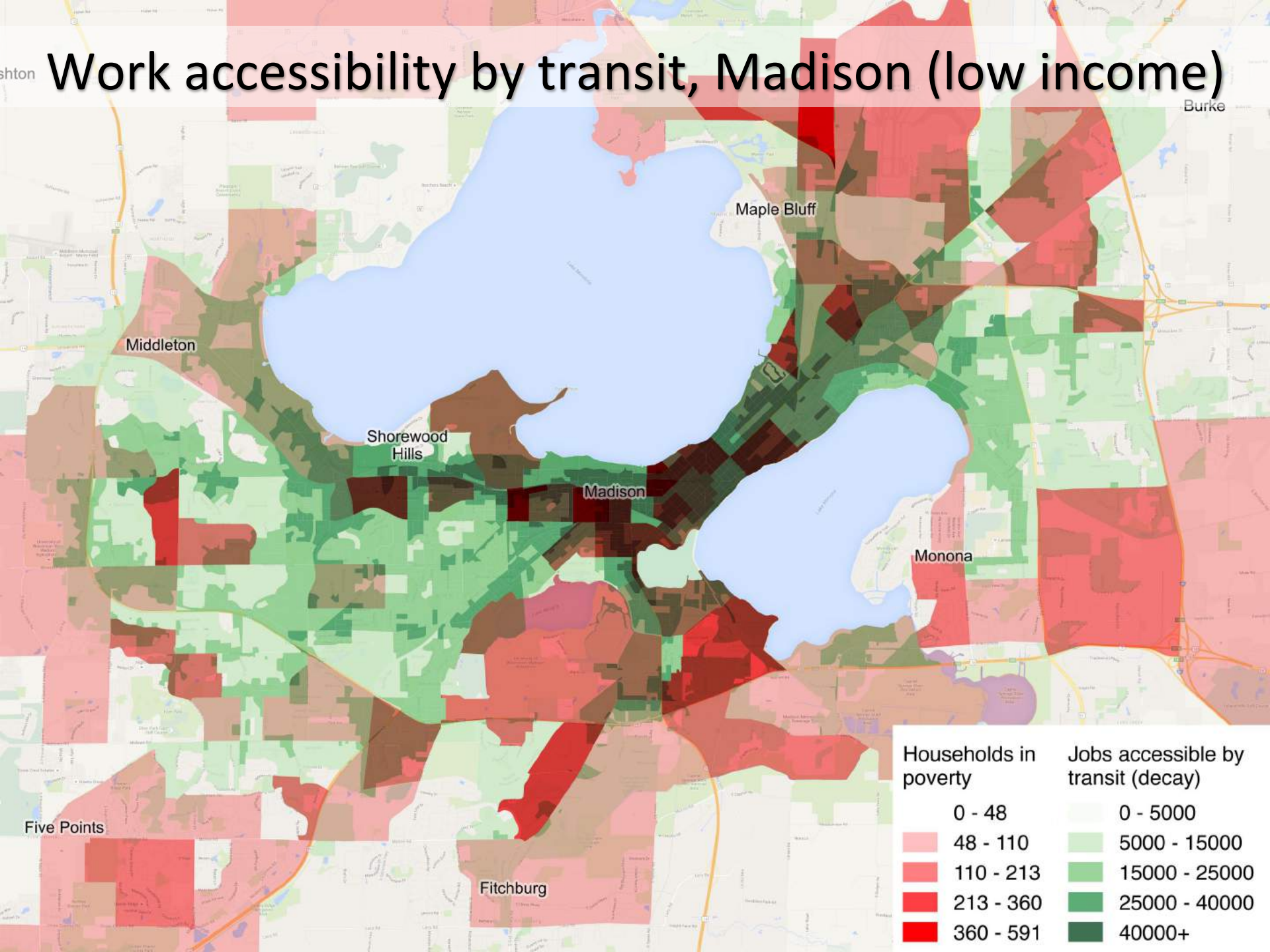
Work accessibility by transit, Madison



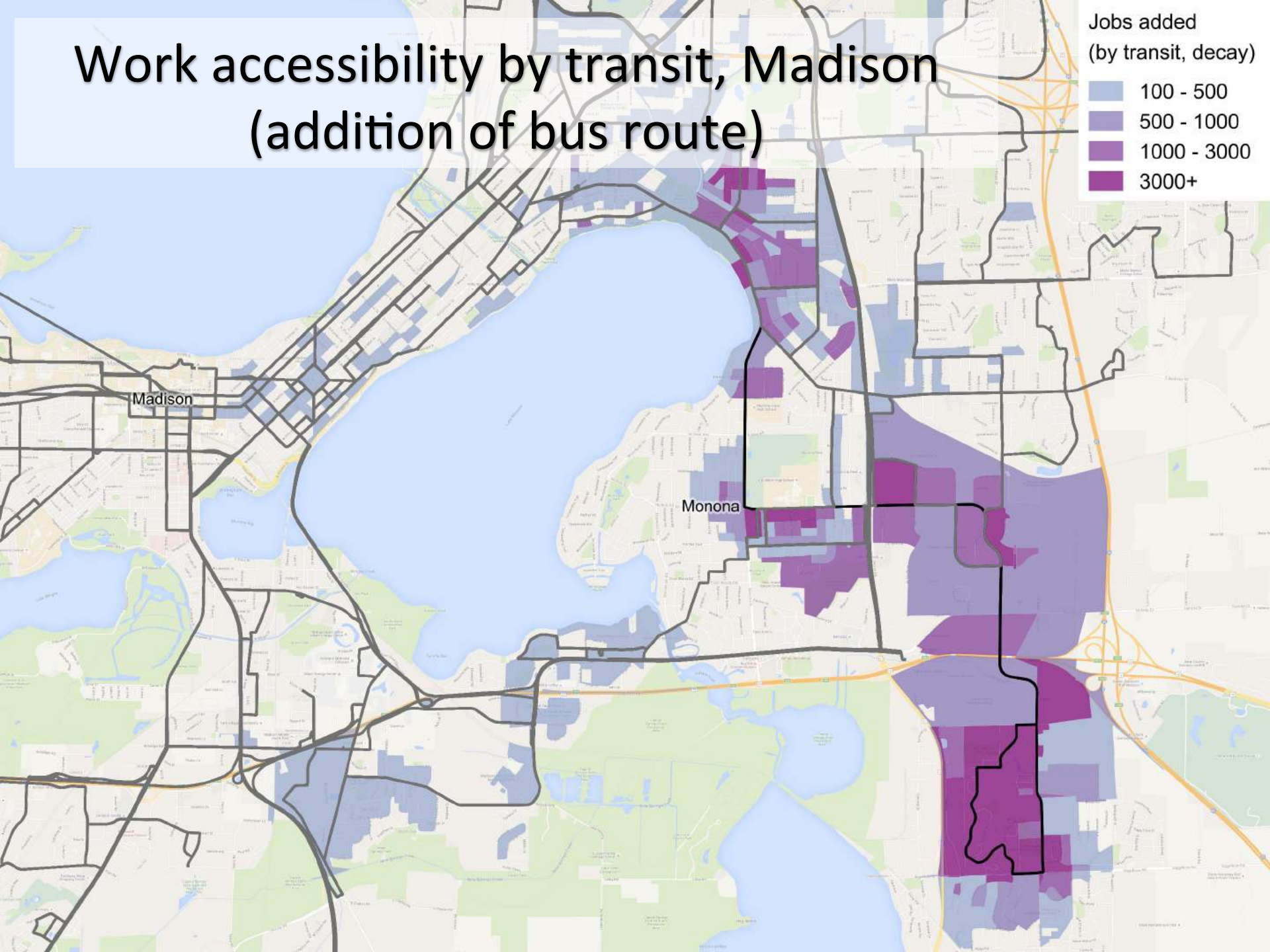
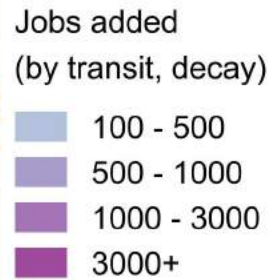
Jobs accessible by transit (decay)

- 6,000 - 20,000
- 20,000 - 30,000
- 30,000 - 50,000
- 50,000 - 80,000
- 80,000 - 310,000

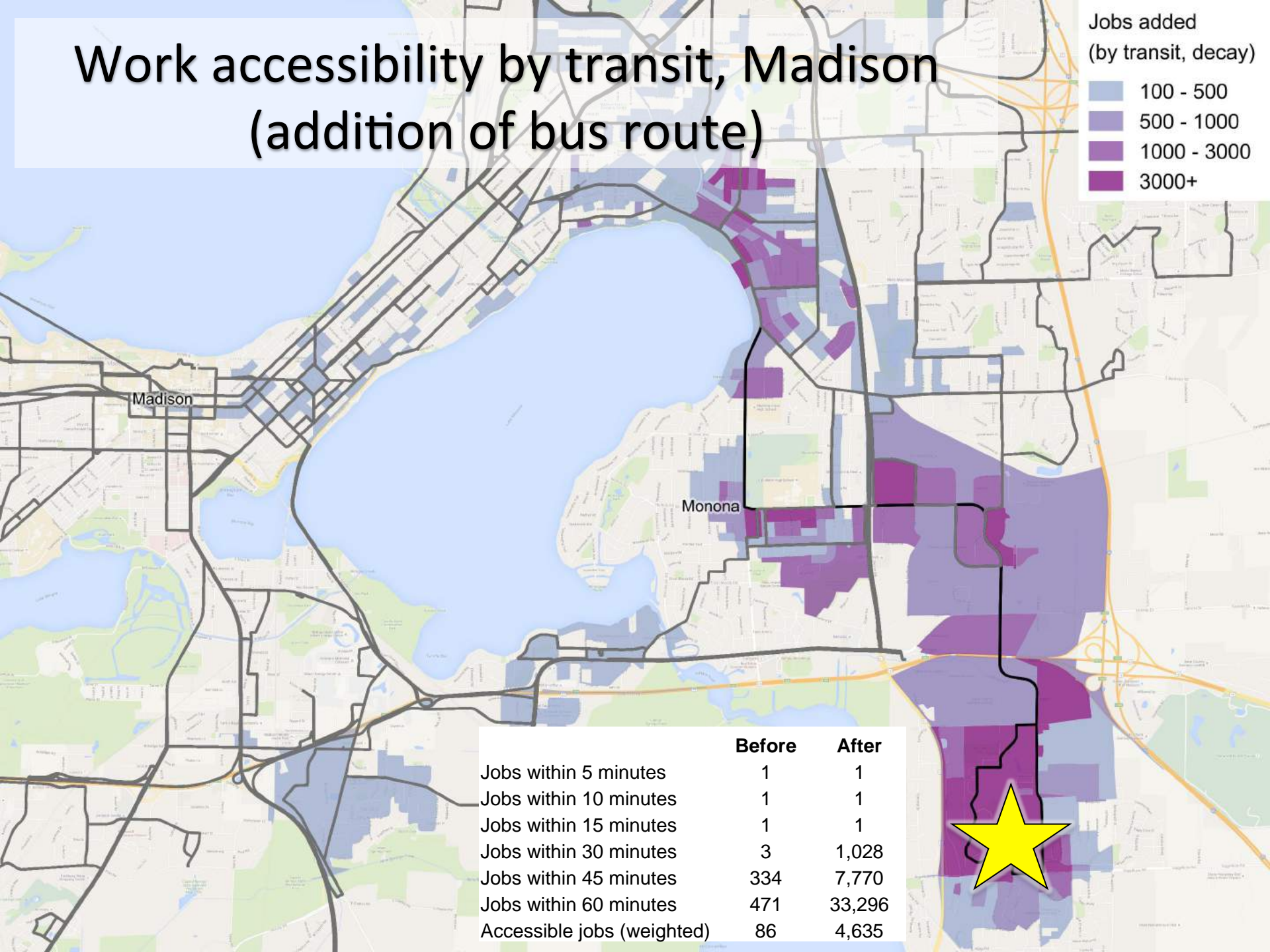
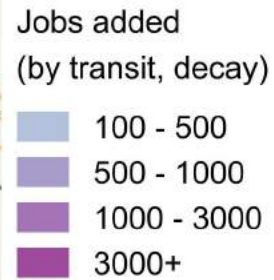
Work accessibility by transit, Madison (low income)



Work accessibility by transit, Madison (addition of bus route)

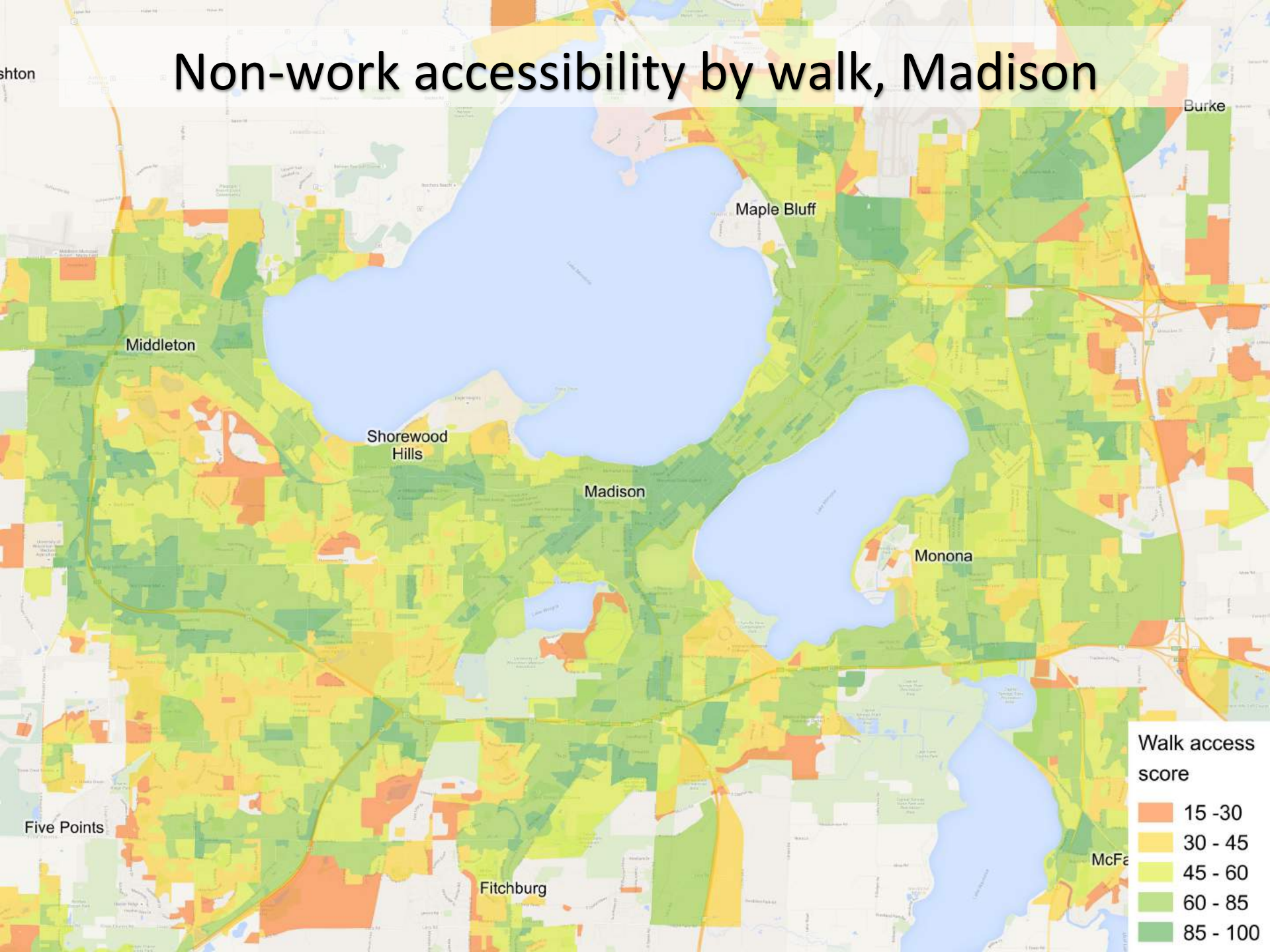


Work accessibility by transit, Madison (addition of bus route)



	Before	After
Jobs within 5 minutes	1	1
Jobs within 10 minutes	1	1
Jobs within 15 minutes	1	1
Jobs within 30 minutes	3	1,028
Jobs within 45 minutes	334	7,770
Jobs within 60 minutes	471	33,296
Accessible jobs (weighted)	86	4,635

Non-work accessibility by walk, Madison



Non-work accessibility by walk, Madison (part)

Dane County
Regional Airport

East Towne
Mall

Burke

Walk accessibility
score



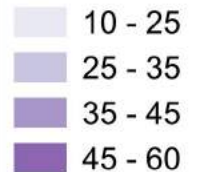
Non-work accessibility by walk, Madison (part)

Dane County
Regional Airport

East Towne
Mall

Burke

Points added
(mixed use)

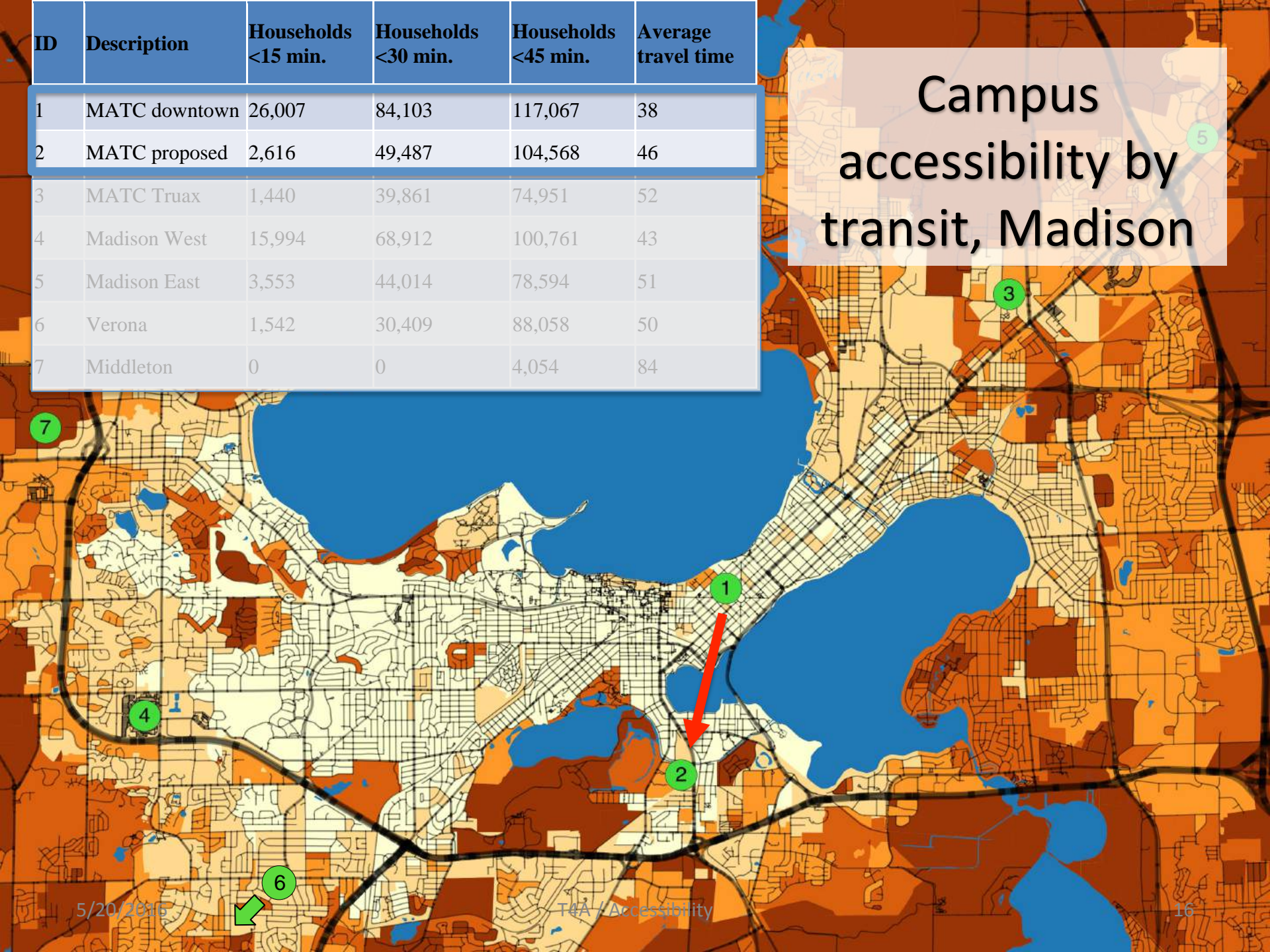


Walk accessibility
score



ID	Description	Households <15 min.	Households <30 min.	Households <45 min.	Average travel time
1	MATC downtown	26,007	84,103	117,067	38
2	MATC proposed	2,616	49,487	104,568	46
3	MATC Truax	1,440	39,861	74,951	52
4	Madison West	15,994	68,912	100,761	43
5	Madison East	3,553	44,014	78,594	51
6	Verona	1,542	30,409	88,058	50
7	Middleton	0	0	4,054	84

Campus accessibility by transit, Madison



- US DOT connectivity measures
- California DOT strategic plan
- Virginia DOT project selection (HB 2)
- Maryland DOT transportation/land use development and project selection (HB 1013)
- Sacramento LRT station areas
- Madison Beltline

Goal 3: Sustainability, Livability and Economy

“Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.”

Strategic Objectives	Performance Measures	Targets
<p>PEOPLE: Improve the quality of life for all Californians by providing mobility choice, increasing accessibility to all modes of transportation and creating transportation corridors not only for conveyance of people, goods, and services, but also as livable public spaces.</p>	<p>Percentage increase of non-auto modes for:</p> <ul style="list-style-type: none"> • Bicycle • Pedestrian • Transit 	<p>By 2020, increase non-auto modes*:</p> <ul style="list-style-type: none"> • Triple bicycle; • Double pedestrian; and • Double transit. <p>(2010-12 California Household Travel survey's baseline.)</p>
	<p>Accessibility Score. (To be determined considering e.g., multi-modal transportation proximity to jobs, disadvantaged communities, housing services, transit-oriented communities, etc.)</p>	<p>By December 2016, develop and adopt Caltrans Accessibility Score.</p>
	<p>Livability Score. (To be determined considering, e.g., quality of life, noise, safety, localized emissions, environmental justice concerns, etc.)</p>	<p>By December 2016, develop and adopt Caltrans Livability Score.</p>
	<p>Percentage of top 25 priority corridor system master plans completed to enhance sustainability of transportation system. (Priority corridors to be determined considering: mobility, freight, highways, transit, rail, bike, pedestrian, aviation, etc.)</p>	<p>By 2017, complete corridor system plans for all State routes.</p> <p>By 2020, complete top 25 corridor system management plans.</p>

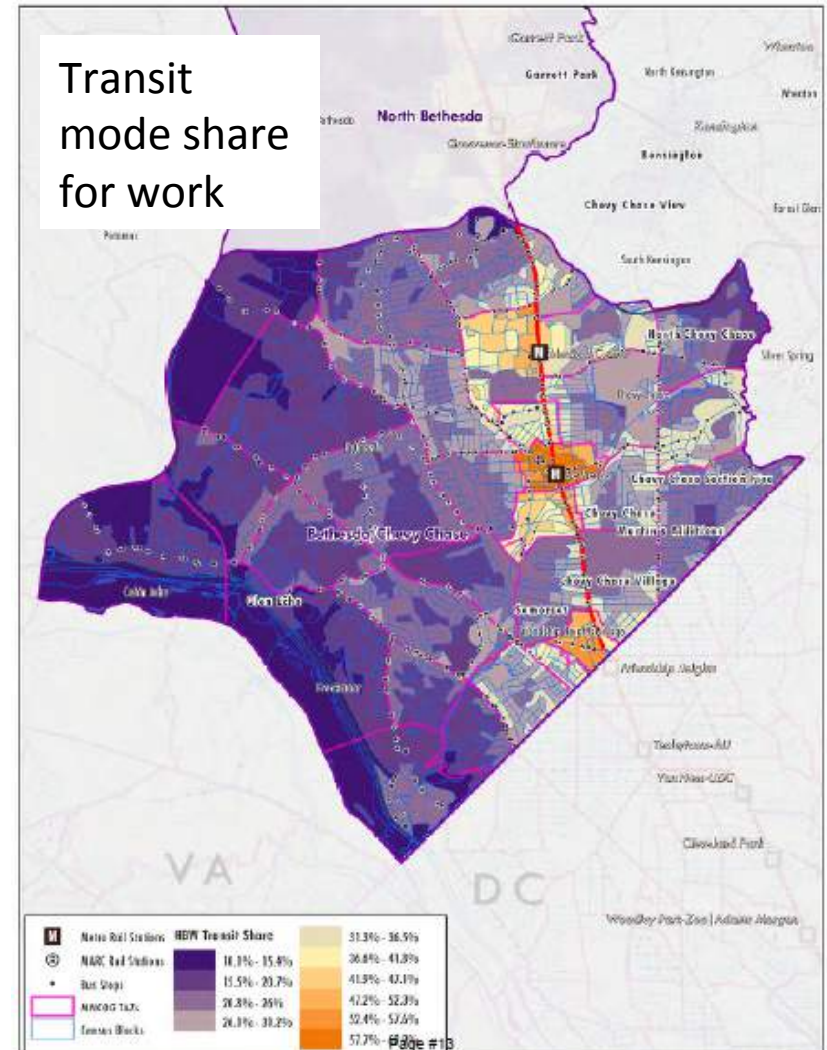
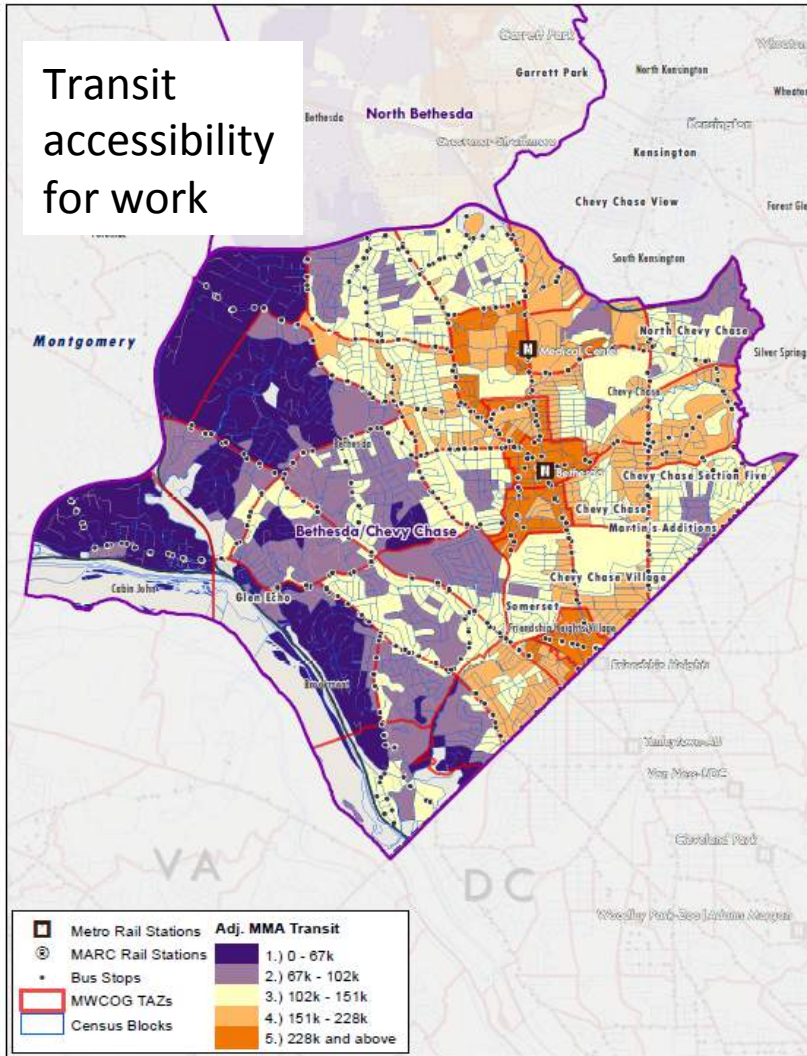
3.3 ACCESSIBILITY MEASURES

The goal of the three HB2 accessibility measures is to enhance worker and overall household access to jobs and other opportunities, and provide multiple and connected modal choices. Listed below in Table 3.3 are brief summaries of the measures, and additional information is available in Appendix C.

Table 3.3 Accessibility Measures

ID	Measure Name	Measure Description	Measure Objective	Measure Weight
A.1	Access to Jobs	Change in cumulative jobs accessibility within 45 minutes (within 60 minutes for transit projects)	Measure assesses the change in cumulative access to employment opportunities as a result of project implementation based on the Virginia accessibility tool.	60%
A.2	Access to Jobs for Disadvantaged Populations	Change in cumulative job accessibility for disadvantaged populations and accessibility within 45 minutes (within 60 minutes for transit projects)	Measure assesses the change in existing cumulative access to employment opportunities as a result of project implementation based on the Virginia accessibility tool.	20%
A.3	Access to Multimodal Choices	Assessment of the project support for connections between modes, and promotion of multiple transportation choices	Measure assigns more points for projects that enhance interconnections among modes, provide accessible and reliable transportation for all users, encourage travel demand management, and potential to support emergency mobility.	20%

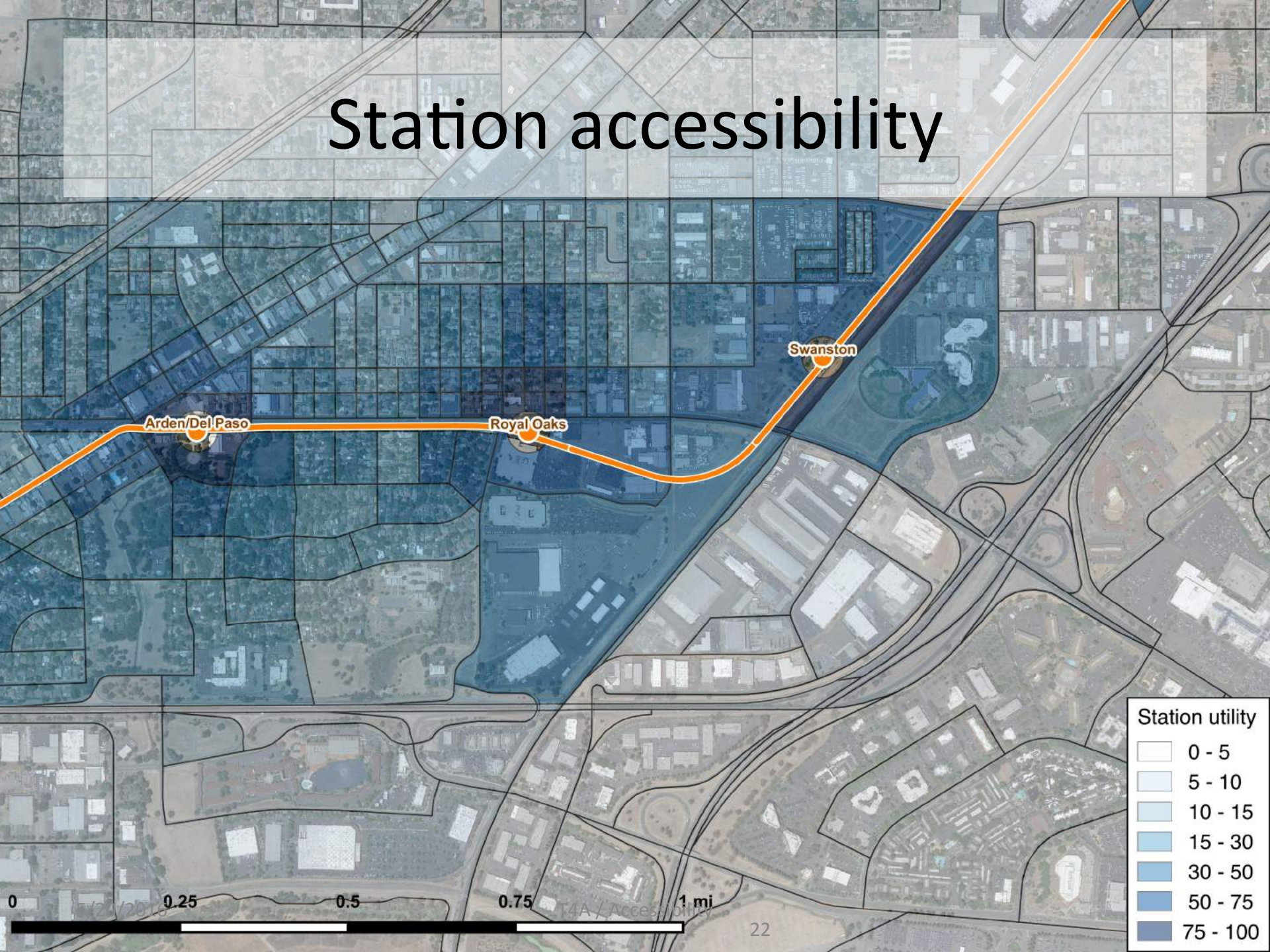
Maryland



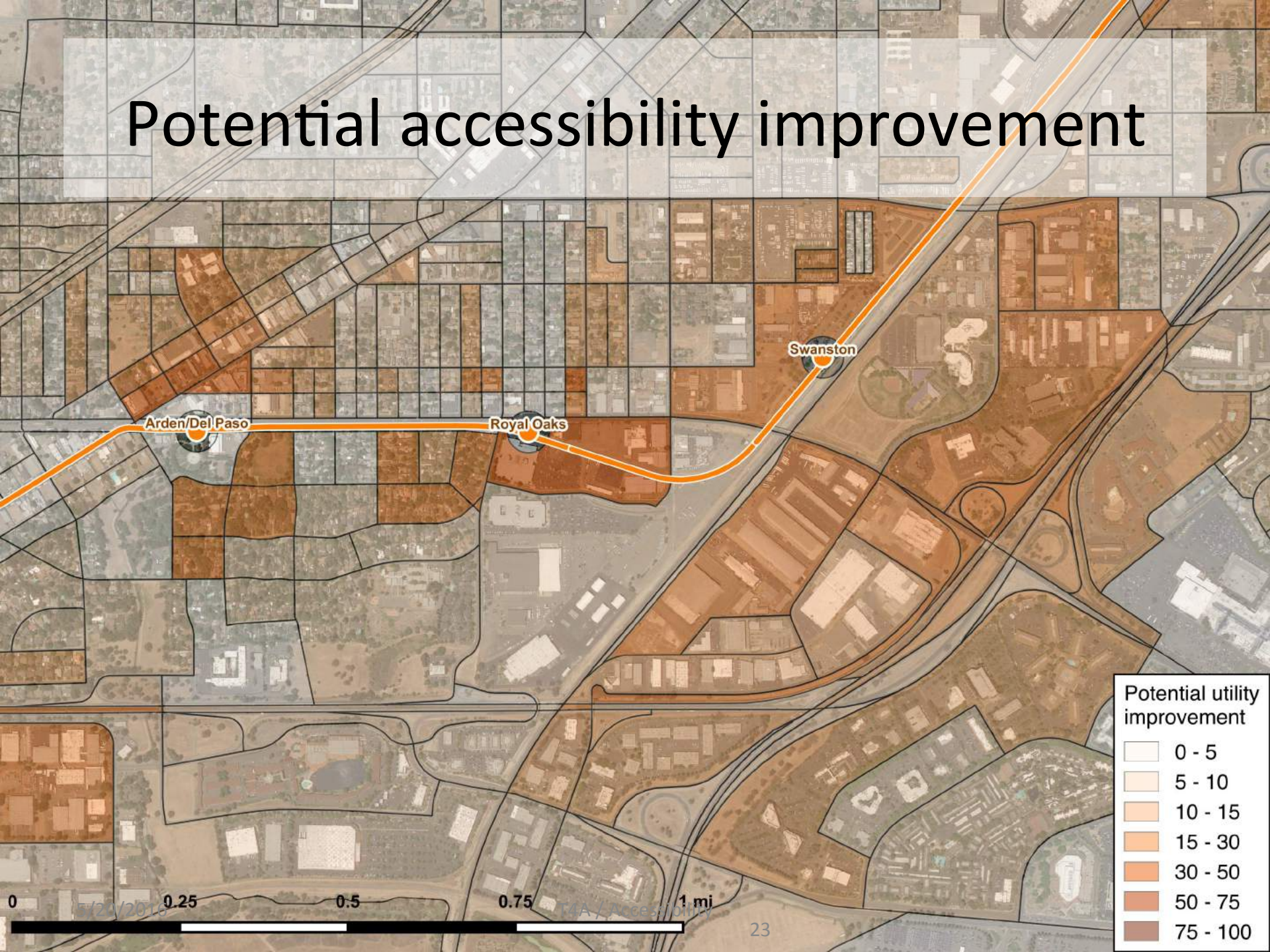
Sacramento



Station accessibility



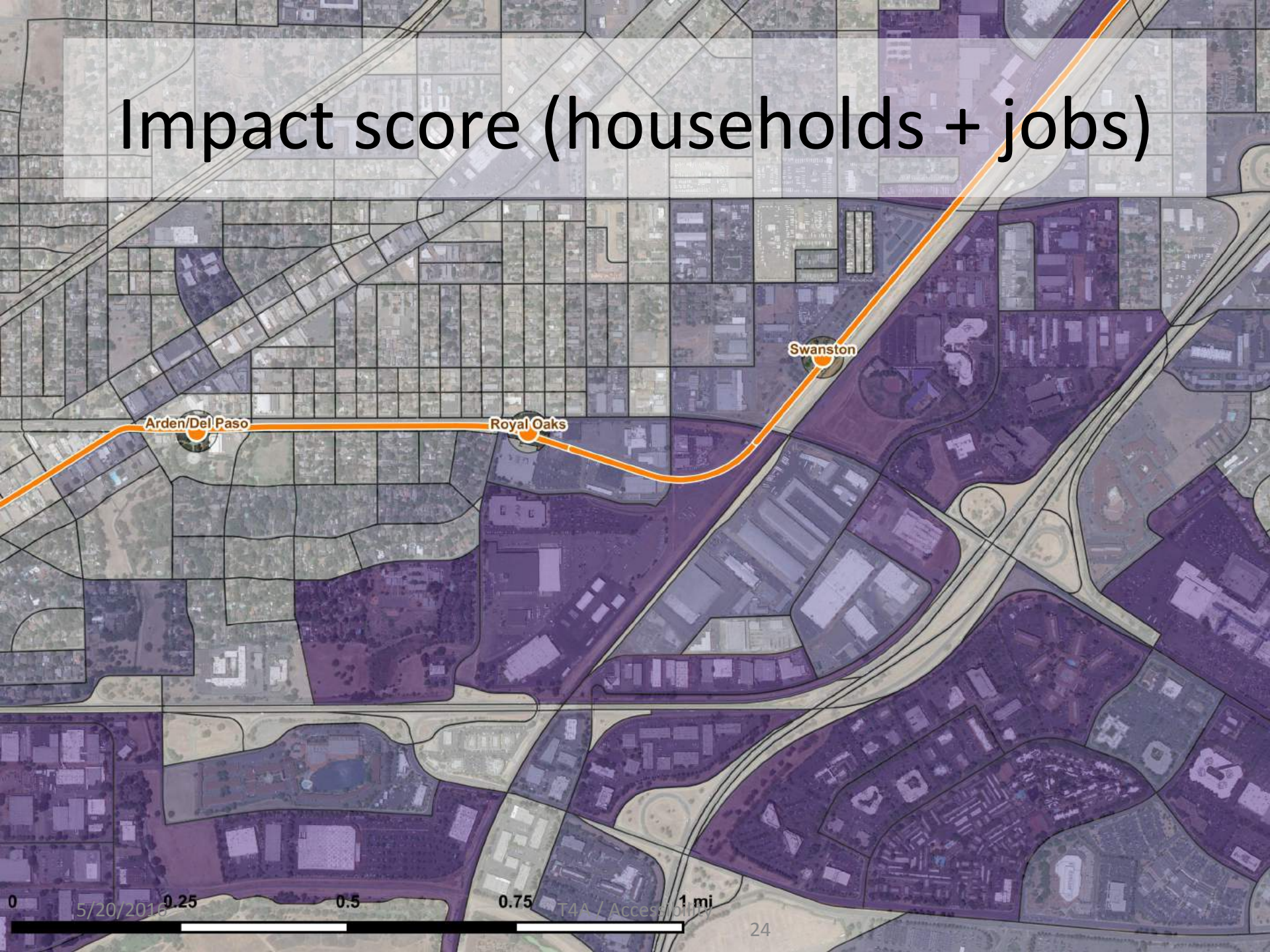
Potential accessibility improvement



Potential utility improvement	
0 - 5	Lightest brown
5 - 10	Light brown
10 - 15	Light orange-brown
15 - 30	Orange-brown
30 - 50	Orange
50 - 75	Dark orange
75 - 100	Darkest brown

0 0.25 0.5 0.75 1 mi
5/20/2018 T4A / Accessibility

Impact score (households + jobs)



Arden/Del Paso

Royal Oaks

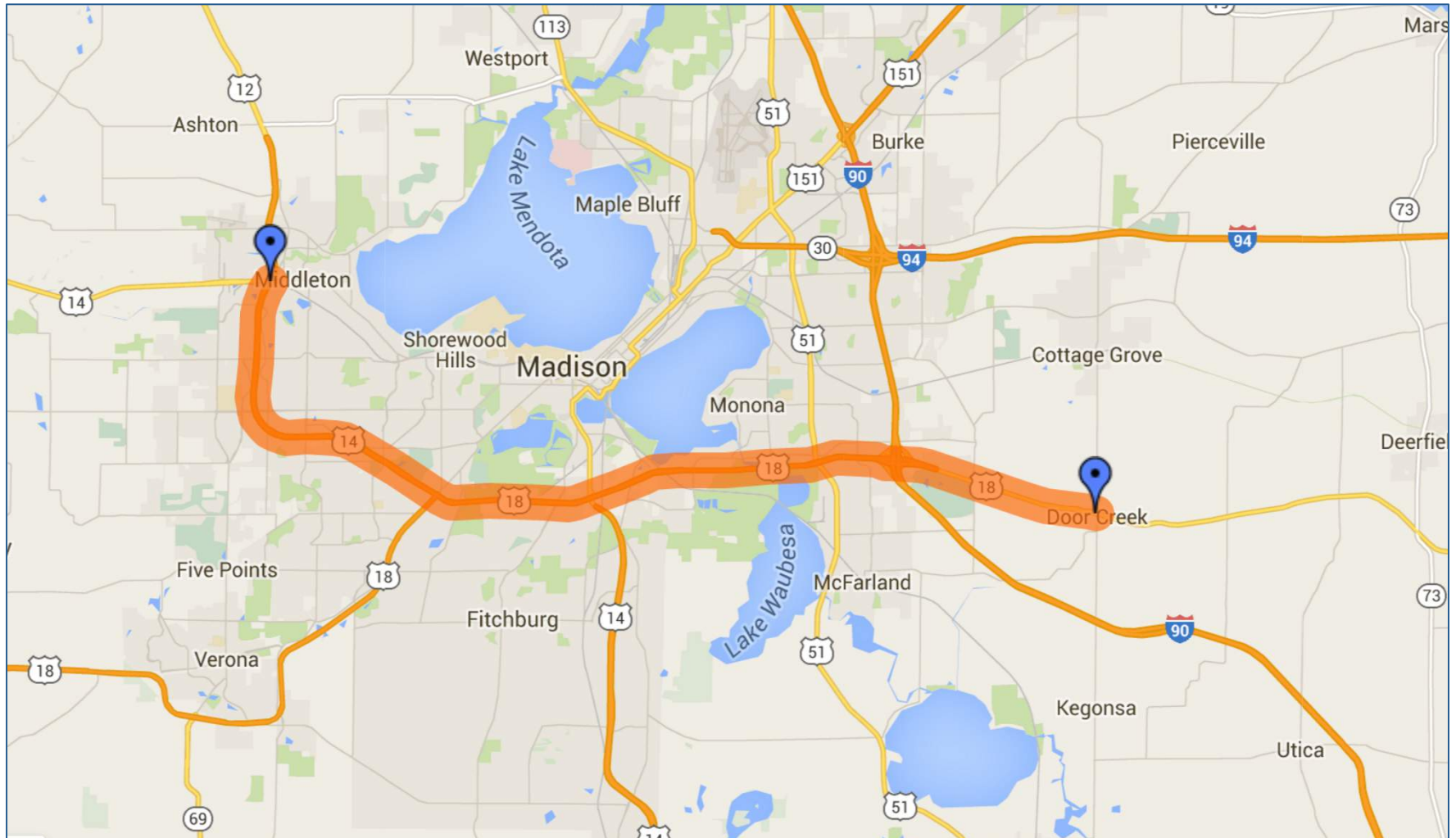
Swanston

0 0.25 0.5 0.75 1 mi

5/20/2018

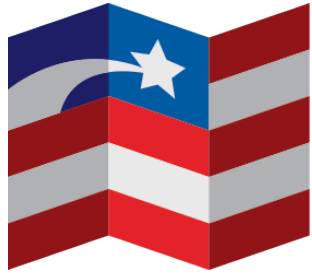
T4A / Accessibility

Madison





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Transportation for America

Transportation Leadership Academy

May 20, 2016

Beth Osborne, Vice President for Technical Assistance

www.T4america.org

@t4america

Location Affordability Portal

Enter a location...



Cleveland-Elyria-Mentor, OH > Cuyahoga County > Cleveland

Cleveland

Enter an address, intersection, city, county, state or zip code to add marker. Markers may be dragged to a new location.

Household Profile

Median-Income Family

\$48,952 annual income

4 people

2 commuters

Switch to this profile and location in [My Transportation Cost Calculator](#)

Average costs as a percent of income in this location for Median-Income Family Households:

Renter Owner Combined

Housing	+	Transportation	=	Location Affordability
27%		22%		49%
\$13,217		\$10,769		\$23,986

On average, Median-Income Family Households in this location would:

Own **1.9** vehicles

Drive **21,384** miles annually

Take **95** transit trips annually

Information on Map

Location Affordability (Housing and Transportation, % of Income)

Median-Income Family Household



Google

Map data ©2016 Google | [Terms of Use](#) | [Report a map error](#)

Location Affordability Portal

Cape Coral-Fort Myers, FL > Lee County

Lee County

Enter an address, intersection, city, county, state or zip code to add marker. Markers may be dragged to a new location.

Household Profile

Median-Income Family

\$48,453 annual income

4 people

2 commuters

Switch to this profile and location in [My Transportation Cost Calculator](#)

Average costs as a percent of income in this location for Median-Income Family Households:

Renter Owner Combined

Housing	Transportation	Location Affordability
29%	27%	56%
\$14,051	\$13,082	\$27,133

On average, Median-Income Family Households in this location would:

Own **2.2** vehicles

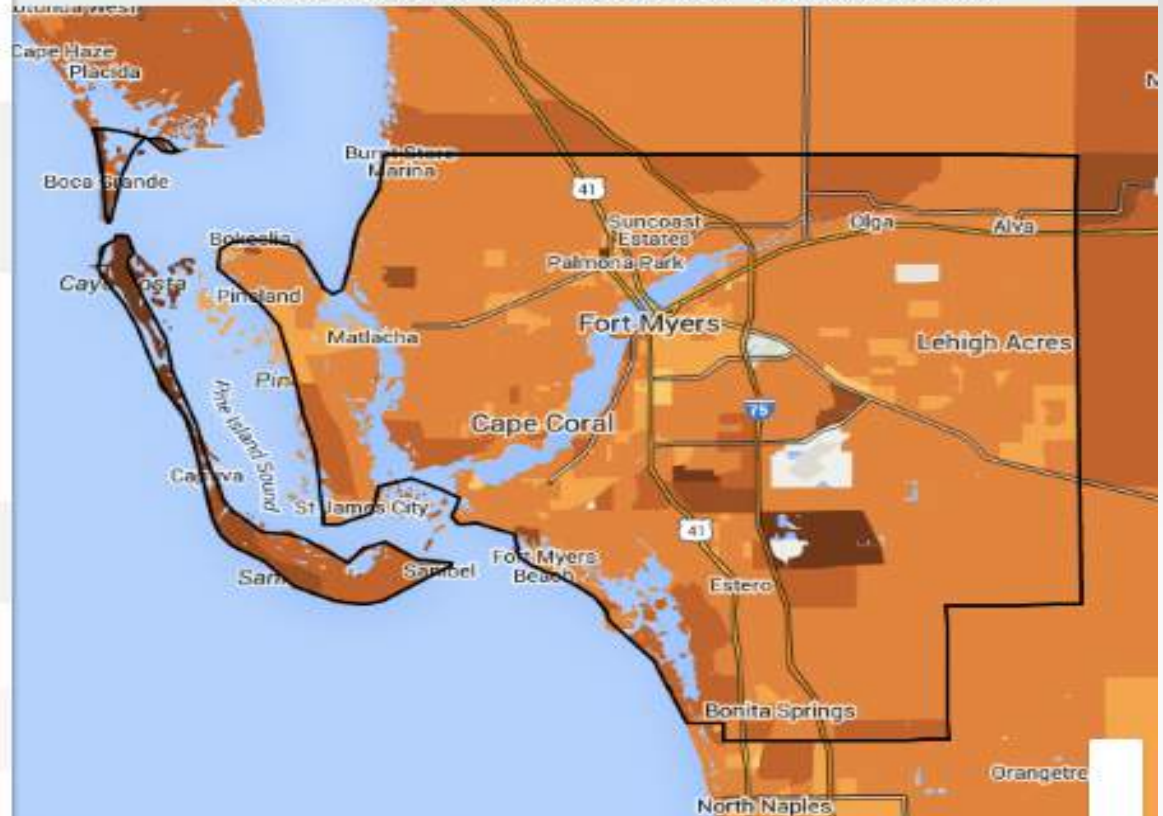
Drive **27,716** miles annually

Take **13** transit trips annually

Information on Map

Location Affordability (Housing and Transportation, % of Income)

Median-Income Family Household



Google

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Location Affordability Portal

Enter a location...



Indianapolis-Carmel, IN > Marion County > Indianapolis city (balance)

Indianapolis city (balance)

Household Profile

Median-Income Family

\$53,324 annual income

4 people

2 commuters

Switch to this profile and location in
[My Transportation Cost Calculator](#)

Average costs as a percent of income in this location for Median-Income Family Households:

Renter Owner Combined

Housing	+	Transportation	=	Location Affordability
27%		22%		49%
\$14,397		\$11,731		\$26,128

On average, Median-Income Family Households in this location would:

Own **2** vehicles

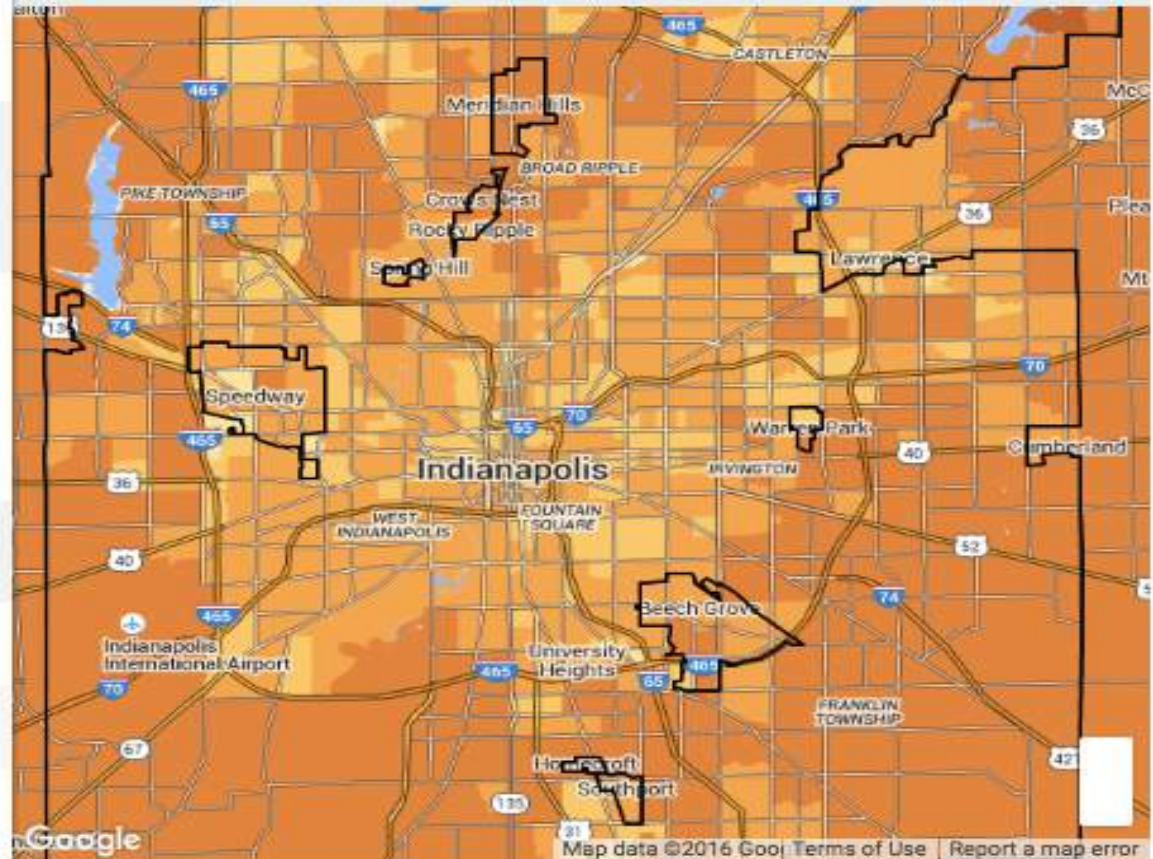
Drive **23,983** miles annually

Take **18** transit trips annually

Information on Map

Location Affordability (Housing and Transportation, % of Income)

Median-Income Family Household



Google

Map data ©2016 Google Terms of Use Report a map error

Nashville Metropolitan Planning Organization

Environment & Health– 15 pts

- Proposed improvements are sensitive to vulnerable lands
- Project has an air quality impact
- Project provides multi-modal options to areas with high degree of disadvantaged populations
- Project provides active transportation to a health priority area
- Staff qualitative analysis

Environment/Health (max 15) = [(proposed # elements ÷ possible # elements) x 10 pts] + degree of environmental conflict (up to 10 pts) + active transport in health priority area (3 pts) + multi-modal for vulnerable populations (up to 8 pts) + emissions impact (-2 pts)

Bike Score

Walker's Paradise ?

Columbia Heights, Washington D.C., 20010

Commute to **Downtown Washington D.C.** 

 8 min  21 min  13 min  41 min [View Routes](#)

 [Favorite](#)

 [Map](#)

 [Nearby Apartments](#)

[More about](#) 

Walk Score
97

Walker's Paradise

Daily errands do not require a car.

Transit Score
82

Excellent Transit

Transit is convenient for most trips.

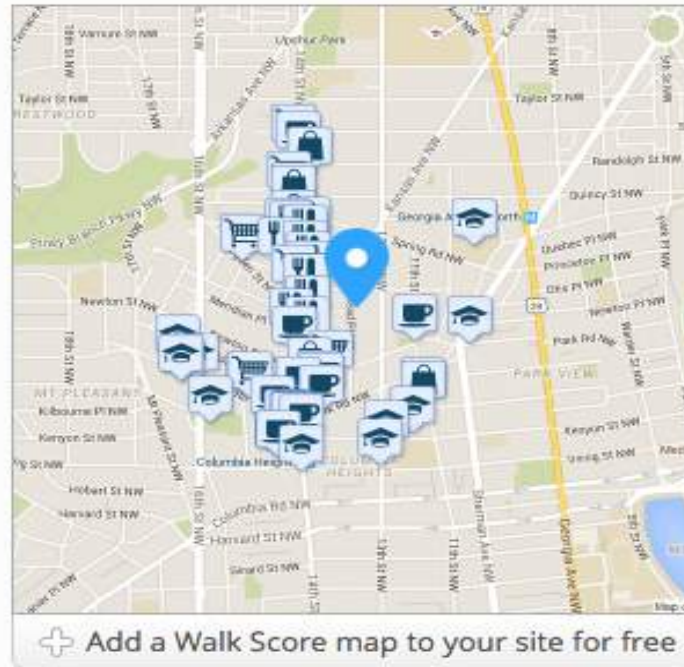
Bike Score
84

Very Bikeable

Flat as a pancake, some bike lanes.

[About your score](#)

[Add scores to your site](#)



Data Sources

- OpenStreetMap
- General Transit Feed Specification (GTFS)
Public Transit Data
- US Census
 - Longitudinal Employer-Household Dynamics (LEHD)
 - LEHD Origin-Destination Employment Statistics (LODES)
- Texas A&M Transportation Institute travel speed data

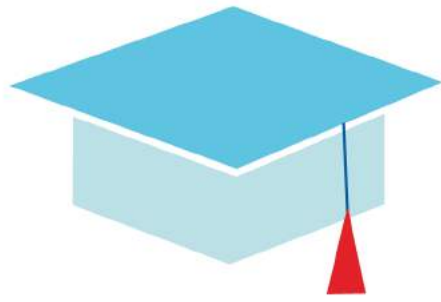
Questions and Comments

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QUESTIONS & COMMENTS
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