Transportation Performance Management Webinar Series

Webinar 31

Access to Destinations

Sponsored by FHWA and AASHTO

TPM

U.S. Department of Transportation
Federal Highway Administration

AASHTO
The Voice of Transportation

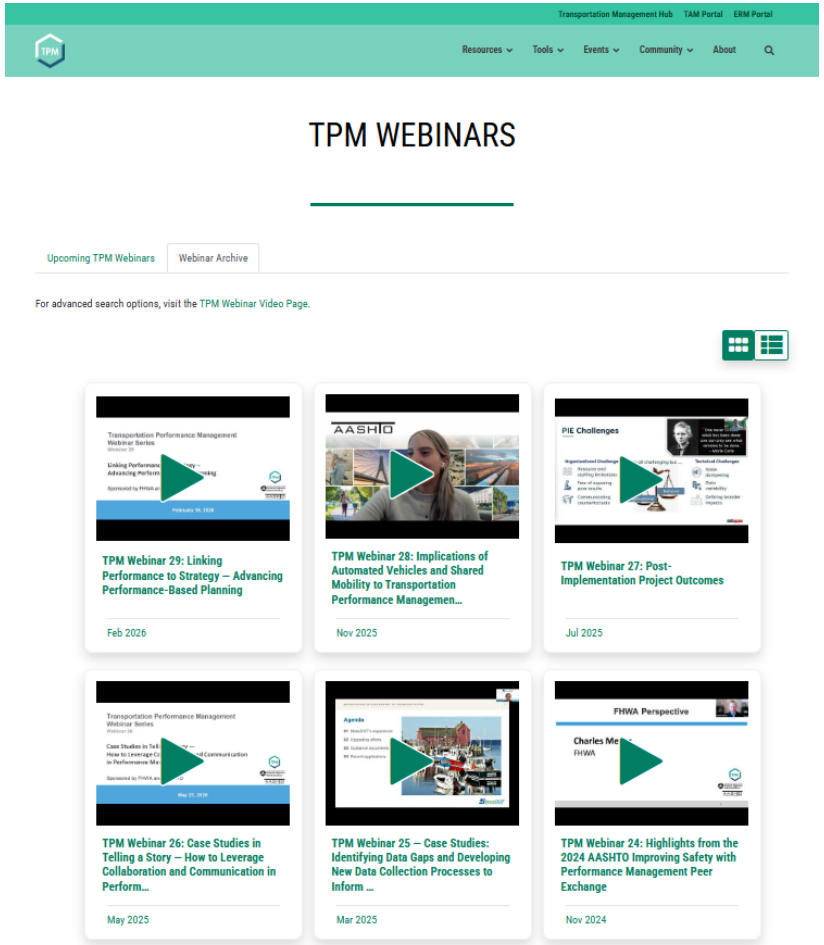
June 17, 2026

FHWA and AASHTO Collaboration

- The FHWA Asset Performance Team and the AASHTO Committee on Performance Based Management are pleased to cosponsor this webinar series
- Sharing knowledge is a critical component of advancing agency practices
  - FHWA Performance Management Hub: https://www.fhwa.dot.gov/tpm/resources/publications.cfm
  - AASHTO Transportation Management Hub: https://www.transportationmanagement.us/

Welcome!

- Today is the **31st** webinar in our bimonthly series, held on Wednesdays at 2:00 PM ET
- Webinars cover a variety of topics with a performance management focus
  - You will be able to find the materials from this webinar on the TPM Portal: https://www.tpm-portal.com/event-directory/tpm-webinars/
- We are always welcoming ideas for webinar topics and presentations!
- Use the webinar chat to submit questions for today's presenters and ideas for future webinars



Texas A&M Transportation Institute

CENTER FOR TRANSPORTATION STUDIES
UNIVERSITY OF MINNESOTA

Measuring Destination Access

TPM Webinar 31: Access to Destinations

June 17, 2026

Deanna Belden, AICP
Texas A&M Transportation Institute

Eric Lind, PhD
Accessibility Observatory
Center for Transportation Studies
University of Minnesota

Our agenda

- What is Access? Why measure it?
- How Access is measured
  - for system performance
  - for project evaluation

What is Access?

The ***ease*** with which a traveler ***could*** reach valued ***destinations***

What is Access?

- **Ease** — access reflect the **cost** of travel
  - How much time, money, etc. does it take to get there?
- **Could** — access reflects **potential** travel
  - What's the full range of options people could reach?
  - Not just what they did in the past
- **Destinations** — access reflects the **benefits** of travel
  - Destinations are the purpose of travel
  - What do you get in exchange for your time/money?

Why Access?

Mobility

- Only costs
- *Can people move quickly?*
- Reflects only transportation
- Mode-specific

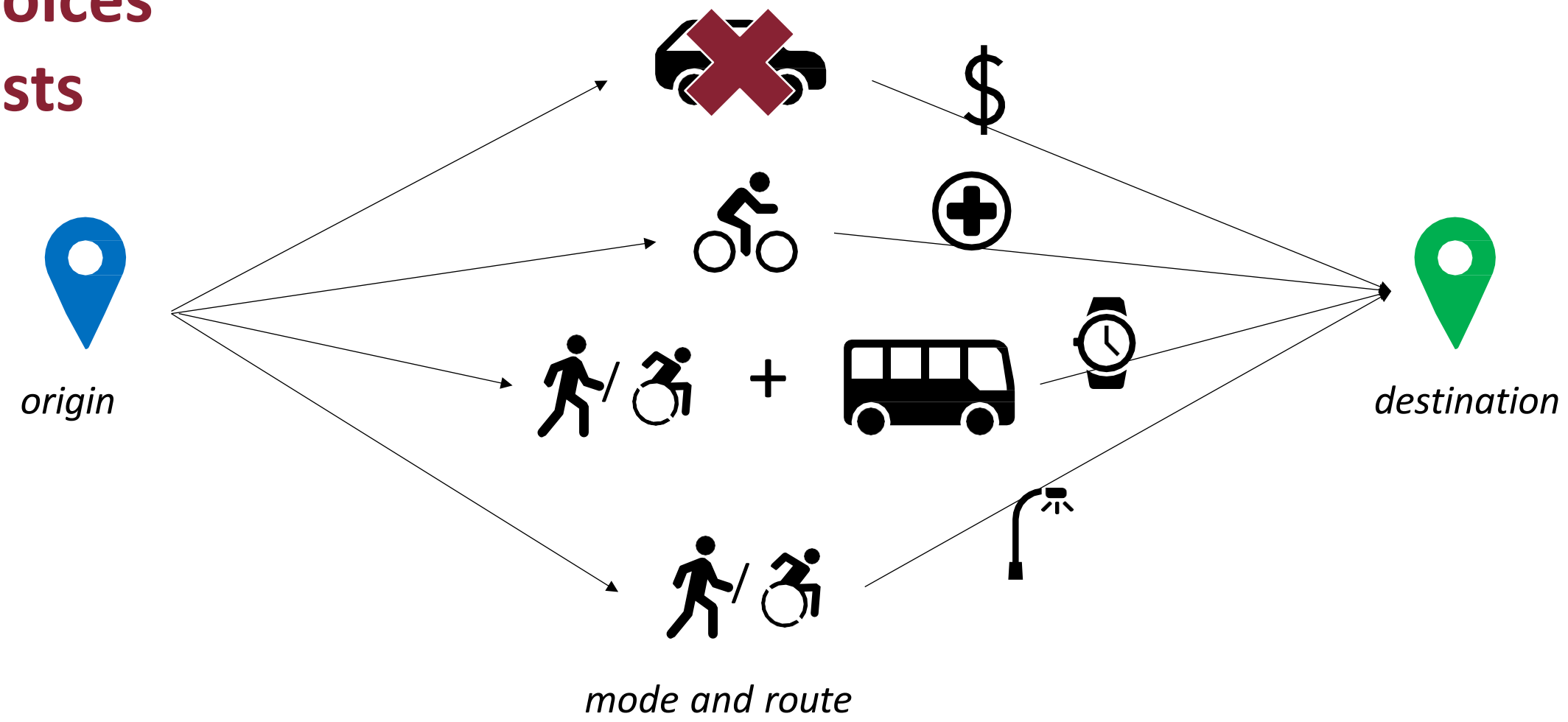
Access

- Costs & benefits
- *Can people reach what they need?*
- Reflects transportation & land use
- Comparable across modes

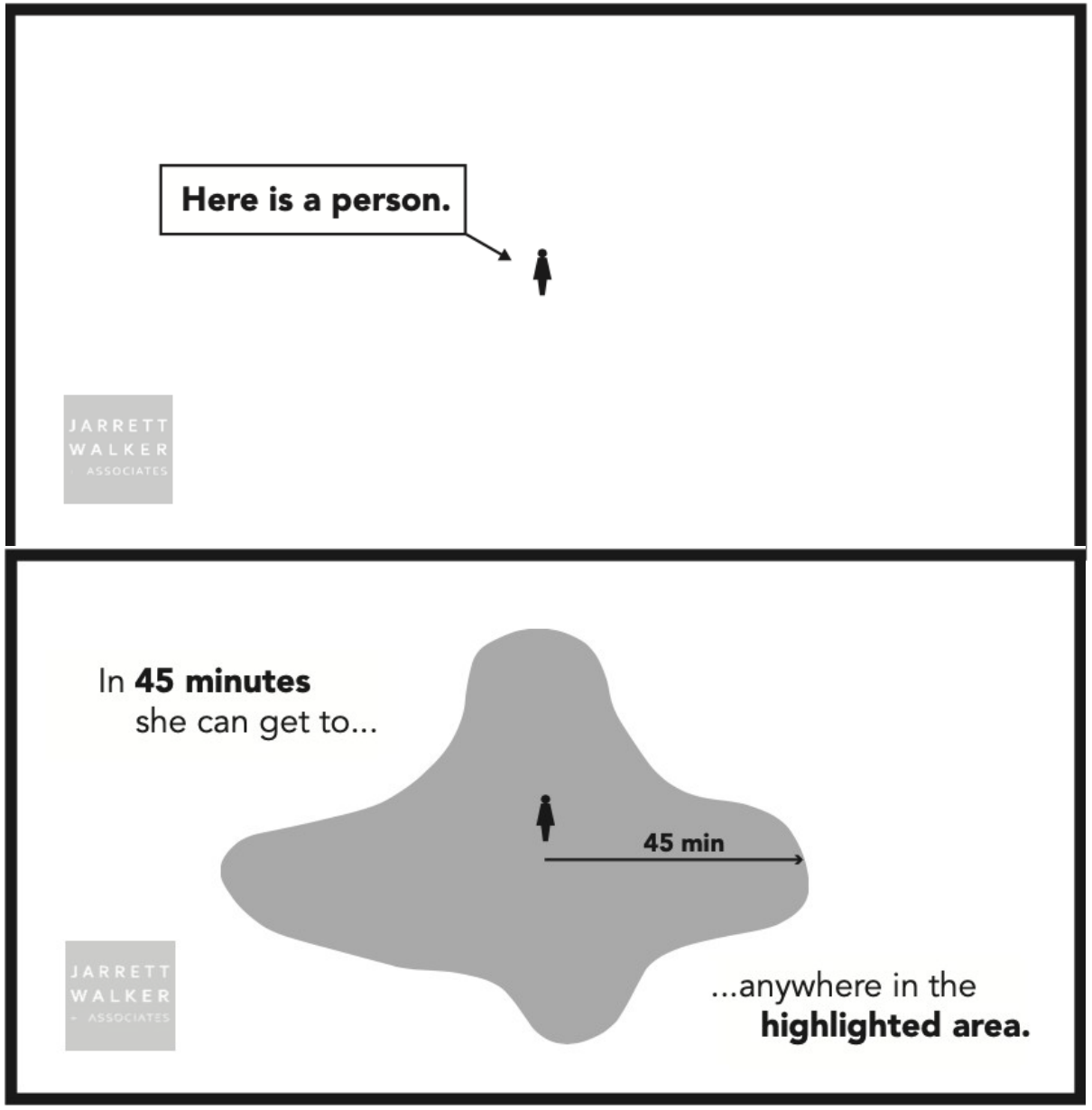
How is Access Measured?

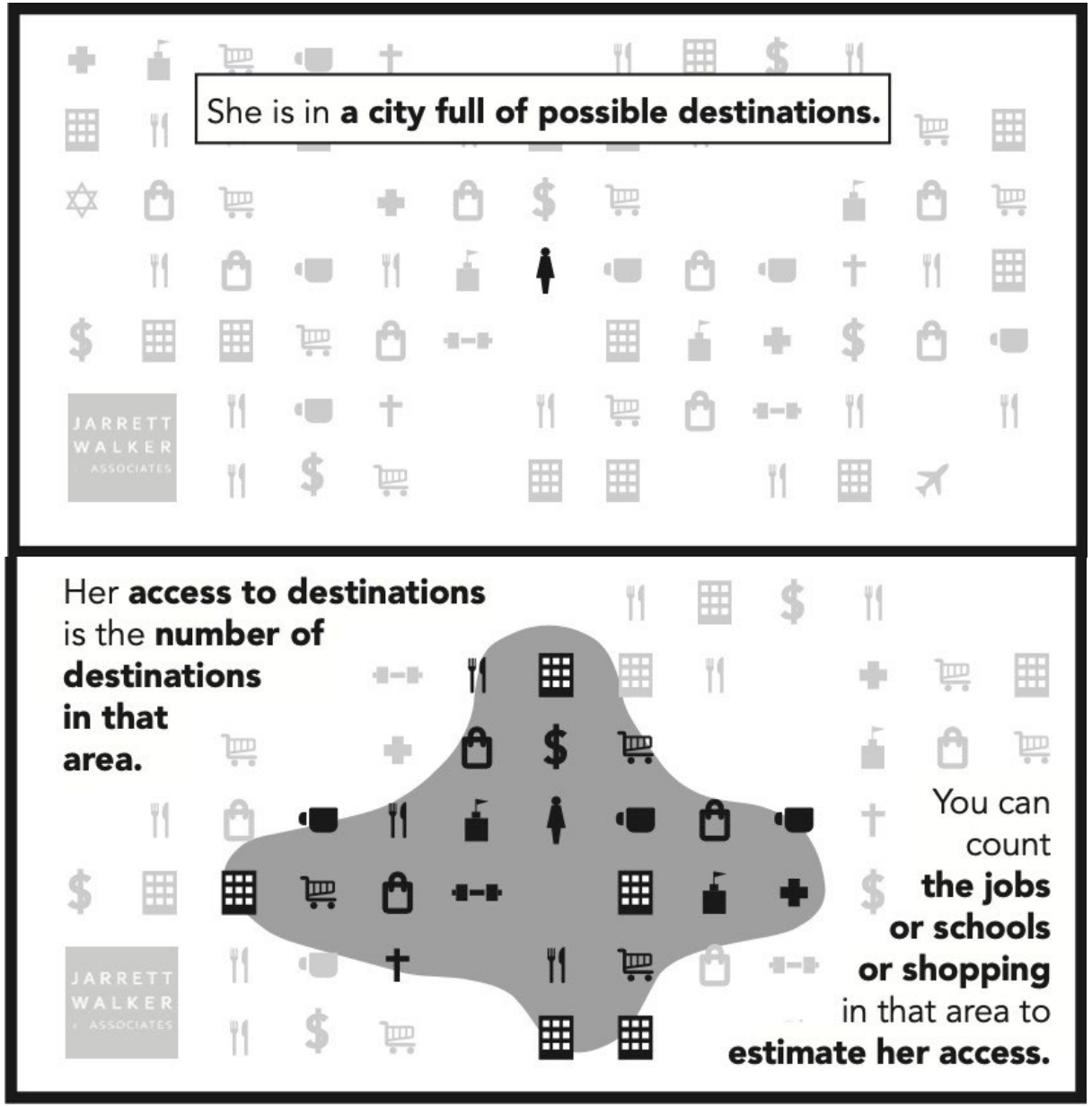
choices

costs



Calculating Destination Access





Source: Jarrett Walker + Associates — Let's think about transit.

Minneapolis

Minneapolis-St. Paul-Bloomington, MN-WI

Jobs within 30 minutes
(Transit, AM peak)

- 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

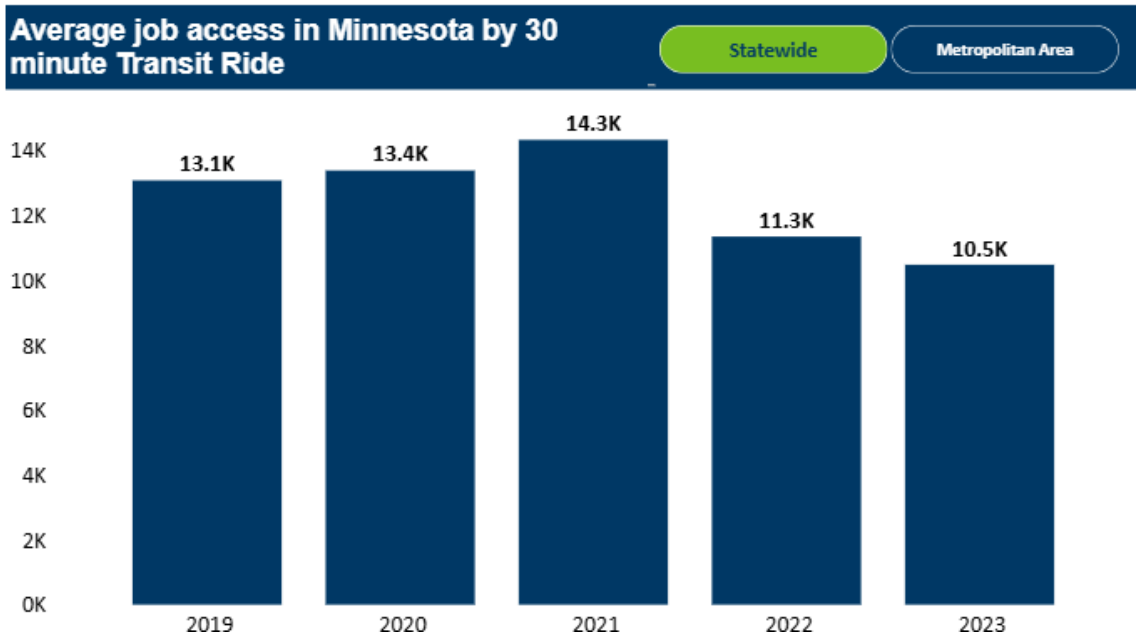
CBSA boundary

Access measured on the map

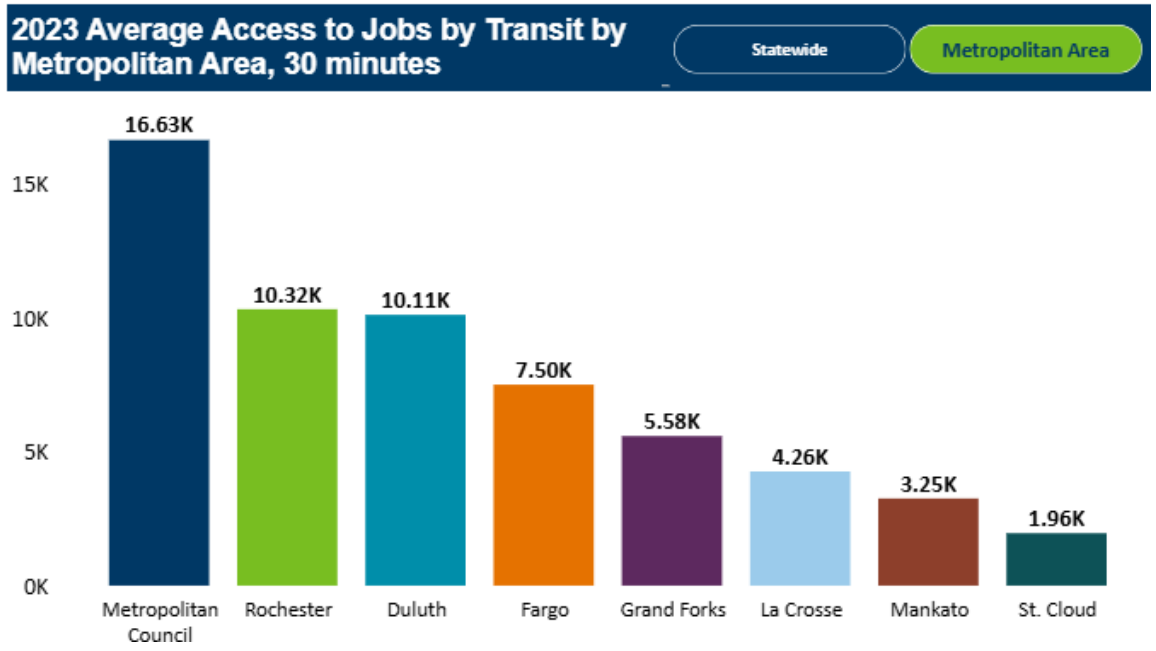
Source: Access Across America: Transit 2024. Accessibility Observatory, University of Minnesota. 2025.

Access as Performance Metric

Job Accessibility by Transit

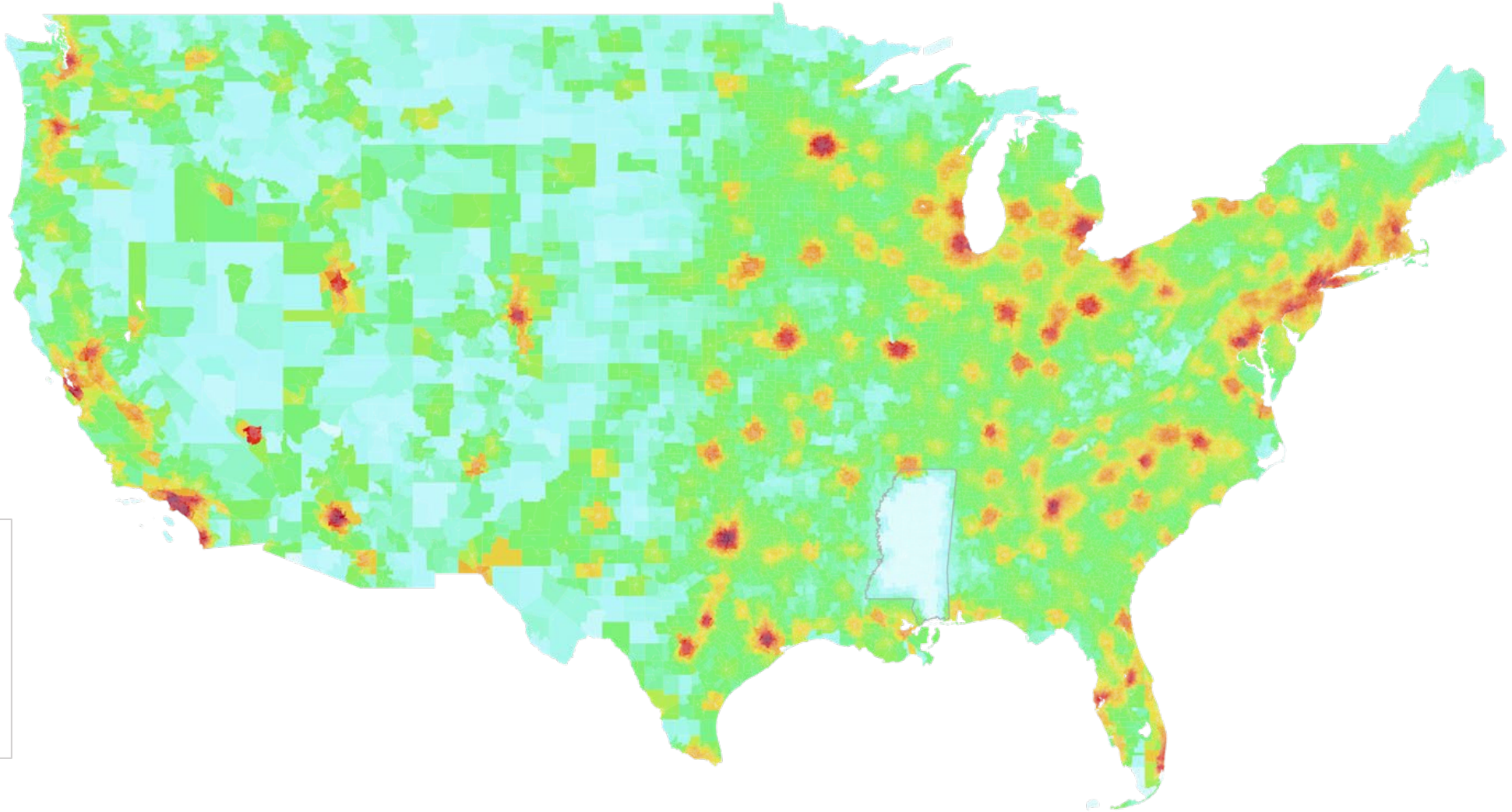


Job Accessibility by Transit



Source: Performance Measure Dashboards - MnDOT

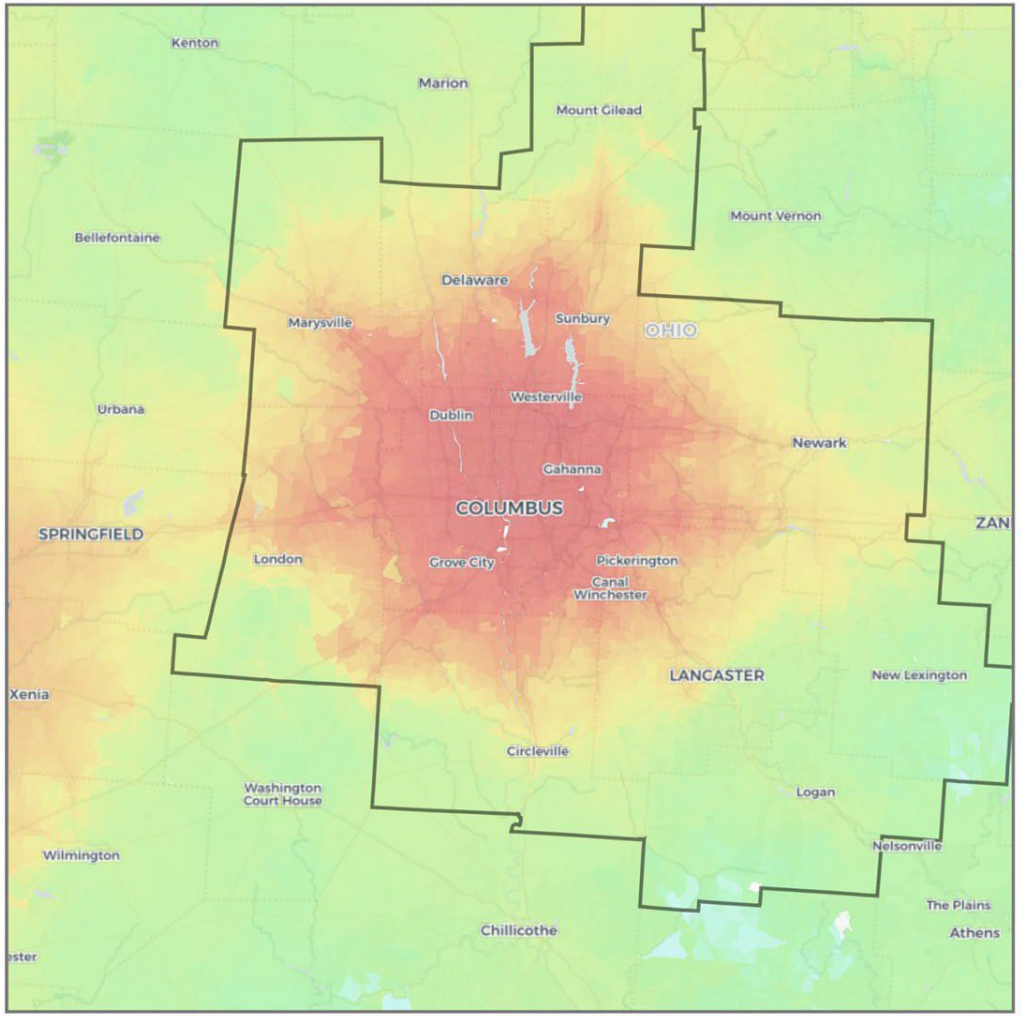
Job Access for Every* US Block



** MS does not share key data with Census*

Job Access (Auto, 8 AM Weekday)

Columbus
Columbus, OH

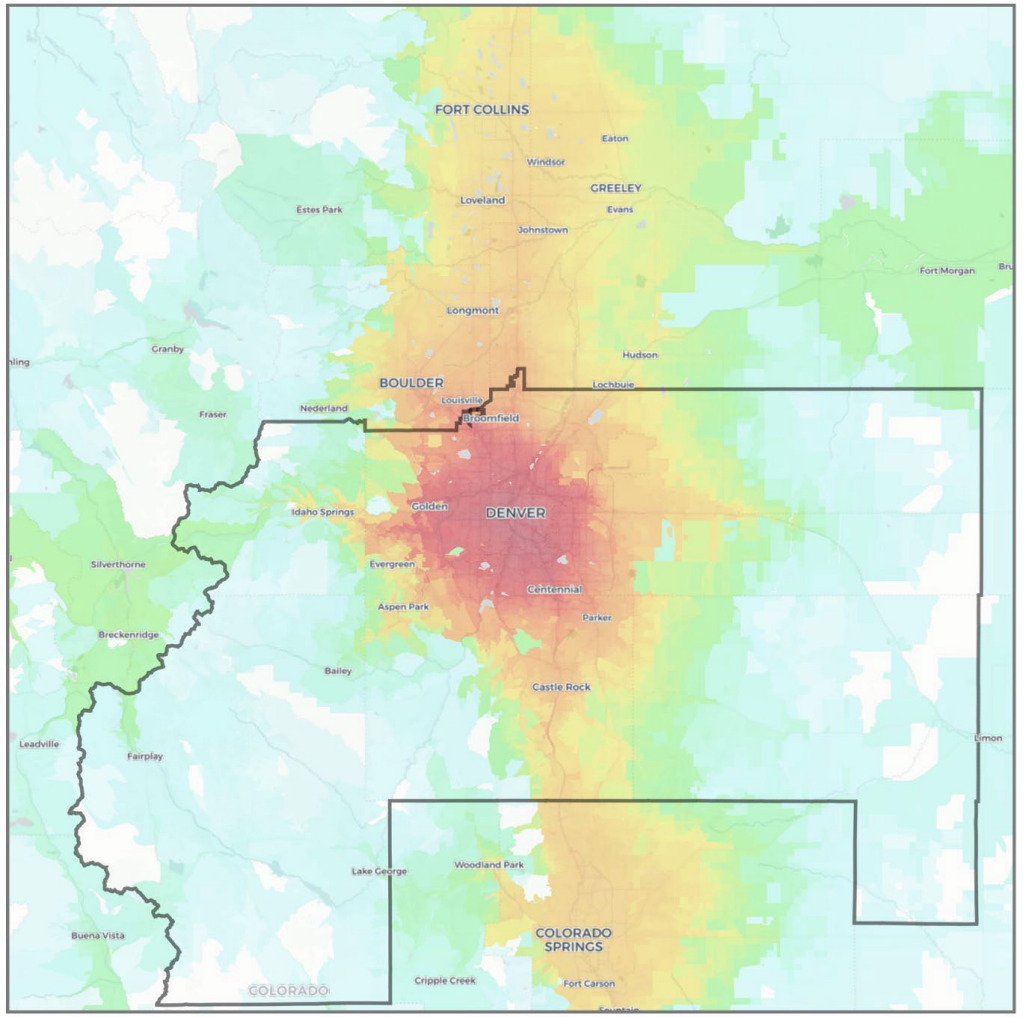


Jobs within 30 minutes
(Driving, AM peak)

- 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 +

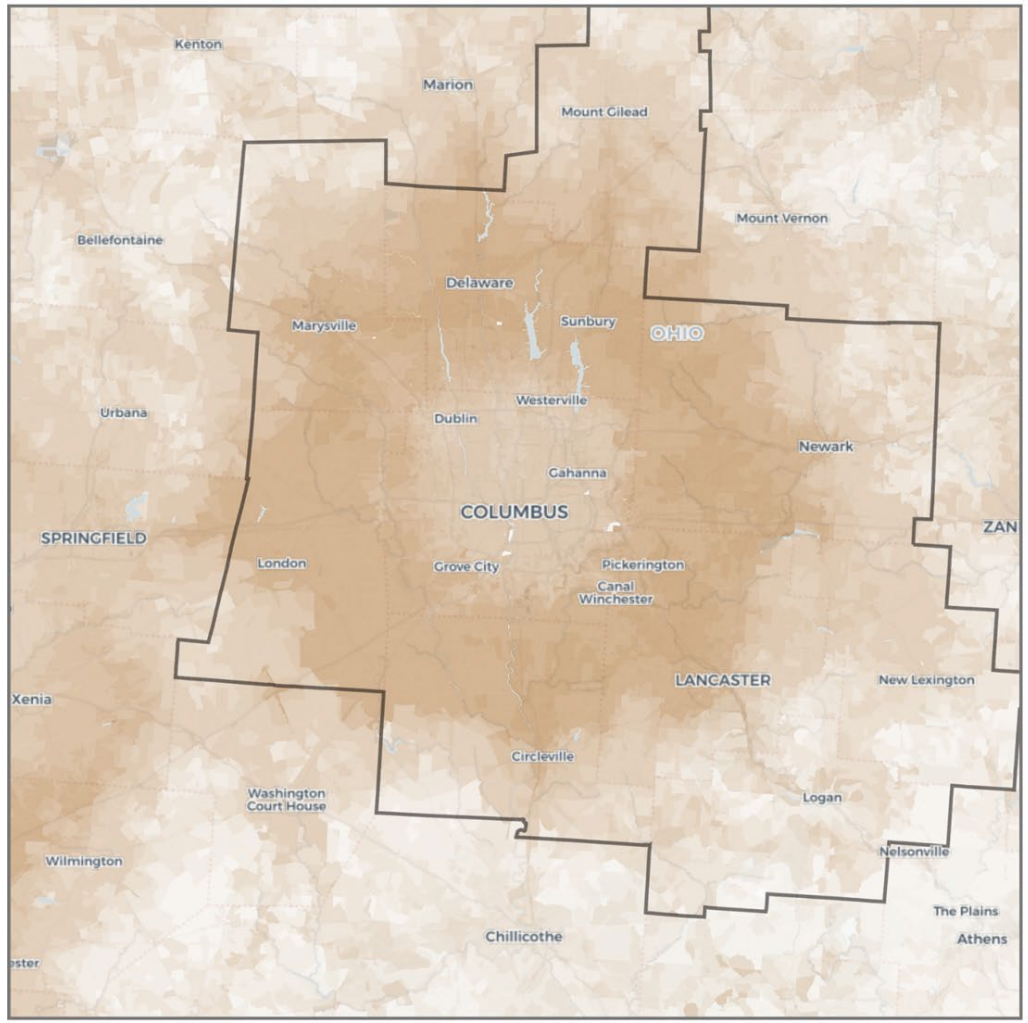
State border
CBSA boundary

Denver
Denver-Aurora-Centennial, CO



Congestion Impacts (Auto, 8AM Weekday)

Columbus
Columbus, OH

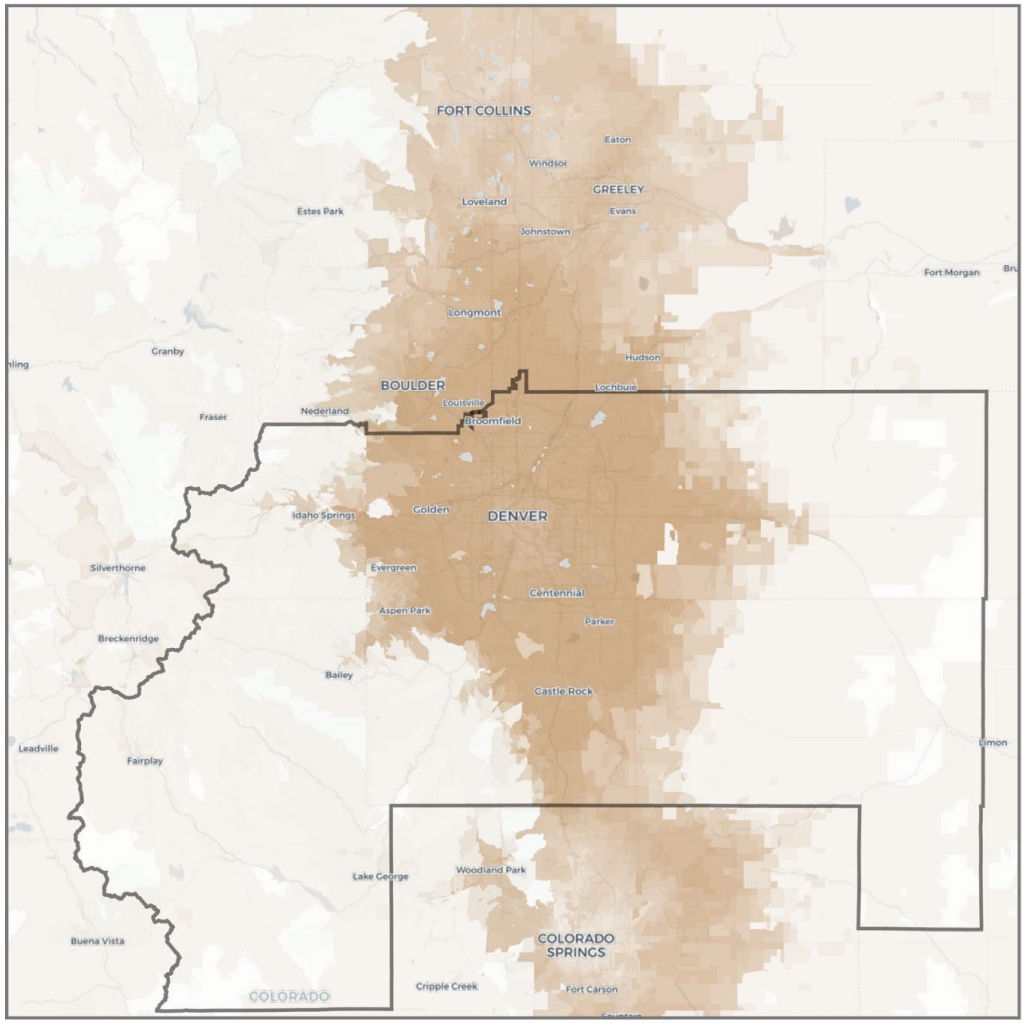


Change in jobs within 30 minutes
(Driving, congestion impact)

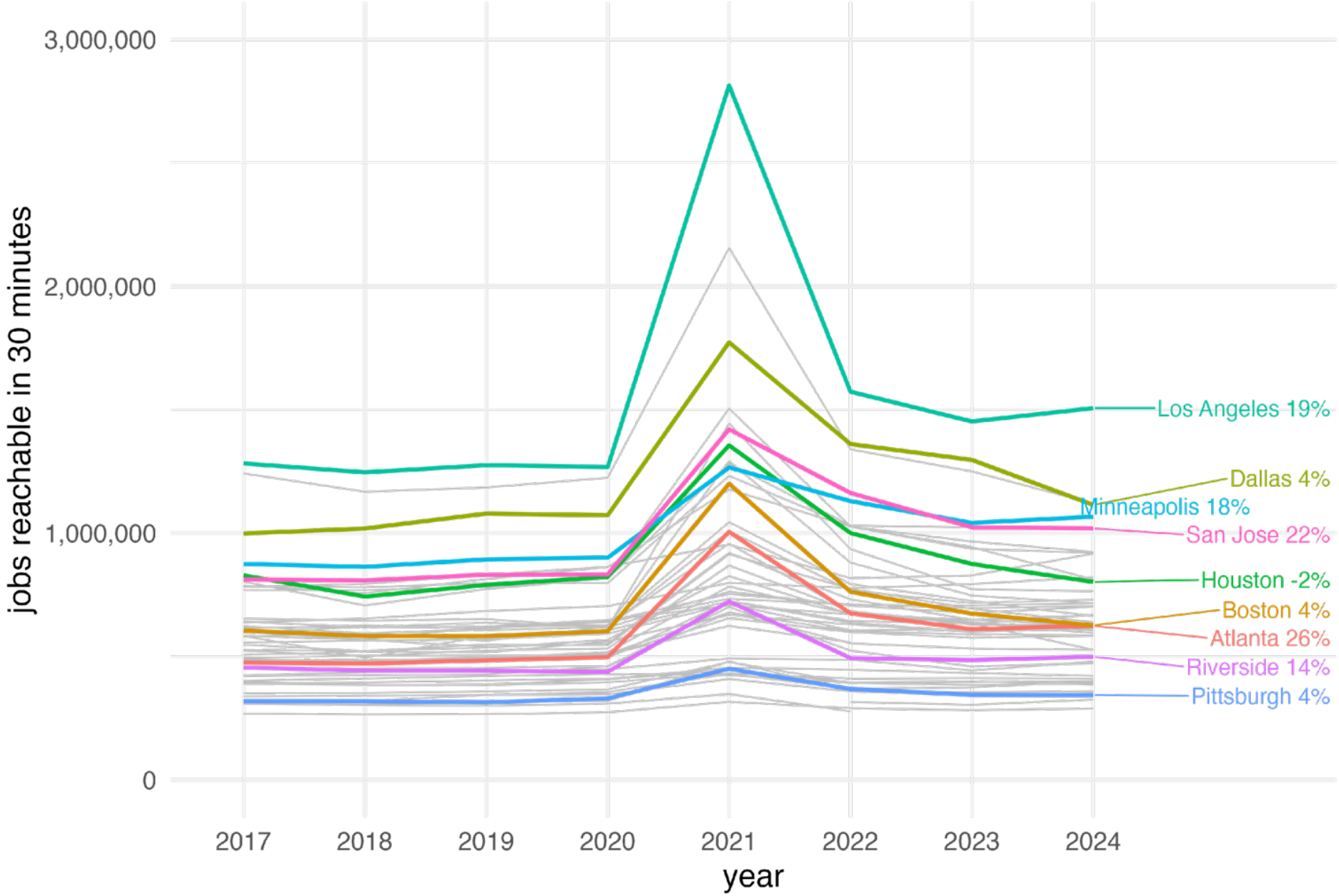
- < -250,000
- -250,000 – -100,000
- -100,000 – -50,000
- -50,000 – -10,000
- -10,000 – -5,000
- -5,000 – 0
- 0 – +5,000
- +5,000 – +10,000
- +10,000 – +50,000
- +50,000 – + 100,000
- +100,000 – +250,000
- > +250,000

State border
CBSA boundary

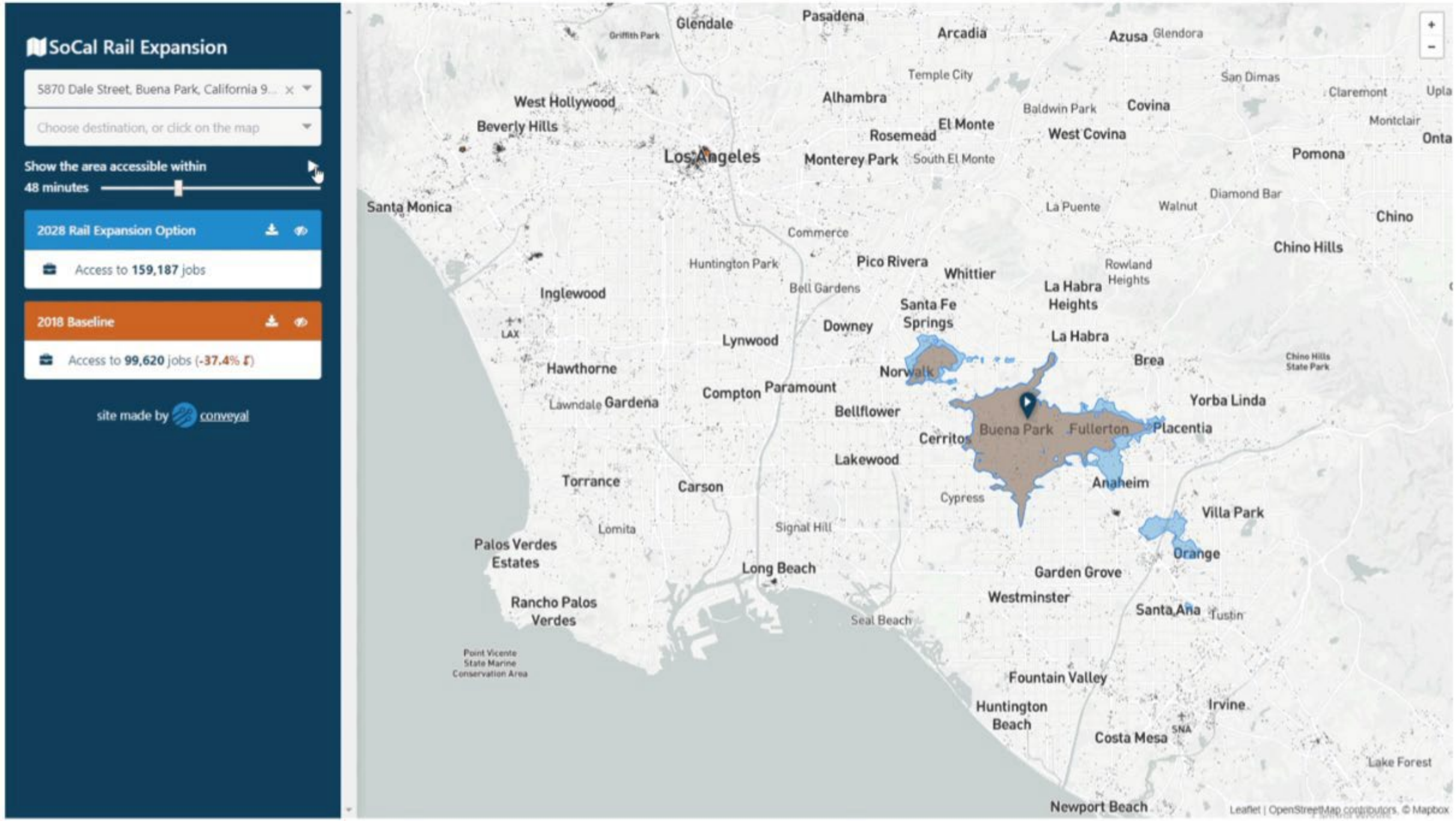
Denver
Denver-Aurora-Centennial, CO



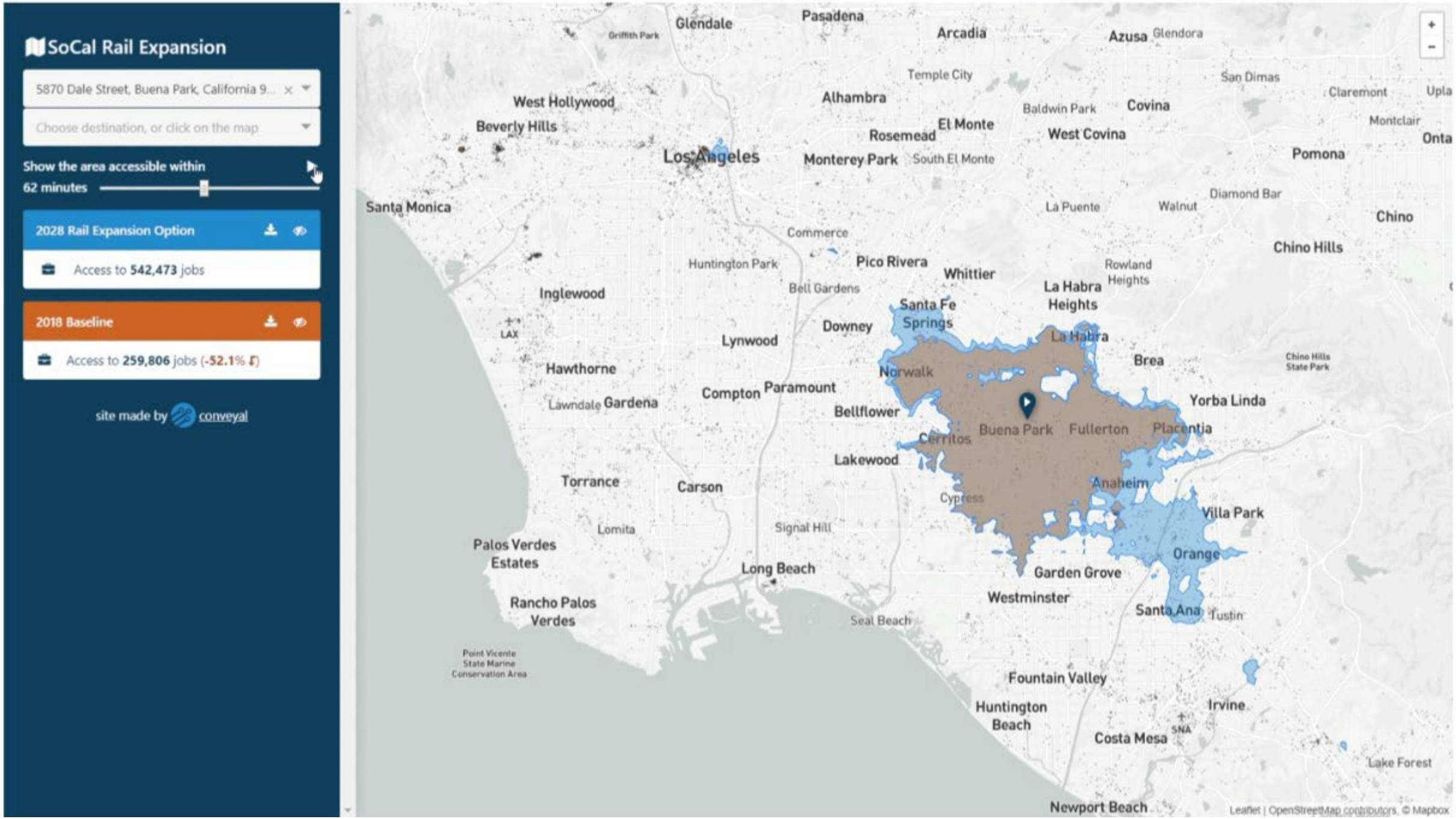
Job Access by Auto Remains Higher than Pre-COVID



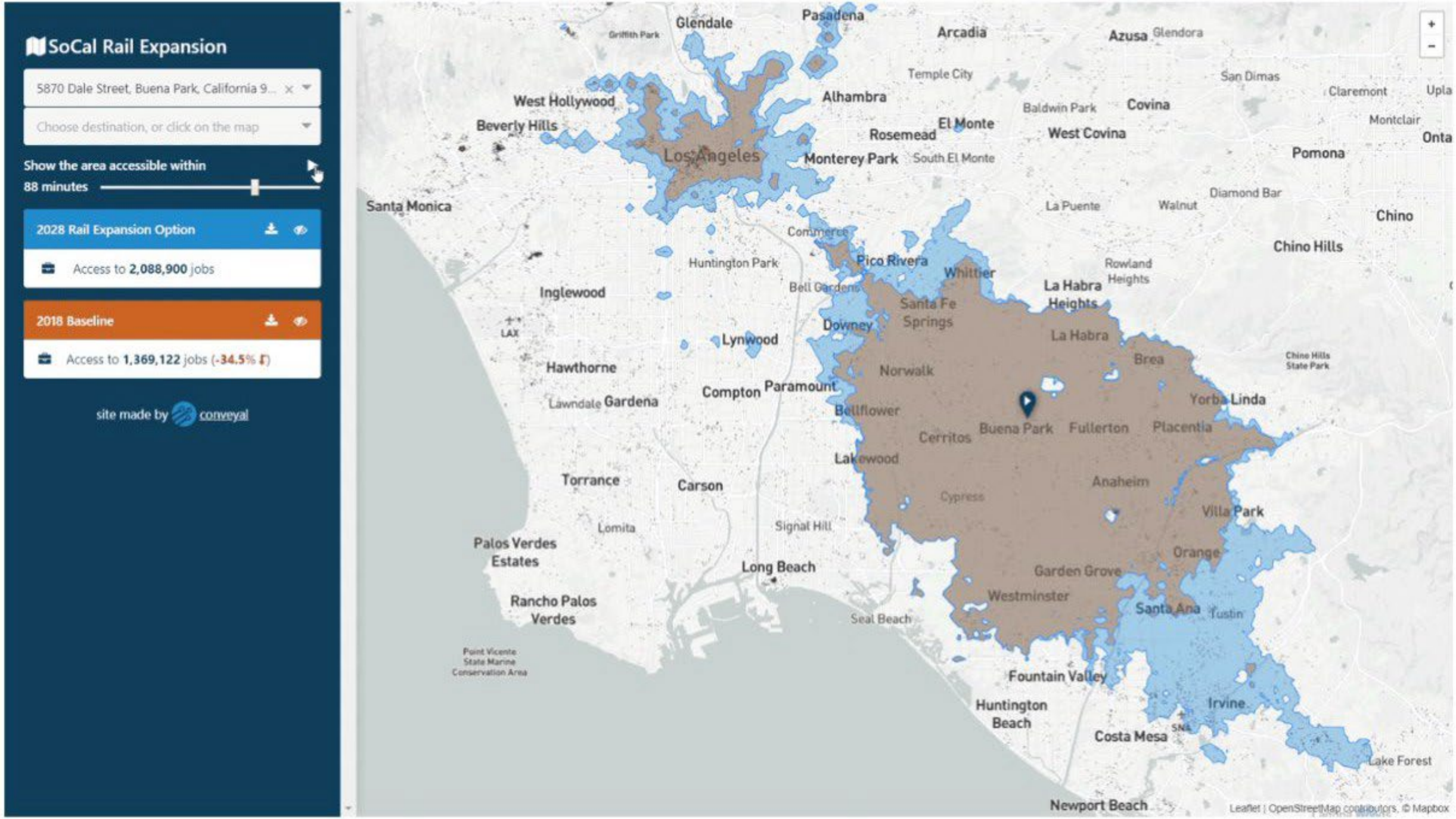
2024 access relative to Jan 2020



Source: Conveyal - Evaluate changes to your public transportation system

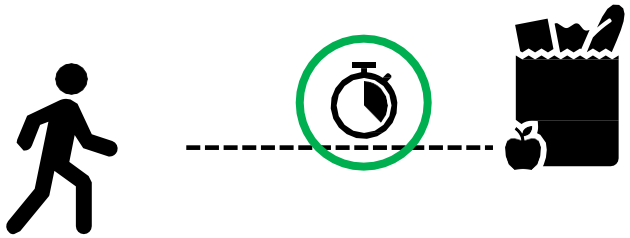


Source: Conveyal - Evaluate changes to your public transportation system



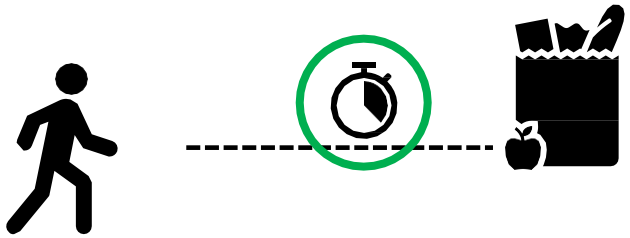
Source: Conveyal - Evaluate changes to your public transportation system

Destination Access: Convenience and Choice

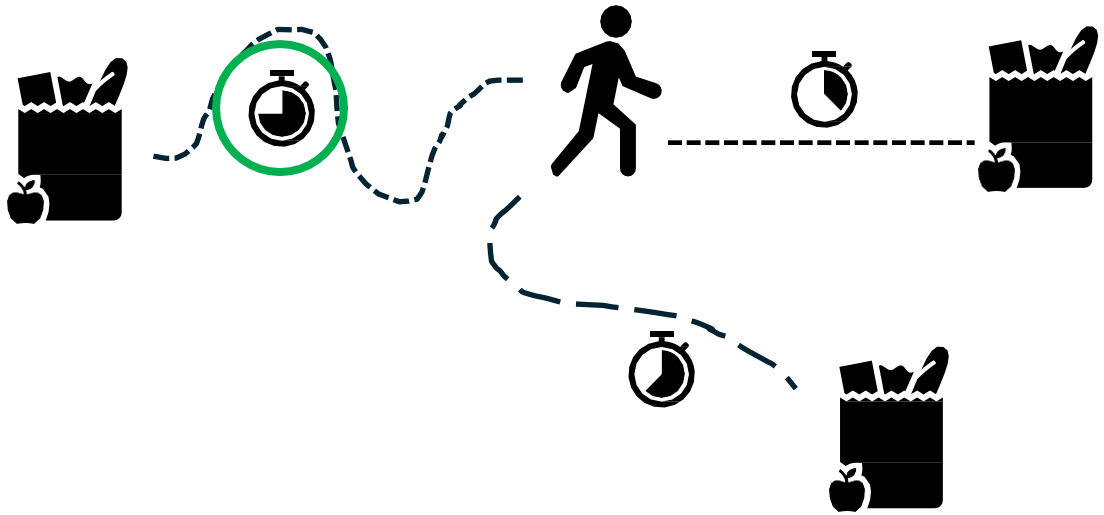


20 minutes to *first* (e.g. nearest)

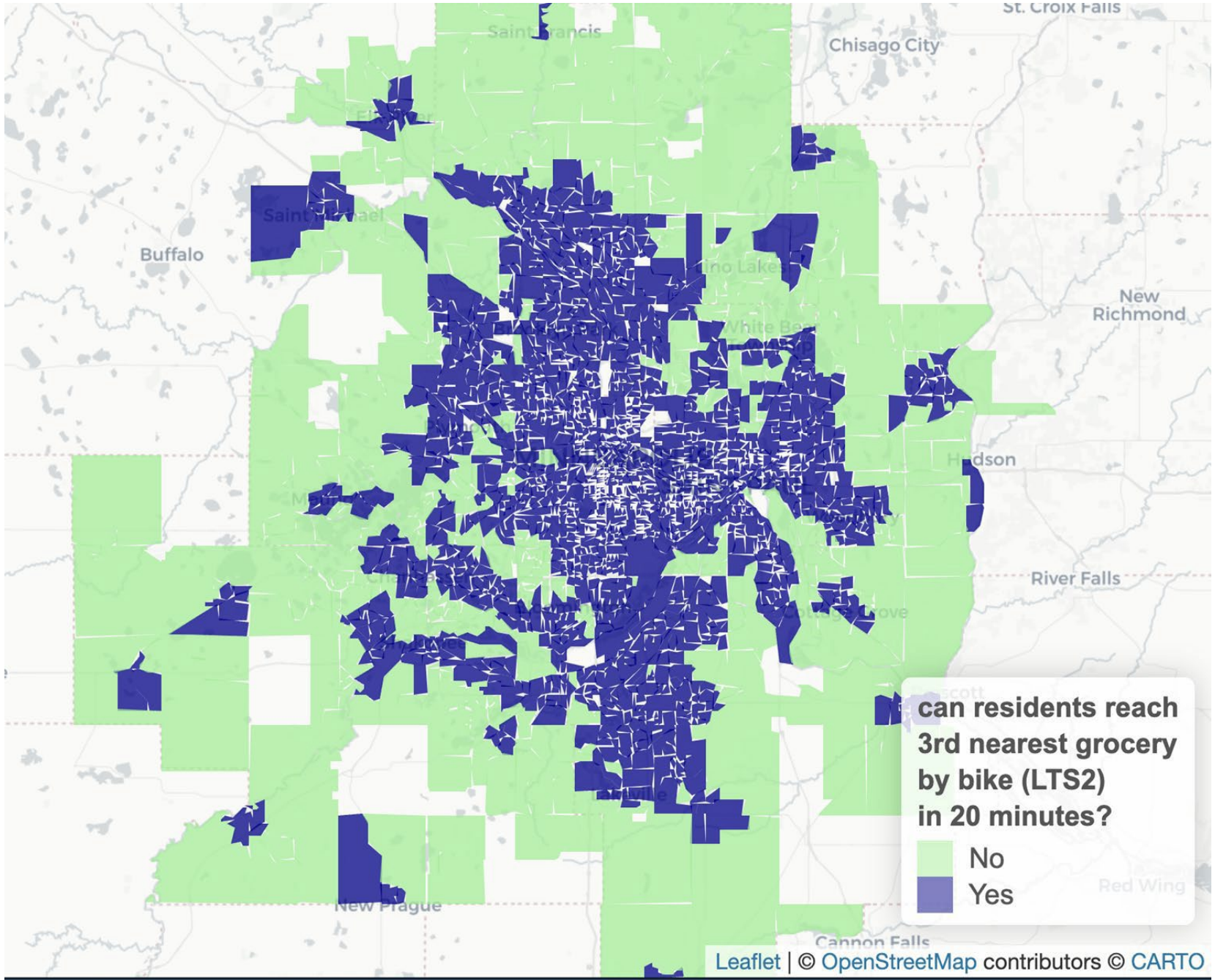
Destination Access: Convenience and Choice



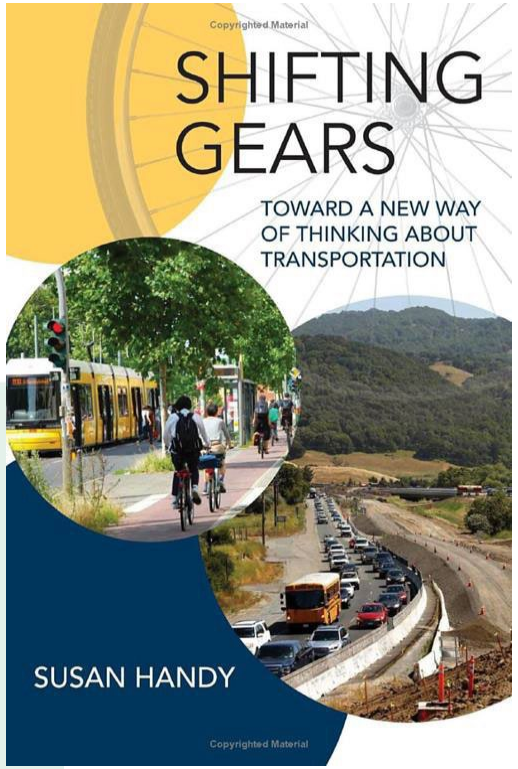
20 minutes to *first* (e.g. nearest)



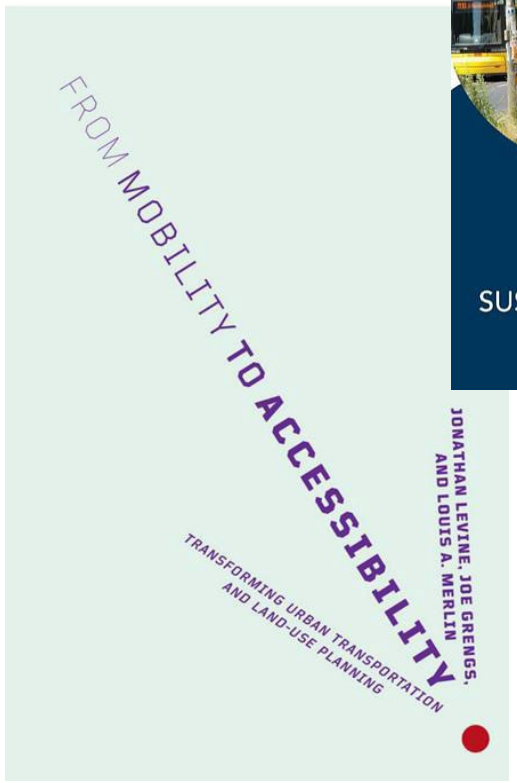
45 minutes to *third* – choice set of 3


St. Croix Falls
Chisago City
Buffalo
New Richmond
Hudson
River Falls
Red Wing
Cannon Falls
can residents reach 3rd nearest grocery by bike (LTS2) in 20 minutes?
No
Yes
Leaflet | © OpenStreetMap contributors © CARTO

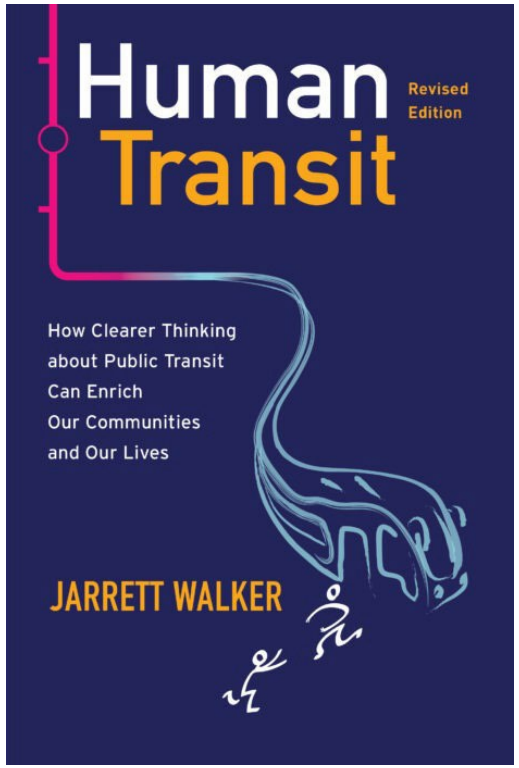
Reading & Resources



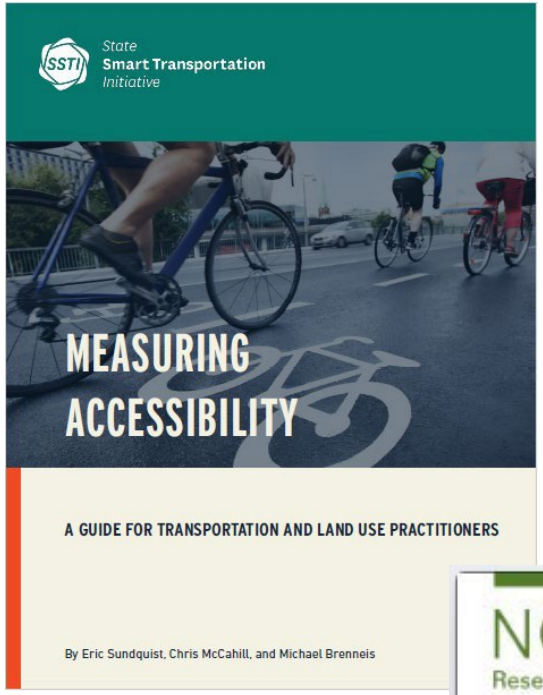
Handy 2023



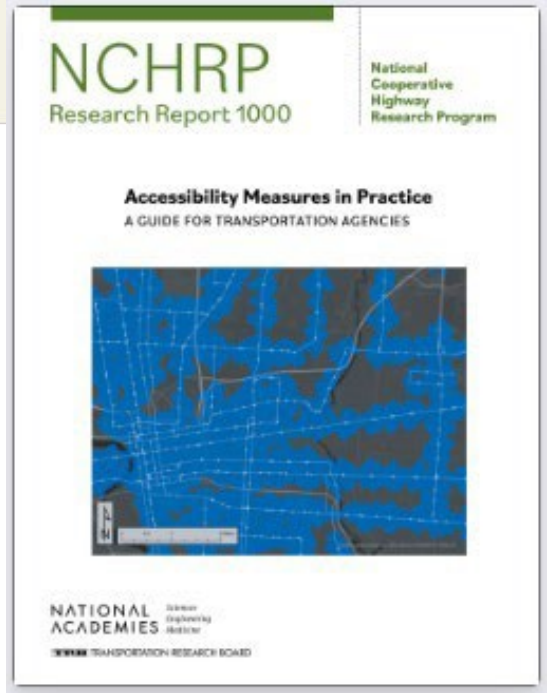
Levine, Grengs, Merlin 2019



Walker, 2024



Sundquist, McCahill, Brenneis 2021



NCHRP 1000
Karner et al. 2022

Thank you!

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Texas A&M Transportation Institute

CENTER FOR TRANSPORTATION STUDIES
UNIVERSITY OF MINNESOTA

Webinar Objectives

- **Explore** methodologies of access measurement, analysis, and implementation
- **Identify** applications for project evaluation, prioritization, and post-implementation system performance
- **Highlight** multimodal access analyses and the integration of different modes into statewide performance discussions
- **Share** lessons learned, ideas, and knowledge!

Webinar Agenda

2:02 **AASHTO Welcome and Overview**
Anna McLaughlin, AASHTO

2:10 **Measuring Destination Access Primer**
Deanna Belden, Texas A&M Transportation Institute and Eric Lind, University of Minnesota

2:25 **Learning Objectives and Agenda**
Lori Richter, Spy Pond Partners

2:30 ***Access to Destinations Analysis for Project Prioritization***
Henry McKay, Caltrans

2:50 ***Measuring Access Statewide to Enable a New Performance Measurement Approach***
Thomas Craig, Washington State Department of Transportation

3:10 ***Access to Destinations Dashboards: Layering Data to Tell Stories***
Jonah Williams, Massachusetts Department of Transportation

3:30 **Panelist Discussion and Wrap Up**
Deanna Belden and Lori Richter

Access to Destinations Analysis for Project Prioritization

Henry McKay, Data Science Branch Chief (Acting),
California Department of Transportation (Caltrans)

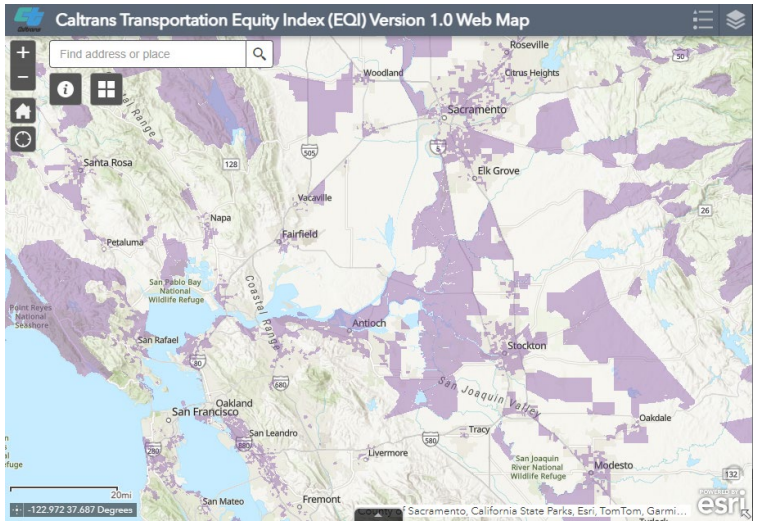
TPM Webinar #31

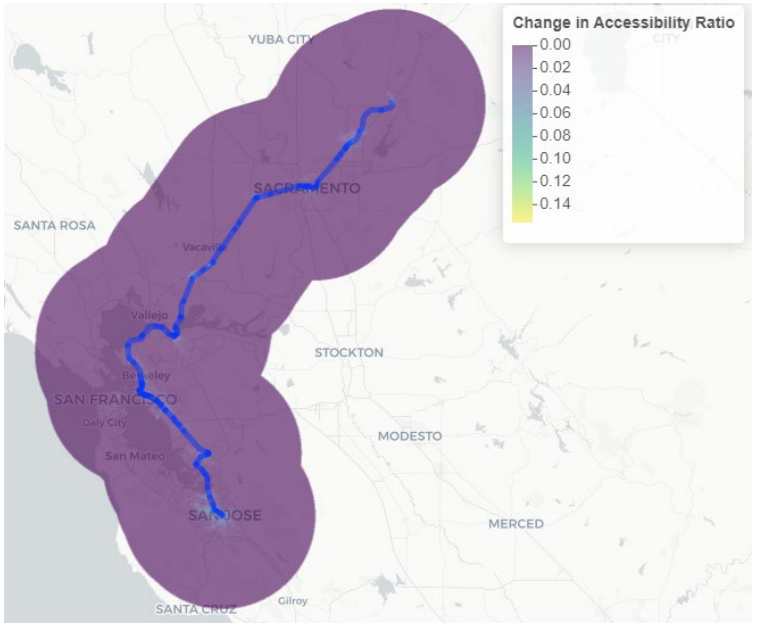
June 17, 2027

Director's Office of
Sustainability

Current Caltrans Applications

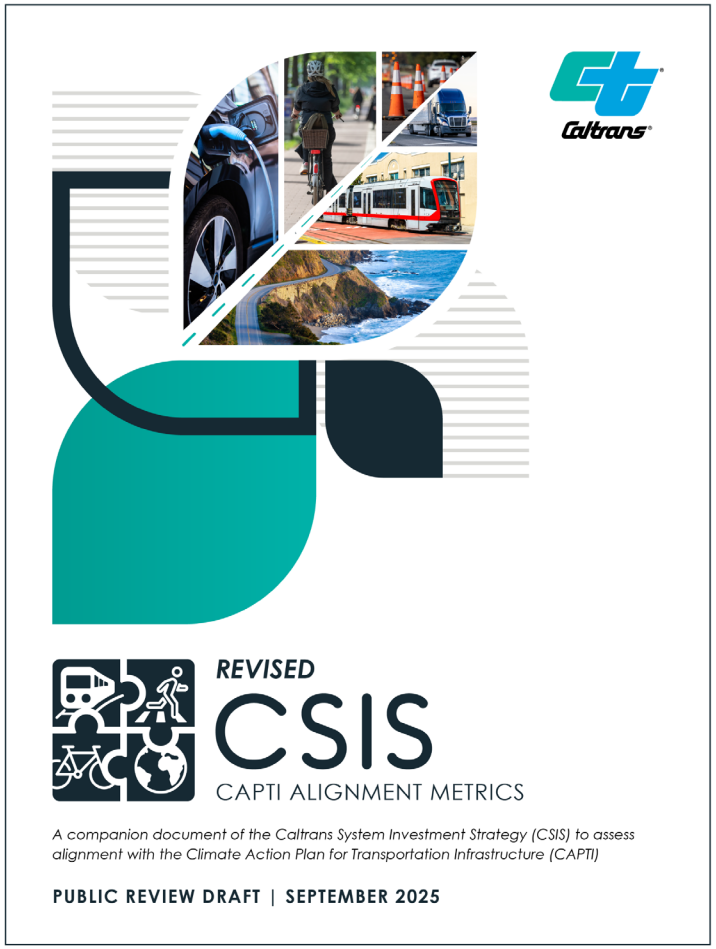
- Caltrans Transportation Equity Index (EQI)
  - Utilizes three accessibility-derived metrics: Transit, bike, and ped
  - Identifies low-income and/or tribal lands that also have significant gaps in multimodal access to destinations
- Caltrans System Investment Strategy (CSIS)
  - Utilizes three accessibility-derived metrics: Accessibility, DAC Accessibility, and Passenger Mode Shift
  - Quantifies exactly how much a given project is expected to move the needle on accessibility (ideally by increasing it)
- Other: Various planning and research efforts





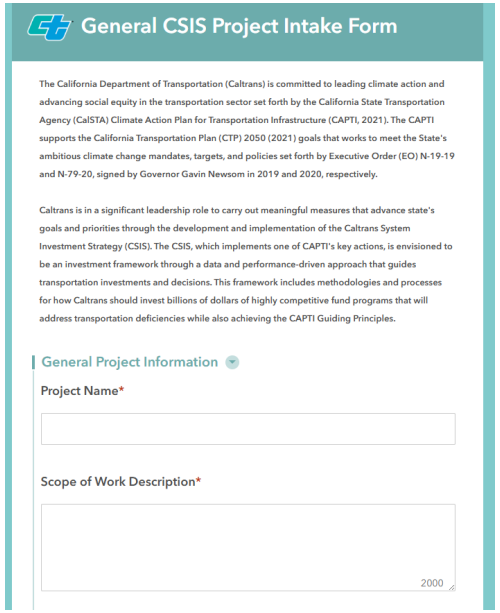
Accessibility in Caltrans Project Prioritization Efforts

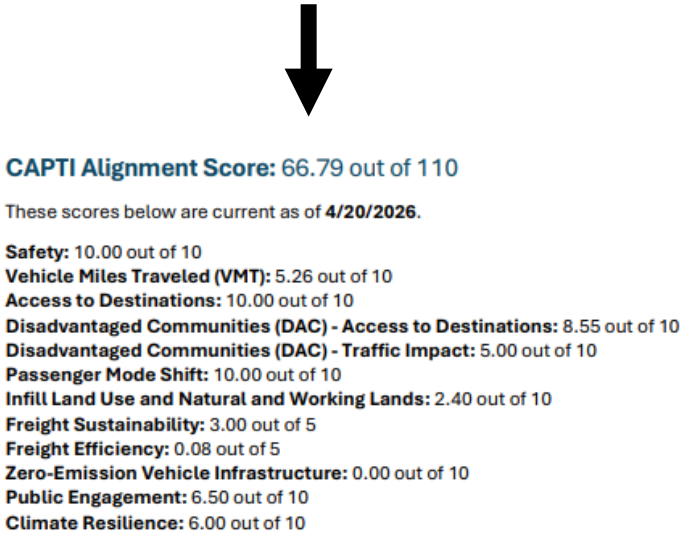
- The Caltrans System Investment Strategy (CSIS) is Caltrans' project prioritization framework
  - CSIS is climate-focused and measures a given transportation project's alignment with the Climate Action Plan for Transportation Infrastructure (CAPTI)
- CSIS includes three accessibility-derived metrics:
  - **Access to Destinations**
    - How many new destinations can people reach?
  - **Disadvantaged Community (DAC) Access to Destinations**
    - What is the relative increase in access for DAC populations?
  - **Passenger Mode Shift**
    - How does non-auto access change relative to auto access?
- CSIS is applied to all discretionary* funding sources
- Typically, ~50 projects are scored per funding cycle



Existing Methodology: Business Process

1. Applicants submit project information via an ArcGIS Survey123 form, including spatial data
2. A team of ~2 analysts code/run projects in Conveyal in two-week sprints
3. Internal QA/QC is done and projects are modified as needed
4. Conveyal runs are post-processed using an automated python/R-based workflow
5. Brief 1:1 meetings are held with project applicants to explain/discuss preliminary scores and updates are made if needed
6. Once final scores are run, CSIS report cards are generated

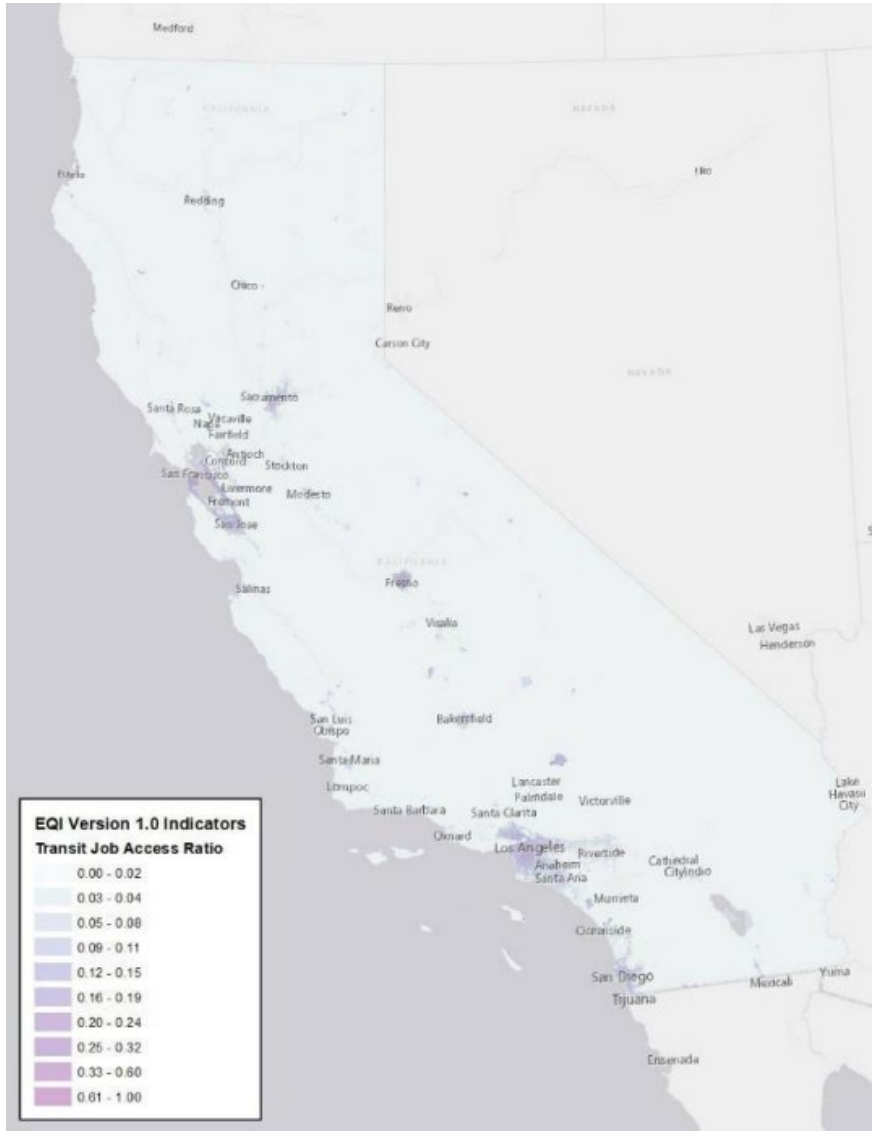




Technical Considerations

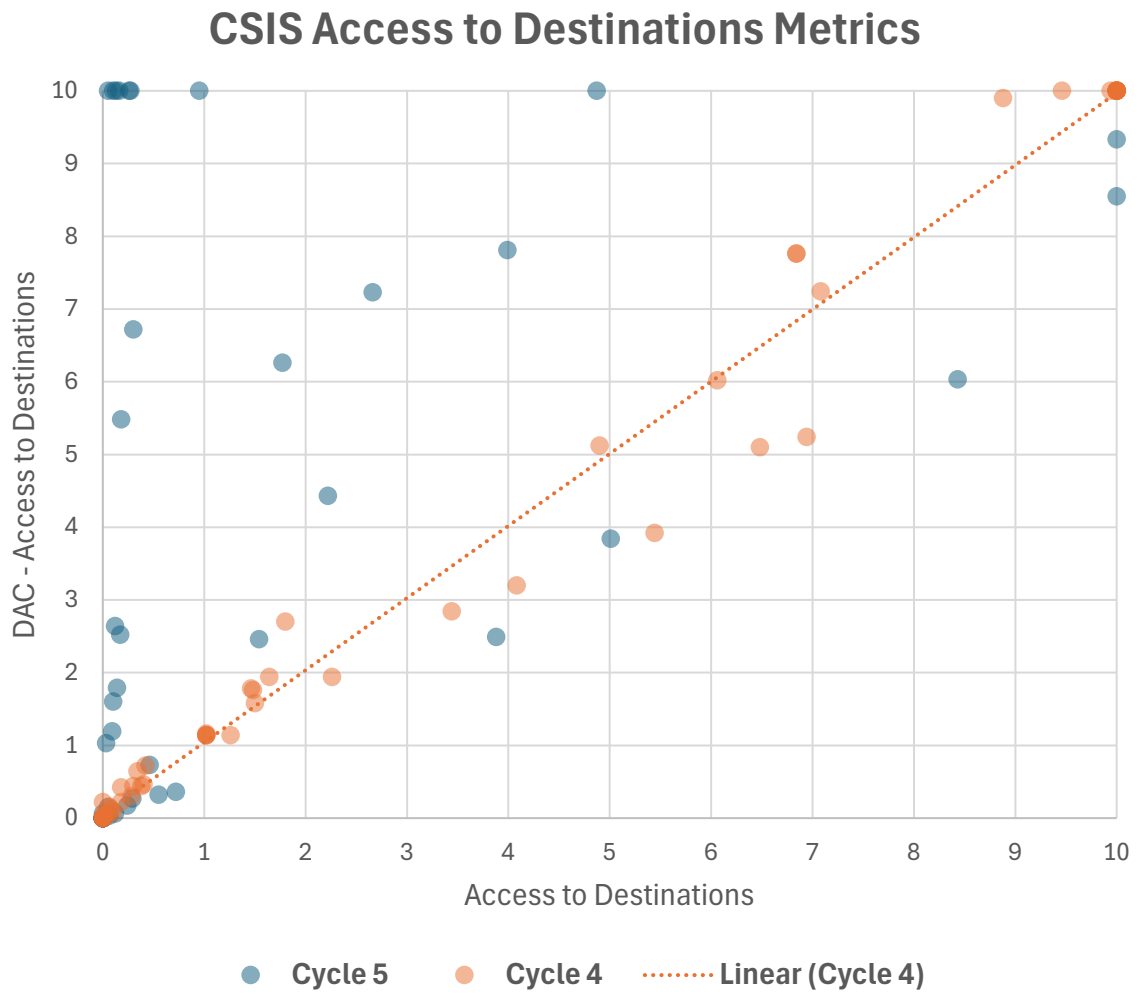
Analysis constraints:

- Must be applicable to the full state (CA is big)
  - This presents both metric design and computational challenges
- Must be applicable to all modes
  - A given "project" is often a combination of multiple sub-projects
- Metric should be responsive to different types of projects
  - I.e. inter vs. intra-regional projects



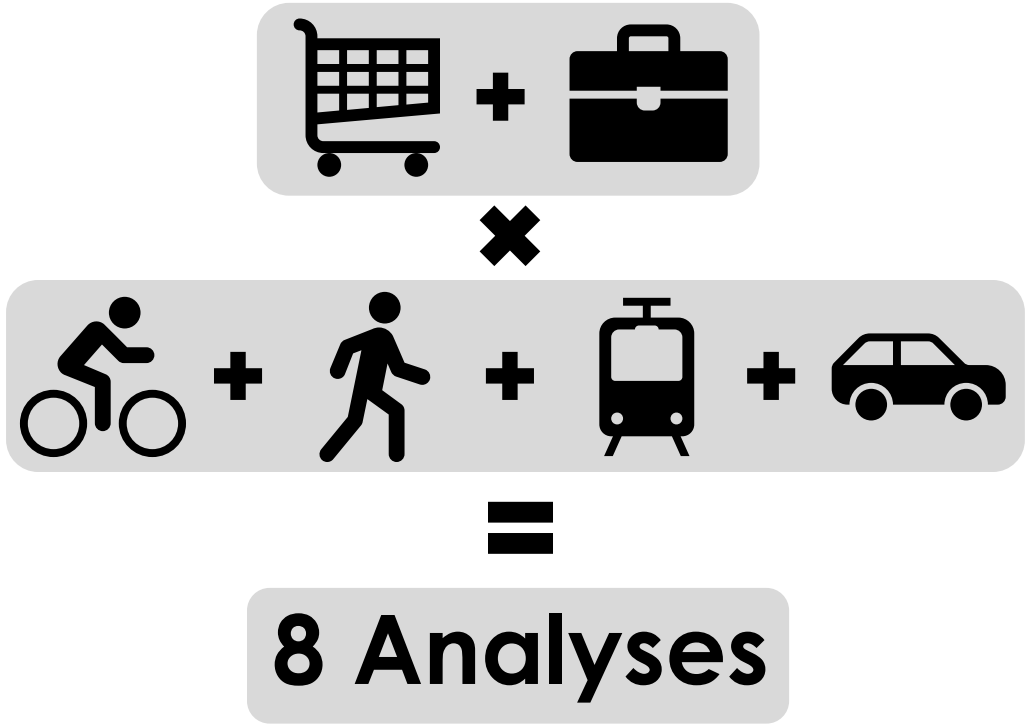
Metric Choice

- There are many accessibility metrics to choose from
- We use cumulative access metrics, measured in both average and percent change terms
- Each metric is designed to measure a different outcome



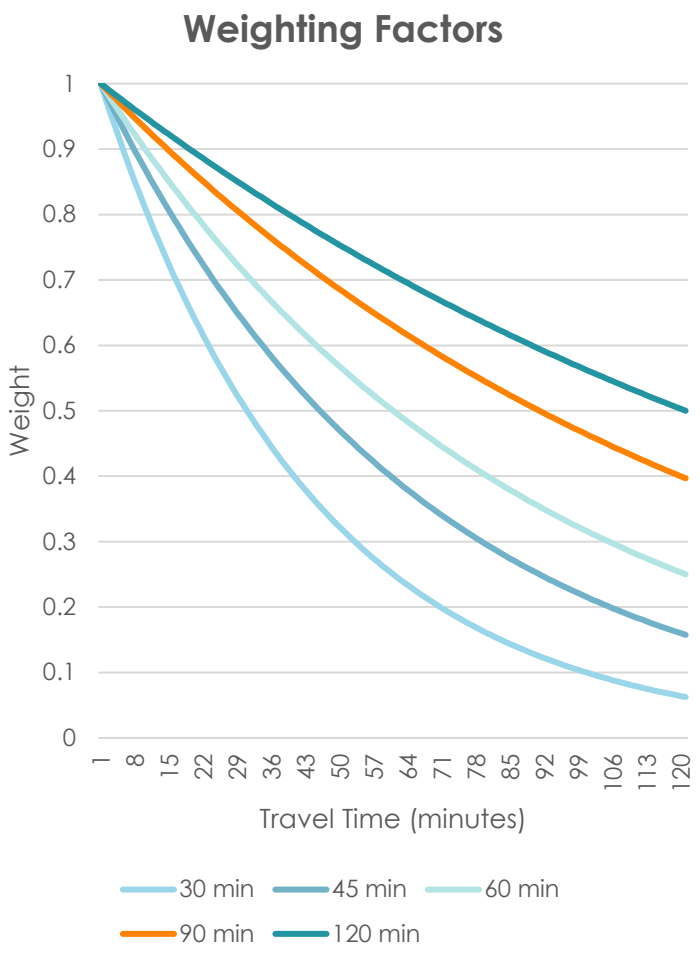
Mode and Destination Type Combination

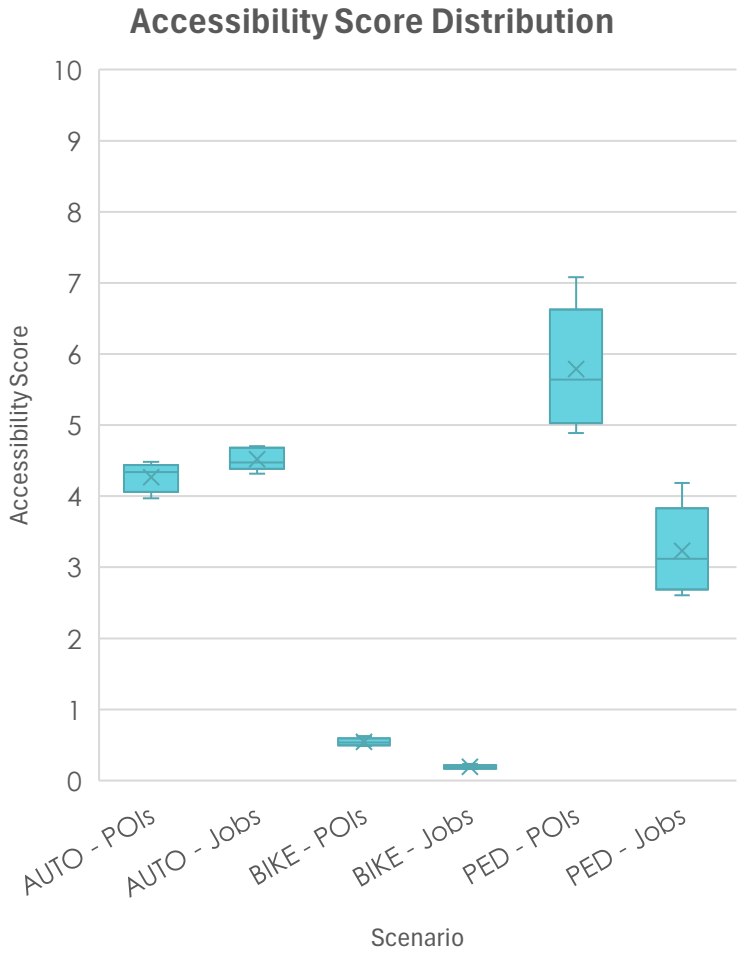
- "Projects" often consist of multiple individual projects
- A typical project may impact multiple modes, and is evaluated for both work and non-work destination types
- Work and non-work accessibility results are averaged
- All modes are averaged, with N/A modes receiving a zero
- Additional modal components only serve to increase project scores



Destination Decay Weighting

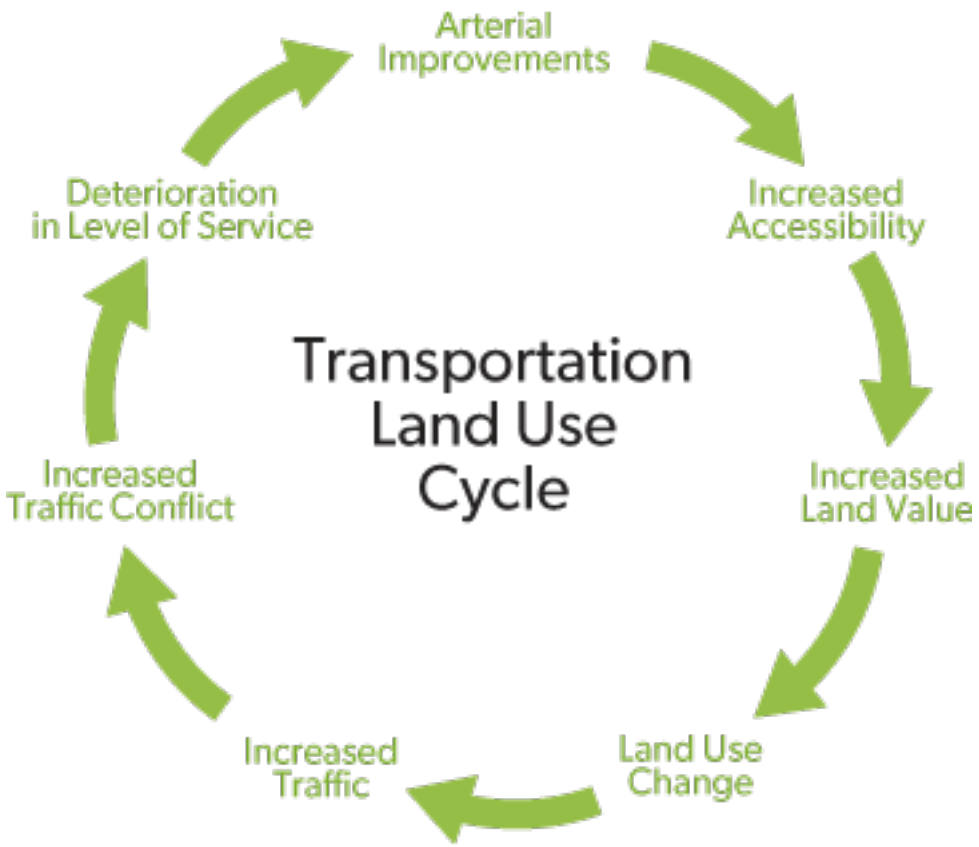
- An exponential decay function is used to weight destinations by travel time
- Different curves best fit different project types
- We run each project using multiple curves and select the one yielding the highest score





Limitations / Future Research

- Transportation / land use paradox
- Sidewalk network coverage
- Dual access metric
- Additional travel behavior considerations



Discussion/Questions?

Henry.McKay@dot.ca.gov

Director's Office of
Sustainability

Measuring access

Engagement between divisions, agencies, and communities to enable a new performance measurement approach

Thomas Craig, transportation planner, Public Transportation Division
TPM Webinar #31
June 17, 2026

Washington State Transportation Policy Goals

(1) It is the intent of the legislature to establish policy goals for the planning, operation, performance of, and investment in, the state's transportation system. Public investments in transportation should support achievement of these policy goals:

(a) **Preservation**: To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services, including the state ferry system;

(b) **Safety**: To provide for and improve the safety and security of transportation customers and the transportation system;

(c) **Stewardship**: To continuously improve the quality, effectiveness, resilience, and efficiency of the transportation system;

(d) **Mobility**: To improve the predictable movement of goods and people throughout Washington state, including congestion relief and improved freight mobility;

(e) **Economic vitality**: To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy; and

(f) **Environment**: To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment.

(2) The powers, duties, and functions of state transportation agencies must be performed in a manner consistent with the policy goals set forth in subsection (1) of this section with **preservation and safety being priorities**.

The insufficiency of current metrics

Our measures give us information, but no standard way of asking: *"Based on our goals, should we spend money on A or B?"*

Access: the point of transportation

- Access is the capability for people to get places.
- Access is the point of transportation.
- Someone who can get to 1,000 jobs in 30 minutes probably **has more access to jobs** than someone who can get to 10.
- Someone who can get to a park in 10 minutes rather than 30 minutes… etc.

Access as a performance metric

- Access can be used to calculate outcomes related to each statewide policy goal.
- Access can be estimated before developing a transportation project, and measured after.

Why is PTD doing a statewide destination access analysis?

- Destination access analysis would better meet the explicit requirement of the PTP in RCW 47.06.110

  "a state public transportation plan that (1) Articulates the state vision of an interest in public transportation ***and provides quantifiable objectives, including benefits indicators****; …*

- Resources for research available through and aligned with requirements of the 2025 "frequent transit" proviso (ESSB 5161)

Program intentions

Innovate with community: Access is a meaningful benefit for communities, so we're developing our methodology with community-based organizations at the table. We're taking our time to both learn and educate.

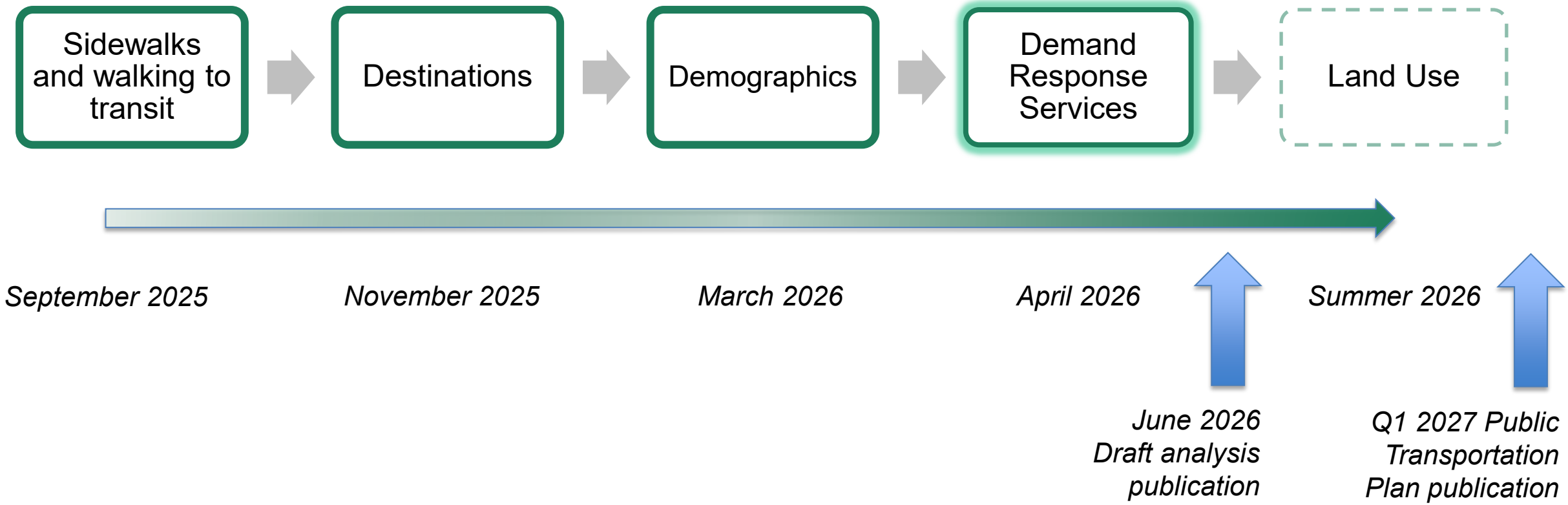
Build capacity with agencies: Access to destinations is also valuable as a local planning tool. WSDOT is looking to collaborate with transit agencies to share our resources and learn from local efforts.

Test the value of measuring access at the state level: Access could be a valuable performance tool for many use cases. PTD is collaborating with other WSDOT divisions and state agencies to identify other application opportunities.

Developing a multimodal destination access analysis method

- Data sets
  - Transit service data
  - Roadway and sidewalk data
  - Demographic and land use data
  - Destination data
- We can calculate statewide access for all modes*

TAG Data Themes And Roadmap



Final walking profiles

1. “Rider with no disabilities”: 20-minute walk, 3 mph, willing to walk on any road
2. “Rider using a cane”: 10-minute walk, 1.8 mph, requires sidewalk and gradient less than 8.33%
3. “Rider using power wheelchair”: 20-minute walk, 3 mph, requires sidewalk, curb cuts and gradient less than 8.33%
4. “Rural rider with limited mobility”: 10-minute walk, 1.8 mph, willing to walk on any road

Final destination categories

1. **Jobs** – total accessible; 60 minutes with decay
2. **Medical** – 0-1 scale based on types accessible; hospital 60 minutes, other types 30 minutes, with decay
3. **Community support services** – 0-1 scale based on types accessible; 30 minutes
4. **Food** – time to 3 supermarkets/food banks
5. **Parks** – total acres accessible; 20 minutes
6. **Leisure, recreation, arts, culture** – total clusters of 3 accessible; 30 minutes

Demographic analysis approach

1. Use ACS data to calculate access for different demographic groups
2. Use walking profiles as a proxy to distinguish experiences based on disability and age
3. Compare driver to non-driver access as a complementary analysis

Demand response analysis plan

- Measure access through demand response service as a separate travel mode
- Try to measure access separately for eligibility restricted versus general public services
- Label analysis “preliminary” or “experimental”
- Provide separate maps of demand response service around the state

Land use context classification

- Assign a type to each census block: Urban Core, Urban, Suburban, Rural
- Inputs:
  - Intersection density
  - Population and job density
  - Land use proportion
  - Urbanized areas (to identify “rural town centers”)

Formatting the results

- 55 pages of
  - **Executive summary**: key findings, next steps
  - **Introduction**: context, guidance for reader
  - **Methodology**: access definition, assumptions
  - **Calculated results**: tables of results
  - **Assessment**: narrative of tables, interpretation
  - **Conclusion**: big themes, next steps
  - **Additional information**: data sources, software

Results: statewide

Statewide destination metric	Walking Profile 1 (no transit)	Walking Profile 1 (1 mile distance, no constraints) with transit	Walking Profile 2 (no transit)	Walking Profile 2 (0.3 miles distance, sidewalks only) with transit	Walking Profile 3 (1 mile distance, sidewalks with curb cuts only) with transit	Walking Profile 4 (0.3 miles distance, no constraints) with transit	Uncongested Driving
Jobs (a.m., total in 60 minutes)	4,400	68,000	330	26,000	56,000	32,000	---
Jobs (p.m., total in 60 minutes)	4,400	60,000	330	23,000	50,000	28,000	---
Medical (types of facilities out of 1.0 scale)	0.21	0.47	0.04	0.20	0.41	0.23	0.91
Food (minutes to 3 stores, followed by % of population with no access in 120 minutes)	---	25 (31% 121 minutes or more)	---	17 (70% 121 minutes or more)	22 (47% 121 minutes or more)	21 (60% 121 minutes or more)	18 (0% 121 minutes or more)
Community support (types of facilities out of 1.0 scale)	0.31	0.42	0.06	0.17	0.35	0.20	0.83
Parks (total acres in 20 minutes)	8.0	8.1	0.8	0.9	3.9	1.9	160
Leisure (total clusters in 30 minutes)	7.4	25	0.6	8.0	20	10	240

Results: medical (land use)

Context classification	Walking Profile 1 no transit (and percent population with no access)	Walking Profile 1 with transit (and percent population with no access)	Walking Profile 2 no transit (and percent population with no access)	Walking Profile 2 with transit (and percent population with no access)	Walking Profile 3 with transit (and percent population with no access)	Walking Profile 4 with transit (and percent population with no access)	Uncongested Driving
Statewide	0.21 (43%)	0.47 (34%)	0.04 (84%)	0.20 (69%)	0.41 (43%)	0.23 (64%)	0.91 (3%)
Urban Core	0.85 (0%)	1.00 (0%)	0.42 (1%)	0.99 (1%)	1.00 (0%)	0.99 (0%)	1.00 (0%)
Urban	0.42 (8%)	0.87 (2%)	0.09 (60%)	0.54 (30%)	0.81 (7%)	0.59 (24%)	0.99 (0%)
Suburban	0.19 (38%)	0.50 (25%)	0.02 (89%)	0.14 (73%)	0.41 (38%)	0.18 (67%)	0.95 (1%)
Rural	0.05 (83%)	0.07 (81%)	0.01 (97%)	0.01 (96%)	0.05 (86%)	0.01 (94%)	0.76 (8%)

Results: parks (demographics)

Demographic group	Walking Profile 1 no transit (and percent population with no access)	Walking Profile 1 with transit (and percent population with no access)	Walking Profile 2 no transit (and percent population with no access)	Walking Profile 2 with transit (and percent population with no access)	Walking Profile 3 with transit (and percent population with no access)	Walking Profile 4 with transit (and percent population with no access)	Uncongested driving
General population	8.0 (23%)	8.1 (22%)	0.8 (74%)	0.9 (73%)	3.9 (46%)	1.9 (57%)	160 (2%)
17 and under	7.3 (23%)	7.4 (22%)	0.8 (76%)	0.8 (75%)	3.5 (47%)	1.7 (59%)	140 (2%)
65 and over	7.9 (26%)	8.0 (26%)	0.7 (77%)	0.8 (76%)	3.6 (51%)	1.9 (60%)	160 (2%)
Adults with a disability	7.6 (24%)	7.8 (23%)	0.8 (75%)	0.8 (74%)	3.8 (47%)	1.8 (58%)	150 (2%)
Income less than 200% of poverty line	7.5 (21%)	7.7 (21%)	0.8 (74%)	0.8 (73%)	3.9 (44%)	1.8 (57%)	150 (2%)
People of color	7.9 (18%)	8.1 (17%)	0.9 (72%)	0.9 (70%)	4.3 (40%)	1.9 (54%)	160 (2%)

Insights about access

- *Public transportation provides critical access in all areas of the state*
- *There's more access to destinations in more urbanized areas*
- *Gaps in the pedestrian network are significant barriers, especially in less urban areas*
- *Long distances walking to/from transit are often extreme barriers, but transit also adds more value for shorter-distance walkers*
- *Time of day is a greater barrier for public transportation in less urban areas*

Demographic disparities

- Inconclusive results from using demographic data
- Comparison of walking profiles indicates disparities based on mobility disabilities
- Comparison of public transportation to driving access indicates disparities between drivers and nondrivers

What happens after 2026-27?

- Destination access could be used in forward looking evaluations of Washington's transportation choices
  - Evaluate grants: under consideration by PTD and ATD
  - Compare different projects and policies:
    - Within modes
    - Between modes
- Destination access could – given time, resources, and collaborative attention – provide a useful tool to ***inform decision making in alignment with statewide transportation policy goals.***
- Proposed specific work plan items for 2027-2031

Thank you!

Thomas Craig, transportation planner, Public Transportation Division

June 17, 2026

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massDOT Office of Transportation Planning

Access to Destinations Dashboards

Layering Data to Tell Stories

TPM Webinar | June 17, 2026

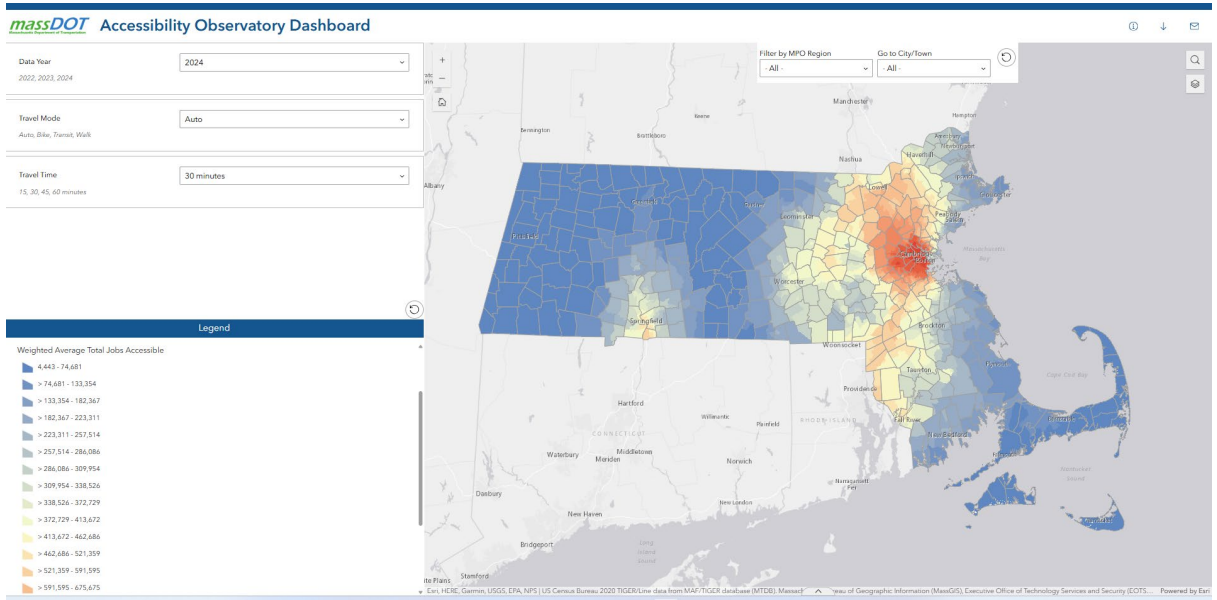
MassDOT Resources and Dashboards

1. Accessibility Observatory Dashboard
2. Community Transportation Explorer
3. RTA Service Delivery Tool

These tools developed by MassDOT help visualize patterns in access to destinations, land use, and the availability and quality of transportation infrastructure in communities throughout Massachusetts.

Accessibility Observatory Dashboard

What It Does how is this new	Visualizes job access by mode of transportation and travel time threshold
Intended Audience aka people who….	• need to understand **existing conditions** of an area or community, or the **distribution of destination access** across the state • are comparing access between modes of transportation
Data Used where and how assembled	• Data is provided from the University of Minnesota's Accessibility Observatory • Uses LODES jobs data, GTFS feeds, OpenStreetMap, and travel time data
Questions It Can Answer what to do with it	• How many jobs can I get to from a certain neighborhood within a certain amount of travel time, by a certain mode? • How does job access by driving compare to job access by transit, walking, or biking?



The above map shows how many jobs are accessible from each Census tract in Massachusetts within a 30 minute drive in 2024; places around Greater Boston have the most job access during this travel time period.

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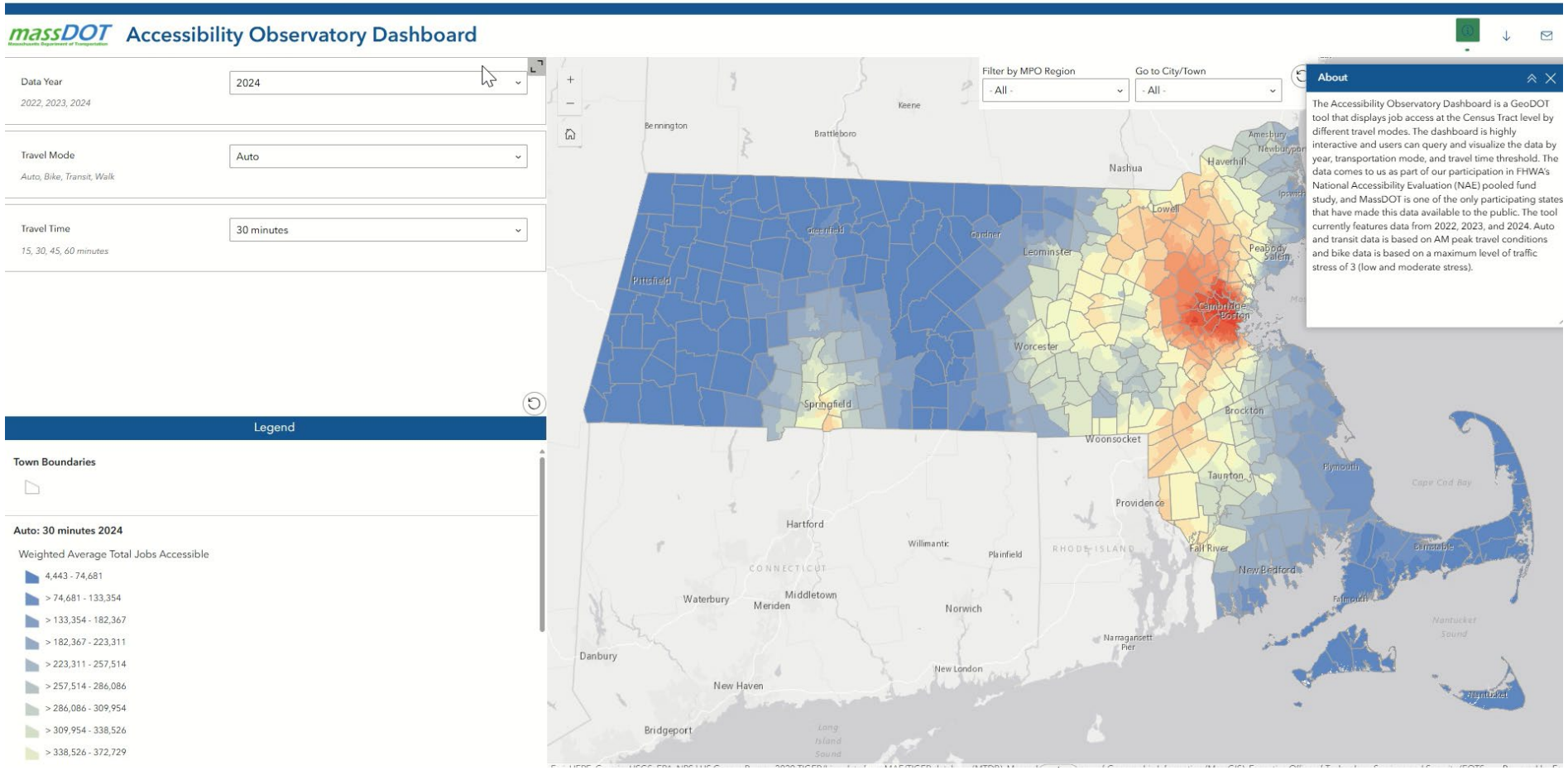
Accessibility Observatory Dashboard



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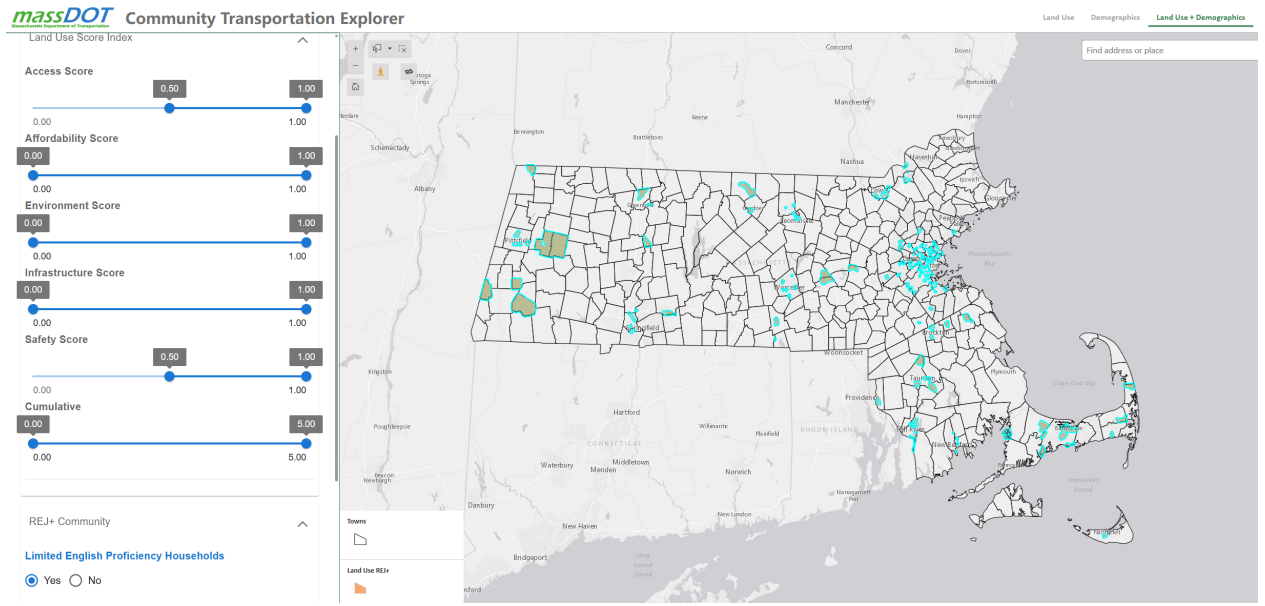
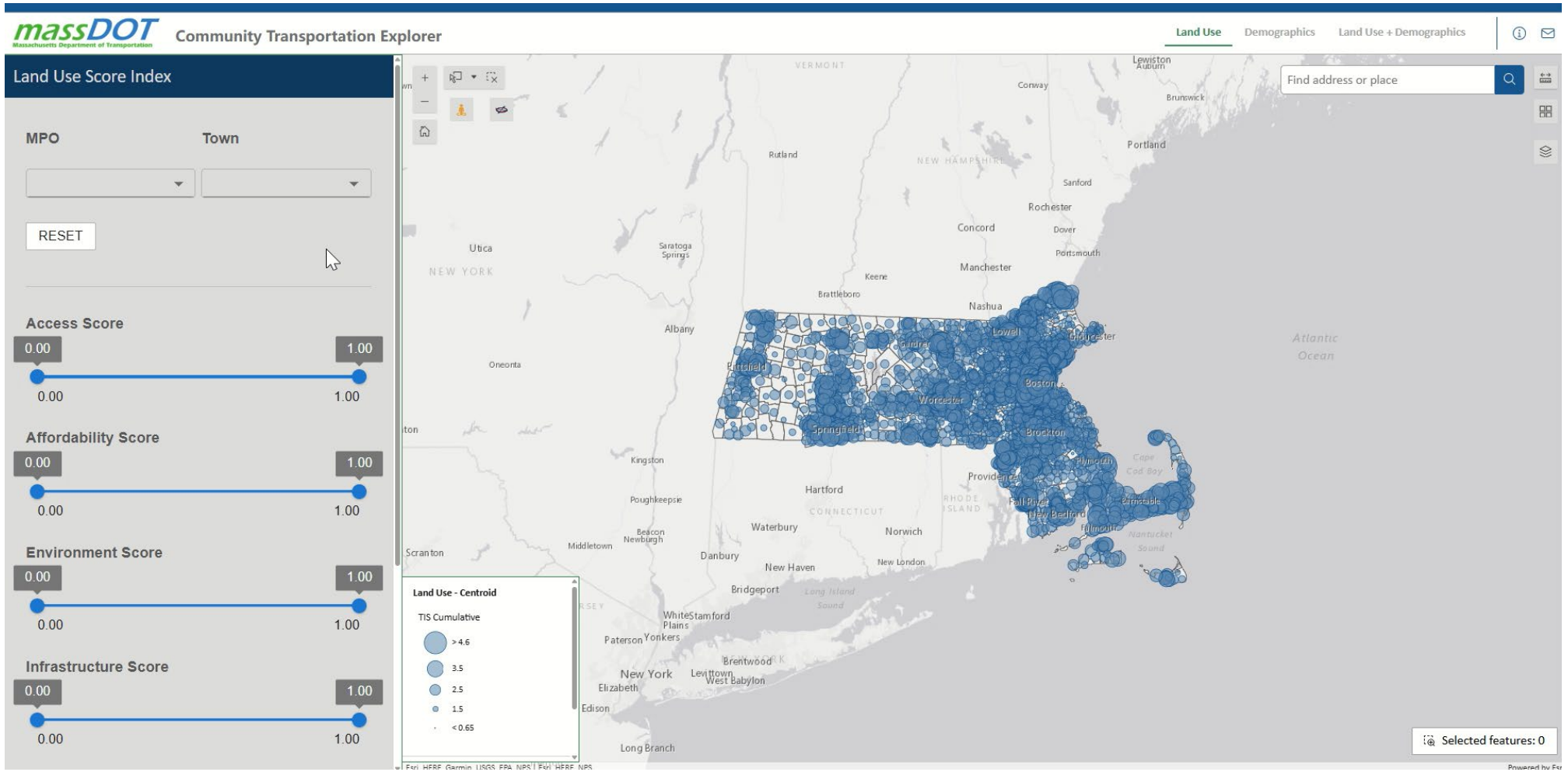
Community Transportation Explorer

What It Does how is this new	Brings **land use** data about transportation and **demographic** data about community composition together on one dashboard
Intended Audience aka people who….	• make **project development and prioritization** decisions • need to understand **existing conditions** of an area or community, or the **distribution of a community** across the state
Data Used where and how assembled	1. demographic data comes from ACS and is normalized to MPO region to set thresholds 2. land use data comes from many sources, most are publicly available 3. The access score is an index based on access to jobs and critical destinations such food retailers, medical centers, schools, and public housing. Access to these destinations is calculated by all modes using Conveyal
Questions It Can Answer what to do with it	• Where are there places with greater access to destinations but less safe transportation network conditions? • Where are there places with high levels of destination access where there is a large share of zero vehicle households?



The above map shows places in Massachusetts that score highly (>.5, out of 1) on destination access AND safety elements, as well as have relatively high concentrations of people that are of limited English proficiency.

Community Transportation Explorer



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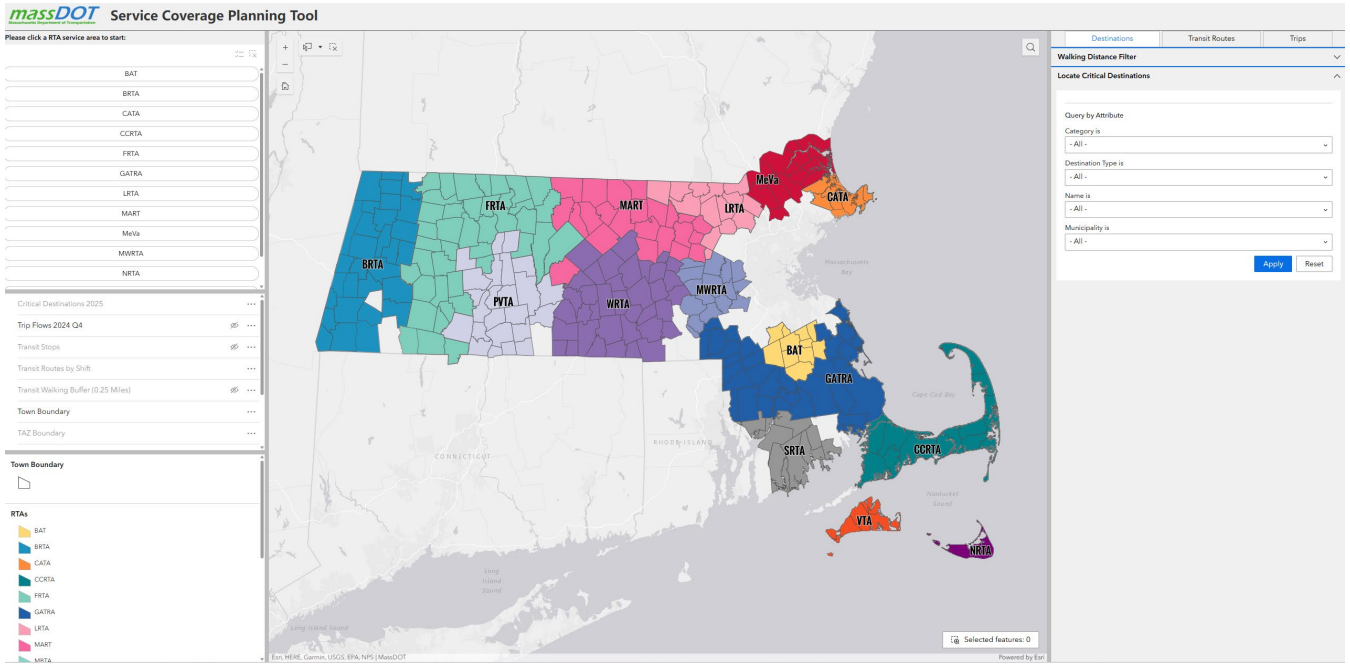
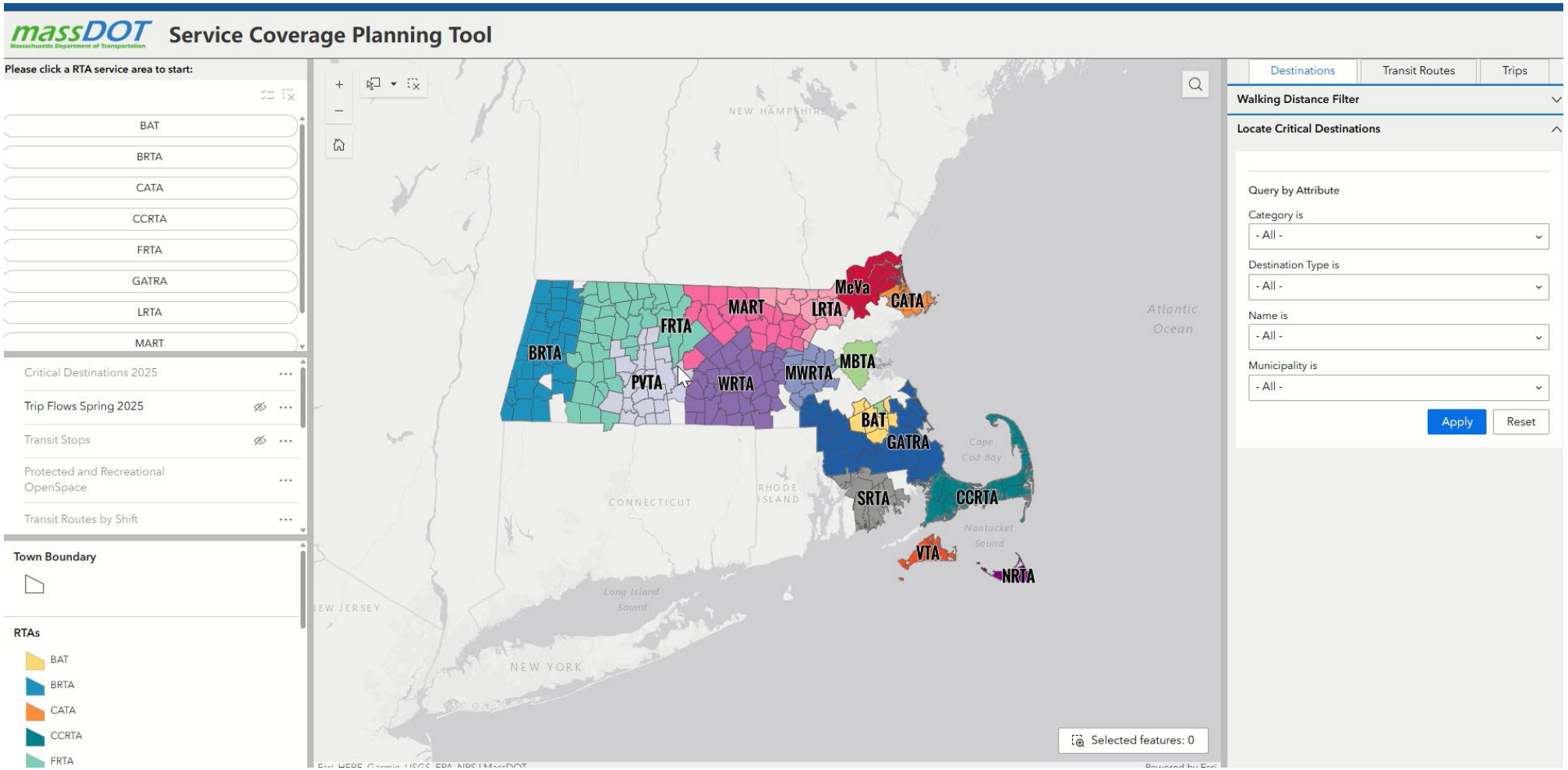
RTA Service Coverage Planning Tool

What It Does how is this new	• Visualizes transit routes and stops on top of key critical destinations and travel demand "flows" • Isolates routes according to temporal characteristics, including time of day and day of week • Includes a wide variety of destinations, selected for their importance for healthcare, education, food access, and civic engagement.
Intended Audience aka people who….	• Plan transit services and need to understand destination coverage and synthesis with demand • Need to identify gaps in transit service, both geographically and temporally
Data Used where and how assembled	• The tool uses GTFS feeds to map routes and stops and identify routes based on schedules. Destinations data comes from a variety of sources, most of which are publicly available. Travel flows data comes from Replica
Questions It Can Answer what to do with it	• Are public housing developments in my region that are not served by transit? • How many food retailers does a specific bus routes serve? • Does the transit service in an area align with potential demand?



The above map shows the home page of the Service Coverage Planning tool. On the top left, users can select specific transit providers to evaluate services. On the right, users can locate specific destinations and sub-categories; identify specific transit routes; or identify services that run during specific time frames or days of the week.

Service Coverage Planning Tool



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Thank You

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Save the Date!

- To learn more about the Committee on Performance Based Management, access the series archive, and explore performance management resources, visit the TPM Portal: https://www.tpm-portal.com/
- Join us for an upcoming webinar and subcommittee meeting!
  - **TPM Webinar 32**
    - August 19th, 2026
  - **TPM Webinar 33**
    - October 21st, 2026
- **Thank you!!**