



Access to Opportunities Primer

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Housed in the UCLA Luskin School of Public Affairs, the Ralph & Goldy Lewis Center advances research on how people live, move, and work in the Los Angeles region, with a focus on policies and interventions that provide paths out of poverty. Since 1989, Lewis Center scholars and staff have produced high-quality research on transportation access, housing affordability, labor, immigration, and many other topics, with a focus on the policy impact on vulnerable populations. lewis.ucla.edu

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Introduction

Transportation allows people to reach the opportunities that they need to participate in social and economic life. It enables workers to get to jobs to earn a living, students to get to school to obtain an education, or people to see a doctor to get healthy. But for people who lack transportation, whether it be because they do not own vehicles or because public transit does not get them to where they need to be when they need to be there, these opportunities can cease to exist. This concept — the role of transportation in helping people reach essential destinations — is what is meant by the term “access to opportunity.”

This primer seeks to help policymakers, public officials and their staff, and advocates understand access to opportunity — why it is an important concept, its determinants, and how it relates to other adjacent issues and policies in housing and economic development. As readers will find, untangling disparities in transportation access from the legacy of racist policies like redlining and discrimination is difficult, if not impossible. Addressing disparities in access to opportunities, therefore, cannot be done through transportation planning and policy alone. However, increasing transportation access is an essential part of this effort. We hope that this primer will be used to better inform and more effectively target transportation planning and policies to increase access to opportunity and reduce existing disparities.

Presented in the pages that follow are a series of questions and answers to provide readers with a baseline understanding of transportation and its role in access opportunities. A focus on accessibility is essential to making transportation investments that engender more equitable regions for all.

What is access?

The term access can mean different things to different people. Access is an integral concept linked to many essential services — access to education, health care, the internet, etc.

Within transportation, access can take on multiple meanings. For example, in the United States, the Americans with Disabilities Act (ADA) requires the built environment to be accessible for people with disabilities. ADA compliance focuses on physical and digital access. The concept of access in ADA is part of, and yet distinct from, the spatial access that we describe here.

Within access to opportunities, we define “access” as the ease of reaching destinations such as jobs, health care, education, and food. Where people live and where activities are, the number and quality of activities, and how people get around — which transportation modes they use —

determine access. Access is also shaped by history, intersectional identities, race, gender, nativity, age, disability status, and personal preferences and attitudes. We explore more about how access is determined later in this document.

Why is access important?

Geography, history, and where people live shape access to opportunity. Historically, housing policy segregated people and communities of color, leading to lasting disparities in where people could and do live. Led at first by white flight, the process of suburbanization now disperses many destinations — education, jobs, health care, and more. In contrast, rising housing prices in and near downtown areas puts housing cost and displacement pressure on people of color and pushes low-income families out to suburban areas. These areas are less well-served by quality transit service, meaning that those who face transportation disadvantage face greater hardship in suburban environments.

When destinations and services are close to home, accessing opportunities can be relatively easy. Most people, however, do not live near their workplaces or other frequented destinations. For some people, this distance is by choice. People choose to live further away from job centers for various reasons, like better school quality or larger housing. But for many others, especially low-income people of color, the distance between where they live and where they need to go is a constraint; it is not by choice or preference. They live where they can afford, where public transportation is available, or where they were historically allowed to live.

Transportation access is the mechanism by which people overcome the physical distances between where they live and where they need to go. Except for traveling for recreation, people rarely travel just to travel. People travel because they need to engage in and perform other activities — such as go to work, get medical care, go shopping, and see friends and family. Reliable transportation access allows people to access these various essential activities. If opportunities exist, but people do not have the transportation to get there, it is almost as if these opportunities do not exist.

What types of destinations are essential?

The role of transportation access plays out in many different ways. Improved transportation access enhances individuals' ability to reach jobs, healthy food, schools, childcare, and health care. Consider, for example, access to food. When families cannot get to supermarkets because of transportation barriers, they may not be able to access nutritious food. Left with few alternatives, families may be forced to buy low-quality food from corner markets or fast-food restaurants.

Employment

Transportation access is essential to helping individuals find and retain a job. The role of transportation in accessing employment begins with the job search itself. Cars make it much easier to search for work across a wide range of locations and in a short amount of time than travel by other modes. In some neighborhoods, high-quality transit may work well. But when transit is infrequent or unreliable — as is the case in many places — it can make the job search difficult and time-consuming. This likely limits job options to those accessible along transit routes and when transit service is available. In the vast majority of places, cars provide a greater amount of access in terms of jobs that can be reached within a reasonable amount of time, compared to public transit.

Figure 1 shows the number of jobs accessible by cars compared to public transit within a one-hour commute for the Los Angeles Metropolitan Statistical Area (Los Angeles and Orange counties). Areas in and around Downtown Los Angeles and places with the highest access to transit service have the smallest employment access gap. However, cars still provide three times as much job access within the same amount of time.

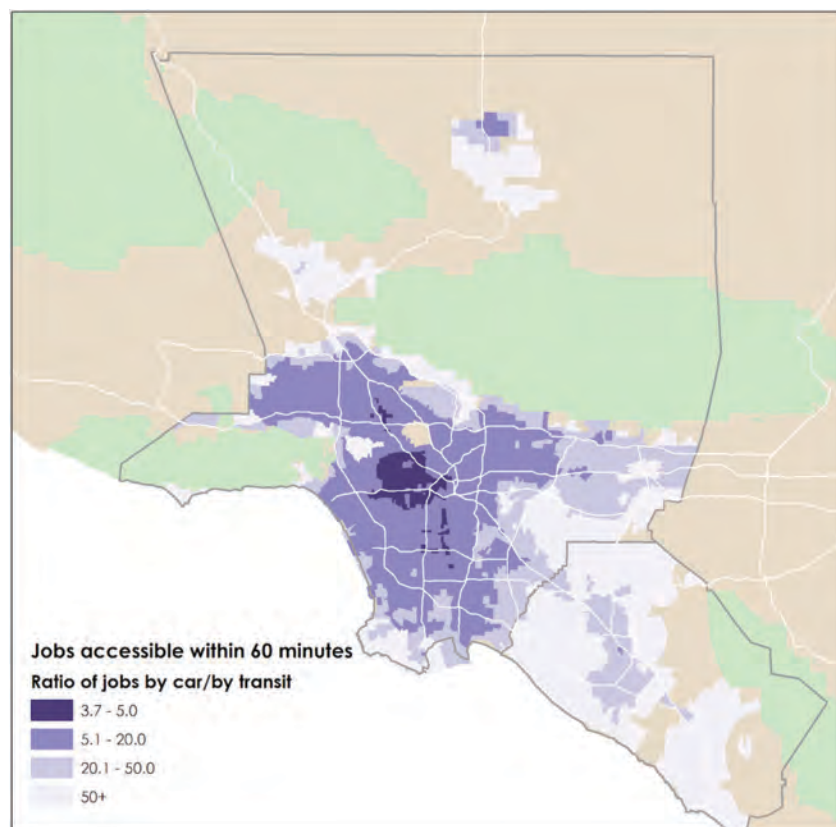


Figure 1. Ratio of the number of jobs accessible by car compared to public transit within one hour in the Greater Los Angeles region (MSA). Data source: Access Across America, Auto and Transit 2018 data, University of Minnesota.

Transportation access and employment further play out in terms of employer attitudes or perceptions. Employers may also screen job applicants with questions about whether they have a driver's license, a vehicle, or access to reliable transportation even when job duties do not require driving (see **Figure 2**). Employers may be more likely to hire an applicant who owns an automobile regardless of the duties of the job. Some jobs — like driving for Uber or Lyft — require the use of a car. Other jobs — for example, home maintenance workers, home health aides — can require frequent travel to different places at different times, which is more easily accomplished by automobile than by public transit.

OUTBACK STEAKHOUSE **HOURLY OUTBACKER EMPLOYMENT APPLICATION**

Last Name		First Name		Middle Initial	Today's Date
Street/P.O. Box		Apt. #	City		State ZIP Code
Day Phone No.		Evening Phone No.		Social Security Number	Expected Hourly Pay Rate
Do you have reliable transportation to and from work during our hours of operation? <input type="radio"/> Yes <input type="radio"/> No		Are you applying for a full-time or part-time position? <input type="radio"/> Full-Time <input type="radio"/> Part-Time		How many hours per week do you want to work? Minimum _____ Maximum _____	
Position Applying For: <input type="radio"/> Server <input type="radio"/> Host/Hostess <input type="radio"/> Kitchen Prep <input type="radio"/> Busser <input type="radio"/> Bartender <input type="radio"/> Cook/Line Cook <input type="radio"/> Dishwasher					

Figure 2.
Example job application with screening question about transportation access

Finally, automobiles may improve job retention by helping workers consistently get to work on time. In contrast, reliance on public transit can be difficult for workers since employers may be intolerant of unexpected delays, which often occur. People may even potentially lose positions or be ineligible for promotions if they fail to consistently arrive at work on time. Public transit schedules, especially during overnight and mid-day hours, may not be well-matched to workers' needs.

Health Care and Education

Lack of transportation is a well-documented barrier to healthcare access. When people do not have the transportation resources to get to doctor's appointments, the results lead to missed appointments, delayed care, and missed medications, all of which can further compound negative health effects. Due to the spatial arrangement of health care providers, transportation access is a social determinant of health. Neighborhoods with existing transportation disparities also can be areas that are medically underserved, underscoring the critical importance of travel in accessing healthcare.

Transportation is also essential in accessing educational opportunities. Due to budget cuts and regulatory changes, fewer districts provide yellow bus service today than in the past. At the same time, many students attend (or perhaps wish to attend) schools outside of their own districts. Students who face transportation barriers are more likely than other students to have more limited school options, to experience school attendance issues, and tend to get less sleep.

Overall, the accessibility that transportation affords people to get to the destinations they need to live full and complete lives, connecting them to critical destinations for work, health, and education. Transportation provides access when destinations are distant, as they often are, or when goods and services can't be brought to people. These opportunities can cease to exist when people do not have transportation.

What factors determine access?

Many factors influence access to opportunities. The schematic below groups these factors into five areas — the spatial location of opportunities, transportation mode, destination characteristics, characteristics and preferences of individuals and households, and public policy. Each of these factors relates to accessibility and also to each other (see **Figure 3**).

Spatial Location of Opportunities

The spatial arrangement of people and activities influences accessibility. Access to opportunities tends to be higher in cities and neighborhoods where people and places are close together, and land uses are more mixed. For example, an individual who lives in a downtown neighborhood likely lives closer to various destinations and, therefore, experiences higher levels of access to opportunities than someone who lives in outlying communities where destinations are more dispersed. However, proximity and quality may not necessarily go together. For example, schools may be closer to where people live in denser urban areas. But in many cases, school quality might be higher in more well-resourced suburban communities, although the schools may be further away from where people live.

Transportation Mode

Travel speed varies significantly across transportation modes. Therefore, individuals may experience varying levels of accessibility based on their travel mode — for example, by car, bus, train, bike, or walking. In most auto-centric cities, someone who uses a car can access many more destinations within a reasonable travel time compared to someone who uses public transit. Average travel times on public transit are about twice as long as by car. This is because, in addition

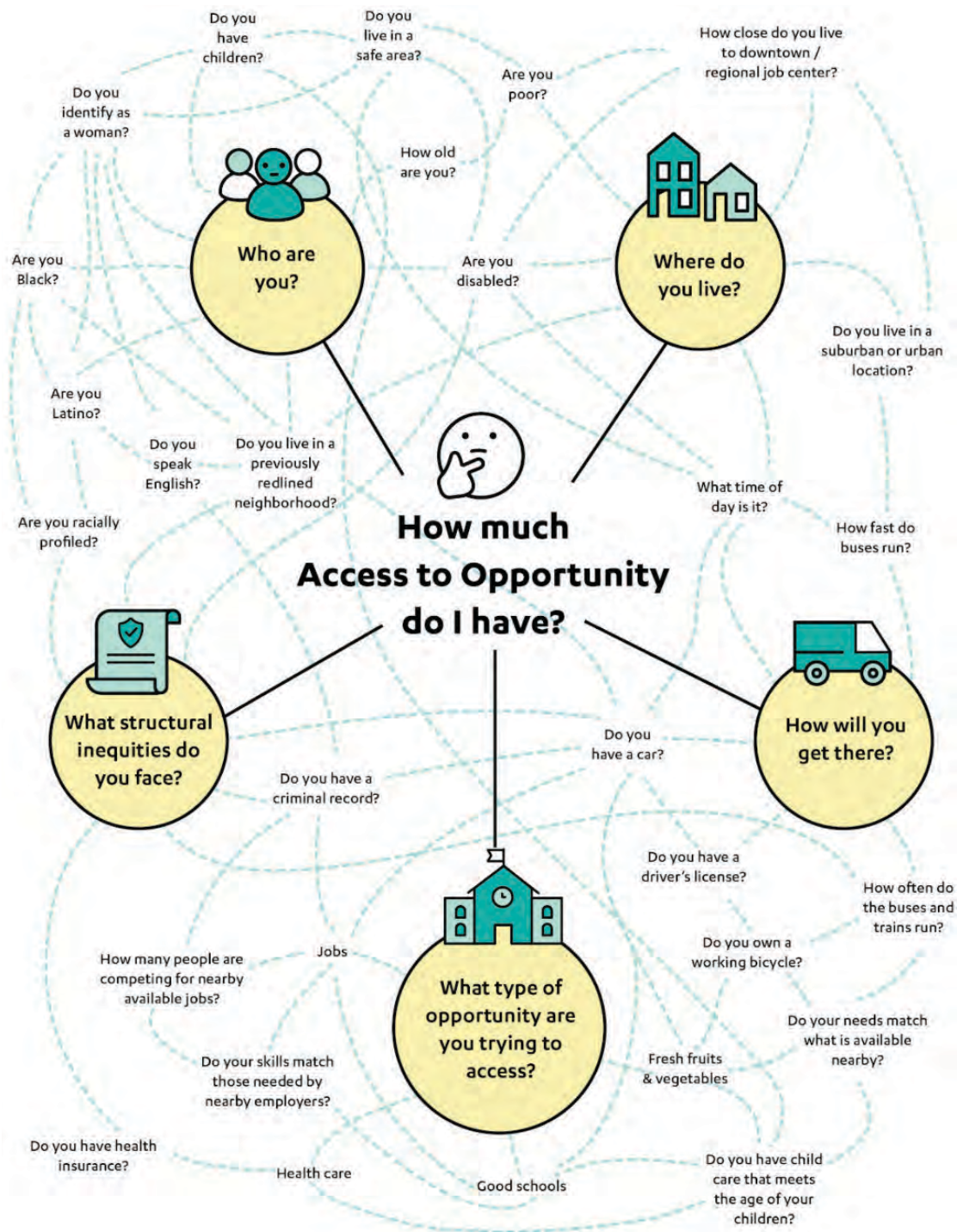


Figure 3.
Schematic illustrating the connected determinants of access to opportunity

to slower travel speeds, transit users must wait — frequently long periods of time depending on the time of day — for the next arrival, and get to and from the transit stop. But in built-up areas with frequent transit service, heavy traffic, and scarce parking, travel time differences between driving and public transit are narrower. For households without automobiles, public transit, walking, and other non-auto modes are access lifelines.

Also, some transportation modes do not as easily accommodate specific trip purposes, making it difficult to engage in these activities. For example, purchasing groceries, especially in bulk, is difficult or even impossible for some people while taking transit or traveling by foot or bike.

Moreover, people often make multiple trips between work and home, a pattern called “trip chaining.” In the mornings, they may drop off their children at school on their way to work; in the afternoons, they may stop at the grocery store before picking up their children from school and traveling home. Depending on how close these destinations are to each other, stringing multiple trips together is more easily done by car and typically more challenging to do by transit, by foot, or by bike.

Destination Characteristics

Destination characteristics also influence accessibility. In terms of job access, low-wage workers may have limited nearby job access if the jobs in their neighborhoods do not match their education or skill level. Access to jobs also may be constrained if many other workers are competing for the very same positions. The match between households and destinations is an issue in other domains as well. Take child care, for example. If households cannot find the child care they need based on their children’s needs, or if many households are competing for the few affordable child care slots, access to child care will be limited even if child care centers are conveniently located.

Individuals and Households

People’s individual and household characteristics also influence accessibility. Race, ethnicity, and income determine access to opportunities and services. Racial residential segregation has produced racial disparities in access to jobs, health care, and education. African Americans and other people of color often live in segregated neighborhoods, isolated from high-quality jobs, services, and education. However, even if jobs are located nearby, they may not be accessible to Black and brown people who experience police violence and fear law enforcement in public spaces, such as streets and transit stops and stations. Similarly, if nearby health care providers do not provide language-translation services, access to health care may be limited for immigrant families.

Like race and ethnicity, household income also creates access barriers. For example, transit availability does little to improve access to jobs for people who cannot afford transit fares. Additionally, income is positively associated with automobile ownership; consequently, low-income households have significantly lower automobile ownership rates than higher-income households. In Los Angeles County, low-income people have the least amount of access to automobiles in their household. Black people, recent immigrants, and older adults also have less access to cars than other population groups (see **Figure 4**). Moreover, low-income households tend to own older and less reliable vehicles than those of higher-income households, once again limiting their reliable access to opportunities.

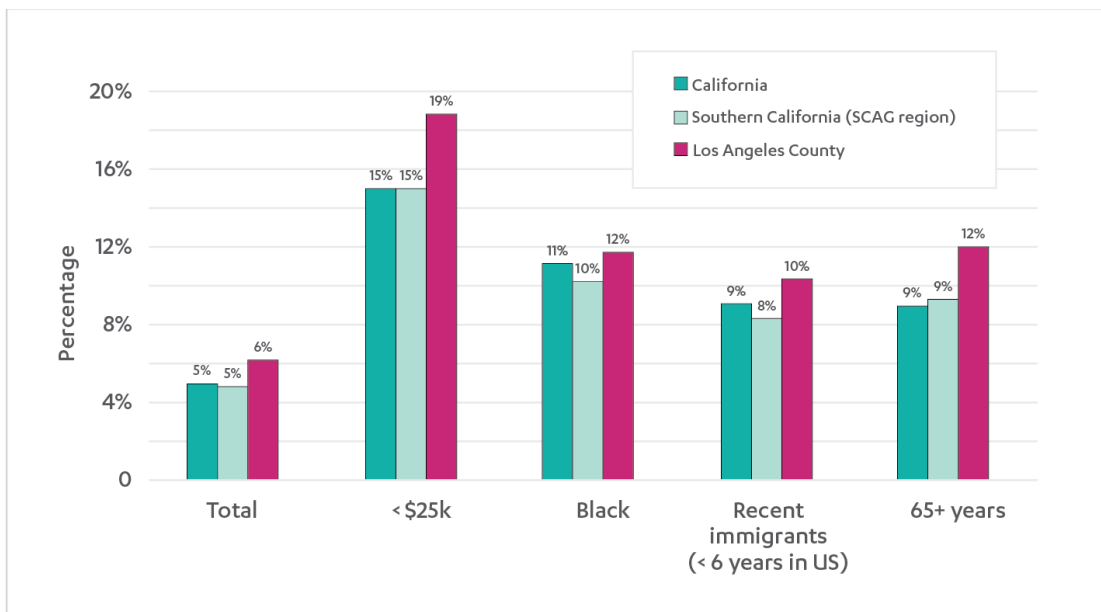


Figure 4.
People in zero-vehicle households by region. Source: 2014-2018 American Community Survey, 5-year sample

Gender, age, and physical ability further determine accessibility. For example, frequent and reliable subway service may not be accessible to riders if they face physical barriers like unreliable elevators or fear sexual harassment. For older adults, small physical barriers, such as stepping down to the street if the bus does not pull up next to the curb, can impede access.

Public Policy and Planning

Public policies — such as zoning, land use, housing, criminal justice — influence all of the above factors and, in turn, determine individual and household access to opportunities. For example,

redlining and exclusionary zoning, among other racist policies, have resulted in extensive residential segregation and, with it, disparities in access to opportunities. Additionally, racist policing has escalated safety fears, constraining people of color through racial profiling and police brutality.

Infrastructure investments also influence access. Limited transit service reduces accessibility, particularly among low-income travelers without automobiles who have limited options. Accessibility is also limited when cities underinvest in safety and do not install or maintain streetlights or neglect ADA improvements like curb cuts or properly paved sidewalks.

How can access to opportunity be increased?

There are three main avenues to increase access to opportunities. One is to increase affordable housing in high-opportunity neighborhoods, providing families opportunities to live close to jobs, amenities and services, if they so choose. Another approach is to invest in disadvantaged neighborhoods, creating needed jobs, high-quality schools and services, and other improvements. This strategy can also include temporary investments such as mobile health care clinics. In all cases, neighborhood investments should be paired with policies to protect residents from displacement, thereby ensuring that long-time residents benefit from these efforts. Finally, and most relevant to this primer, increased access to opportunity can be achieved through transportation improvements. Changes in development patterns and housing supply tend to be longer-term strategies; transportation investments potentially can provide more immediate ways to increase access.

Does traffic congestion affect access?

Traffic congestion slows transportation access. Congestion also contributes to pollution that has disproportionate effects on those who live near freeways and busy roads, who are predominantly low-income households and people of color. Most people experience congestion as cars and buses are stuck in traffic, increasing the time it takes to reach destinations. Bus transit can especially suffer from congestion when buses do not have dedicated lanes to prioritize transit riders over private vehicles.

Congested areas are also a sign that many destinations are located in close proximity to each other. When destinations are closer together, travel distances are shorter, which can reduce trip times, even in congested conditions. Closer destinations are easier to reach by walking, cycling, or short transit trips, meaning more accessibility for those that live in proximity.

Traffic congestion is often used as a reason to restrict new development on the assumption that new development in built-up areas will make congestion worse. New residential or commercial development also positively contributes to increased access for people who will live there, in the case of residential development, or for those who already live there in other cases. Take affordable housing development, for example. Even in a congested area, people who live there gain access to proximate destinations and have greater accessibility compared to lower levels of access in other neighborhoods with fewer nearby destinations and lower levels of congestion.

Are elements of access changing over time?

Many of the underlying factors that affect access to opportunities are changing over time. How much these changes affect accessibility overall, however, is an ongoing debate among researchers. We know that congestion in American cities is increasing.

During the COVID-19 pandemic, accessibility has changed in several ways. Some people, mostly professional workers, are experiencing increased access to jobs, as they are mainly working from home. Delivery services and telemedicine are also making errands like grocery shopping and medical visits more accessible. At the same time, however, public transit service levels are being reduced due to lower funding levels and service demand, resulting in decreased accessibility for those who rely on public transit and who work in sectors that are not working from home.

Outside of the pandemic, poverty and the suburbanization of jobs have shifted activity toward outlying areas where accessibility for households without cars is limited. For those who can afford cars, suburban access can be a boon, especially if suburban areas have quality schools or parks, but access can be much lower for those without cars.

New transit investments in many cities may increase access to destinations for some households who do not have reliable access to cars, as long as those activities are well matched to these new services. But this outcome is not guaranteed. New rail transit services connecting downtown areas with affluent suburbs may increase job access for some car owners in the suburbs. But they may do little to help those with limited vehicle access reach needed destinations. Moreover, if new transit investments displace households due to rising rents, accessibility benefits may be diminished.

Finally, the transportation field is experiencing a technological revolution. Access to opportunities for some may be enhanced by new services such as rideshare, carshare, and micromobility options like e-scooters and shared bikes. For others, such as those who lack bank accounts or smartphones and cannot use them, these new services may exacerbate access gaps, increasing options for those who already have numerous options. These new services may pose additional

access barriers, like when discarded scooters may block pedestrian and disabled access on public sidewalks. A recent review highlights a lack of evidence that sharing systems for cars, bikes, and scooters are improving access for disadvantaged populations due to proximity, race, income, and gender-related concerns, among others.

Transportation professionals talk a lot about mobility. Is this the same as access?

Access and mobility are related but not the same. Mobility refers to the ease of moving people, goods, and services and is the function of the transportation system and its performance. In contrast, access is the ease with which an individual can reach destinations.

Improving mobility, thus, may or may not improve accessibility. A neighborhood may have good mobility and poor accessibility if, for example, it has wide roads and highways but low availability of nearby schools, grocery stores, and health care services. Although scholars have highlighted the difference between access and mobility for many years, the paradigm shift from mobility to access is only gradually occurring in transportation planning practice.

Practitioners continue to rely on traditional measures of mobility, such as ridership and frequency, to evaluate performance. These measures do not consider a simple question — are people able to go where they need to go when they want to? Understanding the distinction between accessibility and mobility would allow practitioners to ensure that their plans and policies enable people to reach destinations at convenient times.

Can you measure access?

Yes. There are many examples of access measurements but there is no single process defining how to do so. A 2017 practitioner survey found that most organizations are not currently using accessibility metrics, but that these measures can and should influence decision-making processes. Recent resources like the Transport Access Manual try to guide practitioners interested in measuring access.

Accessibility measures in practice are most commonly found within Metropolitan Planning Organizations (MPOs). Some MPOs are using or are currently experimenting with different access measures. The Metropolitan Transportation Commission (MTC) overseeing the San Francisco Bay Area is a longtime leader in using accessibility metrics in their long-term planning process. In their current regional transportation plan, Plan Bay Area, the MTC is evaluating proposed projects using

accessibility indicators, such as the project’s contribution to the ease of reaching destinations, for project scoring.

In addition, the Southern California Association of Governments (SCAG) is using a variety of performance measures for accessibility in its Regional Transportation Plan 2016-2040. SCAG’s regional transportation plan merged mobility and accessibility into a singular outcome with multiple measures in recent efforts. Accessibility measures used by SCAG include travel time to work, person delay per capita, and mode-share for work trips among others. Like SCAG and the MTC, the San Diego Association of Governments is using travel time as an indicator of accessibility.

The following are some general types of access measurements:

- **Cumulative opportunities measures:** These measures count the cumulative number of opportunities that can be reached within a given travel time or a specific distance from an individual’s location.
- **Gravity-based measures:** These measures count the number of available opportunities from an individual’s location, but closer opportunities are considered to offer greater accessibility than distant ones. The underlying concept is that the attraction of available opportunities decreases with the increase in travel impedance. For example, all things being equal, one would generally prefer to visit a grocery store that’s within 0.5 miles from their home than to visit a grocery store that is 5 miles from home.
- **Utility-based measures:** These measures focus on assigning utility to each destination and selecting the choice that maximizes utility. The utility-based approach captures the variation in the desirability of a range of travel choices and destination attractiveness based on the socioeconomic characteristics of individuals and households.
- **Constraints-based measures:** Constraints-based measures consider the space-time constraints that individuals face in their daily movements. Individuals’ space-time constraints are primarily determined by some fixed activities they perform daily, such as going to work or school. Based on the location and timing of these fixed activities, they sort other flexible activities, such as going to the grocery store, to a restaurant, or to the cinema. Constraints-based measures take into account these constraints and identify the feasible set of opportunities within an individual’s reach.

In any approach, data availability is always a concern. As a potential way to overcome this barrier, some third-party platforms, including [Redfin Real Estate](#) and [Sugar Access](#), have developed access calculations. These proprietary datasets are opportunities for local governments to purchase accessibility information rather than creating their own accessibility measure.

Also, researchers have similarly developed access measures. This includes work from the University of Southern California to develop [a measure](#) to link transit ridership, job access measures, and transportation policies. Similarly, at the University of Texas, Austin, researchers are

developing [ways](#) to help select and apply accessibility measures for transportation practitioners. Researchers at the University of Minnesota Accessibility Observatory have produced [Access Across America](#) data, another access measure. This measurement evaluates access to jobs by various modes of transportation — auto, biking, transit, and walking — and incorporates the effects of congestion on access to jobs by car.

Whatever particular metrics are used, a successful accessibility metric addresses key considerations — varying access to transportation and opportunities by mode, trip purpose, time of the day, travel safety, and spatial location. Given the large variation in access and needs among people, it is extremely difficult, if not impossible, to encapsulate this range into a single measure.

How do broad transportation concepts like transit-oriented development (TOD), safe streets, and innovative mobility relate to accessibility?

Transit-oriented development, pedestrian- and bike-friendly streets, and innovative mobility services can be important elements of accessible transportation networks. However, the devil is in the details in terms of their relationship to increasing access to opportunity. Consider, for example, a safe street with even sidewalks, slow traffic, and a tree canopy. If users of safe streets travel with a constant fear of police violence and racial profiling, a “safe street” may not be “safe” and therefore will not be accessible. Likewise, transit-oriented developments may cater only to higher-income households. In that case, these investments will not increase access for those who could benefit the most — lower-income households who have the greatest transportation needs.

Outside of MPOs, are there examples of accessibility improvements in practice?

Absolutely, although they aren’t prevalent. Some regions, including Los Angeles, are working to adopt measures to improve accessibility in their transportation networks. For example, in Los Angeles, the NextGen Bus Plan aims to redesign bus networks so that these networks reflect the actual travel needs of residents. In doing so, cities can examine whether existing networks help riders access a range of opportunities and services.

Increasing access to opportunity is also appearing as a tenet in some long-range transportation plans. The Los Angeles County Metropolitan Transportation Authority recently incorporated access to opportunity as one of the many goals included in their long-range transportation plan. The strategies toward this goal include:

- Build affordable housing near transit.
- Reduce household expenses on transportation.
- Advance equity through institutional transformation.
- Invest in regional workforce.
- Expand opportunities for small businesses.
- Maximize local investments.

LA Metro’s plan to increase access to opportunities is a step in the right direction. However, absent from these long-range goals are broader considerations of access, as outlined in this explainer. For example, improved ADA access and reduced wait times on transit are not addressed in the long-range transportation plan. The aforementioned gaps are not unique to Los Angeles. Most transportation agencies operate with a narrow understanding of access. Given that transportation agencies do not always have jurisdiction over land use, their engagement in institutionalizing access remains limited. To fully incorporate accessibility improvements, transportation agencies will need support from city and state partners.

What other organizations are working on this?

Research institutes and universities outside of UCLA are working on understanding access to opportunities:

- [Accessibility Observatory at the University of Minnesota](#)
- [Governor’s Institute on Community Design](#)
- [Metropolitan Housing and Communities Policy Center at the Urban Institute](#)
- [Mobilizing Justice at the University of Toronto](#)
- [Moving to Access at Brookings Institute](#)
- [Sugar Access at Citilabs](#)

If your organization is also working on research related to access to opportunities, let us know. We would love to connect.

Where can I learn more?

Transportation policy institutes, research centers, and researchers have written extensively about accessibility. Some selected references include:

Boisjoly, G., & El-Geneidy, A. (2017). Measuring Performance: Accessibility Metrics in Metropolitan Regions Around the World. Brookings Institute, Washington, D.C.

<https://www.brookings.edu/research/measuring-performance-accessibility-metrics-in-metropolitan-regions-around-the-world/>

Committee of the Transportation Access Manual (2020) Transport Access Manual: A Guide for Measuring Connection Between People and Places. Committee of the Transport Access Manual

<https://ses.library.usyd.edu.au/handle/2123/23733>

Dill, J. (2020) "Are Shared Vehicles Shared by All?" Blog post, October 21, 2020

<https://jenniferdill.net/2020/10/21/are-shared-vehicles-shared-by-all/>

Duranton, G., & Guerra, E. (2016). Developing a Common Narrative on Urban Accessibility: An Urban Planning Perspective. Brookings Institute, Washington, D.C.

<https://www.brookings.edu/wp-content/uploads/2017/01/landusage-digital.pdf>

Stacy, C., Su, Y., Noble, E., Stern, A., Blagg, K., Rainer, M., Ezike, R. (2020) Access to Opportunity through Equitable Transportation: Lessons from Four Metropolitan Regions. Urban Institute, Washington, D.C.

https://www.urban.org/research/publication/access-opportunity-through-equitable-transportation/view/full_report



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