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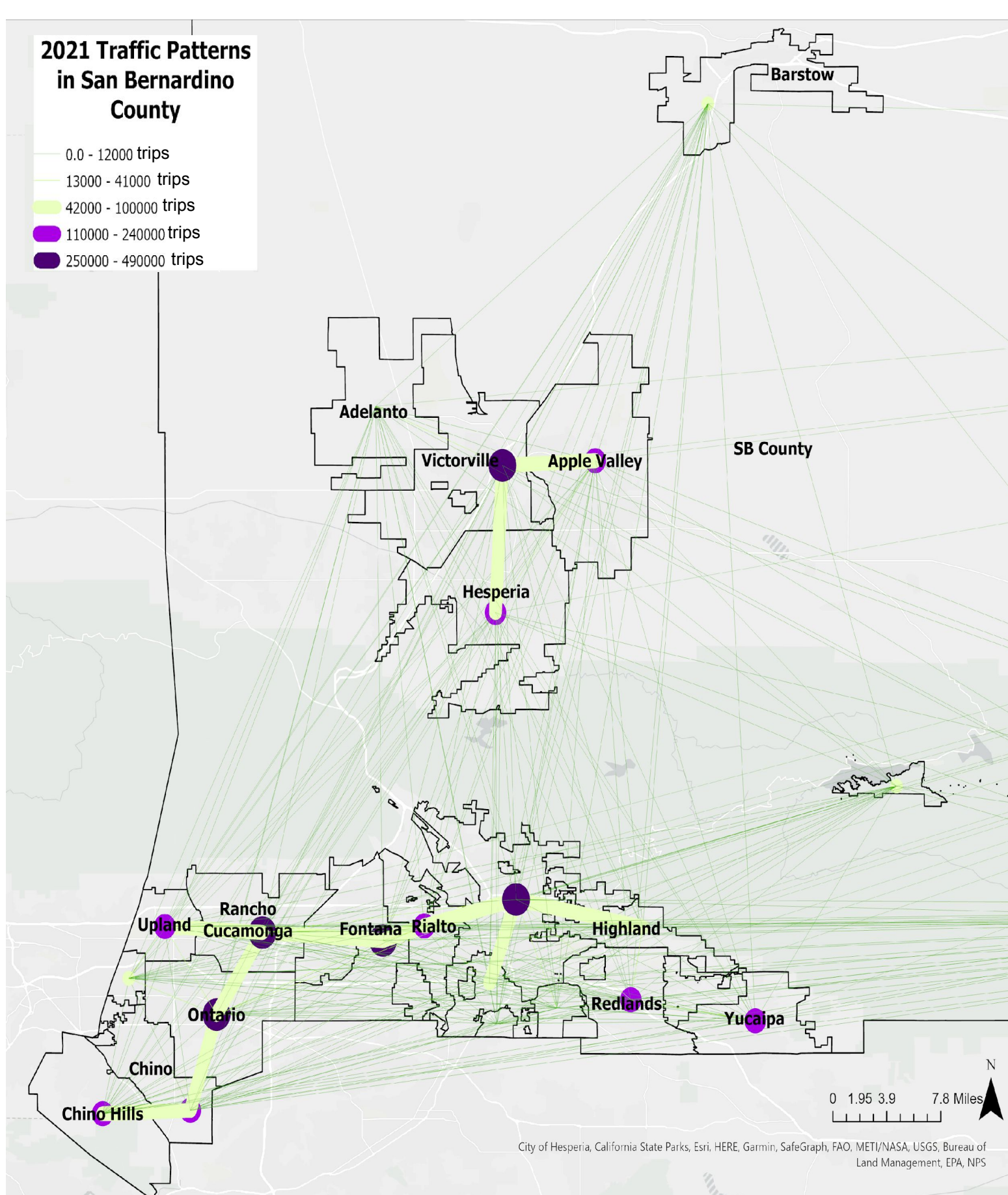
Abstract

This research provides an overview of transportation patterns in San Bernardino County, California, focusing on bidirectional trips within the county and journeys to/from other regions. It examines commute and non-commute trip distributions, along with average trip duration and distance traveled. The study also analyzes the relationship between trip volume and miles traveled, offering insights for transportation planning and infrastructure development.

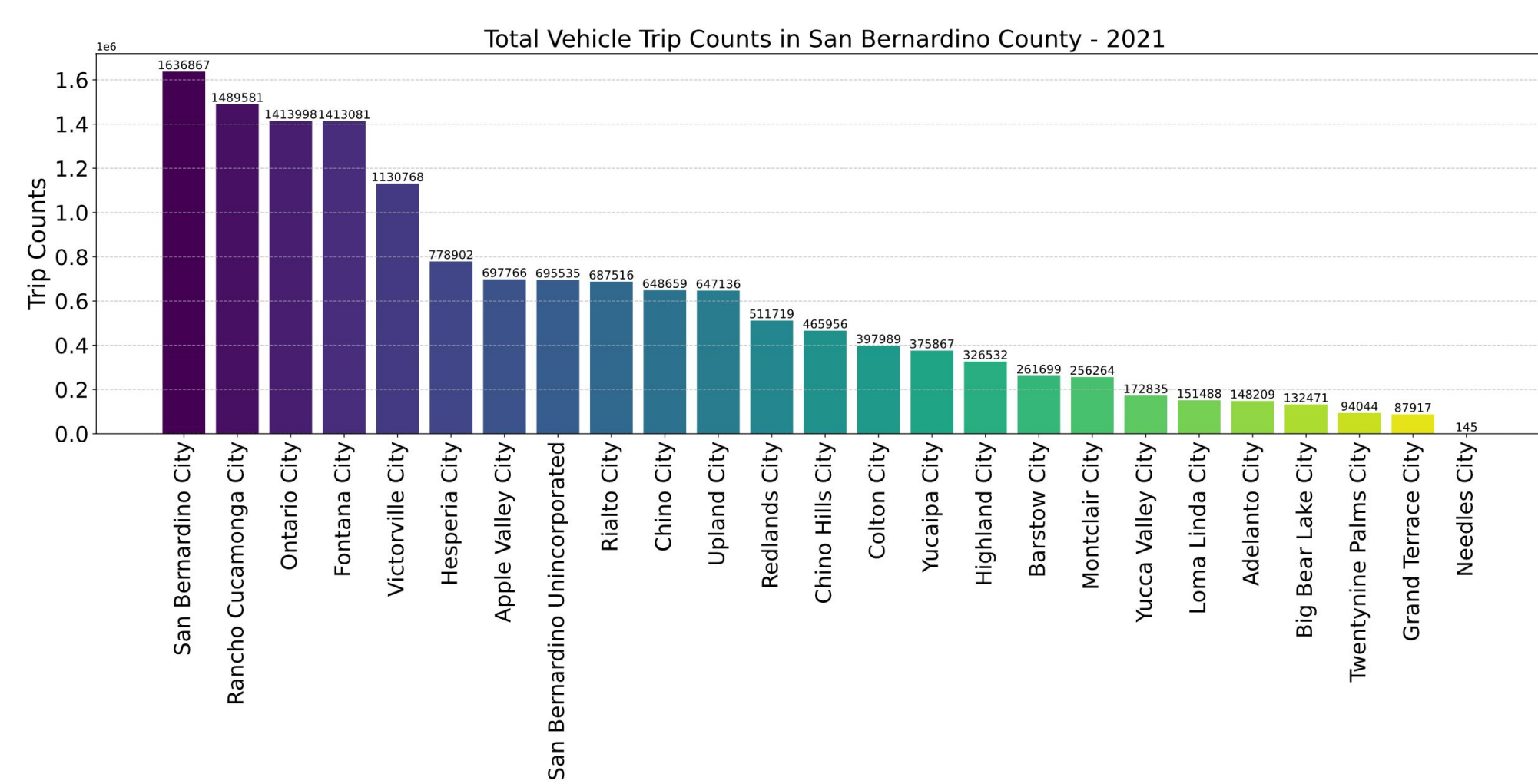
Introduction & Methodology

- San Bernardino County, in 2021, had a population estimated at approximately 2,193,000 residents, making it one of the populous counties in California.
- The study on San Bernardino County utilized data from Streetlight Data, providing insights into transportation patterns and vehicular movement within the region.
- A sample trip count of 90,522,000 trips was analyzed, indicating the scope of the study and the dataset used for analysis.
- The study encompassed all vehicle types, including light, medium, and heavy-duty vehicles, ensuring an understanding of transportation behaviors and trends across vehicle categories.
- By leveraging this dataset, the study aimed to elucidate insights into travel patterns, traffic flow, and commuting behaviors within San Bernardino County, facilitating decision-making for transportation planning and infrastructure development initiatives.

Results

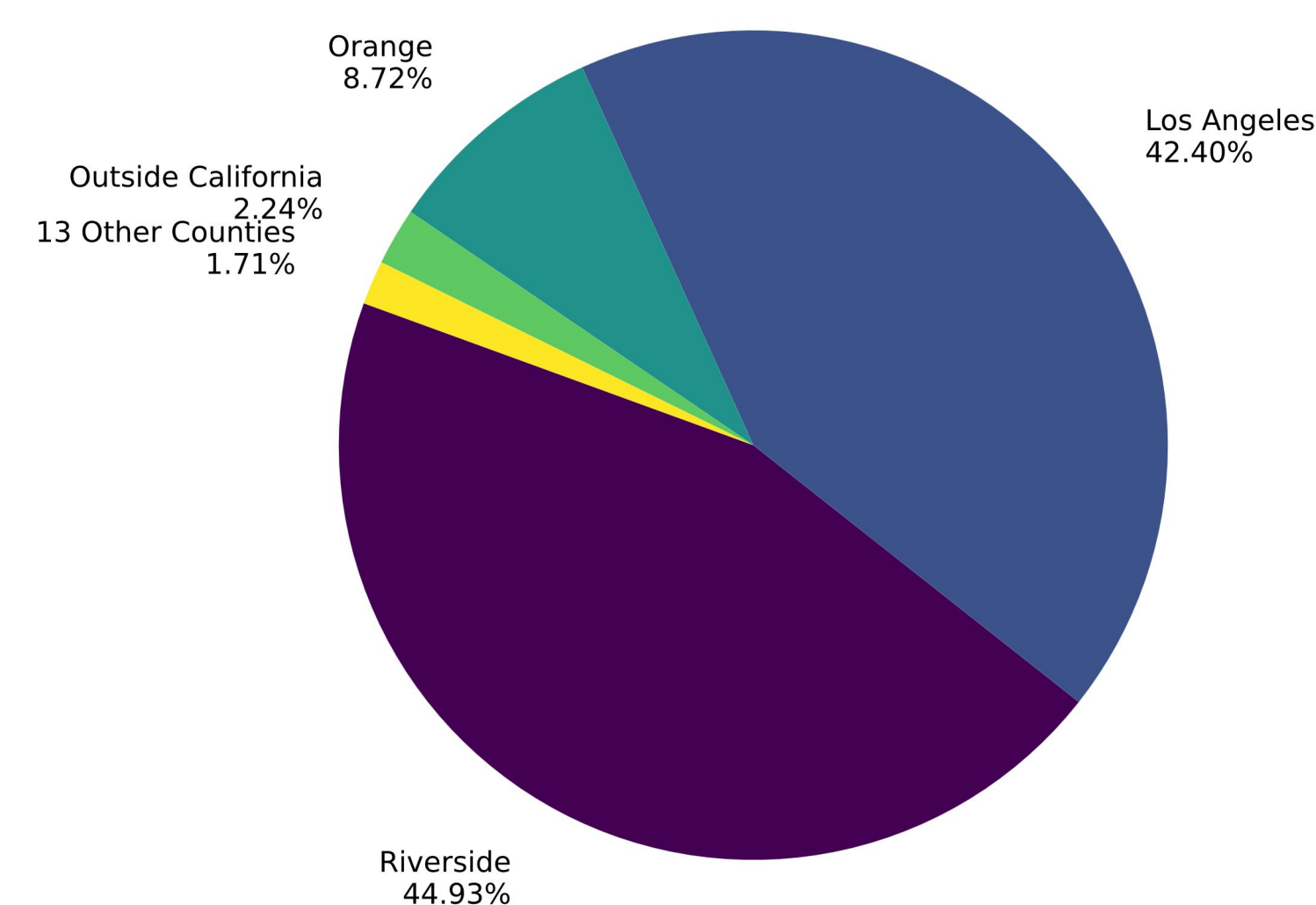


Map depicting the traffic patterns in the San Bernardino County



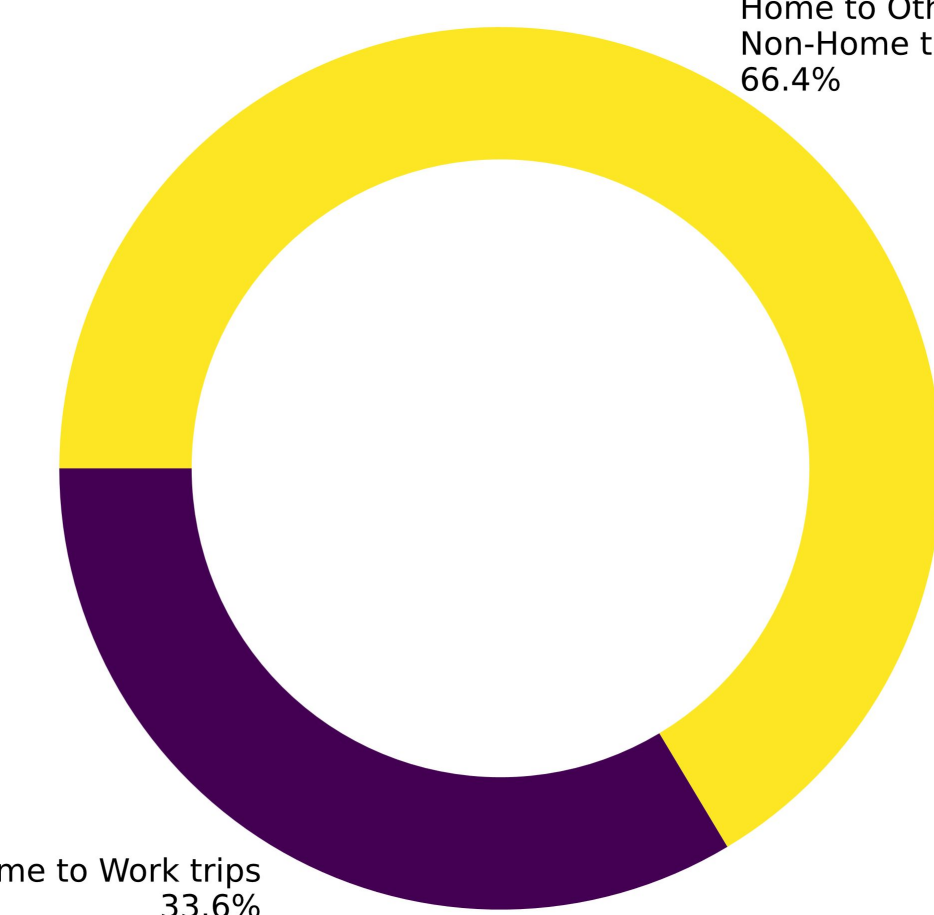
- The data illustrates the vehicle trips originating and terminating in various cities within San Bernardino County. San Bernardino leads with 1,636,867 trips, followed closely by Rancho Cucamonga at 1,489,581 trips. Ontario and Fontana both show significant activity with 1,413,998 and 1,413,081 trips respectively.

Traffic Composition in San Bernardino County from/to Other Counties - 2021

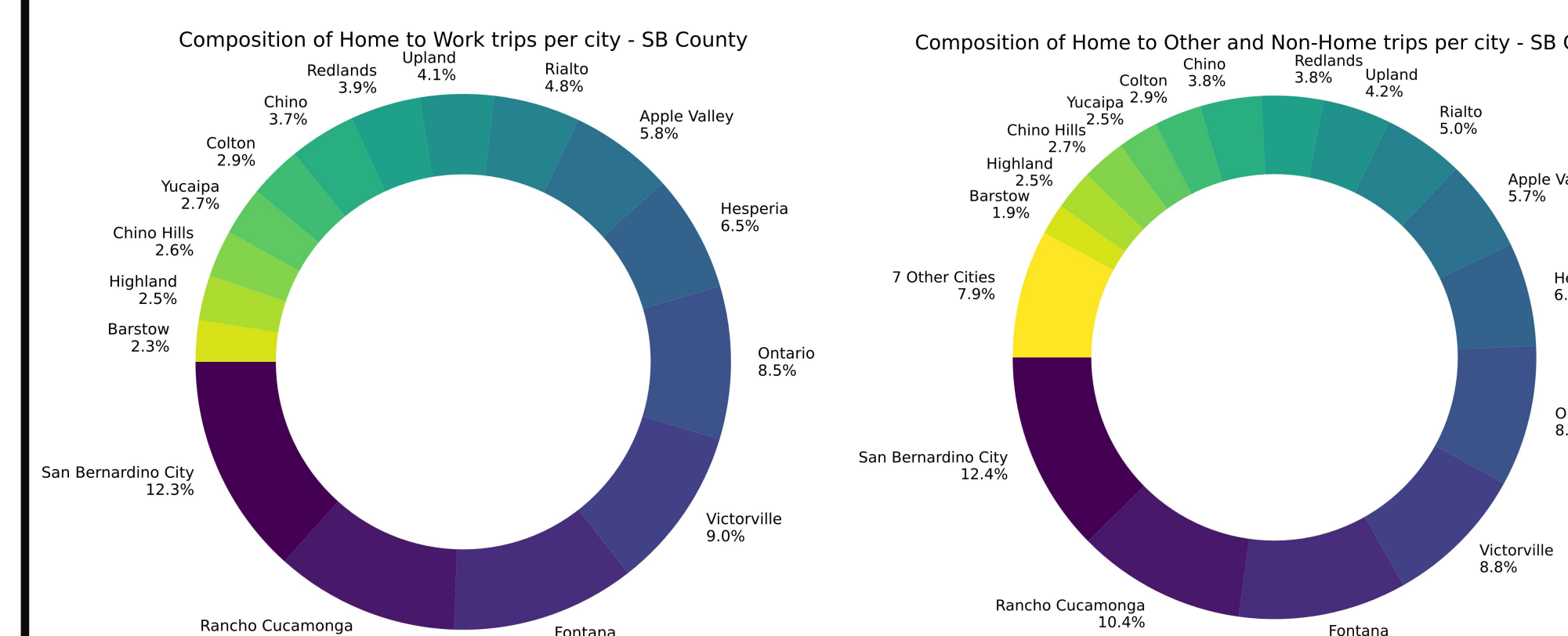


- The trend in population distribution indicates that Riverside has the highest proportion, approximately 48.25%, followed by Los Angeles with approximately 45.68%. Orange County comprises about 9.41% of the total population, while areas outside California represent approximately 2.41%. The remaining 13 other counties collectively account for approximately 1.84% of the total population.

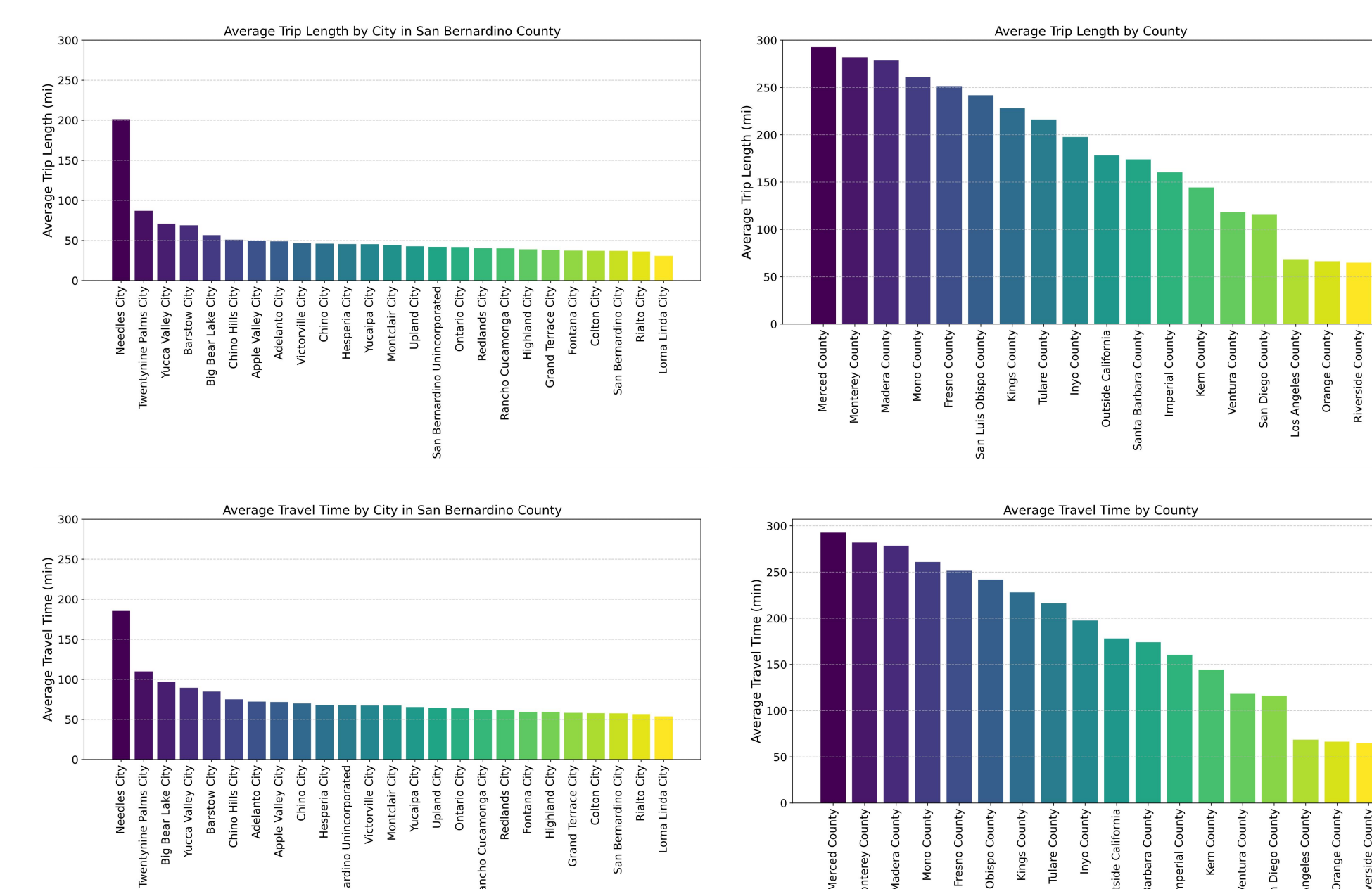
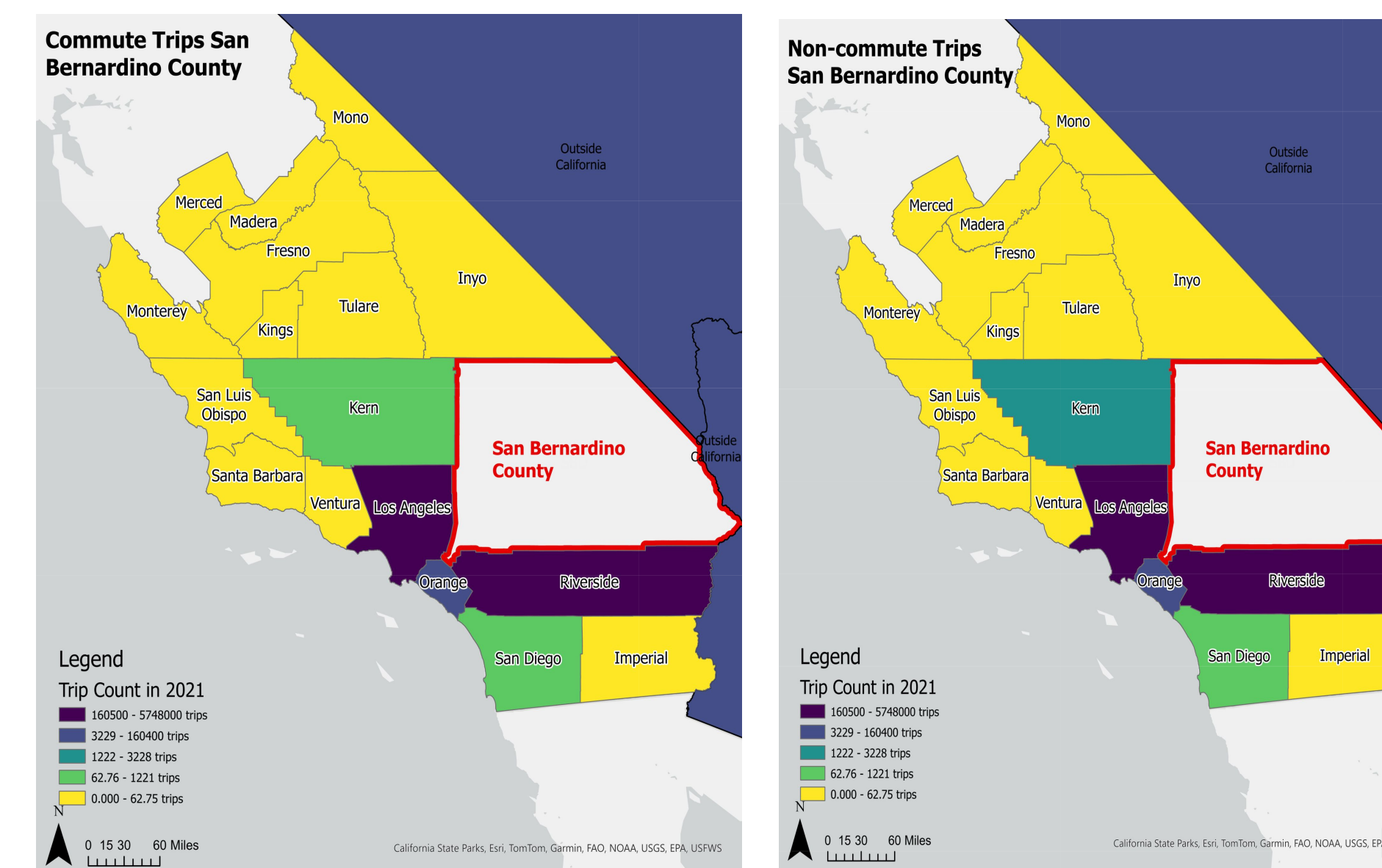
Total Trip Distribution Work vs Non-Work in San Bernardino County - 2021



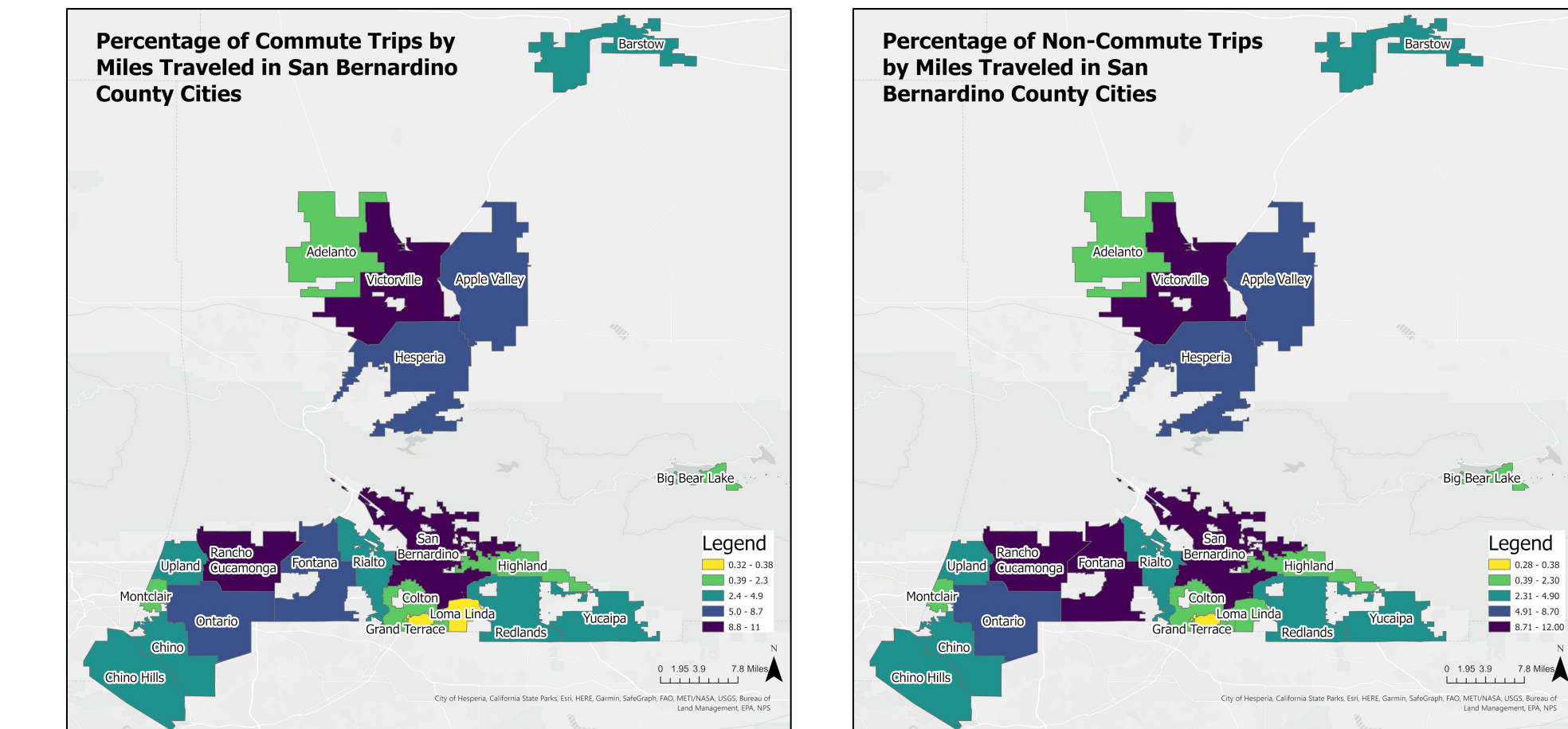
- Home to Work trips constitute 33.6% while, Home to Other and Non-Home trips make up 66.4% of the population.



- For Home to Work trips San Bernardino City has the highest percentage of commuters at 12.3%, while Barstow has the lowest at 2.3%. The listed cities exhibit varying levels of commuter populations, reflecting different commuting behaviors.
- For Home to Other and Non-Home trips San Bernardino City maintains the highest percentage of commuters at 12.4%, while Barstow has the lowest at 1.9%.



- In San Bernardino County, trips are typically 20-60 miles long, with outliers exceeding 100 miles. Loma Linda City has the shortest average travel time.
- Outside the county, trips average 185.57 miles, mostly between 50-250 miles. Riverside County has the shortest average travel time, while Merced County has the longest.



- Victorville, San Bernardino City, and Rancho Cucamonga have the highest number of commute trips, with 10.92%, 10.68%, and 10.66% respectively.
- Adelanto, Big Bear Lake, and Grand Terrace have the lowest number of commute trips, each trips less than 1%.
- The same trend follows for Non-Commute trips in San Bernardino County cities with highest percentages as 11.16%, 11.06% and 10.81% and lowest trips with 1.1%

Conclusion

- Approximately 92% of all trips were made in San Bernardino County.
- There's a big opportunity to promote green transport solutions like carpools, cycling, or public transport to reduce the environmental impact of daily trips.
- Only 8% of the trips had either an origin or a destination outside San Bernardino County.
- Non-work-related trips in San Bernardino County are double the number of work-related trips.
- Most trips outside of San Bernardino County went and came to Riverside and Los Angeles County.
- The average bidirectional trip distance within the county is much shorter than trips outside the county.
- Need for strategic transportation planning and development for cities like Victorville, San Bernardino, Fontana, Rancho Cucamonga and Ontario cities to decrease miles traveled.
- Multi-modal transportation infrastructure investments targeting connectivity of San Bernardino County to Riverside and Los Angeles Counties will reduce miles traveled.

Future Work

In our upcoming work, we will consider transit/multi-modal accessibility and pollution metrics. This involves assessing public transportation options and seamless integration of different modes of travel, alongside evaluating pollution levels against regulatory standards. By doing so, we aim to inform policies for equitable mobility and healthier urban environments.



California State University
Transportation Consortium



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