Leonard Transportation Center
CAL STATE SAN BERNARDINO

Mobility Equity and Justice in the Inland Empire

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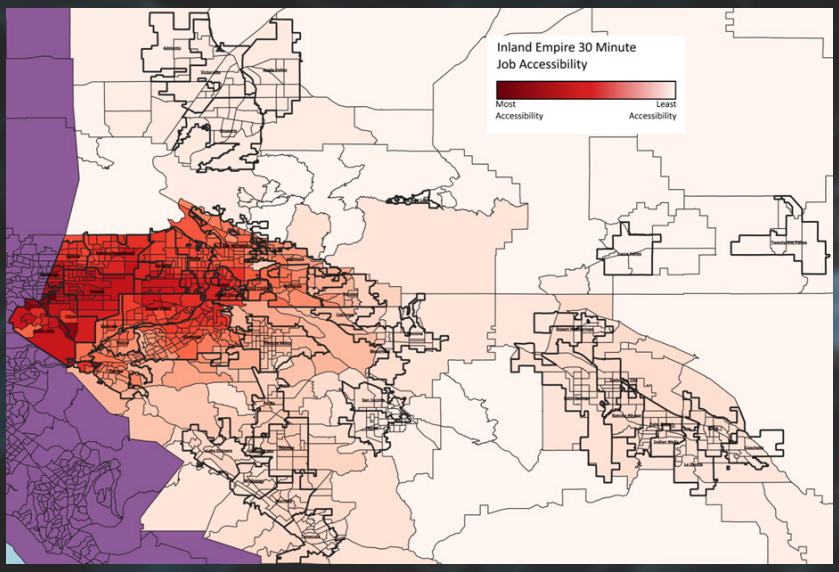
The cities of the Inland Empire were divided into six different regions (East, North, North Center, South, South Center, and West). The Inland Empire is a vast region covering over 27,000 square miles and more than four million people. The regions have different levels of access based on their geography, location, and population centers. Dividing the region into six separate areas assists in analyzing the data and allows for a better comparison of similar indicators as opposed to distinct ones. We have also included the eastern section of Riverside County, which is separate from the Inland Empire, but it is covered by many of the same public services, governance, and educational systems.

East	North	North Center	South	South Center	West
Twentynine Palms	Adelanto	Fontana	San Jacinto	Corona	Rancho Cucamonga
Coachella	Hesperia	Rialto	Hemet	Norco	Chino
Indio	Apple Valley	Redlands	Perris	Eastvale	Chino Hills
Indian Wells	Big Bear Lake	Highland	Menifee	Riverside	U land
La Quinta	Victorville	Colton	Lake Elsinore	Jurupa Valley	Ontario
Palm Desert		Loma Linda	Wildomar	Moreno Valley	Montclair
Rancho Mirage		San Bernardino	Murrieta	Banning	
Palm Springs		Grand Terrace	Temecula	Beaumont	
Cathedral City			Canyon Lake	Yucaipa	
Desert Hot Springs				Calimesa	
Yucca Valley					

Inland Empire 30 Minute Drive Job Accessibility

Inland Empire 30 Minute Drive Job Accessibility



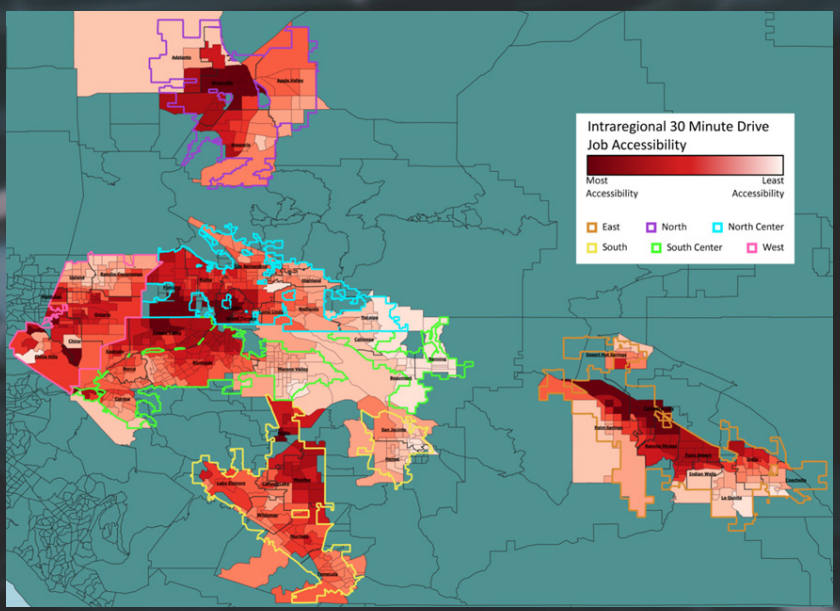
(Source: Esri and Data Axle)

Driving accessibility to jobs for the West, North Center, and South Center regions, the most relevant factor is its closeness to Los Angeles, with the cities of Chino and Montclair having the highest accessibility.

For the South Region, closeness to the IE Metropolitan Area (comprising the West, North Center, and South Center regions) was the most relevant factor, with Perris and Menifee having the highest accessibility. Conversely, the cities of San Jacinto and Hemet, being further away from other cities and the general metropolitan area, had the lowest accessibility.

The East region had greater accessibility for census tracts near the Interstate 10 highway, significantly closer to the region's center, which means that those census tracts near the interstate could reach most of the region. Last, the North region had the lowest accessibility for any region due to their lack of jobs within their region and their distance to the IE metropolitan area. However, intraregional accessibility was the highest close to the Interstate 15 highway, particularly on the west side.

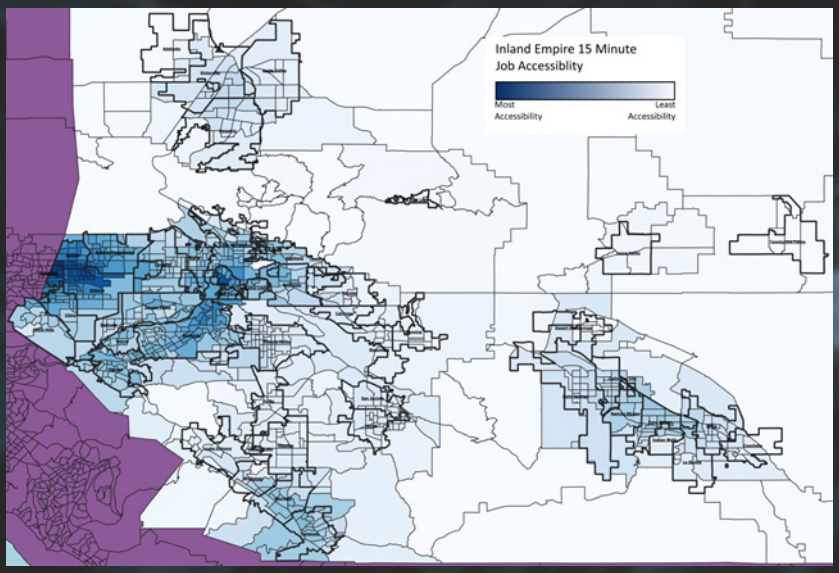
Intra-regional 30 Minute Drive Job Accessibility



(Source: Esri and Data Axle)

Inland Empire 15 Minute Drive Job Accessibility

Inland Empire 15 Minute Drive Job Accessibility

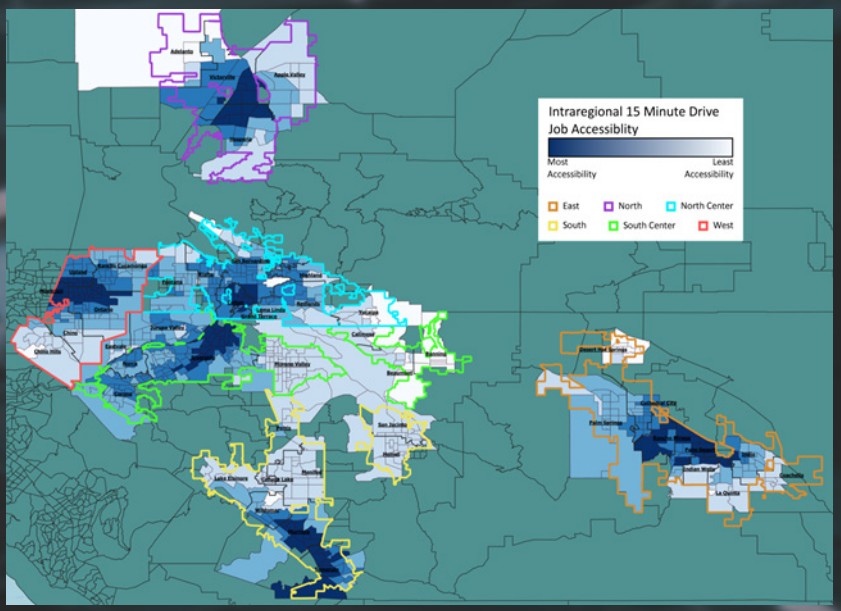


(Source: Esri and Data Axle)

The 15-minute driving accessibility to jobs shows that the density of Los Angeles and Orange County and the metropolitan area is less relevant for shorter drives. For the West region, Montclair has the most accessibility. Chino Hills, on the other hand, has the lowest. This is in great contrast to 30-minute job accessibility, in which Chino Hills had the highest. For the East and North regions, accessibility is most significant in the center near Interstate highways, similar to their 30-minute drive accessibility but slightly different from what census tracts have the most accessibility.

Intra-regional 15 Minute Drive Job Accessibility

The South Center and North Center regions have the most accessibility closer to downtown Riverside and San Bernardino. Last, the South region has its most accessibility in the cities furthest away from the metropolitan area, in the cities of Murrieta and Temecula. The cities of Lake Elsinore, Hemet, Menifee, San Jacinto, and Canyon Lake had low accessibility.



(Source: Esri and Data Axle)

Inland Empire Cities' Average Travel Time to Work

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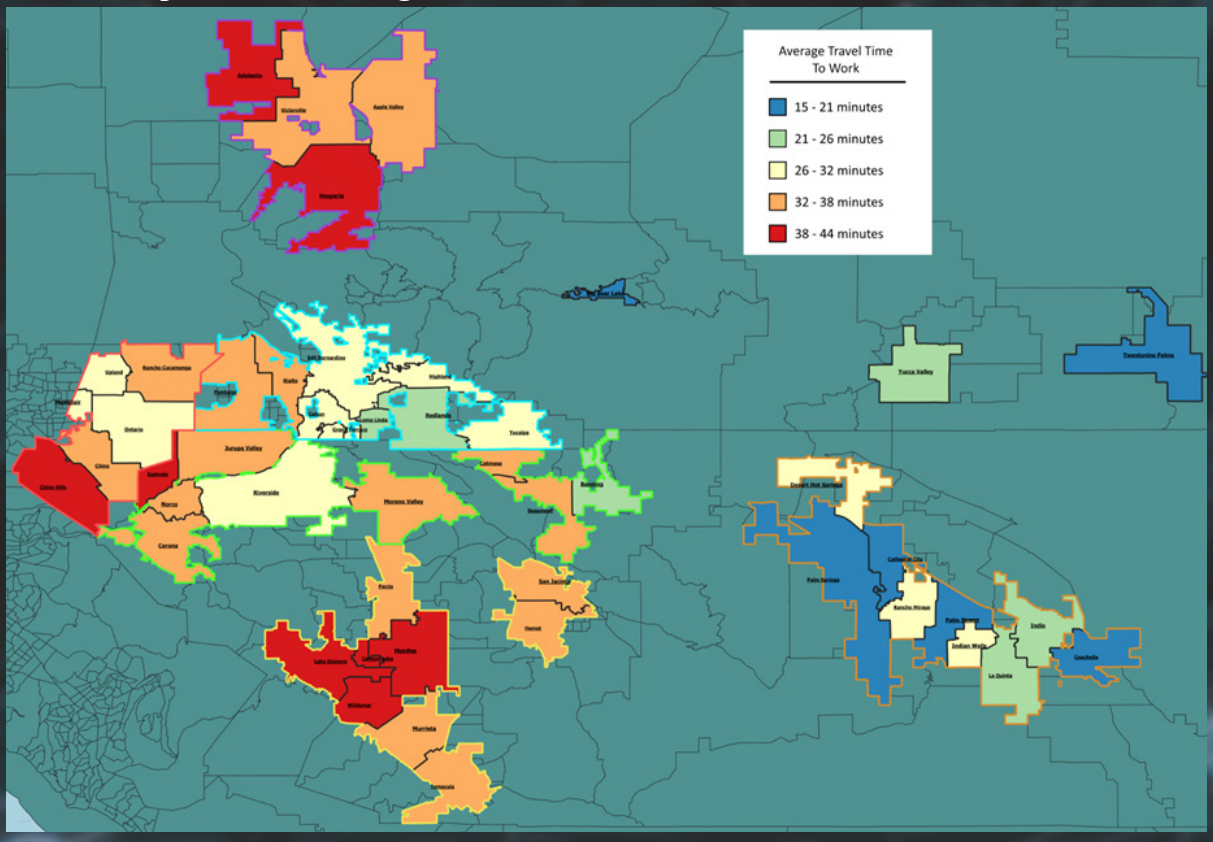


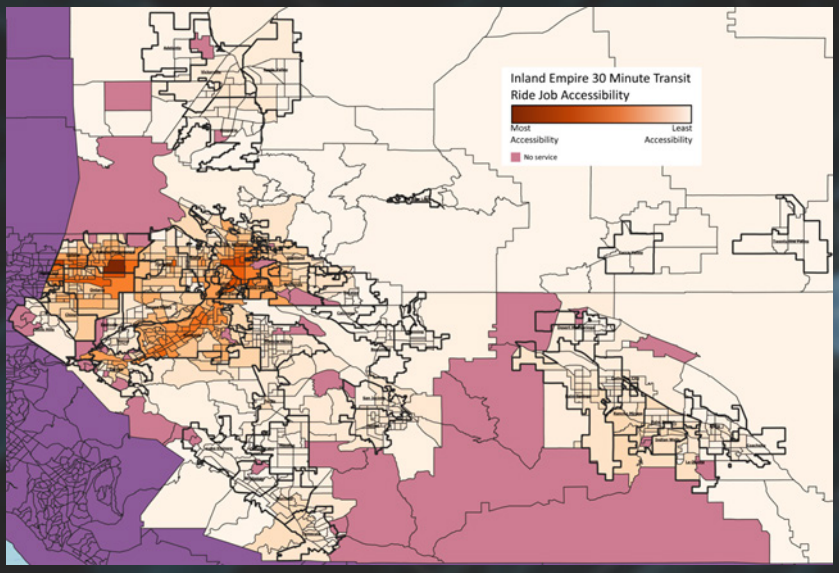
(Source: SCAG)

The cities of Twentynine Palms, Blythe, Barstow, Big Bear Lake, Needles, and Yucca Valley were not included in any of the regions due to their lack of proximity to the other cities. Although these cities function relatively economically independently by looking at the map of travel times, having their average time to work is less than the time it takes to reach any other city. The cities of Blythe, Barstow, and Needles are not illustrated on the map due to their distance to the IE metropolitan area. Moreover, they are far from average commute times of 18.6, 21.2, and 23.2, respectively, the lowest commuting times for all cities. These cities tend to have a better work-life balance. Likewise, the East region is not significantly influenced by the IE Metropolitan area, with four of the cities averaging less than 21- minute commutes, showing that most people work within the region.

On the other hand, cities in the South and North regions had high average commute times, above 34-minute. In the case of the South region, mainly for the cities of Canyon Lake, Lake Elsinore, Menifee, and Wildomar, this might be due to being primarily residential areas with minimal jobs within a short drive

Inland Empire 30 Minute Transit Ride Job Accessibility

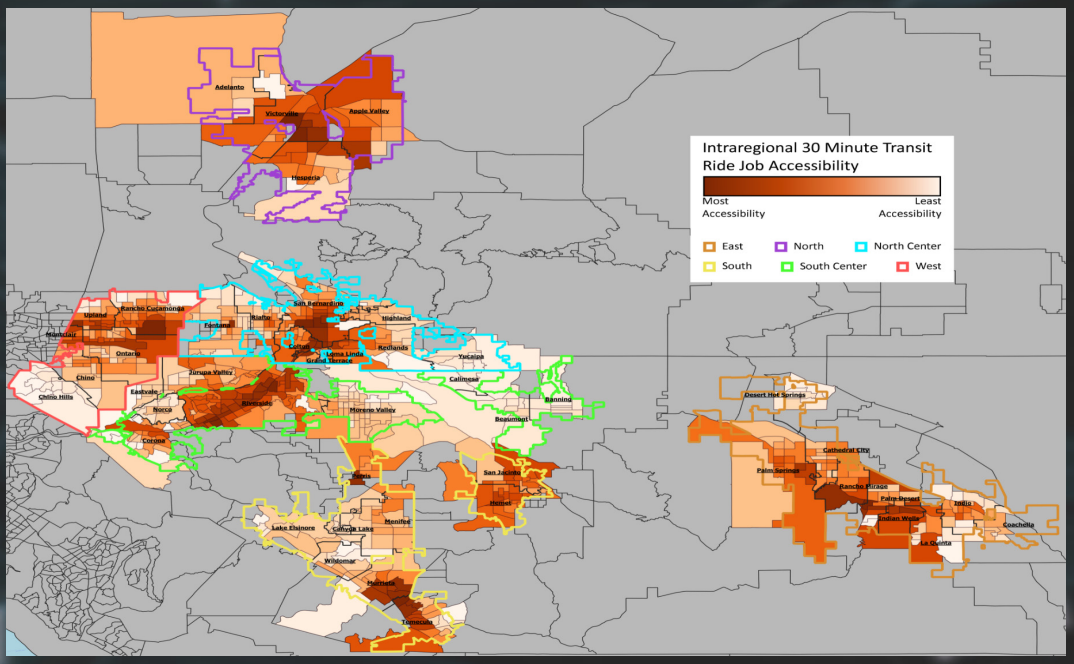
Inland Empire 30 Minute Transit Ride Job Accessibility



(Source: Esri and Data Axle)

The business centers of each region greatly influence the map for accessibility by transit. For example, areas like downtown Riverside and downtown San Bernardino have great accessibility due to the many routes that pass and connect.
The North Center, South Center, and West Regions are also greatly influenced by the placement of Metrolink stations, particularly with the Inland Empire-Orange County Line, the Riverside Line, and the San Bernardino Line. In addition, the 91/ Perris Valley Line, which ends in Perris, contributes to the city having more accessibility than other neighboring cities. Currently, no train or rail reaches the North and East Region.

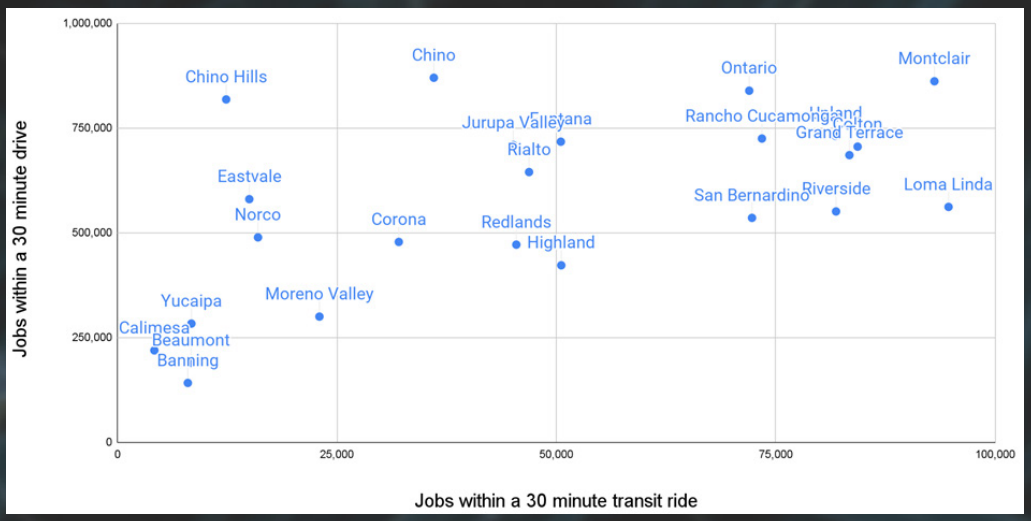
Intra-regional 30 Minute Transit Ride Job Accessibility



(Source: Esri and Data Axle)

Inland Empire 30 Minute Transit Ride vs. Drive Job Accessibility

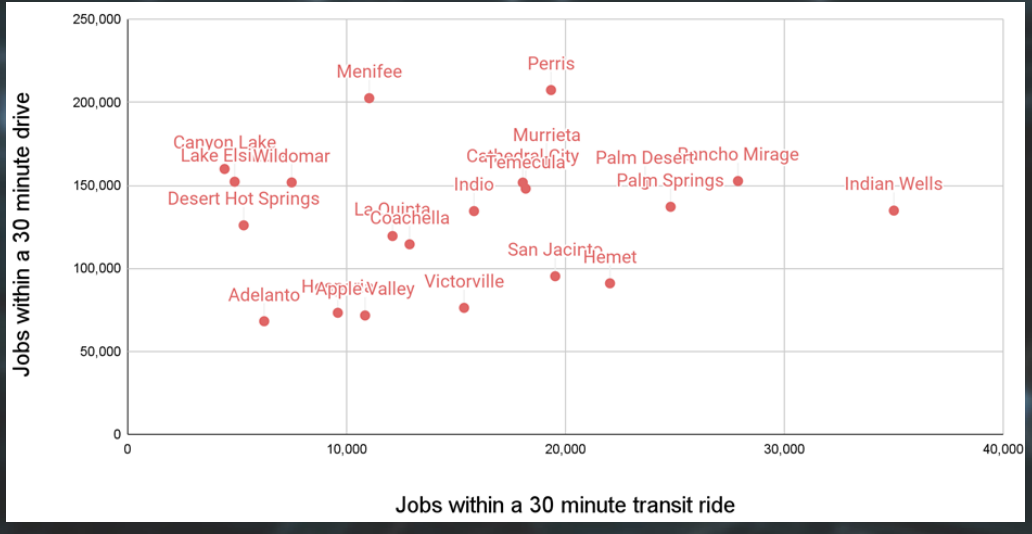
30 Minute Drive vs. Transit Job Accessibility: North Center, South Center, and West Regions



(Source: Esri and Data Axle)

On average, car driving accessibility was14 times greater than transit. The West and South Center regions had particularly striking differences, with Chino Hills , Calimesa, and Eastvale; having a difference of 66k, 52k, and 39k more jobs accessibility by driving than by transit. The city with the best ratio between transit and driving was Loma Linda, which had six times more jobs accessibility via car than transit.

30 Minute Drive vs. 30 Transit Ride Job Accessibility; East, North and South Regions

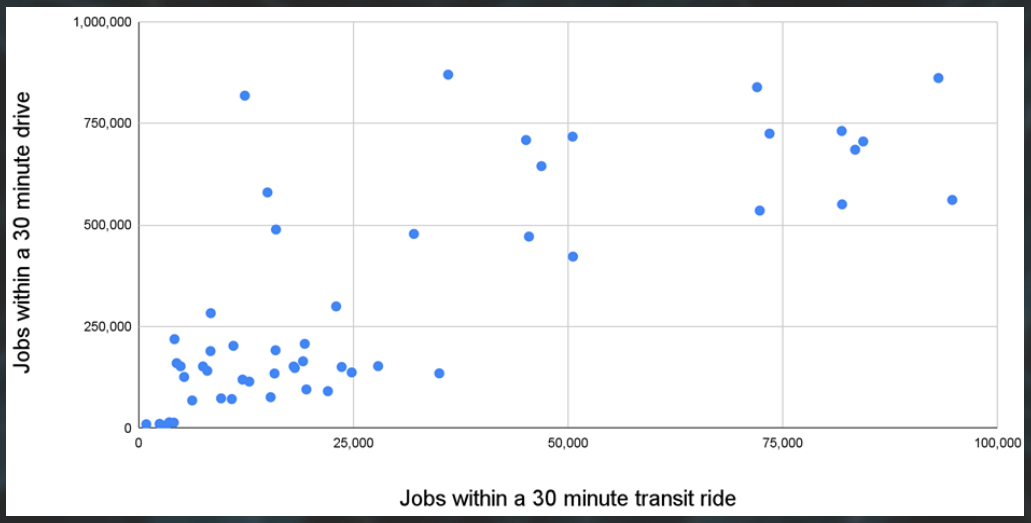


(Source: Esri and Data Axle)

The differences between cities in the North Center, South Center, and West had much higher accessibility of jobs by car and transit. Cities that are highest on the Y-axis and furthest to the left on the X-axis are the cities that have the worst public transportation job accessibility compared to driving job accessibility. However, compared to their accessibility to jobs via driving (such as Indian Wells) still have about four times more jobs accessible to them.

Inland Empire 30 Minute Transit Ride vs. Drive Job Accessibility

Inland Empire 30 Minute Transit Ride vs. car drive Job Accessibility



(Source: Esri and Data Axle)

The difference in accessibility between transit and driving is of utmost importance in looking at the transportation equity in the Inland Empire. The average of jobs accessible for each city in the Inland Empire in 30 minutes by car and transit is different. First, it is worth noting that the X-axis only goes up to 100,000 while the Y-axis goes up to 1 million. No city in the Inland Empire has more than 100,000 jobs accessible by transit, while 41 cities reach such a number by car.

While this study analyzed the possible accessibility of jobs by transit and car, the method did not consider other circumstances that might influence the accessibility of transit, such as the frequency of buses. As a result, the gap between transit and car is likely broader than the data presents. Overall, more research about accessibility in the IE is needed. In addition, further research can emphasize other aspects that were not considered in this research, such as the educational level and job requirement. the application of this study can be an attempt to remedy the significant difference between the accessibility of jobs by transit versus cars.

Southern California Association of Governments (2019). "Data and Tools Local Profiles," https://scag.ca.gov/data-tools-local-profiles, Accessed August 26th, 2021.

Center for Neighborhood Technology (2019), "AllTransit Metrics," https://alltransit.cnt.org/metrics/, Accessed August 26th, 2021

Esri and Data Axle (2019). "Business Summary by NAICS," Business Analyst [Computer Software], https://bao.arcgis.com/esriBAO/index.html#