

MOBILITY INNOVATIONS + PRICING

An Initiative to Elevate Equity in Planning

March 2022

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About SCAG

SCAG is the metropolitan planning organization (MPO) for six Southern California counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. Representing 191 cities and over 19 million residents, SCAG is the nation's largest MPO.



Foreword

This past year, SCAG formed the Special Committee on Equity & Social Justice to advise on policies and practices that strengthen how SCAG engages and convenes to protect and expand community voice and power. This effort led to the Racial Equity Early Action Plan (EAP) framework to guide our agency efforts, a critical step in ensuring that SCAG's equity-related work continues to advance and that it endures for years to come.

Among the goals of the EAP, SCAG aims to center racial equity in regional policy and planning and communicate more broadly our commitment to racial equity. The Mobility Innovations and Pricing (MIP) project supports these goals through building relationships with Community Based Organizations to put strategies identified in the EAP into action, specifically creating an environment that supports communities of color in understanding and shaping the communications and context surrounding SCAG's work on road pricing.

This project embodies SCAG's commitment to lead with the concerns of underrepresented communities and underscores our belief that equitable planning requires robust feedback from all communities. Increasing community participation in the policymaking process on these issues is critical to designing an equitable program that maximizes mobility and environmental benefits in the communities that need them most.

The lessons learned and relationships formed during this project will be crucial to expanding engagement opportunities in all communities moving forward. Current work efforts include a region-wide survey and additional analysis that builds on this foundation to elevate the unique travel needs of underrepresented communities in our planning for the 2024 RTP/SCS. Overall, this initiative continues SCAG's work supporting future pricing and other mobility innovations that are a central strategy for an equitable region.

Sincerely,

Kome Ajise

Kome Ajise, Executive Director



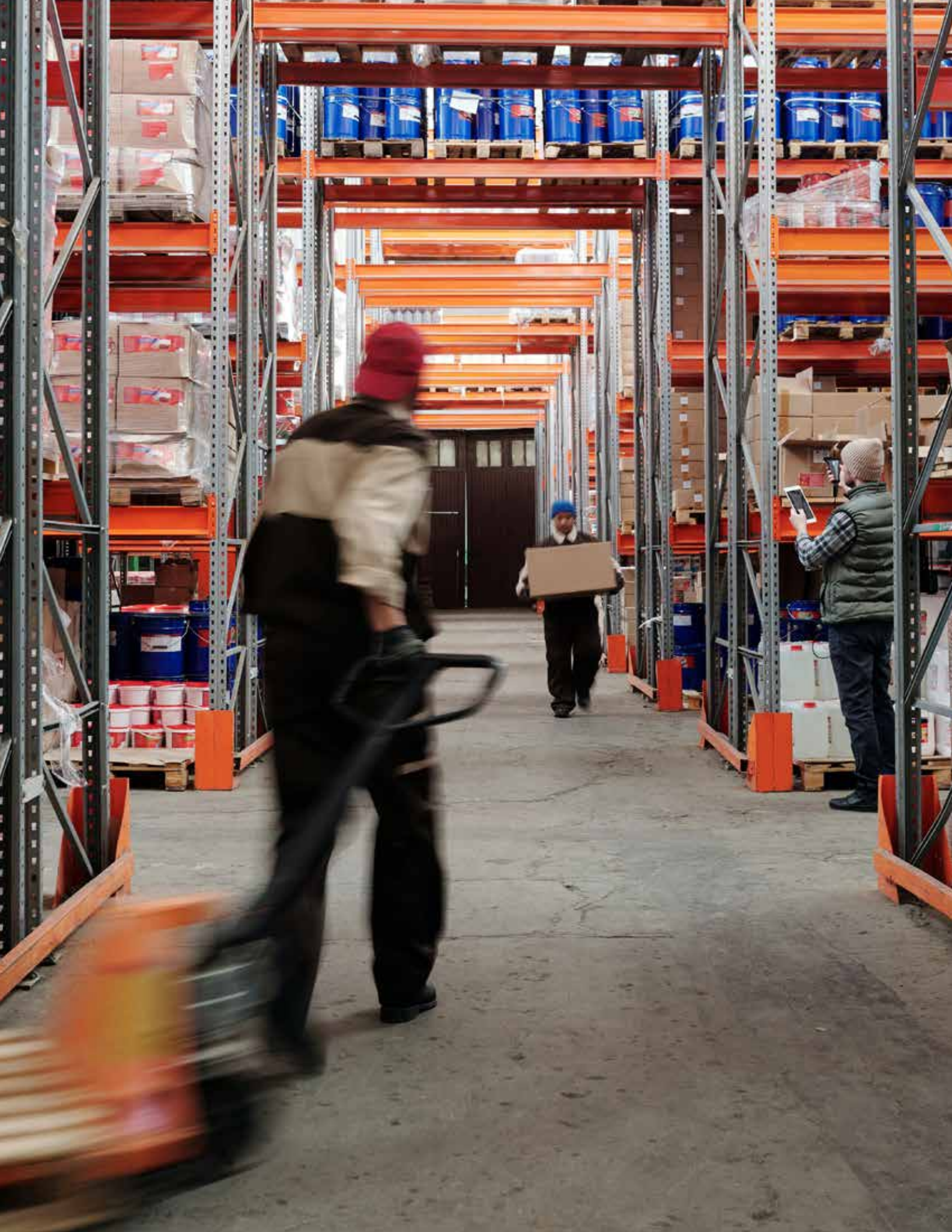


TABLE OF CONTENTS

i EXECUTIVE SUMMARY	93 Part III: Equity Toolkit
iii Part I Summary	95 Overview of the Equity Toolkit
v Part II Summary	96 Program Design Strategies
vii Part III Summary	100 Revenue Investment Strategies
1 INTRODUCTION	103 CONCLUSION
7 PART I: Establishing a Process to Surface Key Equity Considerations	105 APPENDICES
9 Overview of the MIP Engagement Process	105 Appendix A: Sample Outreach Framework
10 Establishing Agency/Community Partnerships	109 Appendix B: Sample Memorandum of Understanding
13 CBO Workshops: Testing Concepts and Identifying Equity Concerns	119 Appendix C: Committee Surveys
19 CBO-Led Events: Exploring Transportation Priorities	131 Appendix D: Virtual Engagement Guide
23 Lessons Learned from CBO Engagements	137 Appendix E: Frequently Asked Questions
25 PART II: Transportation Equity Zones (TEZs): A Regional Equity Analysis	141 Appendix F: Transit Funding Primer
28 Defining TEZs	
40 Understanding TEZ Travel	
68 Key Regional TEZ Travel Destinations and Business Organization Outreach	
92 Future Research	

Executive Summary



The Mobility Innovations and Pricing (MIP) initiative focuses on the potential equity implications of road pricing and other innovative transportation policies in the six-county Southern California Association of Governments (SCAG) region. Building upon SCAG's 100 Hours campaign that explored how congestion pricing could impact the region, the Mobility Innovations and Pricing initiative combines stakeholder engagement, technical analyses, and communications strategies to elevate equity considerations as a key touchstone in planning for road pricing.

Project Goals

The Mobility Innovations and Pricing project is an initial step towards understanding the equity implications of pricing strategies — most critically leading with the concerns of underrepresented communities — and increasing community participation in the policymaking process on these issues. Road pricing can provide benefits to vulnerable communities, such as reduced air pollution burden and improved transit access. However, without a clear focus on equity, road pricing can exacerbate existing transportation inequities.

In order for our region to equitably provide innovative mobility services and programs, such as congestion pricing and emissions-free zones, SCAG believes that policymakers must first understand the concerns and travel needs of underrepresented communities throughout the region. This effort aims to develop an equity-focused framework to engage communities in a way that allows community members to share their lived experiences while providing education that supports their participation in transportation policy decision-making. To that end, SCAG and the consultant team developed a process to accomplish the following goals:

Listen: Using several methods and tools, SCAG and the consultant team listened to community-based organizations and stakeholders that work with historically (and currently) underserved populations. The project convened an interdisciplinary group of experts, advocates, and community representatives to share their travel experiences, express concerns, and identify potential solutions that are responsive to their communities' needs. These community representatives constituted the project's Community Advisory Committee.

Learn: SCAG, in coordination with the consultant team and external stakeholders, facilitated a process of shared learning with defined learning outcomes for both public agency stakeholders and community-based organizations. For the agencies' benefit, community representatives lent their expertise to inform participation strategies and provide nuanced feedback as it relates to issues of equity and inclusion. For committee members' benefit, SCAG and the consultant team shared information related to the region's growing menu of transportation options and provided general insights on common road pricing mechanisms and their potential benefits.

Target Audiences

This report has been prepared to improve and facilitate collaboration between two primary audiences:

- **Local and subregional government agencies** exploring mobility innovation and pricing tools, and
- **Community-based organizations and community stakeholders** working to inform residents, identify local priorities, and influence outcomes. Any future collaboration must be informed by a shared conceptual framework.

Defining Road Pricing

The MIP project supports the potential implementation of future mobility innovations in the SCAG region. One of the mobility innovations currently being considered is road pricing, which is a tool to manage demand for roads and reduce congestion.

Road pricing programs typically establish fees for driving in specific areas during certain times to reduce demand on congested roadways. These programs have been implemented throughout the world and can take the form of highway tolls, cordon charges, and vehicle miles traveled (VMT) charges. As a joint strategy, low-emission zones are often implemented in tandem with road pricing strategies and help reduce pollution from vehicles. In this document, low-emission zones are categorized as a road pricing strategy. The five types of road pricing strategies considered in this document, and defined in the Introduction (*page 3*), are the following:

- Cordon Pricing
- Area Pricing
- Highway Pricing
- Corridor Pricing
- Low-Emission Zones

Defining Transportation Equity

In transportation planning, the concept of equity generally relates to providing benefits and reducing burdens according to need, rather than equally and without respect to need.

Contextualizing equity within a transportation system is complex. How well the transportation system works for different people is inextricably linked to external factors, such as development patterns, job access, income, and systemic social inequities. Pursuing more just transportation outcomes requires decision-makers and agencies to acknowledge that race, gender identity, age, ability, income, education, language, immigration status, sexual orientation, and other social factors shape how individuals and communities experience our transportation system and use it to access opportunities.

How to Use this Document

The report is intended as a resource guide that different audiences may use to inform planning, education, and/or outreach processes. It is divided into three distinct parts that are tailored to meet the needs of the target audiences identified above. It also includes several appendices with additional information geared toward community-based organizations.

Part I: Establishing a Process to Surface Key Equity Considerations

Part I of the report outlines our process of building formal partnerships with community-based organizations to explore equity considerations of pricing and other mobility innovations. It provides equity recommendations and important considerations for communities and agencies exploring new mobility concepts. This portion of the narrative also articulates outcomes and key learnings from two community-led events focused on current transportation issues (e.g., pandemic response and recovery, mobility needs for target populations, etc.).

Establishing Agency/Community Partnerships

SCAG formed a Community Advisory Committee of 13 compensated¹ nonprofit organizations serving seven target populations.² SCAG formalized this process with a memorandum of understanding that specified anticipated roles, time commitments, and compensation terms for each organization.

Community Advisory Committee Workshops: Testing Concepts and Identifying Equity Concerns

SCAG surfaced equity considerations related to road pricing in a series of three Community Advisory Committee (CAC) workshops. We assessed initial priorities and perspectives through a pre-workshop survey and compiled key takeaways from each working session. The survey instrument is included as Appendix C. The highlights are summarized below.

PRE-WORKSHOP Committee Feedback

Coming into the engagement, committee members shared the following sentiments:

- The committee listed public transit, affordable housing/anti-displacement, and environmental justice/public health as top priorities to address in that order.
- Road pricing was the lowest priority for all committee members.
- Committee members unanimously agreed that the region's transportation system is inequitable with regards to race, income, language, and disability status.
- The committee's engagement goals included learning about road pricing, advancing equitable transportation policies, and collaborating with fellow transportation equity advocates.

WORKSHOP #1: Building Shared Understanding

The first CAC workshop facilitated discussions on experiences with the region's transportation systems and introduced pricing concepts. After sharing knowledge in small groups and individual presentations, CAC members discussed pricing terminology and case studies with the consultant team.

TAKEAWAY #1: Committee members described their experiences with disproportionate air pollution burden, lack of affordable housing, and long commute times for communities of color.

TAKEAWAY #2: The committee expressed skepticism about road pricing as a pathway toward more equitable transportation, noting that other transit and traffic safety programs (e.g., Vision Zero, Metro's NextGen Bus Plan) have yet to meet community needs.

WORKSHOP #2: Identifying Equity Issues and Adapting Decision-Making

In the second workshop, the CAC explored road pricing in more detail and identified advocacy goals related to potential pricing implementation. The CAC met with two guest speakers and participated in three group activities, including an indicator ranking process, a simulation of pricing's impact on travel behavior, and a power mapping exercise.

TAKEAWAY #1: The committee ranked income, pollution exposure, and race/ethnicity as the most important indicators for measuring transportation equity concerns in the SCAG region.

TAKEAWAY #2: Committee members identified the following priorities for pricing-related advocacy in no particular order:

- Streamlining the process for obtaining discounts and exemptions; priority populations should not have to jump through hoops to qualify for support
- Creating a community oversight board to steer implementation and drive accountability
- Fixing the bus system before implementing pricing
- Ensuring regional coordination to assist those who travel to LA County
- Addressing enforcement issues such as over-policing
- Ensuring timely investment of road pricing revenue to support alternative modes of transportation

¹ SCAG compensated each CAC member organization at a rate of \$100 per hour based on publicly-available executive director salary ranges in the region.

² (1) low-income communities of color; (2) populations with limited English proficiency; (3) transit-dependent and/or zero-car households; (4) women and female-headed households; (5) older adults; (6) youth; and (7) individuals with access and functional needs

WORKSHOP #3: Pivoting Toward Action in Uncertain Times

The third workshop, conducted virtually due to the COVID-19 pandemic, continued the committee's discussion of the six priorities identified in the second workshop. The CAC discussed several of these priorities in virtual breakout sessions before reconvening to discuss public engagement ideas and preview virtual community events.

TAKEAWAY #1: The CAC expanded upon their goals of “fixing the bus system” and “ensuring regional coordination” as expressed in Workshop #2. The committee clarified that “fixing the bus system” would entail improving accessibility and reliability, electrifying vehicles, and eliminating transit fares. The CAC also clarified that “ensuring regional coordination” would involve engaging with county transportation commissions and advocating for alternatives to freeway widening, such as improved regional transit.

TAKEAWAY #2: Committee members elaborated on over-policing concerns, describing the criminalization of poverty and restrictions on movement such as gang injunctions as fundamental transportation inequities. Proposed solutions included shifting funding away from policing transportation and developing alternative enforcement models rooted in restorative justice.

TAKEAWAY #3: The committee identified several strategies for engaging the public around mobility innovations. These strategies included direct outreach to transit riders, television and radio presentations, and door-to-door outreach in multiple languages.

Community-Led Events: Exploring Transportation Priorities

Building on the CAC workshops, two members of the committee partnered with SCAG to co-produce virtual events. These events built upon the concepts discussed during the workshops, with each committee member identifying topics and speakers that would resonate with their constituents and other target audiences. Long Beach Gray Panthers co-produced an event about the COVID-19 pandemic's impact on transportation for vulnerable groups, and Southern California Resource Services for Independent Living co-produced an event focused on the Americans with Disabilities Act and the pandemic's impact on mobility among people with disabilities. Below is a summary of each event.

LONG BEACH GRAY PANTHERS: HOW THE PANDEMIC AFFECTS MOBILITY FOR OLDER ADULTS, LGBTQ+ COMMUNITIES, AND OTHER VULNERABLE POPULATIONS

Long Beach Gray Panthers discussed COVID 19's impact on transportation for older adults and other vulnerable people. Key takeaways included the following:

TAKEAWAY #1: Participants critiqued agency outreach efforts to communicate COVID 19-related shifts in transit schedules and other services, urging agencies to notify riders at bus stops and do more to reach non-internet users.

TAKEAWAY #2: Participants endorsed new transit services like Metro's “Mobility on Demand” and transportation education programs such as Metro's “On the Move” and the “LGBTQ Seniors Connected Club.”

SOUTHERN CALIFORNIA RESOURCE SERVICES FOR INDEPENDENT LIVING: HOW THE PANDEMIC IMPACTS PEOPLE WITH DISABILITIES AND RELATES TO THE AMERICANS WITH DISABILITIES ACT

Southern California Resource Services for Independent Living discussed the history and future of the Americans with Disabilities Act (ADA) in the context of COVID-19. Key takeaways included the following:

TAKEAWAY #1: Participants urged transit systems to consider the ADA as a regulatory foundation that should be expanded. Transit and paratransit systems should work to create more universally accessible options that employ current technologies and improve and expand mobility for individuals with access and functional needs.

TAKEAWAY #2: Participants noted that many people with disabilities are immunocompromised, limiting social interaction and access to services. Reduced mobility options coupled with social isolation and a lack of community events has had a big impact on their community's social and mental wellbeing.

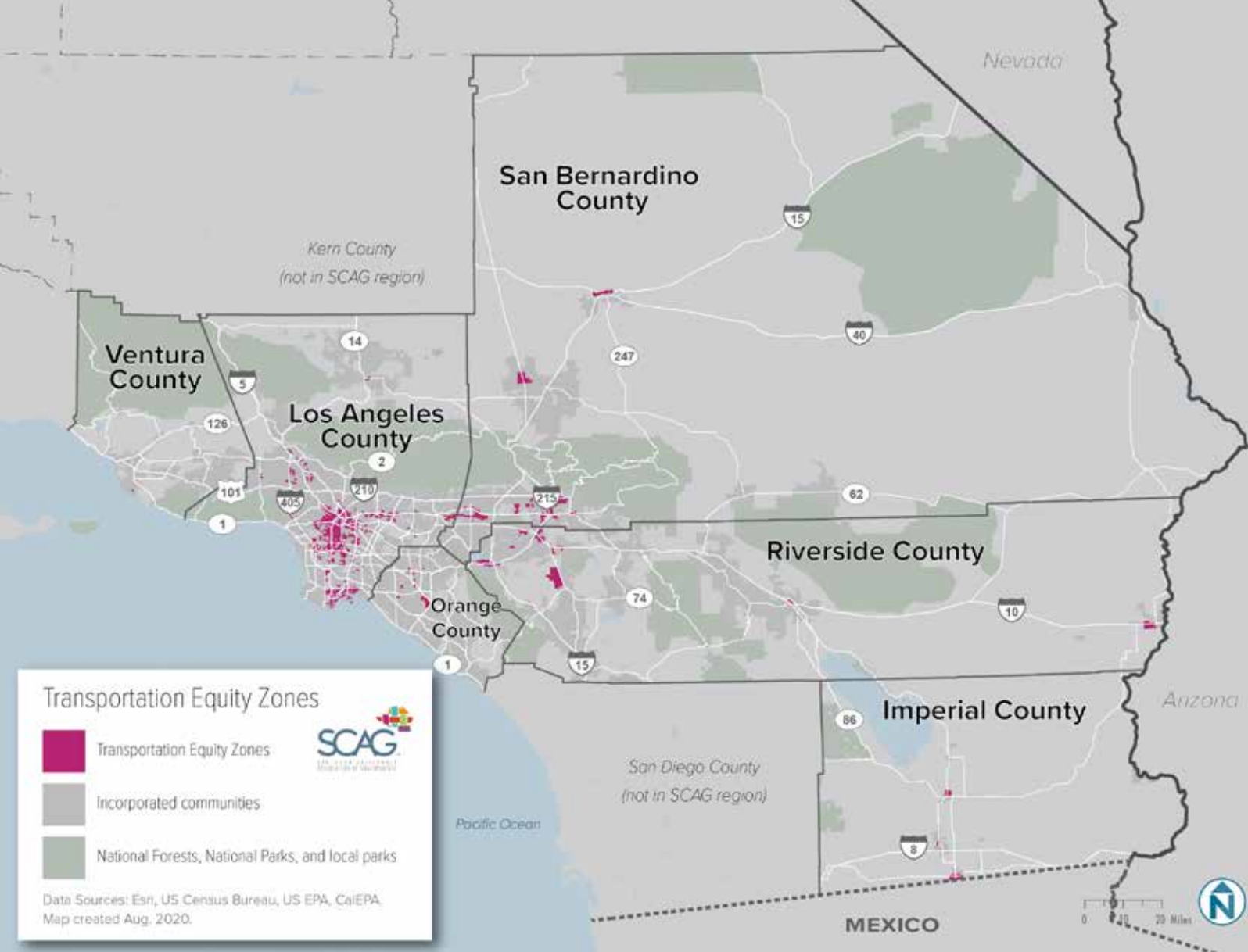


Figure S-1: Transportation Equity Zones in the SCAG Region

Part II: Transportation Equity Zones: A Regional Equity Analysis

In addition to identifying transportation burdens and priority investments through a community-led engagement process, the Mobility Innovations and Pricing initiative developed a methodology to quantify transportation-related inequities and identify communities most impacted across the SCAG region, which are referred to as Transportation Equity Zones (TEZs). This section analyzes the travel patterns of people living in TEZs within the SCAG region. Understanding these travel patterns will help planning and implementing agencies place equity at the forefront of any future potential mobility innovations, such as road pricing. The methods for defining a TEZ, as well as the analysis of TEZ travel patterns, are summarized below.

Methods: Defining TEZs

The foundation of the analysis conducted in this report is the TEZ. SCAG and the consultant team examined each census tract in the six-county SCAG region and assigned it a score on a TEZ index. Developed in collaboration with the MIP Community Advisory Committee (CAC), the index is designed to award the highest score to places with the greatest intersection of socioeconomic, environmental, and transportation burdens. The top 15% of these locations were designated as TEZs. The index is made up of four components:

- Socioeconomic characteristics
- Rent burden
- Pollution exposure
- Transportation access

The index identified a total of 594 TEZs across the SCAG region as shown in Figure S-1. TEZs are most prevalent in the Los Angeles urbanized area, and in high-density areas near sources of pollution such as freeways, freight distribution points, and major

arterials. The TEZ travel pattern analysis is focused on work travel of people living in these geographies. However, we recommend that future analyses consider non-work travel, since the focus on commutes raises equity concerns.³

Results: TEZ Resident Travel Patterns

Understanding how TEZ residents travel is the core purpose of this research. This report used publicly available travel data to assess commute travel patterns of TEZ residents by origin, destination, mode, and travel distance. Key findings from this analysis are highlighted below.

Major commute flows across the SCAG region

The analysis in this report identified several major common origin-destination flows from TEZs to work. These travel flows are scattered throughout the region, but are primarily located in the Los Angeles urbanized area, where most of the SCAG region's population, jobs, and developed land are concentrated. Some of the key major flows identified in this report are:

- Various communities within a 10-mile radius to Vernon
- Various communities within a 10-mile radius to downtown Los Angeles
- Inglewood, Hawthorne, and other South Los Angeles communities to Los Angeles International Airport (LAX)
- Downtown Long Beach to various communities
- Corona, south of SR 91, to the Corona industrial/commercial district
- Rowland Heights to City of Industry
- Various Pomona and San Bernardino Valley communities to the Ontario industrial/commercial district
- Santa Ana to the Irvine Business Complex
- Travel between Calexico, El Centro, and Brawley, and travel within Calexico

This report examines these travel flows in further detail, assessing the characteristics of TEZ commute travel destinations, commute mode choices, and commute distances.

Key characteristics of TEZ commute flows

Through analysis of county-level, municipal-level, and tract-level commute travel from TEZs, findings on the key characteristics of TEZ commute flows were uncovered. The most salient findings are summarized below.

TEZ COMMUTING IS LARGELY LOCAL, SHORT-DISTANCE TRIPS.

Most of the largest commute flows from TEZs to major employment destinations originate from within approximately 10 miles of the employment destination. In lower-density environments, such as the Corona industrial/commercial district in Riverside County and the Simi Valley industrial/commercial district in Ventura County, trip distances are somewhat longer. In general, there is limited intercounty travel from TEZs to the key destinations profiled in this report.

³ The analysis in this report assesses only commute travel. Other types of travel from TEZs, such as shopping or recreational trips, would also be valuable to understand from an equity perspective. Recent research highlights the importance of analyzing non-work travel for equity reasons (such as trip chaining and mobility of care), and new smartphone-based travel datasets are available that include these trip types. Leveraging these new datasets (while also vetting their collection methods and reliability) may produce greater detail and insights on TEZ travel, which would improve assessment of potential impacts and benefits related to future mobility innovations.

AUTOS ARE THE DOMINANT MODE FOR BOTH SINGLE OCCUPANCY VEHICLE AND CARPOOL TRAVEL FROM TEZS, BUT LESS SO THAN FOR THE GENERAL POPULATION .

Throughout the SCAG region, the auto is the dominant commute mode for TEZ residents, with 64% of TEZ commute trips made via this mode. It is primarily used for single occupancy vehicle (SOV) commuting but is also heavily used for carpooling.

Residents of TEZs make between 9% and 32% of trips to major employment centers via carpool. Carpooling is an important commute mode for TEZ residents in all SCAG counties, and particularly for those in San Bernardino, Riverside, Orange, and Ventura counties. In general, places with limited transit access, such as the Corona industrial/commercial district in Riverside County, have higher rates of carpool commuting by TEZ residents.

BUS TRANSIT IS USED AT MUCH HIGHER RATES BY TEZ RESIDENTS THAN THE GENERAL POPULATION.

Throughout the SCAG region, TEZ residents are much more likely than all residents to commute using non-auto modes such as transit. In some counties, TEZ residents are four or five times more likely than all residents to commute via transit. Los Angeles County has the highest percentage of TEZ residents using transit to commute, at 13%. Rail transit is used much less frequently by TEZ residents for commute trips than bus transit.

PRODUCTION, DISTRIBUTION, AND REPAIR DISTRICTS ARE MAJOR COMMUTE DESTINATIONS FOR TEZ RESIDENTS.

Production, distribution, and repair (PDR) districts are major destinations for workers living in TEZs, in nearly all of SCAG's counties. These include places like the Corona industrial/commercial district in Riverside County, Vernon in Los Angeles County, the Simi Valley industrial/commercial district in Ventura County, and the Ontario industrial/commercial district in San Bernardino County. In Los Angeles County, people from TEZs commute to these destinations by auto and transit, but outside of Los Angeles County, commute travel to PDR destinations is primarily via single occupancy vehicles.

Business Organization Outreach

This analysis of TEZ travel flows also included outreach to select business organizations with worksites in the SCAG region where there are a significant number of commuters traveling from TEZs. This outreach involved in-depth interviews with transportation staff at these organizations. The major employers interviewed – Los Angeles World Airports (LAWA) and the University of California Los Angeles (UCLA) - identified travel challenges for their employees, visitors, customers, and other stakeholders, most of which revolved around traffic congestion. The organizations considered the impacts of this congestion to be inequitable, affecting lower-income travelers more severely. Although these organizations have implemented programs to mitigate the impacts of congestion, traffic issues persist. Both LAWA and UCLA are interested in the potential for future mobility innovations, such as road pricing, to reduce traffic congestion and improve access to their campuses.

Part III: Equity Toolkit

The Equity toolkit highlights equity considerations for road pricing using accessible, non-technical language. The toolkit also provides a list of tools to mitigate impacts and elevate the needs of underrepresented communities. These tools include strategies for designing pricing programs more fairly and for reinvesting pricing revenue more equitably. The equity toolkit, combined with additional resources developed for the MIP project, can be adapted for outreach by agencies and community-based organizations. Additional community resources include a frequently asked questions document (Appendix E), a guide to transit funding and the impacts of COVID-19 (Appendix F), and materials used for the CAC workshops⁴.

Equitable Program Design

Equitable program design strategies include subsidies, credits, and payment accessibility measures.

- **Subsidies** lower the cost paid by certain users through mechanisms such as discounts or exemptions.
- **Credits** provide certain users with additional resources to pay for priced roads.
- **Payment accessibility** enables all users, including those facing technological or institutional barriers, to make road pricing payments.

Equitable Revenue Investments

Equitable revenue investment strategies increase the quality and accessibility of alternatives to solo driving.

- **Investing in active transportation** infrastructure can increase road safety, facilitate exercise, and provide alternatives to shorter auto trips.
- **Investing in transit** can improve non-auto travel by increasing transit speed, frequency, and reliability.
- **Investments in first-/last-mile connections** can expand access to transit within and beyond the immediate surroundings of a transit stop.
- **Investments in carpool programs** can enable easier and faster auto travel.

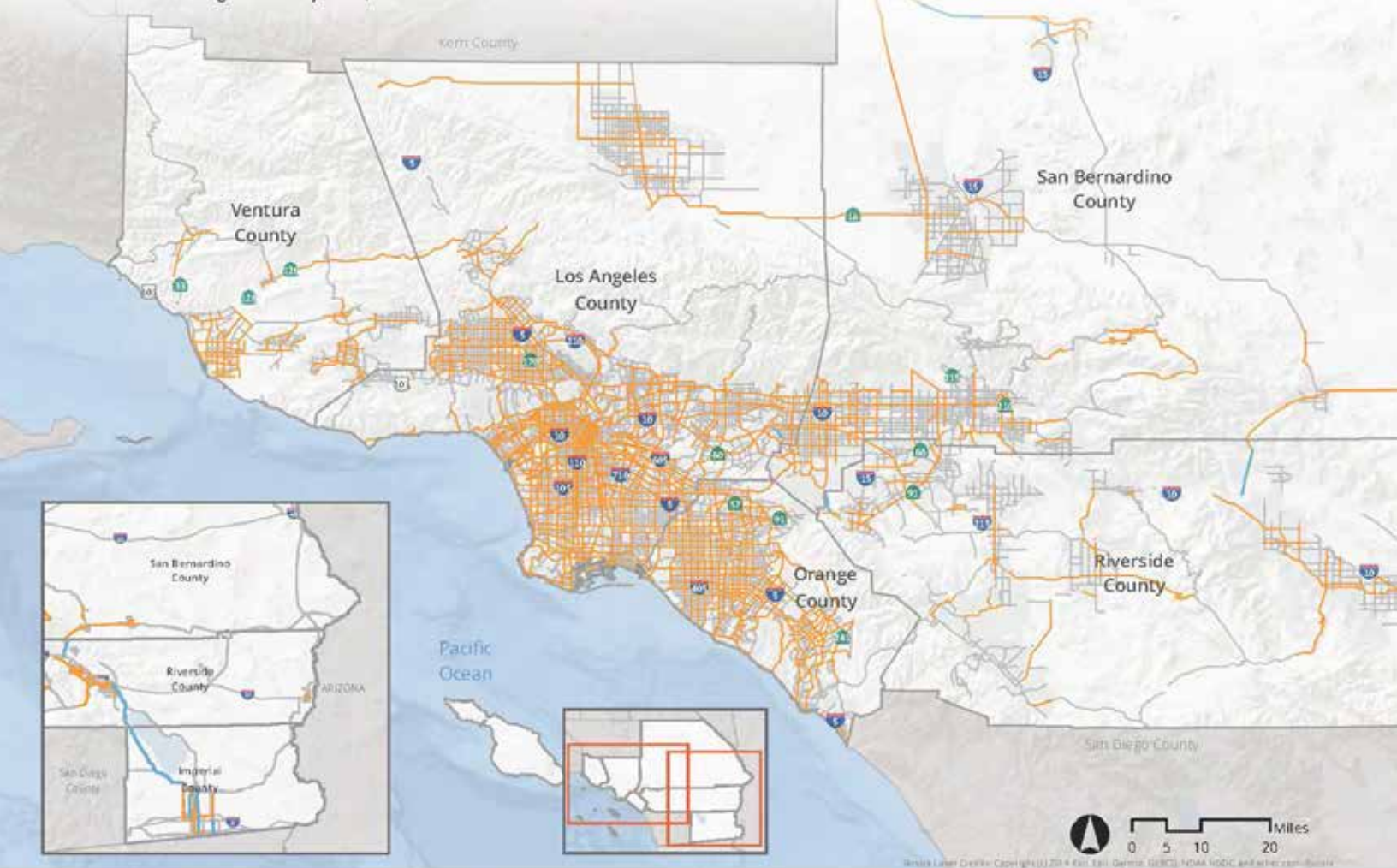
⁴ Community resources are available at <https://scag.ca.gov/transportation-finance>



INTRODUCTION



The Mobility Innovations and Pricing (MIP) initiative focuses on the potential equity implications of road pricing and other innovative transportation policies in the six-county Southern California Association of Governments (SCAG) region shown in **Figure 1**. Building upon SCAG's 100 Hours campaign that explored how congestion pricing could impact the region, the MIP initiative combines stakeholder engagement, technical analyses, and communications strategies to elevate equity considerations as a key touchstone in planning for road pricing.



— Expressway / Parkway
 — Principal Arterial
 — Minor Arterial

Source: SCAG, 2019

Figure 1. Existing Arterial System: SCAG Region

Project Goals

The Mobility Innovations and Pricing project is an initial step towards understanding the equity implications of pricing strategies — most critically leading with the concerns of underrepresented communities — and increasing community participation in the policymaking process on these issues. Road pricing can provide benefits to vulnerable communities, such as reduced air pollution burden and improved transit access. However, without a clear focus on equity, road pricing can exacerbate existing transportation inequities.

In order for our region to equitably provide innovative mobility services and programs, such as congestion pricing and emissions-free zones, SCAG believes that policymakers must first understand the concerns and travel needs of underrepresented communities throughout the region. This effort aims to develop an equity-focused framework to engage communities in a way that allows community members to share their lived experiences while providing education that supports their participation in transportation policy decision-making. To that end, SCAG and the consultant team developed a process to accomplish the following goals:

Listen: Using several methods and tools, SCAG and the consultant team listened to community-based organizations and stakeholders that work with historically underserved populations. The project convened an interdisciplinary group

of experts, advocates, and community representatives to share their travel experiences, express concerns, and identify potential solutions that are responsive to their communities’ needs.

Learn: SCAG, in coordination with the consultant team and external stakeholders, facilitated a process of shared learning with defined learning outcomes for both public agency stakeholders and community-based organizations. For the agencies’ benefit, community representatives lent their expertise to inform participation strategies and provide nuanced feedback as it relates to issues of equity and inclusion. For committee members’ benefit, SCAG and the consultant team shared information related to the region’s growing menu of transportation options and provided general insights on common road pricing mechanisms.

Target Audiences

This report has been prepared to improve and facilitate collaboration between two primary audiences:

- **Local and subregional government agencies** exploring mobility innovation and pricing tools and
- **Community-based organizations and community stakeholders** working to inform residents, identify local priorities, and influence outcomes.

Key Concepts

Future collaboration around issues related to pricing and/or mobility innovations must be informed by a shared conceptual framework. For context on the concepts and priorities at the foundation of the Mobility Innovations and Pricing approach, this introduction answers the following questions:

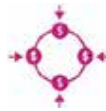
- What is road pricing?
- What is SCAG's role in relation to road pricing?
- What is transportation equity?
- What are the transportation barriers facing underserved communities in the SCAG region?
- How do we form strategic partnerships to advance equity goals?

What is road pricing?

The MIP project is based on the potential implementation of future mobility innovations in the SCAG region. One of the most sophisticated types of mobility innovation that could be considered is road pricing, which is a tool to manage demand for roads and reduce congestion. Road pricing programs typically establish fees for driving into or within specific areas during certain times to reduce demand on congested roadways. These programs have been implemented throughout the world and can take the form of highway tolls, cordon charges, and vehicle miles traveled (VMT) charges. As a joint strategy, low-emission zones are often implemented in tandem with road pricing strategies and can help reduce pollution from vehicles. In this document, low-emission zones are categorized as a road pricing strategy.

Road pricing programs typically decrease congestion and travel times for people driving and riding transit, as well as reduce vehicle emissions and generate revenue that can be invested in improving the transportation system. Specifically, revenue reinvestment in transit is typically an essential element of functional pricing programs, which generally offer incentives for more efficient modes alongside disincentives for driving. Road pricing can also have negative impacts by increasing the cost of transportation for low-income travelers and/or disproportionately reinvesting revenue from pricing to projects that worsen existing disparities.

The five types of road pricing considered in this document are:



CORDON PRICING: This pricing program charges road users that enter a specific geography, such as a central business district.



AREA PRICING: This pricing program is similar to cordon pricing in that it charges road users that enter a specific geography. Area pricing also charges for trips that occur entirely within this geography.



HIGHWAY PRICING: This pricing program charges road users for using specific lanes on a segment of highway or all lanes on a segment of highway. Highway pricing is commonly used throughout California and the United States; it is sometimes referred to as 'express lane pricing' or 'high-occupancy toll lanes.'



CORRIDOR PRICING: This pricing program charges road users for driving on certain roadways in a specific corridor. Vehicles are charged each time they pass a tolling point and tolling points are designed so the charge is closely related to the total number of miles driven on a priced roadway. This differs from highway pricing in that it occurs on local arterials, in addition to highways.



LOW-EMISSION ZONE: This pricing program charges or restricts road users in especially polluting vehicles, such as older diesel-powered vehicles or large trucks. Also known as a zero-emission area (ZEA), it can describe a suite of designs and policies to achieve air quality improvements in a designated area.⁵

⁵ C40 Cities Climate Leadership Group. March 2019. *How to design and implement a clean air or low emission zone.*

What is SCAG's role in relation to road pricing?

Southern California is known for its urban sprawl and polycentric land use patterns. Job centers are scattered throughout the region and travelers overwhelmingly rely on automobiles. The region's residents use an automobile for 94% of trips commuting to and from work, driving alone for 71% of commute trips and carpooling for 23% of commute trips.⁶

Because people living in the SCAG region conduct so much of their travel in autos, congestion causes a typical Los Angeles-area driver to lose over 100 hours of time each year sitting in traffic.⁷ With the SCAG region forecasted to add 3.7 million people from 2016 to 2045,⁸ further exacerbating congestion, some government agencies in the region are considering road pricing to reduce congestion, travel times, and pollution. In response to severe regional traffic congestion, SCAG launched the "100 Hours" campaign in 2017 with the intent of starting a conversation about addressing Los Angeles' traffic congestion by using innovative solutions.

SCAG has undertaken multiple studies with a comprehensive focus on identifying innovative demand management and transportation revenue solutions that can augment the region's approach for solving the challenges of severe congestion, poor air quality, limited travel options, and various funding constraints. SCAG's Express Travel Choices Study provided a comprehensive assessment of multiple road pricing options through case studies, congestion dynamics, and public outreach and stakeholder engagement, including a stated preference survey. Further evaluation of the scenarios was provided for mobility/congestion relief, equity/environmental justice, air quality, economic impacts, technologies and system design, cost estimates, financial evaluation, and institutional and legislative review.

Most recently, SCAG's Mobility Go Zone & Pricing Feasibility Study focused on how a congestion pricing strategy could be structured to have a sizeable impact on the reduction of vehicle miles traveled (VMT), vehicle hours traveled (VHT), and improved air quality benefits. Key findings related to the implementation of congestion pricing strategies are highlighted below:

- Contributes to congestion reduction via reduced automobiles entering the Mobility Go Zone during peak periods
- Increases in the use of transit and active transportation
- Provides an incentive to carpooling through discount policies
- Improves quality of life through enhanced mobility options
- Benefits air quality via reduced VMT and VHT
- Allows for a self-financing mobility program, augmenting much needed funding sources

Road user pricing as examined in the MIP project is a vital congestion reduction, financial, and environmental strategy featured in SCAG's 2020 Regional Transportation Plan/ Sustainable Communities Strategy (Connect SoCal), and is a core element of Connect SoCal's Go Zones Key Connection strategy. Key Connections are initiatives further enhancing SCAG's commitment to leveraging new technologies and innovation to address mobility challenges and reduce greenhouse gas (GHG) emissions. These initiatives aim to break down the silos that historically exist between planning for land use, transportation and technology and help achieve regional GHG reduction targets, closing the gap between core planning strategies and increasingly aggressive sustainability goals.

While SCAG is a planning agency and not an implementing agency, the agency plays a key role in providing policy guidance and data analysis, convening stakeholders, and providing research and funding to support these efforts. SCAG intends for the MIP project to support communities and implementing agencies as they explore pricing and related strategies in Southern California. For example, the Los Angeles County Metropolitan Transportation Authority (Metro) is exploring a potential congestion pricing pilot program through their Traffic Reduction Study.⁹ Meanwhile, the City of Los Angeles has pledged to design at least one zero-emission area (ZEA) by 2030 following Mayor Eric Garcetti's signing of the C40 Fossil-Fuel-Free Streets Declaration.¹⁰ While the intent is to support these local efforts, the Mobility Innovations and Pricing initiative is regional in scope and stands apart from the activities being led by Metro and the City of Los Angeles. Moreover, SCAG's Mobility Innovations and Pricing Initiative concluded in 2020, before either Metro or the City of Los Angeles have publicly proposed congestion pricing or ZEA locations.

⁶ Southern California Association of Governments. *Connect SoCal Chapter 2: SoCal Today*. p. 24

⁷ INRIX. March 2020. *Global Traffic Scorecard*. p. 10.

⁸ Southern California Association of Governments. *Draft Demographics and Growth Forecast*. p. 1.

⁹ Sotero, Dave. September 28, 2020. *Metro to hold four public meetings to provide details on Traffic Reduction Study*. Los Angeles Metropolitan Transportation Authority.

¹⁰ City of Los Angeles. October 23, 2017. *Mayor Garcetti joins mayors around the world to set bold new sustainability targets*.



Figure 2. Transportation Equity vs. Equality

What is transportation equity?

In transportation planning, the concept of equity generally relates to providing benefits and removing burdens according to need, rather than equally and without respect to need. Contextualizing equity within a transportation system is complex. How well the transportation system works for different people is inextricably linked to external factors, such as development patterns, job access, income, and persistent systemic inequities.

Pursuing more equitable transportation outcomes requires decision-makers and agencies to acknowledge that race, gender identity, age, ability, income, education, language, immigration status, and other social factors shape how individuals and communities experience our transportation system. Equitable transportation planning must operate within this complexity and direct resources to communities that have been marginalized by our existing transportation system.

An inclusive transportation planning process works with intention to dismantle historic decision-making structures that have the effect of disproportionately burdening socially vulnerable communities with the worst economic, public health, and environmental outcomes of our transportation network. Transportation equity involves promoting investments that reduce these burdens while conferring meaningful benefits

to historically underserved communities. This could mean prioritizing places with the highest levels of air pollution for pollution reduction efforts or ensuring that infrastructure improvements are implemented first in places with high rates of traffic-related deaths and injuries.

What are the transportation barriers facing underrepresented communities in the SCAG region?

Concerns about the equitable implementation of road pricing are informed by the systemic inequities that currently characterize our transportation network. For many underserved communities, road pricing may be perceived as another mechanism to provide benefits to the few, while reinforcing burdens on already marginalized groups. To address this concern, road pricing policies must address the transportation barriers faced by underrepresented populations.¹¹ For example, pedestrian and bicycle collision hotspots are more likely to be in lower income, higher poverty areas of the SCAG region. Residents of areas with higher concentrations of people of color must travel farther, on average, to access the region's local,

¹¹ SCAG's 2020 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), also known as Connect SoCal, describes many of these existing inequities in the Environmental Justice Appendix.

state, and national parks than predominantly white areas. Low-income communities of color in the SCAG region are also more likely to live in communities historically decimated by freeway construction, and thus also near sources of transportation-related air pollution.¹²

How do we form strategic partnerships to address transportation barriers and advance equity goals?

Addressing transportation barriers, especially when planning and implementing policies like road pricing, requires robust public engagement as the starting point. Traditional public participation models are generally “top-down” in nature, with the public agency providing information to the community and obtaining feedback in a predetermined manner geared towards reaching consensus on a menu of pre-existing options. This model does not provide an opportunity for external stakeholders to meaningfully change to the project’s structure or outcomes. Intentionally or not, these top-down, one-way learning approaches exclude crucial perspectives only available to those communities closest to the problem the project aims to solve.¹³

EMPLOY POPULAR EDUCATION

A more inclusive, bottom-up approach that addresses equity issues in public engagement is known as popular education. This peer learning model facilitates shared learning, emphasizes participants’ lived experiences, and values participatory modules to convey information. Popular education relies on four key elements: (1) a non-hierarchical structure, where facilitators and participants are seen as equal contributors; (2) the education process responds to the expressed needs of an organized group; (3) the group is involved in planning the training and any follow-up actions; and (4) the process acknowledges that community is the source of knowledge.¹⁴

DEFINE TARGET POPULATIONS

While transportation barriers often exist in the aforementioned equity geographies, there are other populations facing similar barriers who live and work outside of these geographies. For the purposes of this project, we identified the following underrepresented groups, referred to hereafter as “target populations”:

- Low-income communities of color;
- Populations with limited English proficiency;
- Women and female-headed households;
- Transit-dependent and/or zero-car households;
- Older adults;
- Youth; and/or
- Individuals with access and functional needs.

¹² Southern California Association of Governments. March 2016. *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, Environmental Justice Appendix*. p. 5.

¹³ Southern California Association of Governments. 2020. *Public Engagement Guide*.

¹⁴ Schugurensky, Daniel. 2010. *Popular Education: Comparative and International Perspectives*. University of Toronto.

While sharing characteristics with the equity geographies, the general social vulnerabilities identified here build upon the work of the SCAG Public Engagement Guide, the American Red Cross Prepare LA report, and LA Metro’s “equity-focused communities” from their Long-Range Transportation Plan.^{15 16 17} We refer to these sources as they originated from agencies focused on resiliency and they focus on populations in the SCAG region.

FORMALIZE PARTNERSHIPS WITH COMMUNITY REPRESENTATIVES

The engagement process for the MIP initiative is based on SCAG’s outreach process for Connect SoCal.¹⁸ Employing the fee-for-service model used to hire consultants, the MIP engagement process compensated community-based organizations (CBOs) serving at least one of seven target populations.¹⁹ SCAG integrated these CBOs into the design and delivery of the public engagement process. CBOs helped set the agenda for three stakeholder workshops and led development of two community-facing virtual events. These procedures enabled CBOs to align public processes with community needs and to develop more relevant and impactful messaging.²⁰

It must be stressed that collaborating with and compensating CBOs represents just one model of more participatory community engagement. In areas where the community-based organization network may be limited, agencies may consider alternative partnership options that involve collaborating with individual community leaders, philanthropic entities, and/or civic institutions that serve target populations. The end goal for any engagement should be to foster significant engagement from members of target populations and provide meaningful opportunities for those groups to shape the process and project outcomes.

¹⁵ Southern California Association of Governments. 2020. *Public Engagement Guide*.

¹⁶ Prepare LA. 2013. *Vulnerable Communities Project*.

¹⁷ Los Angeles Metropolitan Transportation Authority. 2020. *2020 Long Range Transportation Plan*.

¹⁸ For example, the Community Partner Program for Connect SoCal established partnerships so that CBO representatives could conduct surveys, facilitate events, and host informal gatherings to gather community feedback on the RTP/SCS.

¹⁹ (1) low-income communities of color; (2) populations with limited English proficiency; (3) transit-dependent and/or zero-car households; (4) women and female-headed households; (5) older adults; (6) youth; and (7) individuals with access and functional needs

²⁰ Southern California Association of Governments. 2020. *Public Engagement Guide*.

The background image shows the interior of a public transit vehicle, likely a bus or light rail car. The perspective is from the front of the vehicle looking down the aisle. There are several passengers visible, including a man in a dark jacket and glasses on the left, and a person wearing a blue turban in the center. The ceiling has overhead handrails and lighting fixtures. The overall atmosphere is that of a busy, everyday mode of public transportation.

PART I: Establishing a Process to Surface Key Equity Considerations

Part I of the report outlines our process of building formal partnerships with community-based organizations to explore equity considerations of pricing and other mobility innovations. It provides equity recommendations and important considerations for communities and agencies exploring new mobility concepts. This portion of the narrative also articulates outcomes and key learnings from two community-led events focused on current transportation issues (e.g., pandemic response and recovery, mobility needs for target populations, etc.).

Establishing Agency/Community Partnerships

SCAG formed a Community Advisory Committee of 13 compensated²¹ nonprofit organizations serving seven target populations.²² SCAG formalized this process with a memorandum of understanding that specified anticipated roles, time commitments, and compensation terms for each organization.

Community Advisory Committee Workshops: Testing Concepts and Identifying Equity Concerns

SCAG surfaced equity considerations related to road pricing in a series of three Community Advisory Committee (CAC) workshops. We assessed initial priorities and perspectives through a pre-workshop survey and compiled key takeaways from each working session. The highlights are summarized below.

PRE-WORKSHOP: Committee Feedback

Coming into the engagement, committee members shared the following sentiments:

- The committee listed public transit, affordable housing/anti-displacement, and environmental justice/public health as top priorities to address in that order. Road pricing was the lowest priority for all committee members.
- Committee members unanimously agreed that the region's transportation system is inequitable with regards to race, income, language, and disability status.
- The committee's engagement goals included learning about road pricing, advancing equitable transportation policies, and collaborating with fellow transportation equity advocates.

WORKSHOP #1: Building Shared Understanding

The first CAC workshop facilitated discussions on experiences with the region's transportation systems and introduced pricing concepts. After sharing knowledge in small groups and individual presentations, CAC members discussed pricing terminology and case studies with the consultant team.

TAKEAWAY #1: Committee members described their experiences with disproportionate air pollution burden, lack of affordable housing, and long commute times for communities of color.

TAKEAWAY #2: The committee expressed skepticism about road pricing as a pathway toward more equitable transportation, noting that other transit and traffic safety programs (e.g., Vision Zero, Metro's NextGen Bus Plan) have yet to meet community needs.

WORKSHOP #2: Identifying Equity Issues and Adapting Decision-Making

In the second workshop, the CAC explored road pricing in more detail and identified advocacy goals related to potential pricing implementation. The CAC met with two guest speakers and participated in three group activities, including an indicator ranking process, a simulation of pricing's impact on travel behavior, and a power mapping exercise.

TAKEAWAY #1: The committee ranked income, pollution exposure, and race/ethnicity as the most important indicators for measuring transportation equity concerns in the SCAG region.

TAKEAWAY #2: Committee members identified the following priorities for pricing-related advocacy in no particular order:

- Streamlining the process for obtaining discounts and exemptions; priority populations should not have to jump through hoops to qualify for support
- Creating a community oversight board to steer implementation and drive accountability
- Fixing the bus system before implementing pricing
- Ensuring regional coordination to assist those who travel to LA County
- Addressing enforcement issues such as over-policing
- Ensuring timely investment of road pricing revenue to support alternative modes of transportation

WORKSHOP #3: Pivoting Toward Action in Uncertain Times

The third workshop, conducted virtually due to the COVID-19 pandemic, continued the committee's discussion of the six priorities identified in the second workshop. The CAC discussed several of these priorities in virtual breakout sessions before reconvening to discuss public engagement ideas and preview virtual community events.

TAKEAWAY #1: The CAC expanded upon their goals of "fixing the bus system" and "ensuring regional coordination" as expressed in Workshop #2. The committee clarified that "fixing the bus system" would entail improving accessibility and reliability, electrifying vehicles, and eliminating transit fares. The CAC also clarified that "ensuring regional coordination" would involve engaging with county transportation commissions and advocating for alternatives to freeway widening, such as improved regional transit.

TAKEAWAY #2: Committee members elaborated on over-policing concerns, describing the criminalization of poverty and restrictions on movement such as gang injunctions as fundamental transportation inequities. Proposed solutions included shifting transportation funding away from policing and developing alternative enforcement models rooted in restorative justice.

TAKEAWAY #3: The committee identified several strategies for engaging the public around mobility innovations. These strategies included direct outreach to transit riders, television and radio presentations, and door-to-door outreach in multiple languages.

²¹ SCAG compensated each CAC member organization at a rate of \$100 per hour based on publicly-available executive director salary ranges in the region.

²² (1) low-income communities of color; (2) populations with limited English proficiency; (3) transit-dependent and/or zero-car households; (4) women and female-headed households; (5) older adults; (6) youth; and (7) individuals with access and functional needs

Community-Led Events: Exploring Transportation Priorities

Building on the CAC workshops, two members of the committee partnered with SCAG to co-produce virtual events. These events built upon the concepts discussed during the workshops, with each committee member identifying topics and speakers that would resonate with their constituents and other target audiences. Long Beach Gray Panthers co-produced an event about the COVID-19 pandemic's impact on transportation for vulnerable groups, and Southern California Resource Services for Independent Living co-produced an event focused on the Americans with Disabilities Act and the pandemic's impact on mobility among people with disabilities. Below is a summary of each event.

LONG BEACH GRAY PANTHERS: HOW THE PANDEMIC AFFECTS MOBILITY FOR OLDER ADULTS, LGBTQ+ COMMUNITIES, AND OTHER VULNERABLE POPULATIONS

Long Beach Gray Panthers discussed COVID 19's impact on transportation for older adults and other vulnerable people. Key takeaways included the following:

TAKEAWAY #1: Participants critiqued agency outreach efforts to communicate COVID 19-related shifts in transit schedules and other services, urging agencies to notify riders at bus stops and do more to reach non-internet users.

TAKEAWAY #2: Participants endorsed new transit services like Metro's "Mobility on Demand" and transportation education programs such as Metro's "On the Move" and the "LGBTQ Seniors Connected Club."

SOUTHERN CALIFORNIA RESOURCE SERVICES FOR INDEPENDENT LIVING: HOW THE PANDEMIC IMPACTS PEOPLE WITH DISABILITIES AND RELATES TO THE AMERICANS WITH DISABILITIES ACT

Southern California Resource Services for Independent Living discussed the history and future of the Americans with Disabilities Act (ADA) in the context of COVID 19. Key takeaways included the following:

TAKEAWAY #1: Participants urged transit systems to consider the ADA as a regulatory foundation that should be expanded. Transit and paratransit systems should work to create more universally accessible options that employ current technologies and improve and increase mobility for individuals with access and functional needs.

TAKEAWAY #2: Participants noted that many people with disabilities are immunocompromised, limiting social interaction and access to services. Reduced mobility options coupled with social isolation and a lack of community events has had a big impact on their community's social and mental wellbeing.

Overview of the MIP Engagement Process

SCAG worked with a consultant team, agency stakeholders, and community-based groups to develop a process to surface equity concerns. As part of this process, SCAG developed an outreach framework to engage community stakeholders, established a Community Advisory Committee (CAC) to provide input, and hosted a series of workshops and community-led virtual events to identify critical equity concerns.

Community Advisory Committee

The Community Advisory Committee consisted of nonprofit organizations representing various communities throughout Southern California. In collaboration with SCAG staff and consultants, the Community Advisory Committee surfaced potential concerns, proposed mitigation measures, developed messaging strategies, and informed public engagement processes around road pricing and related policies.

The Community Advisory Committee initially consisted of 13 Community-Based Organizations representing the following target populations:

- Low-income communities of color;
- Populations with limited English proficiency;
- Transit-dependent and/or zero-car households;
- Women and female-headed households;
- Older adults;
- Youth; and/or
- Individuals with access and functional needs

Pandemic-Related Pivot

Originally, the Community Advisory Committee was scheduled to meet in person three times, between February and April 2020, with subsequent in-person public events held in May and June of 2020. However, the COVID-19 pandemic caused the April workshop and subsequent public-facing events to be held virtually.

Generally, the pandemic and resulting economic downturn shifted the committee's conversations away from road pricing and toward transportation needs and public health in the pandemic more broadly in order to address the immediate concerns of the participating communities. Additionally, the nationwide uprising for racial justice, heightened in response to the police murders of Breonna Taylor, George Floyd, and many other unarmed Black people in the United States, also enhanced the CAC's focus on enhancing racial justice and reducing police presence in the SCAG region's transportation system. The events of 2020 also reduced the capacities and shifted the priorities of the committee member organizations, limiting their ability to participate in virtual meetings and events.

Community-Based Organization (CBO) Virtual Events

The above-mentioned priorities were reflected in a series of community-led virtual events that centered the needs of historically marginalized communities. The series was co-created in partnership with members of the Community Advisory Committee. Working with SCAG, the consultant team, and community stakeholders, community-based organizations held virtual convenings that focused on the mobility needs of target populations such as older adults, transit-dependent households, low-income communities of color, and individuals with access and functional needs, as well as individuals within those groups facing additional barriers such as LGBTQ communities.

Establishing Agency/ Community Partnerships

This section describes the process that SCAG employed to identify, recruit, and select members of the Community Advisory Committee.

Identifying CBO Partners

To ensure discussions on mobility innovations prioritize vulnerable communities, SCAG convened a Community Advisory Committee. In January 2020, the project team contacted executive directors and other key staff of 28 nonprofit organizations meeting the following criteria:

Geographic Reach: The organization has a presence in, or works with communities in Los Angeles, Orange, San Bernardino, and/or Riverside Counties. We included Los Angeles and Orange Counties due to their high population density and the number of jobs relative to the SCAG region overall,²³ which make them more likely to adopt road pricing and similar policies than other counties in the SCAG region. We also included San Bernardino and Riverside Counties due to their relatively low median household income, travel patterns, and significant number of commuters traveling to Los Angeles and Orange Counties.²⁴ The remaining two counties, Imperial and Ventura, were omitted from the engagement process due to the relatively low likelihood of either of these counties being impacted by road pricing policies in the near future. When finalizing the committee, we selected at least one organization with a presence in each of these four counties, and we selected organizations representing multiple portions of Los Angeles County due to its size and diversity.

Area(s) of Expertise: The organization has expertise and/or works on issues related to environmental justice and/or social equity. SCAG also considered organizations with expertise related to public health, community development, transportation equity/mobility justice, sustainability/community resilience, and/or economic/workforce development. We selected at least one organization with expertise in each of these subject areas.

Target Population(s) Served: The organization works with the aforementioned “target populations” including: (1) low-income communities of color; (2) populations with limited English proficiency; (3) transit-dependent and/or zero-car households; (4) women and female-headed households; (5) older adults; (6) youth; and/or (7) individuals with access and functional needs. We selected at least one organization which represents each of these priority populations.

SCAG launched the process with a series of introductory phone calls with each of the organizations who expressed interest in response to our initial outreach email.

Community Advisory Committee Members

The following is a summary of the 13 organizations that participated in the Community Advisory Committee:

Alliance for Community Transit – Los Angeles (ACT-LA)

MISSION: “ACT-LA envisions a Los Angeles that is a transit-rich city where all people have access to quality jobs, affordable housing, necessary social services, ample transportation options, and a voice in decision-making. We believe in building a sustainable community through the reduction of toxic air pollution, the promotion of public health, and the strengthening of community culture and heritage.”²⁵

COUNTIES: Los Angeles

EXPERTISE: social equity, transportation equity/mobility justice

POPULATIONS: low-income communities of color, populations with limited English proficiency, transit-dependent and/or zero-car households

Asian Pacific Islander Forward Movement (APIFM)

MISSION: “We cultivate healthy, long-lasting, and vibrant Asian and Pacific Islander communities through grassroots organizing.”²⁶

COUNTIES: Los Angeles

EXPERTISE: public health, community development

POPULATIONS: low-income communities of color, populations with limited English proficiency, transit-dependent and/or zero-car households, women and female-headed households, older adults, youth

Kennedy Commission

MISSION: “The Kennedy Commission is a community-based nonprofit that works with residents and community organizations to increase the production of homes affordable to lower income households in Orange County. Originally convened as an all-volunteer organization, the Kennedy Commission was formed in 2001 and named in honor of Ralph Kennedy, a pioneer for the homeless, affordable homes and human rights advocacy in Orange County.”²⁷

COUNTIES: Orange

EXPERTISE: social equity, community development

POPULATIONS: low-income communities of color, populations with limited English proficiency

²³ Southern California Association of Governments. 2019. *Local Profiles*.

²⁴ Southern California Association of Governments. 2019. *Local Profiles*.

²⁵ Alliance for Community Transit – Los Angeles. 2020. *About ACT-LA*. <<http://allianceforcommunitytransit.org/about-us/>>

²⁶ Asian Pacific Islander Forward Movement. 2020. *About*. <<https://www.apifm.org/about/>>

²⁷ Kennedy Commission. 2020. *Our Mission*. <<https://www.kennedycommission.org/our-mission>>

Koreatown Immigrant Workers Alliance (KIWA)

MISSION: “Koreatown Immigrant Workers Alliance (KIWA)’s mission is to empower Koreatown’s immigrant workers in low-wage industries for dignity and respect in the workplace and community, and to work together with other communities to realize a vision of a just Los Angeles. One of the nation’s most established workers centers, KIWA is one of a few community groups that organizes both Korean and Latino workers. Our vision is to bring together workers, community members, and students in a broad, multi-ethnic coalition.”²⁸

COUNTIES: Los Angeles

EXPERTISE: social equity, economic/workforce development

POPULATIONS: low-income communities of color, populations with limited English proficiency

Long Beach Gray Panthers (LBGP)

MISSION: “The Long Beach Gray Panthers Mission Statement is...to act independently, or in coalition with other movements to achieve for seniors, social and economic justice; a clean sustainable environment; affordable, quality health care; preservation and expansion of social security; full employment or an adequate income for those unable to work; promote education and activism for world peace by working for the reduction and final elimination of all means of mass destruction (i.e. nuclear, biological, chemical, and hi-tech weapons) and for a transfer of resources from military to human needs.”²⁹

COUNTIES: Los Angeles

EXPERTISE: social equity, public health, sustainability/community resilience

POPULATIONS: transit-dependent and/or zero-car households, older adults, individuals with access and functional needs

Los Angeles Black Worker Center (LABWC)

MISSION: “The mission of the Los Angeles Black Worker Center is to increase access to quality jobs, reduce employment discrimination, and improve industries that employ Black workers through action and unionization.”³⁰

COUNTIES: Los Angeles

EXPERTISE: social equity, economic/workforce development

POPULATIONS: low-income communities of color, transit-dependent and/or zero-car households

Pacoima Beautiful

MISSION: “Pacoima Beautiful is a grassroots environmental justice organization that provides education, impacts local policy, and supports local arts and culture in order to promote a healthy and sustainable San Fernando Valley.”³¹

COUNTIES: Los Angeles

EXPERTISE: environmental justice, public health, sustainability/community resilience

POPULATIONS: low-income communities of color, populations with limited English proficiency, transit-dependent and/or zero-car households, youth

People for Mobility Justice (PMJ)

MISSION: “As a Black Indigenous People of Color (BIPOC) collective, we seed critical consciousness about mobility justice across all communities.”³²

COUNTIES: Los Angeles

EXPERTISE: social equity, transportation equity/mobility justice

POPULATIONS: low-income communities of color, populations with limited English proficiency, transit-dependent and/or zero-car households

Safe Routes Partnership

MISSION: “The mission of the Safe Routes Partnership is to advance safe walking and rolling to and from schools and in everyday life, improving the health and well-being of people of all races, income levels, and abilities, and building healthy, thriving communities for everyone.”³³

COUNTIES: Los Angeles, Riverside, San Bernardino

EXPERTISE: public health, transportation equity/mobility justice

POPULATIONS: older adults, youth

Santa Ana Active Streets (SAAS)

MISSION: “SAAS is a community-based coalition with the mission of cultivating diverse community participation in creating a safe and accessible environment for active transportation in Santa Ana.”³⁴

COUNTIES: Orange

EXPERTISE: social equity, transportation equity/mobility justice

POPULATIONS: low-income communities of color, populations with limited English proficiency, transit-dependent and/or zero-car households, youth

²⁸ Koreatown Immigrant Workers Alliance. 2020. *KIWA*. <<https://kiwa.org/>>

²⁹ Long Beach Gray Panthers. 2020. *Our Mission Statement*. <<https://longbeachgraypanthers.org/our-mission>>

³⁰ Los Angeles Black Worker Center. 2020. *Our Vision, Mission & History*. <https://www.lablackworkercenter.org/our_vision>

³¹ Pacoima Beautiful. 2020. *Our Mission*. <<https://pacoimabeautiful.org/>>

³² People for Mobility Justice. 2020. *Our Mission*. <<https://www.peopleformobilityjustice.org/mission>>

³³ Safe Routes Partnership. 2020. *Our Mission and Vision*. <<https://www.saferoutespartnership.org/about/mission>>

³⁴ Santa Ana Active Streets. 2020. *About SAAS*. <<https://saascoalition.org/who-is-saas/>>

Southeast Los Angeles (SELA) Collaborative

MISSION: “To strengthen the SELA communities, build collective power, and encourage innovation to drive regional systemic change.”³⁵

COUNTIES: Los Angeles

EXPERTISE: social equity, community development

POPULATIONS: low-income communities of color, populations with limited English proficiency, transit-dependent and/or zero-car households, women and female-headed households, older adults, youth

Southern California Resource Services for Independent Living (SCRS)

MISSION: “The mission of Southern California Rehabilitation Services is to empower persons with disabilities to achieve their personalized goals through community education and individualized services that provide the knowledge, skills, and confidence building to maximize their quality of life.”³⁶

COUNTIES: Los Angeles

EXPERTISE: public health, community development

POPULATIONS: low-income communities of color, transit-dependent and/or zero-car households, individuals with access and functional needs

Strategic Actions for a Just Economy (SAJE)

MISSION: “SAJE builds community power and leadership for economic justice.”³⁷

COUNTIES: Los Angeles

EXPERTISE: social equity, community development

POPULATIONS: low-income communities of color, populations with limited English proficiency

CBO Onboarding Process

SCAG engaged community organizations through a fee-for-service partnership, as used by consultants, to provide compensation for each organization’s labor and expertise. To formalize the partnerships, the project team produced a template memorandum of understanding (MOU) and scope of work (SOW) for customization by each organization. The MOU and SOW included the discrete tasks and associated activities for each Advisory Committee member, including anticipated deliverables, expected hours, allowable direct costs, and an overall budget. The MOU and SOW templates are available in Appendix B.

Ongoing Committee Member Participation

The 13 CAC members listed above participated in the committee’s first meeting (Workshop #1) on February 14th. SELA Collaborative left the committee prior to Workshop #2 on March 3rd, and LABWC left the committee prior to Workshop #3 on April 1st, resulting in 11 organizations who participated in all three workshops.

Establishing Feedback Mechanisms

At several points throughout the engagement, the project team used Google Forms to survey committee members regarding their experiences, viewpoints, and goals in relation to road pricing and other transportation policies. A baseline survey, sent before Workshop #1, asked committee members to identify transportation policy priorities, describe their familiarity with road pricing and related concepts, express their initial impressions of these concepts, and articulate workshop goals. A survey sent after Workshop #1 asked committee members whether the workshop had met their expectations, how to improve subsequent workshops, and which topics they would like to cover during those workshops. These survey forms can be found in Appendix C.

The project team also gathered feedback on the engagement process during one-on-one follow-up phone calls with each organization. In the weeks preceding Workshop #3, workshop organizers spoke with seven of the twelve committee member attendees. During this outreach effort, we noted that participation was limited by the escalating outbreak of COVID-19 and CBOs’ shifting focus to meet immediate pandemic response needs. During each call, organizers asked for feedback on the first two workshops, input on the development of community engagement tools relating to the concepts discussed, and recommendations on how to adjust the engagement process in response to COVID-19. In early May, the project team held an optional group call with committee members interested in developing public-facing events.

³⁵ SELA Collaborative. 2020. *About Us*. <<http://selacollab.org/aboutus/>>

³⁶ Southern California Resource Services for Independent Living. 2020. *Our Mission & Vision*. <<https://www.scrs-ilc.org/about>>

³⁷ Strategic Actions for a Just Economy. 2020. *Mission & Vision*. <<https://www.saje.net/about/mission-vision/>>

CBO Workshops: Testing Concepts and Identifying Equity Concerns

The consultant team scheduled a series of three Community Advisory Committee workshops in early 2020. February's Workshop #1 enabled participants to meet one another, share mobility experiences, and learn about pricing and mobility concepts. March's Workshop #2 provided a space for participants to articulate equity concerns, explore mitigation measures, and discuss how to influence decision-making. April's Workshop #3 supported a committee-driven agenda in which participants brainstormed next steps and identified resource needs.

Pre-Workshop Survey Feedback

In advance of Workshop #1, committee members completed a survey to express their transportation priorities, attitudes, and goals for the committee. Twelve of the thirteen committee members completed the survey, which can be found in Appendix C.

TRANSIT, HOUSING, AND ENVIRONMENTAL JUSTICE ISSUES WERE CBOS' PRIMARY AREAS OF FOCUS. ROAD PRICING WAS CONSISTENTLY THE LOWEST PRIORITY.

"Public Transit", "Affordable Housing and Anti-Displacement," and "Environmental Justice and Public Health" were the committee's highest priorities, whereas "Road Pricing" was unanimously ranked as the lowest priority. Roughly three out of four committee members described themselves as at least "somewhat familiar" with road pricing, while around two-thirds of committee members described themselves as at least "somewhat familiar" with low- or zero-emission zones.

COMMITTEE MEMBERS UNDERSTOOD THAT THE TRANSPORTATION STATUS QUO IS INEQUITABLE. THEY WERE CONCERNED THAT ROAD PRICING WOULD EXACERBATE THOSE INEQUITIES.

The committee unanimously agreed that Southern California's transportation system is inequitable with regards to race, income, and disability status, and nearly all members agreed that it is also unfair depending on age and gender. Only one committee member anticipated that road pricing would be "somewhat likely" to make the transportation system more equitable. The remaining committee members either believed that road pricing was "highly unlikely" to enhance equity or were unsure about pricing's potential impact.

COMMITTEE MEMBERS' GOALS INCLUDED LEARNING MORE ABOUT PRICING AND IDENTIFYING OPPORTUNITIES FOR COLLABORATION.

Committee member goals included learning more about pricing, contributing to more equitable transportation policies, and collaborating with other transportation equity advocates. The committee also sought to discuss specific issues such as pricing's impact on differently-abled individuals, racial equity in transportation, equitable service for and outreach to monolingual and limited-English proficient communities, and fare-free transit.

Workshop #1: Building Shared Understanding

Workshop #1 took place on Friday, February 14, 2020 in Downtown Los Angeles. The following committee members were in attendance. Several of these participants are pictured in **Figure 4**.

Community-Based Organization Participants

1. **Alliance for Community Transit – Los Angeles**
Laura Raymond
2. **Asian Pacific Islander Forward Movement**
Kyle Tsukahira & Jeshow Yang
3. **Kennedy Commission**
Cesar Covarrubias & Mildred Perez
4. **Koreatown Immigrant Workers Alliance**
Bethany Leal
5. **Los Angeles Black Worker Center**
Malcolm Harris
6. **Long Beach Gray Panthers**
Karen Reside
7. **Pacoima Beautiful**
Andres Ramirez
8. **People for Mobility Justice**
Río Oxas
9. **Santa Ana Active Streets**
Kristopher Fortin
10. **Southern California Resource Services for Independent Living**
Hector Ochoa
11. **Strategic Actions for a Just Economy**
Oscar Zarate
12. **Southeast Los Angeles (SELA) Collaborative**
Wilma Franco

Sharing Transportation Experiences and CBO Presentations

After introductions from the committee members and consultant team, the committee split into two groups to discuss their experiences and opinions of Southern California's transportation systems. Committee members described what works well, and what needs improvement, in these transportation systems. The committee also discussed who benefits from and who is burdened by transportation systems in Southern California. As shown in **Figure 5**, participants shared their small group discussion takeaways with the larger group.

Following these initial breakout sessions, the committee regrouped and listened to brief presentations from two of its members – Río Oxas of PMJ and Laura Raymond of ACT-LA. Depicted in **Figure 6**, Oxas focused on the history of transportation in Los Angeles and the United States more broadly, emphasizing the exploitation and displacement of Black and Indigenous People of Color (BIPOC) inherent in the construction of transportation infrastructure such as the Transcontinental Railroad and the Interstate Highway System. Raymond described Metro's initial efforts to engage ACT-LA on their own congestion pricing feasibility study, currently known as the Traffic Reduction Study. Additionally, she raised concerns about Metro's \$1 billion policing contract, noting that a significant portion of these funds are dedicated to enforcing fares.

Introducing Road Pricing Concepts

After learning from the experience and expertise of the committee, the consultant team led an introductory presentation focusing on definitions and case studies of pricing and related mobility concepts. The consultant team defined spatial variations of pricing, such as cordon, area, and corridor pricing, as well as temporal variations such as flat-rate pricing and dynamic pricing. Additionally, the consultant team described how prices may vary based on vehicle type (e.g., discounts for electric vehicles), vehicle occupancy (e.g., discounts for carpools), and occupant characteristics (e.g., discounts for people with disabilities). Consultant team members went on to describe how London has implemented cordon pricing and low-emission zones, as well as New York City's plans to implement area pricing in the coming years.

Key Takeaways from Workshop #1

During Workshop #1, committee members expressed sentiments that generally focused on the following areas: process, finance, data, and the mobility landscape more broadly.

FOCUS ON OUTCOME-ORIENTED PROCESS

The committee members wanted an outcome-oriented process, resulting in actionable takeaways and clear community influence on future decision-making. They emphasized that communities want to address various inequities in the transportation system. For example, communities of color are disproportionately burdened by air pollution from transportation sources, leading to adverse health outcomes. Likewise, residential displacement, combined with a lack of affordable housing, forces these community members to endure long commutes. Sprawling and disconnected land uses also limit mobility options, particularly for low-income communities which are not prioritized in transportation investments. The committee recommended prioritizing investments that reduce harm and improve access for low-income communities of color, particularly those living in high-pollution areas.

Members also recommended that planning and implementation processes must have transparent processes that identify mechanisms for communities to engage with the process, set clear expectations for how that input will be used, and provide ongoing feedback mechanisms to ensure that project ideation, planning, and implementation phases all meaningfully involve historically underrepresented populations. The committee noted that the process should not be geared toward merely accelerating political goals, which are often opaque.

FOCUS ON REVENUES AND DATA

While committee members acknowledged that revenue from pricing programs might lead to beneficial investments in their communities, they suggested that agencies should allocate existing revenues more equitably to address long-standing inequities in the transportation system. The committee expressed interest in data on equity outcomes from pricing and related policies, particularly data that emphasizes the human element of these outcomes (e.g., How have revenue investments improved the lives of community members? How did pricing or mobility innovations affect the travel patterns of target populations? What communities are seeing significant benefits? Are harms being distributed equitably?).

FOCUS ON THE BROADER MOBILITY LANDSCAPE

Ultimately, some committee members were skeptical of pricing as a major priority for transportation agencies, given the transportation system's existing inequities. Members noted that other programs promoting equitable and sustainable mobility, such as Metro's NextGen Bus Plan and the City of Los Angeles's Vision Zero initiative, have been delayed or implemented slowly – often with little funding. Before agencies introduce road pricing or other mobility innovations, they should demonstrate what they are doing to make the existing transportation system more equitable. Underserved communities would like to see investments that prioritize long-standing needs (e.g., more accessible and reliable mobility options, better public transit, more affordable housing near transit and key destinations, etc.). The committee also raised concerns that the region's plan to host the 2028 Olympics may accelerate the implementation of pricing without adequately considering the impacts on low-income communities of color.

The committee provided feedback on Workshop #1 through an online survey. Generally, the committee described Workshop #1 as helpful, particularly due to its focus on equity. While some committee members were very familiar with pricing and other transportation policies, others were new to these concepts and appreciated the educational opportunity. At least one committee member struggled with the volume of new information, while another member expressed disappointment at the lack of concrete detail regarding how pricing may be implemented in the region.³⁸ However, most members remained interested in continuing to learn and strategize with one another during the remaining workshops.

³⁸ As of December 2020, Metro and the City of LA have not released geographically-targeted proposals as part of their Traffic Reduction Study and Zero Emission Area Implementation Plan, respectively.

Workshop #2: Identifying Equity Issues and Adapting Decision-Making

Workshop #2 took place on Tuesday, March 3, 2020 in Downtown Los Angeles. The workshop included three presentations and three group activities, which together enabled participants to discuss specific aspects of pricing and strategize for more equitable outcomes. The following committee members attended Workshop #2:

Community-Based Organization Participants

1. **Alliance for Community Transit – Los Angeles**
Laura Raymond
2. **Asian Pacific Islander Forward Movement**
Kyle Tsukahira
3. **Kennedy Commission**
Mildred Perez
4. **Koreatown Immigrant Workers Alliance**
Bethany Leal
5. **Los Angeles Black Worker Center**
Mindy Garland
6. **Long Beach Gray Panthers**
Karen Reside
7. **Pacoima Beautiful**
Andres Ramirez
8. **Safe Routes Partnership**
Demi Espinoza
9. **Santa Ana Active Streets**
Kristopher Fortin & Nallely Enriquez
10. **Southern California Resource Services for Independent Living**
Hector Ochoa
11. **Strategic Actions for a Just Economy**
Oscar Zarate
12. **Southeast Los Angeles Collaborative**
Wilma Franco

Presentations on Pricing, Zero Emissions Areas, and the Transportation Equity Zone Framework

Mike Manville, Jessica Jinn, and the consultant team each presented to the committee. Manville, an Associate Professor of Urban Planning at UCLA, provided a theoretical framing of road pricing which also expanded upon the case studies discussed in Workshop #1. He described reduced air pollution as a main equity benefit of road pricing, which improves public health. Although revenue from pricing can be redistributed for other purposes, such as public transit, Manville emphasized that revenue generation is not the primary goal of any existing pricing program. He also acknowledged that the main equity concern involves those who cannot afford priced roads. He noted that this concern is particularly salient in Los Angeles, given its high automobile mode share and limited social safety net in comparison to most large European cities.

Jinn, who works with the City of Los Angeles as a fellow for the Natural Resources Defense Council, discussed the organization's work on the City of Los Angeles's Zero Emissions Area (ZEA) Implementation Plan. Jinn described London's Ultra-Low Emission Zone as the plan's primary influence, while also recognizing Barcelona's superblocks and car-free streets in Auckland, New York City, and San Francisco as models for the City of LA. According to Jinn, the city's plan will prioritize

equity, accessibility, and community in three specific areas to be determined in 2021.

The consultant team facilitated an activity on the early stages of the Transportation Equity Zones (TEZ) framework, which identifies areas in the SCAG region that currently experience transportation-related burdens and may face disproportionate impacts from future mobility innovations, such as road pricing, due to demographic, environmental, and locational factors. As a result, these communities may warrant policy, programmatic, and/or infrastructure investments to ensure equitable implementation of any pricing or ZEA system. The team provided five sample indicators for identifying these zones, including income, pollution exposure, race/ethnicity, access to transportation, and crashes/safety (**Figure 8**). Each member of the Advisory Committee then selected and ranked their top three indicators in order of importance, while also suggesting additional indicators of disproportionate impact such as rent burden.

Road Pricing Game/Demonstration

The consultant team also facilitated a game designed to simulate the decisions and trade-offs involved in a road pricing and ZEA system (**Figure 7**). They arranged the room to represent a monocentric city, in which each participant must arrive at the city center as soon as possible. Each participant was randomly assigned one of three profiles, representing household types with unique preferences and constraints. Each participant was also randomly assigned a budget to spend on housing and transportation. To approximate reality in many cities, housing prices were highest near the city center, and automobile prices were higher than transit fares. Participants "competed" to earn the highest score based on their travel time savings, their monetary savings, and how closely they matched the preferences of their assigned profiles. After a first round in which all roads were free for drivers, the second and third rounds involved variations of cordon pricing and ZEAs to represent how different pricing/ZEA programs vary in terms of benefits and burdens to different populations.

Finally, the consultant team facilitated a third activity in which committee members identified advocacy objectives and key decision-makers for road pricing and related policies. After discussing several possible objectives, the committee created a modified "power map" to represent individuals who may advance or hinder one of the objectives chosen as an example.

Key Takeaways from Workshop #2

Throughout Workshop #2, the committee reiterated the importance of prioritizing low-income communities of color who are exposed to air pollution. Committee members were also concerned about road pricing's effects on land use and displacement, despite the uncertainty of pricing's impact on these outcomes.

PRESENTATION TAKEAWAYS

During Manville's presentation, the committee expressed interest in the impact of pricing on goods movement and the gig economy. Manville noted that pricing can encourage freight trucks to travel at less-polluted times of day, improving air quality, but that poorly designed systems could unintentionally divert trucks to residential areas and worsen neighborhood-level health impacts. Similarly, pricing systems can provide discounts to taxi drivers and other gig workers, but Manville warned that large discounts or exemptions can lead to congestion among gig workers, undermining the air pollution benefits of a pricing program. In response to committee questions, Jinn described how the Mayor's Office, the Department of City Planning, the



Figure 4. Community Advisory Committee Members: Workshop #1 (not pictured: Malcolm Harris)

Public Works Department, the Department of Water and Power (LADWP), and the Department of Transportation (LADOT) would all play a collaborative decision-making role in the ZEA plan.

TRANSPORTATION EQUITY ZONE FRAMEWORK FEEDBACK

During the TEZ exercise, the committee ranked the indicators in the following order, from most important to least important: 1) income, 2) pollution exposure, 3) race/ethnicity, 4) access to transportation, and 5) crashes/safety. Some committee members noted that crashes/safety – which received no votes – is often used to justify increased police presence, and that improving safety through infrastructure requires prioritizing areas based on the other metrics listed such as income and race/ethnicity. The committee also suggested rent burden, disaggregated race/ethnicity measures, age, and disability as additional factors for consideration.

PRICING GAME/DEMONSTRATION FEEDBACK

The committee noted that the road pricing simulation “game” touched on some of the choices and deliberations that travelers might make in different scenarios. Committee members felt that the game successfully highlighted how household travel and housing budgets shape choices and decision-making. They also noted that the game demonstrated the importance of high-quality commuter bus and rail as mitigation measures for pricing systems, and the crucial role of providing affordable housing near key destinations to promote equitable outcomes.

PRICING PRIORITIES + POWER MAPPING

During the final activity, the group articulated several potential road pricing-related priorities and desired outcomes:

- Streamlining the process for obtaining discounts and exemptions; priority populations should not have to jump

- through hoops to qualify for support
- **Creating a community oversight board to steer implementation and drive accountability**
- Fixing the bus system before implementing pricing
- Ensuring regional coordination to assist those who travel to LA County
- Addressing enforcement issues such as over-policing
- Ensuring timely investment of revenues from a road pricing program to support alternative modes of transportation

The last goal, listed in bold, was chosen for the power-mapping activity. The committee identified several influential actors, including county supervisors, county transportation commission board members, city councils, city and county police departments, transportation network companies such as Uber and Lyft, SCAG’s Regional Council, and Caltrans.

POST-WORKSHOP FEEDBACK

Committee members provided feedback on Workshop #2 through a follow-up phone call. Only seven of the twelve remaining committee members participated due to the escalation of the COVID-19 outbreak throughout March 2020. Participants described Workshop #2 as helpful, and they appreciated the continued focus on equity. They found Mike Manville’s presentation helpful and informative, and they enjoyed the interactive demonstration of road pricing. Some committee members described parts of the workshop as rushed, noting that the amount of information was difficult to absorb in a short period of time.



Workshop #3: Pivoting Toward Action in Uncertain Times

Workshop #3 took place on Wednesday, April 1st, but the committee and consultant team were unable to meet in person due to the COVID-19 pandemic. As a result, the workshop was held virtually as a Zoom meeting and shortened to roughly 2 hours. Multiple committee members were unable to attend due capacity constraints resulting from the pandemic. The following committee members attended Workshop #3.

Community-Based Organization Participants

1. **Alliance for Community Transit – Los Angeles**
Laura Raymond
2. **Asian Pacific Islander Forward Movement**
Kyle Tsukahira
3. **Kennedy Commission**
Mildred Perez
4. **Koreatown Immigrant Workers Alliance**
Bethany Leal
5. **Long Beach Gray Panthers**
Karen Reside
6. **Pacoima Beautiful**
Andres Ramirez
7. **People for Mobility Justice**
Río Oxás
8. **Safe Routes Partnership**
Demi Espinoza
9. **Santa Ana Active Streets**
Kristopher Fortin
10. **Strategic Actions for a Just Economy**
Oscar Zarate

Breakout Discussion on Pricing Priorities

Given the COVID-19 pandemic's wide-reaching effects and disproportionate impact on Southern California's most vulnerable populations, the consultant team began Workshop #3 with a group check-in to provide updates on their personal and organizational response. After the check-in, the committee used Zoom's "breakout rooms" feature to split into two groups and discuss some of the advocacy goals identified during Workshop #2.

The committee members held breakout discussions (**Figure 9**) on three road pricing advocacy priorities identified in Workshop #2, which were selected based on votes by the CAC. These priorities included fixing transit and other mobility options, addressing enforcement issues such as over-policing, and ensuring regional coordination for long-distance travelers. Although these concerns are not specific to road pricing systems, resolving these concerns is a prerequisite to any equitable pricing implementation according to the committee.

Following the breakout session, the entire committee regrouped to discuss ideas for remote engagements that would resonate with the represented communities. The consultant team described a menu of options including livestream discussions, short videos or social media content, sharing historic footage, interactive polling, a website, and a potential overarching theme of mobility in relation to the COVID-19 pandemic.

Opposite page: Figure 5. Kristopher Fortin sharing breakout session takeaways to CAC (above)

Figure 6. Rio Oxas presenting to CAC (below)

Key Takeaways from Workshop #3

PIVOTING TO PANDEMIC RESPONSE AND RECOVERY

Generally, the committee described a shift in priorities to address COVID-19 response and recovery efforts. They emphasized the need to contextualize road pricing and other mobility innovations in a way that reflects the current reality. Many committee members are part of the Healthy LA Coalition, which has mobilized to help steer COVID-19 rapid response, including addressing transportation issues for essential workers and vulnerable communities. Several organizations were working within their communities to assess needs, develop policies, and/or deliver services. Committee members also noted that the shift to virtual engagements presents new challenges for organizing and mobilizing.

FIXING PUBLIC TRANSIT TO FACILITATE ROAD PRICING

Four committee members expressed interest in continuing a discussion on improving public transit as an important condition for road pricing. In conversation with the consultant team, the CAC noted that fixing the transit system would involve:

- identifying and addressing gaps in regional connectivity;
- building momentum to provide fareless transit (building the experiment during the COVID-19 crisis);
- funding community groups to conduct direct outreach to transit riders;
- electrifying transit vehicles; and
- investing in improved accessibility and reliability.

RECONCEPTUALIZING ENFORCEMENT AS A PREREQUISITE FOR ROAD PRICING

Three committee members identified reconceptualizing enforcement as a priority warranting further discussion with members of the consultant team. Addressing enforcement issues, particularly limiting enforcement that disproportionately impacts low-income communities and communities of color, would require a variety of interventions such as:

- Ensuring stakeholders understand why over-policing is a problem for many vulnerable communities;
- Avoiding the criminalization of poverty by ensuring that fines are not unduly burdensome for low-income travelers;
- Ensuring that mobility options support vulnerable individuals' freedom of movement, which would involve reexamining policies such as gang injunctions; and
- Ensuring that transportation safety funding does not prioritize police enforcement.

IDEAS FOR AGENCY ENGAGEMENT ON THIS ISSUE INCLUDE:

- Identifying and prioritizing populations that may be vulnerable to the negative effects of enforcement actions;
- Continued engagement that specifically targets historically marginalized communities (e.g., virtual engagements, in-person town halls, engaging riders on transit, etc.);
- Working with council districts and neighborhood councils to compensate community groups to conduct surveys and assess community needs; and
- Exploring alternative enforcement models grounded in community, restorative, and/or transformative justice principles.

ENSURING REGIONAL COORDINATION ON MOBILITY INNOVATIONS

Two committee members expressed interest in continuing a conversation on ensuring regional coordination. During a



Figure 7. Road Pricing Demonstration: Workshop #2

discussion with the consultant team, the CAC expressed that regional coordination would require:

- continued engagement with county transportation commissions (CTCs) on issues related to congestion reduction;
- providing CTCs with tools to avoid ineffective congestion management strategies (e.g., freeway widening); and
- providing options to pursue alternatives (e.g., enhanced transit, demand management).

IDENTIFYING EFFECTIVE ENGAGEMENT STRATEGIES

The breakout groups identified several effective engagement strategies that implementing agencies may deploy during and after the COVID-19 pandemic. They include:

- Direct outreach to transit riders (organized and coordinated by credible CBO partners)
- Events that encourage transit use and familiarize potential riders with the system
- Showcasing situations where transit competes with automobiles in terms of speed and/or reliability (e.g., congested areas with dedicated right-of-way for transit)

Committee members also expanded the proposed menu of virtual engagement options. They recommended developing an educational curriculum on these issues, which could begin as a web-based program but eventually transition to in-person engagement, potentially in partnership with high schools. To address issues related to the digital divide, the committee also recommended considering tactics such as (1) placing door hangers in places where folks might be less likely to engage digitally (e.g., older adult residences); (2) developing podcasts for both internet and radio; and (3) leveraging local TV stations and community access channels.

Community-Based Organization Led Events: Exploring Transportation Priorities

SCAG and the consultant team originally envisioned a series of community-facing interactive workshops and/or demonstration events in early-to-mid 2020 to engage the public around these topics.

CBO-led community engagement efforts offer an opportunity for deeper and more meaningful engagement since the organizations have an existing network in communities that are difficult for public agencies to reach. Typically, CBOs have membership bases and established audiences organized around the issues, values, and missions they serve. They often have influence in certain communities due to their relationships with community members, leaders, and institutions. Conducting engagement with and through CBOs means leveraging the trust and relationships they have with their respective communities; using an engagement process that encourages CBOs to host convenings for their members is one way for public agencies to credibly reach underrepresented and/or more specific audiences. It also means tapping into CBOs' expertise to ensure messaging is culturally appropriate and relevant.

Originally, these events would have expanded upon existing in-person activities, such as CicLAvia open streets events and/or SCAG's Go Human demonstration projects, to spark discussions around pricing, zero-emission areas, and related innovations. However, because of the COVID-19 pandemic, the consultant team pivoted away from in-person, public-facing engagements.



Figure 8. CAC Feedback on TEZ Metrics

Community-Based Organization Participants

Following the initial three workshops, the consultant team began meeting with six community-based organizations (CBOs) from the Community Advisory Committee that expressed interest in hosting virtual engagement events to reach their respective communities. Over the course of the planning process, however, due to capacity, timing, and budgetary constraints, only two of the events were able to move forward and host engagements: Long Beach Gray Panthers (LBGP) and Southern California Resource Services for Independent Living (SCRS). Given the urgent challenges and needs presented by the pandemic, each of the CBOs wanted to ensure the virtual engagement events acknowledged the current situation and related mobility innovation concepts to the challenges of the COVID-19 pandemic and what an equitable recovery could look like.

Event Format and Production

Given the challenges presented by the COVID-19 pandemic, the project team and CBO partners pivoted to producing live virtual events. Although virtual events can be less accessible to some communities due to lack of access to the internet and computers or smartphones, the project team made a concerted effort to reduce barriers to participation.

The CBOs recognized that using virtual environments for community engagement events makes access to them inherently inequitable, due to the digital divide. To mitigate this, they strongly preferred using a platform that presented the fewest barriers for people to access the events; the ubiquity, familiarity, and ease of access of Facebook made it their top choice to reach their communities.

Event Planning and Coordination

Leading up to the events, the project team hosted a series of planning meetings with each of the CBOs to discuss logistics, panel topics, panelists, outreach, format, and panel questions. This was an iterative process of working collaboratively with CBOs to identify the pertinent themes especially in the rapidly shifting transportation landscape during the COVID-19 pandemic.

In conceiving these events, the project team and CBOs worked together closely to brainstorm panel topics and identify creative ways to blend mobility issues pertaining to the CBOs' respective organizations and members, the realities of a pandemic and economic recession, as well as transportation innovations. It was important for the CBOs that the content of the panels be sensitive and relevant to their members' current concerns and priorities. As event-specific panel ideas developed, the CBOs began leveraging their relationships and networks to identify potential partners, panelists, and moderators for their respective events.

After initial event-specific planning had taken place, the CBOs collaborated with each other, the consultant team, and SCAG to develop more general themes and questions across events to tie them together, as well as to build a draft script. These general themes included: (1) exploring the impacts of COVID on CBOs' communities and the organizations that panelists represented, (2) discussing what an equitable recovery could look like in terms of mobility, and (3) identifying transportation priorities in the context of COVID-related economic constraints. Throughout the planning process, all topics, questions, and panelists were developed by the CBOs, and then vetted and approved by SCAG.

Event Performance, Audience Feedback, and Major Themes

LONG BEACH GRAY PANTHERS (LBGP): How the Pandemic Affects Mobility for Older Adults, LGBTQ+ Communities, and Other Vulnerable Populations

LBGP hosted a conversation about COVID-19's impact on transportation for older adults and other vulnerable populations in Long Beach. Councilmember Rex Richardson, President of SCAG, kicked off the panel with opening remarks. Myron Wollin, President of LBGP, and Councilmember Mary Zendejas facilitated the conversation between panelists KeAndra Cylear Dodds (LA Metro), Mike Gold (Long Beach Transit), Mariham Iskander (LGBTQ Center Long Beach), and Dr. Dean Toji (CSU Long Beach). The conversation aired live on Long Beach Grey Panthers' Facebook page August 13th at 1:00 pm. As of October 20th, 2020, the video had five shares and 266 views.

A number of major themes emerged from the panel discussion. Below are some of the highlights³⁹.

TAKEAWAY #1: Transit agencies have not conducted adequate outreach to older adults and marginalized communities around service changes due to COVID-19. Participants were concerned that agencies did not provide riders with updated information regarding schedule changes, updated maps for changes to bus routes, and updates related to shifts in micro-transit services. Some panelists and viewers suggested building out signs at stops, stations, notices on TAP cards, social media posts, and reaching non-smartphone users by partnering with community-serving organizations. As an example of a successful community partnership, Long Beach Transit partnered with Long Beach Aging Services to facilitate conversations about transit safety and equity. Cal State Long Beach, the LGBTQ Center, and LGBTQ Seniors have also engaged in successful partnerships.

TAKEAWAY #2: There was a strong desire to reshape public transit service to better respond to COVID-19, including modifying on existing models of service delivery, and expanding mobility options. One example is Metro's Mobility on Demand Service. This service has expanded to include point-to-point trips within specific service zones to connect riders to essential services and medical centers rather than solely between transit stops.

TAKEAWAY #3: Additional transit programs that cater specifically to older adults and aid in the educational and technical aspects of transportation access would help to increase this population's access to transportation. Examples include Metro's On the Move that helps older adults access public transportation, utilize navigation tools, and learn bus routes,⁴⁰ as well as LGBTQ Seniors Connected Club that educates older adults how to board the bus safely.⁴¹

Audience feedback included a variety of comments and questions, such as:

- "Is it safe at this time for seniors to use the bus system?"
- "Please find a way to tutor riders how to use the Google Maps (or equivalent) on their phone to plan routes [and] times."
- "For the Town Hall Meeting on Transportation, which I really loved listening to, they discussed issues on protecting the various communities who use transit, as well as finding solutions on how to support these communities. This Town Hall Meeting helped me open my mind to the different issues regarding transportation problems and how it can be influential to other problems, kind of similar to a chain reaction or butterfly effect on different issues. Really loved listening to the Town Hall Meeting!"

Southern California Resource Services for Independent Living (SCRS): How the pandemic impacts people with disabilities and relates to the Americans with Disabilities Act

SCRS hosted a conversation focusing on 30 years of ADA passage, looking forward to the next 30 years, and discussing current mobility challenges with COVID-19. Alison Everett, Accessibility Coordinator with the City of Pasadena, moderated the discussion between panelists Hector Ochoa (SCRS), Benjamin Alcazar (Director of Accessibility, Metro), and Andre Colaiace (Executive Director, Access). The conversation aired live on SCRS' Facebook page September 9, 2020 at 1:00 pm. As of October 20th, 2020, the video had seven shares and 736 views.

To ensure language accessibility for their members, this panel featured Spanish interpretation via conference line, ASL interpretation, and closed captioning. The panel started with a series of questions prepared ahead of time by SCRS, SCAG, and the consultant team, followed by comments and questions from the Facebook audience. The prepared questions touched on innovating beyond ADA compliance, the impact of COVID on each organization and their subsequent response, transportation priorities amid COVID economic constraints, equitable recovery, accessible public participation, and mobility technologies such as microtransit.

A number of major themes emerged from the panel discussion. Below are some of the highlights⁴².

³⁹ For a video of the LBGP event, please see <https://scag.ca.gov/transportation-finance>

⁴⁰ Los Angeles County Metropolitan Transportation Authority. 2020. *On the Move Riders Program*.

⁴¹ Long Beach Transit. 2020. *Seniors*.

⁴² For a video of the SCRS event, please see <https://scag.ca.gov/transportation-finance>



Figure 9. Community Advisory Committee Virtual Workshop #3

TAKEAWAY #1: The ADA was intended to be a foundation to build upon, and while there is ongoing work to protect it, it is also critical to continue advancing the progress made. The ADA brought about paratransit agencies like Access Services, since it mandated that fixed-route transit had to be accessible for people with disabilities who weren't able to use fixed route transit. Transit and paratransit systems should expand on the baseline requirements of the ADA to make services more applicable to the current digital world.

TAKEAWAY #2: Many of the people SCRS serves are immunocompromised. Reduced mobility options coupled with social isolation and a lack of community events has had a big impact on their community's social and mental wellbeing. COVID has also impacted their community's access to healthcare and must be considered when reformatting public transportation.

TAKEAWAY #3: In response to questions about transparency and equity in its COVID-19 response, Metro provided additional context. Metro scaled back bus service to a Sunday schedule on many routes, but on heavily traveled routes they increased service to allow for better social distancing. They also encourage riders to wear masks and at some facilities they give masks to those without them. Operators are required to wear protective masks, face shields, and gloves; rear-door boarding has also been implemented on bus vehicles, but people with disabilities who need to board through the front door can still do so. Looking ahead to recovery, Metro is looking at fare reductions and strengthening relationships with social service agencies and small businesses.

TAKEAWAY #4: Access has also been working hard to redesign their system to enhance physical distancing and cleaning protocols to help protect the health of customers and frontline employees. They also partnered with a number of different entities to deliver meals and groceries and increased their capacity for same-day trips for nonmedical appointments, including grocery stores, pharmacies, and cooling stations.

TAKEAWAY #5: For SCRS, the issues at the state level with rideshare companies and potential suspension of services have impacted people in their college program, so they have been working on informing their consumers not only what those impacts mean, but also helping them find alternatives so they can continue to access their center for distance learning and other purposes. Going forward, SCRS would like to reopen their office to gradually allow their consumers to visit by appointment, continue ensuring accessibility to jobs, and that other sectors' reopening remains accessible to the disability community.

Audience feedback included various comments and questions surrounding ADA issues and concerns from the communities SCRS serves:

- "I think Hector's point around accessibility in COVID safe restaurant spaces is interesting and poignant and represents another way that some of these temporary solutions are not fully in service to all members of our communities. I would be interested in learning more about ADA appropriate 'guerrilla' responses to planning and transportation services that might be implemented more easily now during COVID."
- "Thank you, Ali, Hector, Ben, and Andre. I really appreciate what you have shared today and for your day-to-day efforts. For each of you, Ali included, what is one opportunity in particular you see as a sustainable means to continue to build on and/or protect the progress made per the ADA?"
- "YES, people with disabilities need to be at the table. 'Nothing about us without us!' Thanks SCRS for this important conversation!"

Lessons Learned from CBO Engagements

The CBO-led engagements presented another opportunity for SCAG to operationalize best practices outlined in the agency's Public Engagement Guide.⁴³ Community-led engagements supported agency objectives outlined in the engagement guide, including the following:

Compensate CBOs for Staff Time and Expertise

SCAG's ability to provide mechanisms to partner with CBOs in a manner that recognizes their time and expertise by compensating participating organizations, was critical. The organizations appreciated the recognition and material benefit of compensation by SCAG. This was particularly crucial as these events coincided with a global pandemic, an economic downturn, and a racial justice uprising, all of which decreased the capacity and increased the workloads of these organizations.

CBO-Led Events Increase Engagement with Target Populations

Community-led events can increase engagement with target populations. Each event had over 250 viewers despite the aforementioned challenges and competing priorities, reflecting the effectiveness of community-based organizations for reaching their constituents.

Community Organizations are Credible Messengers

Supporting community-led events enabled CBOs to effectively convey mobility innovation concepts and articulate potential outcomes in a manner that resonates with their communities. By hearing these concepts described by trusted members of their community, target populations were able to connect mobility innovations to their own lived experiences.

The following lessons learned highlight opportunities for SCAG to continue adapting the approach outlined in the "Developing an Engagement Process" section of this report and the wider strategy outlined in the Public Engagement guide.

Building New Partnerships Between CBOs and Public Agencies Takes Time

Many CBOs have some level of experience with these types of partnerships, while others may be more skeptical about agency partnerships, given the tendency for agency/community interactions to be transactional, combative, and/or lacking in mutual respect. One way to address this barrier is to set aside time at the start of the project to build authentic relationships, and to identify ways that agencies can foster an atmosphere of mutual respect built on trust. CBOs are not public relations firms and do not operate like consultants delivering professional services; they do not approach projects from a transactional perspective. Take time to grow these relationships and show communities that their time, expertise, and community relationships are truly valued and honored.

Agree on a Transparent Process that is Responsive and Adaptable

Establishing mutual expectations around decision-making, communication, and turnaround time for responding to requests can help to build and maintain trust between all partners and ensure commitment to project goals. At the same time, these expectations should be somewhat flexible to allow for changing circumstances and priorities, especially regarding the CBOs' respective communities. Additionally, public agencies often must follow approval processes for budgets, marketing, and external events, and clearly articulating these approval steps and decision-making protocols at the outset, can help facilitate the partnership.

Build in Contingencies for CBO Fees

CBOs often operate at a deficit in terms of resources and staffing, so it is important to adequately compensate them for their time, expertise, and relationships with their respective communities. In future projects with CBO collaborators, it is important to budget more time and resources to account for challenges such as limited capacity, approval processes and associated delays, and CBOs' budgetary constraints in order to ensure their sustained buy-in.

Given the uncertainty inherent in working with CBOs that serve diverse communities, we recommend building in a contingency budget of at least 10% for CBO fees. This will give CBOs more flexibility to propose events, engagements, and/or work products that may not have been envisioned at the project's onset, while giving the agency the ability to compensate CBOs for the longer timeframes required to consider and approve recommendations.

⁴³ Southern California Association of Governments. 2020. *Public Engagement Guide*.





PART II: TRANSPORTATION EQUITY ZONES: A REGIONAL EQUITY ANALYSIS

In addition to identifying transportation burdens and priority investments through a community-led engagement process, the Mobility Innovations and Pricing initiative developed a methodology to quantify transportation-related inequities and identify communities most impacted across the SCAG region, which are referred to as Transportation Equity Zones (TEZs). This section analyzes the travel patterns of people living in TEZs within the SCAG region. Understanding these travel patterns will help planning and implementing agencies place equity at the forefront of any future potential mobility innovations, such as road pricing. The methods for defining a TEZ, as well as the analysis of TEZ travel patterns, are summarized here.

Methods: Defining Transportation Equity Zones

The foundation of the analysis conducted in this report is the TEZ. SCAG and the consultant team examined each census tract in the six-county region and assigned it a score on a TEZ index. Developed in collaboration with the MIP Community Advisory Committee (CAC), the index is designed to award the highest score to places with the greatest intersection of socioeconomic, environmental, and transportation burdens these locations were designated as TEZs. The index is made up of four components:

- Socioeconomic characteristics
- Rent burden
- Pollution exposure
- Transportation access

The index identified a total of 594 TEZs across the SCAG region. TEZs are most prevalent in the Los Angeles urbanized area, and in high-density areas near sources of pollution such as freeways, freight distribution points, and major arterials. The TEZ travel pattern analysis is focused on work travel of people living in these geographies. However, we recommend that future analyses consider non-work travel, since the focus on commutes raises equity concerns.⁴⁴

Results: TEZ Resident Travel Patterns

Understanding how TEZ residents travel is the core purpose of this research. This report used publicly available travel data to assess commute travel patterns of TEZ residents by origin, destination, mode, and travel distance. Key findings from this analysis are highlighted below.

Major commute flows across the SCAG region

The analysis in this report identified several major common origin-destination flows from TEZs to work. These travel flows are scattered throughout the region, but are primarily located in the Los Angeles urbanized area, where most of the SCAG region's population, jobs, and developed land are concentrated. Some of the key major flows identified in this report are:

- Various communities within a 10-mile radius to Vernon
- Various communities within a 10-mile radius to downtown Los Angeles
- Inglewood, Hawthorne, and other South Los Angeles communities to LAX
- Downtown Long Beach to various communities
- Corona, south of SR 91, to the Corona industrial/commercial district
- Rowland Heights to City of Industry
- Various Pomona and San Bernardino Valley communities to the Ontario industrial/commercial district
- Santa Ana to the Irvine Business Complex

⁴⁴ The analysis in this report assesses only commute travel. Other types of travel from TEZs, such as shopping or recreational trips, would also be valuable to understand from an equity perspective. Recent research highlights the importance of analyzing non-work travel for equity reasons (such as trip chaining and mobility of care), and new smartphone-based travel datasets are available that include these trip types. Leveraging these new datasets (while also vetting their collection methods and reliability) may produce greater detail and insights on TEZ travel, which would improve assessment of potential impacts and benefits related to future mobility innovations.

- Travel between Calexico, El Centro, and Brawley, and travel within Calexico

This report examines these travel flows in further detail, assessing the characteristics of TEZ commute travel destinations, commute mode choices, and commute distances.

Key characteristics of TEZ commute flows

Through analysis of county-level, municipal-level, and tract-level commute travel from TEZs, findings on the key characteristics of TEZ commute flows were uncovered. The most salient findings are summarized below.

TEZ COMMUTING IS LARGELY LOCAL, SHORT-DISTANCE TRIPS.

Most of the largest commute flows from TEZs to major employment destinations are from within approximately 10 miles of the employment destination. In lower-density environments, such as the Corona industrial/commercial district in Riverside County and the Simi Valley industrial/commercial district in Ventura County, trip distances are somewhat longer. In general, there is limited intercounty travel from TEZs to the key destinations profiled in this report.

AUTOS ARE THE DOMINANT MODE FOR BOTH SINGLE OCCUPANCY VEHICLE AND CARPOOL TRAVEL, BUT LESS SO THAN FOR THE GENERAL POPULATION.

Throughout the SCAG region, the auto is the dominant commute mode for TEZ residents, with 64% of TEZ commute trips made via this mode. It is primarily used for single occupancy vehicle (SOV) commuting but is also heavily used for carpooling.

Residents of TEZs make between 9% and 32% of trips to major employment centers via carpool. Carpooling is an important commute mode for TEZ residents in all SCAG counties, and particularly for those in San Bernardino, Riverside, Orange, and Ventura counties. In general, places with limited transit access, such as the Corona industrial/commercial district in Riverside County, have higher rates of carpool commuting by TEZ residents.

BUS TRANSIT IS USED AT MUCH HIGHER RATES BY TEZ RESIDENTS THAN THE GENERAL POPULATION.

Throughout the SCAG region, TEZ residents are much more likely than all residents to commute using non-auto modes such as transit. In some counties, TEZ residents are four or five times more likely than all residents to commute via transit. Los Angeles County has the highest percentage of TEZ residents using transit to commute, at 13%. Rail transit is used much less frequently by TEZ residents for commute trips than bus transit.

PRODUCTION, DISTRIBUTION, AND REPAIR DISTRICTS ARE MAJOR COMMUTE DESTINATIONS FOR TEZ RESIDENTS.

Production, distribution, and repair (PDR) districts are major destinations for workers living in TEZs, in nearly all of SCAG's counties. These include places like the Corona industrial/commercial district in Riverside County, Vernon in Los Angeles County, the Simi Valley industrial/commercial district in Ventura County, and the Ontario industrial/commercial district in San Bernardino County. In Los Angeles County, people from TEZs commute to these destinations by auto and transit, but outside of Los Angeles County, commute travel to PDR destinations is primarily via single occupancy vehicles.

Business Organization Outreach

This analysis of TEZ travel flows also included outreach to select business organizations with worksites in the SCAG region where there are a significant number of commuters traveling from TEZs. This outreach involved in-depth interviews with transportation staff at these organizations. The major employers interviewed – Los Angeles World Airports (LAWA) and University of California, Los Angeles (UCLA) – identified travel challenges for their employees, visitors, customers, and other stakeholders, most of which revolved around traffic congestion. The organizations considered the impacts of this congestion to be inequitable, affecting lower-income travelers more severely. Although these organizations have implemented programs to mitigate the impacts of congestion, traffic issues persist. Both LAWA and UCLA are interested in the potential for future mobility innovations, such as road pricing, to reduce traffic congestion and improve access to their campuses.

Future Research: The analysis conducted in this report develops a methodology for defining TEZs, identifies TEZs and conducts a high-level assessment of work travel from TEZs to major employment centers throughout the SCAG region. Although this analysis answers important questions about TEZ-based commute travel, it raises many more. Provided the appropriate resources, future research on the following TEZ-related subjects would be valuable:

Modifying the TEZ Index: Because the TEZ index scores all census tracts in the six-county SCAG region against one another, it reduces the focus on travel in some areas of the SCAG region. Developing a county- or subregion- specific TEZ index, or adjusting the index method to capture an equal number of TEZs in each county, may be fruitful experiments that allow for greater focus on distinct travel challenges from disadvantaged communities in certain parts of the SCAG region.

Non-work Travel: The analysis in this report assesses only commute travel. Other types of travel from TEZs, such as shopping or recreational trips, would also be valuable to understand from an equity perspective. Recent research highlights the importance of analyzing non-work travel for equity reasons; namely, because non-work trips are often taken by women and families, and may require more intricate trip planning and travel needs. Including non-work trips would improve assessment of potential impacts and benefits related to future mobility innovations.

The Role of Carpooling: The analysis in this report produces high-level statistics on carpooling and SOV mode choice for work travel from TEZs, revealing that more than 10% of commute trips from TEZs are typically via carpool. Further research to better understand when, where, and why TEZ residents choose carpooling over SOV travel would be valuable, given the relationship between carpooling and potential future mobility innovations.

Network Analysis: Although this work explores the origin and destination of travel flows from TEZs to major employment centers, it does not assess the path of travel on transit lines or individual roadways. Although this information cannot be known with certainty, it can be imputed. Understanding the network-level paths of travel that TEZ residents take would help more accurately assess the impacts of future potential mobility innovations such as road pricing.



Defining Transportation Equity Zones

At their foundation, TEZs are a way to codify and analyze the impacts of mobility innovations for communities experiencing transportation-related burdens. Various parts of the SCAG region have challenges connecting workers to places of employment through multimodal options. This can be especially challenging for residents that are either forced to drive or endure long commutes via transit or other modes. TEZs begin to address this issue by identifying specific geographies experiencing transportation-related burdens and identifying basic commute characteristics in order to set the foundation for assessing the impacts of potential mobility innovations.

This section of the report reviews the purpose of and methods for developing TEZs, and how stakeholder feedback helped to shape the definition of the TEZs through conversations with the Community Advisory Committee (CAC). This section also includes maps and descriptive statistics of TEZs in the SCAG region.

Purpose: Identifying Transportation-Related Burdens

The TEZ definition was developed in the context of SCAG's MIP project, with the intention of establishing an equity framework that examines the potential opportunities and challenges associated with implementing potential mobility innovation programs, such as road pricing, in the SCAG region.

TEZs highlight places in the SCAG region where socio-demographic, transportation-related, and environmental burdens intersect. The purpose of identifying these communities is to identify places where residents are already experiencing disproportionate impacts of an inequitable transportation system, and where there are concerns that road pricing has the potential to exacerbate these inequities. Defining TEZs will provide implementing agencies in the SCAG region a tool for designing mobility innovation programs with an equitable foundation.

Understanding which communities in the SCAG region should be categorized as TEZs can help identify opportunity areas for investments and/or mitigation strategies in the design of future mobility innovation programs, such as road pricing. For example, if a given TEZ is home to many residents that drive to a future priced location and/or impacts their travel shed, that community's TEZ designation should help prioritize it as a place for reinvestment of road pricing revenues or as the focus of mitigation strategies that reduce disproportionate impacts on this community.

The TEZs identified in this project may have broader implications and use cases beyond road pricing. As the region looks to increase meaningful transportation investments in historically marginalized communities, TEZs can be valuable in identifying the communities in which to potentially focus investments, as well as the types of investments that could be most valuable based on the travel behavior and needs of those communities.

Existing SCAG Equity Geographies

SCAG has recently employed three distinct approaches to identify and assess disadvantaged communities across its region. These geographies are valuable planning tools, but for the purposes of a road pricing equity analysis, it was determined that the equity geography should be specifically focused on places that bear the impacts of an inequitable transportation system. Although the TEZ definition includes some of the same variables as SCAG’s existing ‘equity geographies,’ it is more targeted than any of these individual geographies, combining elements of socioeconomic disadvantage, environmental impact, and transportation access. For example, SCAG’s Environmental Justice Areas and Communities of Concern identify places with low-income and minority residents but do not examine access to opportunity or the transportation-related pollution burden in these communities.

TEZs are specifically designed to assess measures of transportation-related environmental impacts and access, in addition to socioeconomic disadvantage. This means that the TEZ index only includes measures of pollution that are primarily caused by vehicles, whereas SCAG’s existing Disadvantaged Communities are defined using a broad range of pollution sources—many of which are not closely related to transportation (e.g., pesticide use, hazardous waste facilities, and environmental cleanup sites).

Brief descriptions of relevant equity geographies used by SCAG are outlined in **Table 2**^{45,46} and maps of these geographies and illustration of their overlap with one another are in **Figure 10**. This map shows the equity geographies within the extent of the SCAG region and shows the equity geographies in more detail for the Los Angeles urbanized area.

⁴⁵ Southern California Association of Governments. March 2016. *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, Environmental Justice Appendix*. p. 5.

⁴⁶ California Office of Environmental Health Hazard Assessment. 2020. *SB 535 Disadvantaged Communities*.

Geography Name	Description	Places Used
Environmental Justice Areas	Environmental Justice Areas are transportation analysis zones (TAZs) with a higher concentration of minority or low-income residents than is seen in the region. This geography is used in SCAG’s Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) to identify potentially disproportionately high and adverse impacts of the plan.	2016-2040 RTP/SCS, 2020-2045 RTP/SCS
Disadvantaged Communities	Disadvantaged Communities are defined by the California Environmental Protection Agency (CalEPA), per guidelines set by Senate Bill 535, and are also used in SCAG’s RTP/SCS to identify potentially disproportionately high and adverse impacts of the plan. These geographies are census tracts that score in the top 25% of all tracts in CalEPA’s CalEnviroScreen 3.0 tool. Disadvantaged Communities are used to allocate funds from the Greenhouse Gas Reduction Fund.	2016-2040 RTP/SCS, 2019 SCAG Federal Legislative Priorities, I-105 Corridor Sustainability Study, 2020-2045 RTP/SCS
Communities of Concern	Communities of Concern are census-designated places and City of Los Angeles Community Planning Areas with the SCAG region’s top third-highest concentrations of minority residents and low-income households. These geographies are used in SCAG’s Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) to identify potentially disproportionately high and adverse impacts of the plan.	2016-2040 RTP/SCS, I-105 Corridor Sustainability Study, 2020-2045 RTP/SCS

Table 2. Existing Southern California Equity Geographies

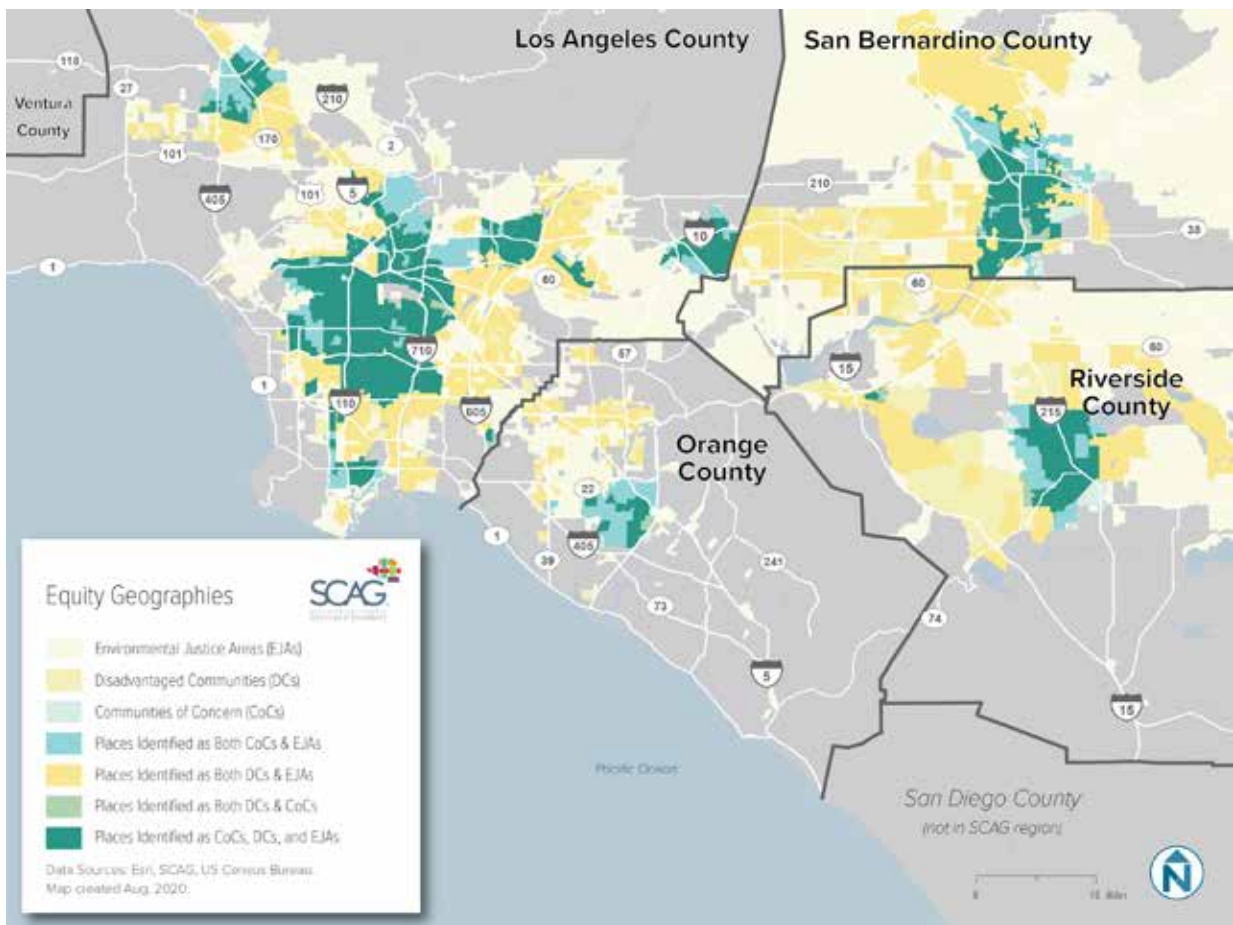
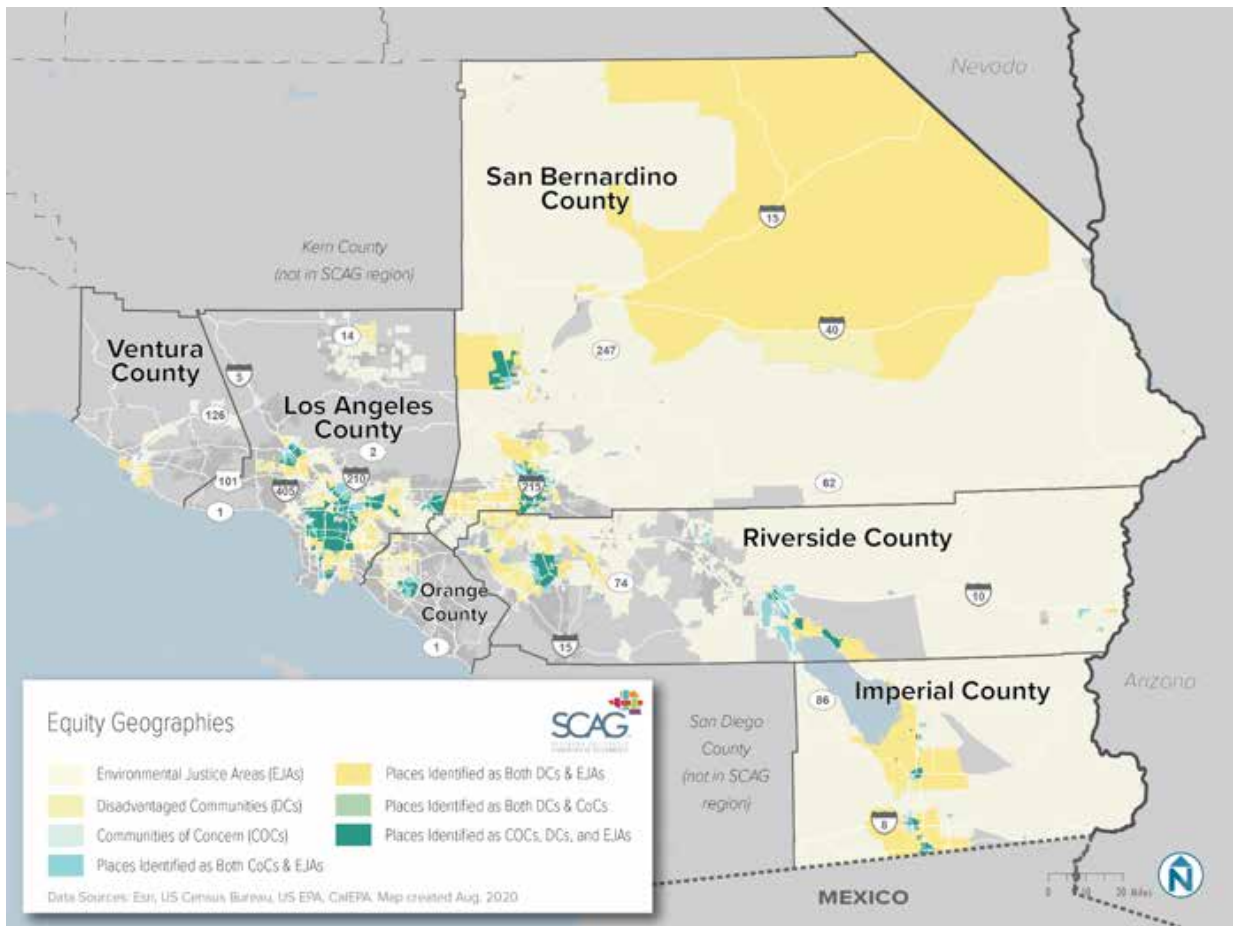


Figure 10. SCAG Equity Geographies: SCAG region (above) and Los Angeles urbanized area (below)

Community Advisory Committee Feedback

The TEZ index components and subcomponents were developed in an iterative process that included input from SCAG planning staff, the consultant team, and members of the Community Advisory Committee (CAC) that was developed and convened as a part of the MIP project. Refer to Part I for more information on the CAC.

During the Workshop #2, the Community Advisory Committee provided specific feedback on which metrics should be included in the TEZ index (a detailed description of TEZ index methods begins on the following page). The Community Advisory Committee recommended including index subcomponents related to age and disability status; these recommendations were acted on and these subcomponents were incorporated into the 'Socioeconomic Disadvantage' index component. The CAC also recommended that a rent burden component be added to the index and that traffic safety be removed; these recommendations were incorporated into the final TEZ index.

The addition of rent burden was recommended to address the limited ability of income to measure wealth and spending power. For example, people that are severely rent burdened may have relatively high incomes, but they may not have discretionary funds available to pay for travel expenses because a high percentage of their income is dedicated to housing costs. Including rent burden was deemed to be particularly important in parts of Los Angeles County where housing costs are high compared to incomes.

The CAC recommended removing a proposed traffic safety subcomponent because safety is often associated with an increased police presence, which can have negative outcomes in communities of color. CAC members also felt that using traffic safety as a measure in the TEZ index would not be a significant value-add to describe which communities would be most vulnerable to the impacts of mobility innovations such as road pricing. Committee members' experience has been that indices that focus on traffic safety (i.e., traffic injuries and deaths) do not typically inform policy and/or investment decisions, especially for low-income communities of color.

Methods

TEZs are identified using an index method that highlights census tracts that are impacted by transportation-related structural disadvantages within the SCAG region. The TEZ index consists of thematic components, each of which represents a type of structural disadvantage that provides context for assessing the impacts of road pricing on a given community. These index components are:

SOCIOECONOMIC CHARACTERISTICS

Sociodemographic characteristics associated with discrimination and systemic marginalization, such as race, income, and household structure

RENT BURDEN

Burdens caused by disproportionate expenditure of income on housing costs

POLLUTION EXPOSURE

Burdens caused by exposure to dangerous pollutants from transportation sources

TRANSPORTATION ACCESS

Burdens caused by reduced access to transportation

These components are made up of subcomponents, which are the quantitative census tract-level measures that compose the TEZ index. These subcomponents are drawn from publicly available datasets assembled by federal and state government agencies. Each subcomponent's purpose and data source are described below, and all TEZ index components and subcomponents are outlined in **Table 3**. Many of the subcomponents use data from the 2018 five-year American Community Survey (ACS), which is the latest five-year average of these survey data. Other data sources use slightly older data because these are the latest available in these aggregated formats. A graphic that helps explain the composition of the TEZ index is shown in **Figure 11**.

Index subcomponents are unweighted; however, because each component includes a different number of subcomponents, the components are de facto weighted by this count. As a result, socioeconomic disadvantage is weighted the highest, followed by pollution exposure and transportation access, with rent burden weighted the lowest. Both the project team and the CAC discussed this de facto weighting and determined, through these discussions and the iterative index revision process, that the index represents the intended communities well.

Table 3. TEZ Index Components and Data Sources

Index Component	Index Subcomponent	Data Source	Method
Socioeconomic disadvantage	Low-income families	ACS 2018 five-year estimates, table B17019	Percent of families below poverty line in the last 12 months
	People with disabilities*	ACS 2018 five-year estimates, table B18101	Percent of population with a disability
	Female-headed households*	ACS 2018 five-year estimates, table B11003	Percent of households headed by mothers only and with children under the age of 18
	Limited English-speaking households*	ACS 2018 five-year estimates, table C16002	Percent of households with limited English-speaking
	People of color	ACS 2018 five-year estimates, table B03002	Percent of people that do not identify as both white and non-Hispanic/Latino
	People over age 64 and under age 18*	ACS 2018 five-year estimates, table B01001	Percent of population over the age of 64 or under the age of 18
Rent Burden*	Households spending 50% or more of income on rent	ACS 2018 five-year estimates, table B25070	Percent of households spending 50% or more of their annual income on gross rent
Pollution Exposure	Diesel particulate matter	CalEnviroScreen 3.0	Diesel particulate matter emissions from on-road and non-road sources in kilograms per day
	PM2.5	CalEnviroScreen 3.0	Annual mean concentration of PM2.5 (average of quarterly means in µg/m3)
	Traffic density	CalEnviroScreen 3.0	Sum of traffic volumes adjusted by road segment length (vehicle-kilometers per hour) divided by total road length (kilometers) within 150 meters of the census tract boundary
Transportation Access*	Zero- and one-car households	ACS 2018 five-year estimates, table B08141	Percent of workers age 16 and over with access to one or fewer vehicles
	Transit service provided	EPA Smart Location Database (transit service density)	Aggregate frequency of transit service per hour per square mile during evening peak period
	Pedestrian infrastructure	EPA Smart Location Database (intersection density)	Pedestrian intersections per sq. mi.

*All index components noted with an asterisk represent datasets and index subcomponents that SCAG is not currently using for Communities of Concern or Environmental Justice Areas, and SB 535 does not mandate in its Disadvantaged Community index. These variables are intended to address the unique considerations for a road pricing sensitivity index, creating a Transportation Equity Zone measure that is more appropriate for identifying communities that will be disproportionately impacted by road pricing program

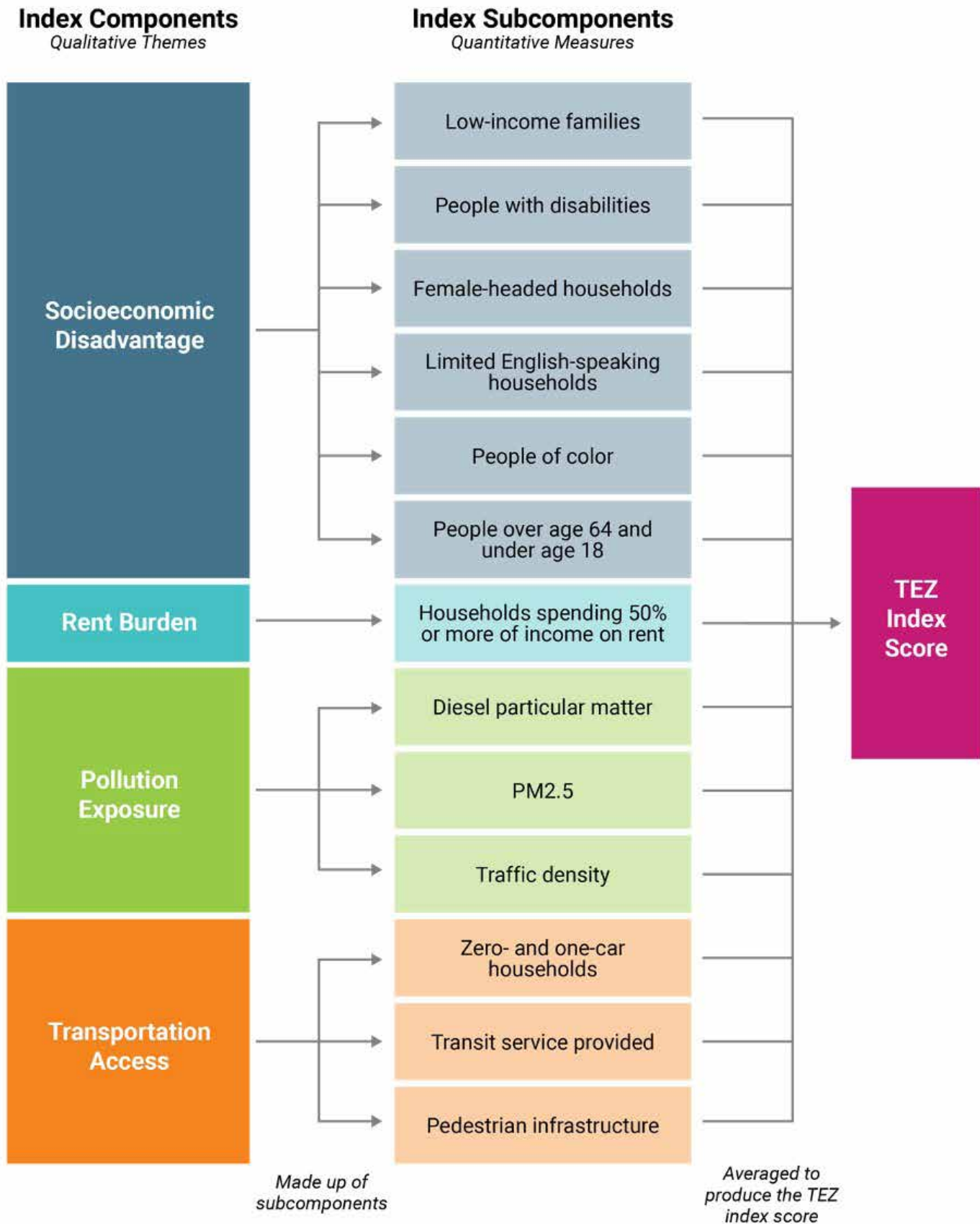


Figure 11. TEZ Index Composition

TEZ Component: Socioeconomic Characteristics

TEZ SUBCOMPONENT: LOW-INCOME HOUSEHOLDS

The purpose of this subcomponent is to identify places where there are high proportions of people living in low-income households. For people earning low incomes, the cost of transportation can represent a greater portion of their income.

Data source: table B17019 from 2018 five-year American Community Survey (ACS) estimates.

TEZ SUBCOMPONENT: PEOPLE WITH DISABILITIES

This subcomponent identifies places where there are high proportions of people with disabilities. People with disabilities face many transportation-related challenges, including limited access to multi-modal transportation options, extended travel times, and high travel costs.

Data source: table B18101 from 2018 five-year American Community Survey (ACS) estimates.

TEZ SUBCOMPONENT: FEMALE-HEADED HOUSEHOLDS

The purpose of this subcomponent is to identify places with high proportions of female-headed households. In the region and across the country, women's travel needs and patterns have been identified as distinct and often more demanding than those of men. Women take more trips per day, have a greater variety of destinations, and are more likely to trip chain.⁴⁷ This subcomponent identifies the origin of travel by women who also face the challenge of leading a household alone with one or more child aged 17 years or younger.

Data source: table B11003 from 2018 five-year American Community Survey (ACS) estimates.

TEZ SUBCOMPONENT: LIMITED ENGLISH-SPEAKING HOUSEHOLDS

This subcomponent identifies places where there are high proportions of people with limited English-speaking ability. Limited English language proficiency in the United States can make it more difficult for people to access jobs, government services, education, healthcare, social experiences, and other opportunities.

Data source: table C16002 from 2018 five-year American Community Survey (ACS) estimates.

TEZ SUBCOMPONENT: PEOPLE OF COLOR

The purpose of this subcomponent is to identify places with high proportions of residents that identify as people of color. People of color are defined as those that do not identify as both white and non-Hispanic/Latino. This subcomponent addresses both the overarching and transportation-related disadvantages faced by people of color in the SCAG region.

Data source: table B03002 from 2018 five-year American Community Survey (ACS) estimates.

TEZ SUBCOMPONENT: PEOPLE OVER AGE 64 AND UNDER AGE 18

This subcomponent identifies geographies where there are high proportions of both older and younger people. This population is likely to have fewer transportation options because of safety considerations, physical mobility limitations, and legal limitations on access to driving.

Data source: table B01001 from 2018 five-year American Community Survey (ACS) estimates.

TEZ Component: Rent Burden

TEZ SUBCOMPONENT: HOUSEHOLDS SPENDING 50% OR MORE OF INCOME ON RENT

The purpose of this subcomponent is to identify places with high proportions of renting households that pay more than 50% of their household income on gross rent. Gross rent is considered the contract rent plus utilities and energy for the rental unit, if they are paid by the renting household.⁴⁸ Rent burden is included to help identify places where households are economically constrained by their cost of housing, which may limit the resources they have available to spend on transportation or other essential costs.

Data source: table B25070 from 2018 five-year American Community Survey (ACS) estimates.

⁴⁷ L.A. Metro. August 30, 2019. *Understanding How Women Travel*. pp. 9-11

⁴⁸ U.S. Census Bureau. January 30, 2014. *American Community Survey Design and Methodology*. p. 71.

TEZ Component: Pollution Exposure

TEZ SUBCOMPONENT: DIESEL PARTICULATE MATTER

This subcomponent identifies places that are heavily burdened by diesel particulate matter (DPM). DPM is produced by internal combustion engines that use diesel fuel, and is generally concentrated near ports, highways, and rail yards. DPM is included in the TEZ index because these emissions are typically produced by transportation and can cause adverse health effects, including pulmonary disease and cancer.

Data source: CalEnviroScreen 3.0 diesel particulate matter indicator, which was developed using 2012 figures.⁴⁹

TEZ SUBCOMPONENT: PM2.5

The purpose of this subcomponent is to identify places that are exposed to high levels of fine particulate matter with a diameter of 2.5 micrometers or fewer (PM2.5). A significant proportion of this air pollutant comes from the operation of motor vehicles with combustion engines, making it of concern when assessing the adverse and disproportionate impacts of transportation on communities living near high volumes of vehicle traffic. The negative impacts of PM2.5 exposure include increased rates of heart and lung disease.

Data source: CalEnviroScreen 3.0 PM2.5 indicator, which was developed using 2012 through 2014 figures.⁵⁰

TEZ SUBCOMPONENT: TRAFFIC DENSITY

This subcomponent identifies places with high concentrations of motor vehicle traffic, which produces air, water, and noise pollution. This subcomponent measures traffic volumes per mile of roadway, to help assess the amount of transportation-produced pollution a neighborhood is exposed to. This subcomponent considers traffic on all roadways, including highways and major arterials.

Data source: CalEnviroScreen 3.0 traffic density indicator, which was developed using 2013 figures.⁵¹

TEZ Component: Transportation Access

TEZ SUBCOMPONENT: ZERO- AND ONE-CAR HOUSEHOLDS

The purpose of this subcomponent is to identify places with a high proportion of people that do not have access to a motor vehicle and the advantages that automobility provides. This subcomponent identifies workers aged 16 and older either without access to a vehicle or with access to only one vehicle in their household.

Data source: B08141 from 2018 five-year American Community Survey (ACS) estimates.

TEZ SUBCOMPONENT: TRANSIT SERVICE PROVIDED

This subcomponent identifies places with high levels of public transit service, using a measure of bus stop events per evening peak hour per square mile. This measure is based on General Transit Feed Specification (GTFS) data. Places with a greater frequency and concentration of transit service are considered relatively transportation advantaged, under the assumption that more transit service provides greater mobility and accessibility.

Data source: U.S. Environmental Protection Agency Smart Location Database variable D4d, which was developed with 2012-2013 GTFS data.⁵²

TEZ SUBCOMPONENT: PEDESTRIAN INFRASTRUCTURE

The purpose of this subcomponent is to identify places with high-quality pedestrian infrastructure. This subcomponent uses the density of non-auto-oriented intersections to proxy for pedestrian infrastructure, under the assumption that a place with a greater concentration of pedestrian accessible intersections provides greater mobility for people that walk, bike, and access transit.

Data source: U.S. Environmental Protection Agency Smart Location Database variable D3b, which was developed with NAVTEQ street data.⁵³

⁴⁹ California Environmental Protection Agency. January 2017. *CalEnviroScreen 3.0*. pp. 32-36.

⁵⁰ *Idem*. pp. 26-31.

⁵¹ *Idem*. pp. 59-64.

⁵² U.S. EPA. March 14, 2014. *Smart Location Database*. p. 8.

⁵³ *Idem*. p. 7

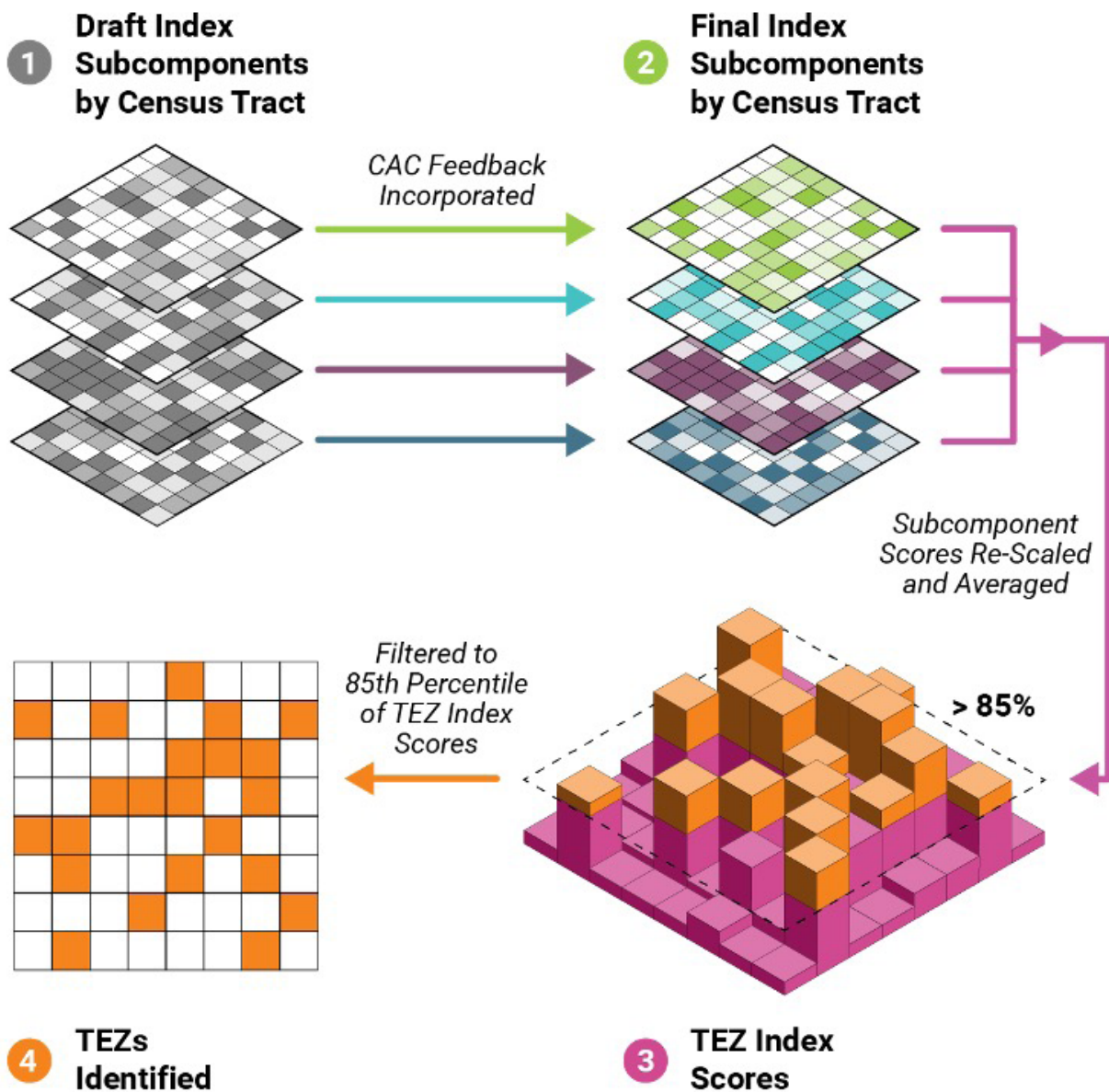


Figure 12. TEZ Identification Process

TEZ Identification

TEZs are identified through a simple index construction process. First, each of the census tract-level index subcomponents described above and shown in **Figure 12** is re-scaled⁵⁴ to a range of one through 100.⁵⁵ Next, the subcomponents' re-scaled values are mean averaged for each census tract, producing a TEZ index score. Finally, a census tract is considered a TEZ if its TEZ index score is in the 85th percentile or higher for all census tracts in the SCAG region. The 85th percentile cutoff was selected via a sensitivity analysis to ensure the number of TEZs was not overwhelmingly large (preventing the most disadvantaged

communities from standing out) or too small (making the number of TEZs too small to be actionable). Using an 85th percentile cutoff also helped balance the geography of TEZs between the urban core and rural areas across the entire SCAG region.

As described in Part I, the Community Advisory Committee (CAC) did not include representatives from Imperial or Ventura Counties due to the relatively low likelihood that their communities would be impacted by road pricing. Whereas including residents of those counties in the CAC was not practical or cost-effective, obtaining data from those counties in the TEZ analysis was relatively simple. Therefore, the TEZ analysis includes all six counties in the SCAG region.

⁵⁴ Re-scaling is the process of taking variables that may be given in different ranges (e.g., people per square mile and people without access to a vehicle per square mile) and normalizing them so they can be compared to one another.

⁵⁵ Note that the transit access and pedestrian infrastructure subcomponents are inverted when they are re-scaled, so that a place with better transit access and better pedestrian infrastructure receive lower scores. This matches the direction of the other subcomponents, which rise in value as conditions become less desirable.

Results

Of the 3,956 census tracts in the SCAG region, 594 were classified as TEZs. Although there are TEZs located in all six SCAG counties, the vast majority are found in the Los Angeles urbanized area, where levels of transportation-related pollution—a major TEZ component—are much higher. **Figure 14** shows the location of TEZs in the full SCAG region. **Figure 15** shows that TEZs in the Los Angeles urbanized area are largely in high-density locations near sources of pollution such as freeways, freight distribution points, and major arterials.

TEZs by County

Most TEZs are in Los Angeles County, on both an absolute and percentage basis (**Figure 13**). Although Los Angeles is expectedly home to more TEZs than other SCAG counties because it is the most populous county in the SCAG region, it also has the highest percentage of census tracts that are TEZs. This is due primarily to census tracts in Los Angeles County having high TEZ index scores for the pollution exposure component. These pollution exposure component scores are driven up by the density of the freeway, surface road, rail, and marine port emissions in Los Angeles County. Los Angeles County also has the highest percentage of people without access to a vehicle and the highest percentage of rent-burdened households.

Although SCAG counties outside of Los Angeles have fewer TEZs, this is largely because they have lower populations and fewer total census tracts. When TEZ prevalence is measured as a percentage of total tracts in a county, both Imperial and San Bernardino counties show relatively high prevalence of TEZs, showing that these counties experience greater levels of socioeconomic, environmental, and transportation disadvantages relative to the region. In Imperial County, six of the 31 total census tracts (19%) are TEZs, while 44 of the 369 total census tracts (12%) are TEZs in San Bernardino County. The high percentage of Imperial County census tracts qualifying as TEZs is largely a product of Imperial County’s demographics;

the county’s census tracts scored high in the socioeconomic disadvantage component of the TEZ index, due to high levels of residents with low incomes, limited English-speaking capability, and high populations of people of color. San Bernardino County is home to a low-density transit network, high levels of female-headed households, and relatively high levels of transportation-produced pollution, all of which contributed to the relatively high percentage of TEZs in the county.

Ventura, Riverside, and Orange counties have relatively few TEZs and the smallest percentages of tracts that are TEZs. The limited number of TEZs in Ventura and Orange counties is driven primarily by low scores in the socioeconomic disadvantage component of the TEZ index; Orange and Ventura county census tracts are generally wealthier, whiter, and have fewer female-headed households than others in the SCAG region. Riverside County is home to a slightly higher percentage of TEZs than Orange and Ventura counties, but fewer than San Bernardino. Despite having high levels of rent-burdened residents, Riverside County census tracts scored relatively low on the TEZ index’s pollution exposure and socioeconomic disadvantage components, driving down its overall TEZ index score. Although Riverside County’s western communities are burdened by transportation-related pollution, the Coachella Valley area, where many of the county’s residents live, scores lower on the TEZ index’s Pollution Exposure component.

The TEZ index uses the same quantitative criteria in every part of the SCAG region, comparing the densest parts of Los Angeles County to the most rural parts of San Bernardino County. This approach ensures that a single, standard measure of disadvantage is applied to the entire SCAG region, as SCAG is a regional agency. An alternate approach, which may yield a relatively greater number of TEZs in rural and exurban communities, would be to apply a different definition of TEZs in each county, depending on locally-specific characteristics such as land use density or prevalence of transportation infrastructure. Further work and analysis related to TEZs could explore a county-specific definition.

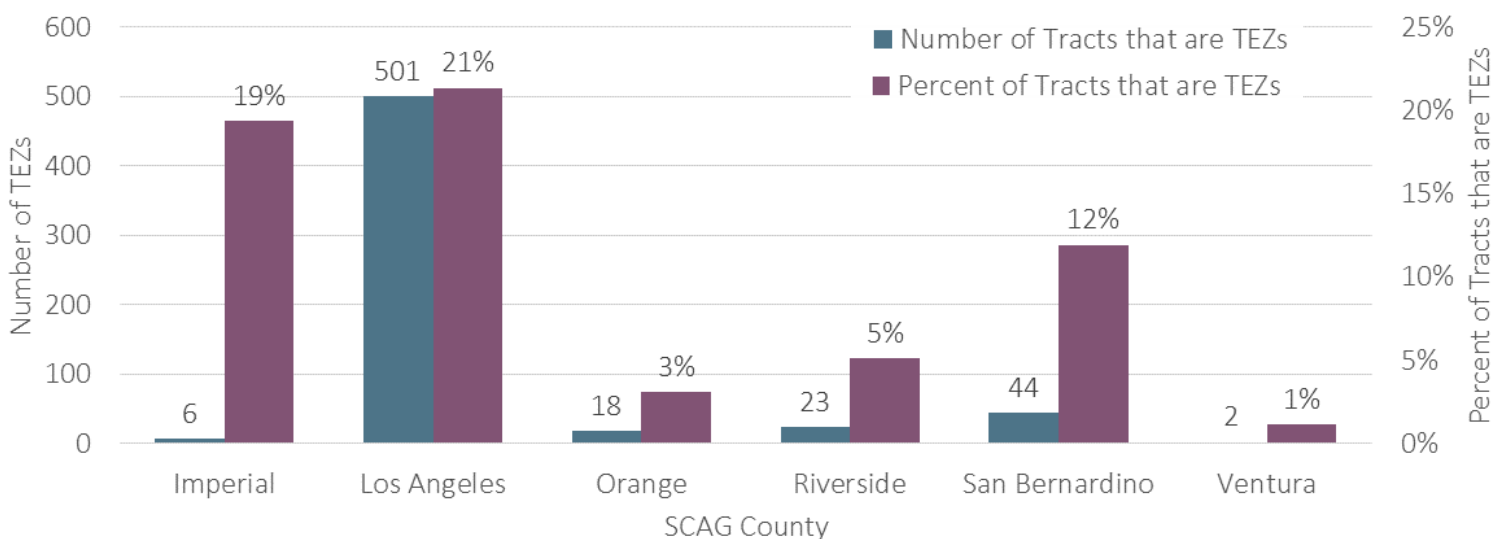


Figure 13. TEZs by SCAG County

TEZs by Municipality

Figure 16 shows the percentage of residents in a municipality that live in TEZs, where a TEZ is considered to fall within a given municipality if the TEZ boundaries overlap with the municipal boundaries. This shows which municipalities' residents are most impacted by the intersection of socioeconomic, environmental, and transportation disadvantages. Because municipalities are important implementing agencies with power over transportation policy, right-of-way allocation, and land use, they can influence economic, environmental, and transportation outcomes for people living in TEZs when designing and implementing potential future mobility innovations such as road pricing. As local partners of SCAG, municipalities should understand where their communities fall on the spectrum of socioeconomic, environmental, and transportation disadvantages.

The cities with the highest percent of residents living in TEZs are Maywood, Vernon, and Commerce, all of which are in Los Angeles County. Both Commerce and Vernon are major centers of production, distribution, and repair activities, and Maywood is a largely residential municipality located adjacent to these municipalities. These communities are bisected by major arterials, freeways, and freight railroad tracks, which produce pollution that contributes considerably to their census tracts' designations as TEZs.

Of the top 20 municipalities with the greatest percentage of residents living in TEZs, only Ontario, San Bernardino, and Santa Ana are not located in Los Angeles County.⁵⁶

⁵⁶ Santa Ana is in Orange County and Ontario and San Bernardino are in San Bernardino County.

Percent of Census Tracts that are TEZs

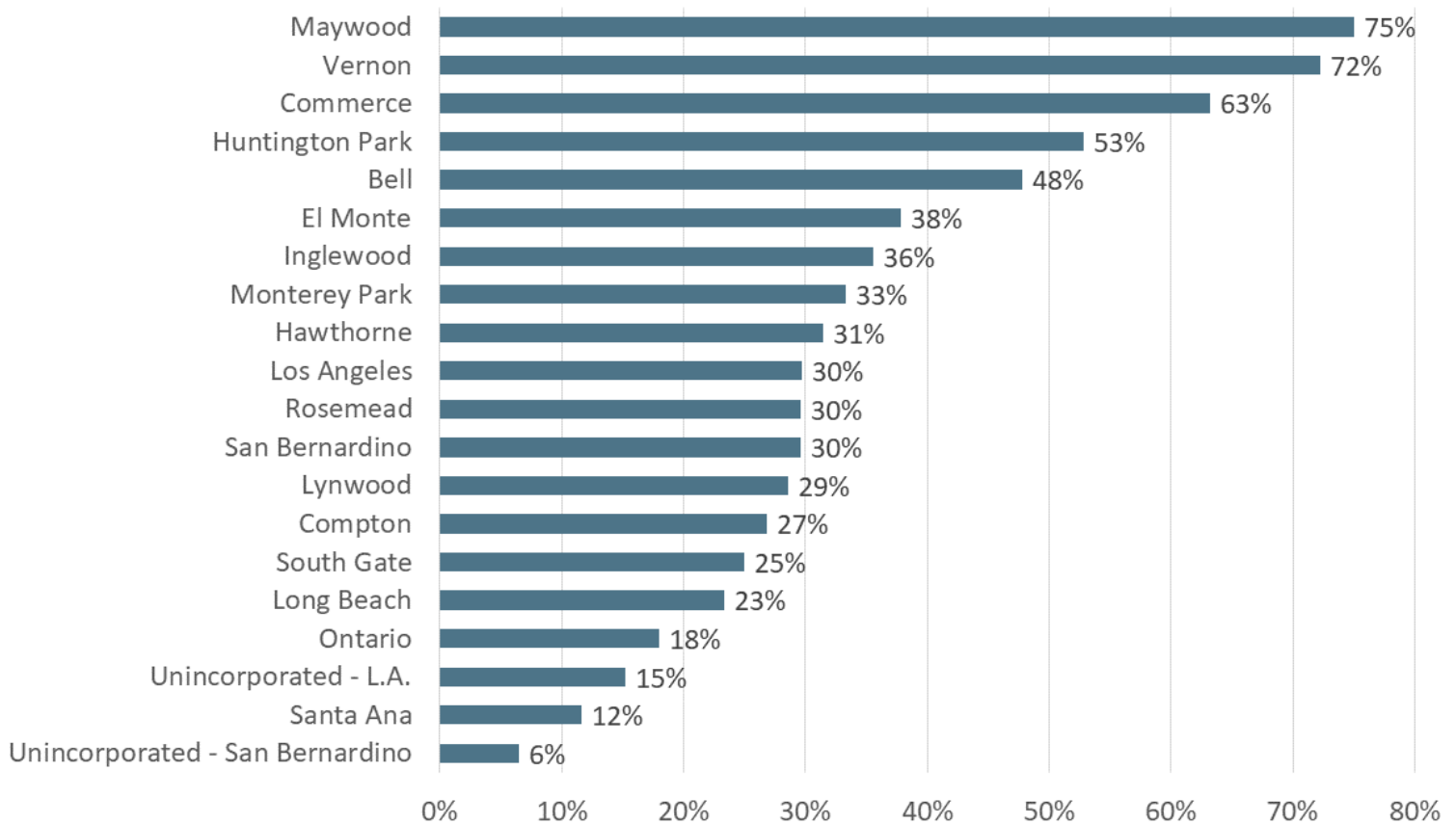


Figure 16. TEZs by SCAG Municipality



Understanding TEZ Travel

Purpose: Understanding Where and How TEZ Residents Travel

The purpose of this analysis is to understand where TEZ residents travel and what modes they use, which can inform future planning and mobility innovations considerations. In other words, this analysis provides an equity foundation at the outset of planning for mobility innovations, such as road pricing or low emission zones, to ensure that the process goes beyond simply considering equity. Building off the TEZ identification process described in the previous section, this section of the report assesses common travel patterns between these communities and workplaces across the SCAG region. To understand the travel patterns of TEZ residents, Census Transportation Planning Products (CTPP)⁵⁷ data on trip origin and destination were used to examine auto and transit work travel of TEZ residents.

This analysis uses work travel because these data are reliable, transparently collected, and freely available via CTPP. CTPP includes a considerable range of variables for assessing demographics of travel and the development of the dataset is documented and transparent, which sets it apart from many travel datasets aggregated from GPS and mobile phone data by for-profit data brokers. Focusing on work travel is valuable for the purpose of this analysis because this travel is generally considered essential, particularly for low-income workers. Work travel is also likely to occur at the most congested times, so given the focus on mobility innovations that seek to reduce congestion (like road pricing), this analysis provides important insights on TEZ travel that may be most impacted and would therefore require a concerted approach to reduce impacts on travelers from these communities. Assessing non-work travel using different datasets could be a valuable future addition to this analysis.

⁵⁷ American Association of State Highway and Transportation Officials. 2012-2016 5-Year CTPP.

Data Source

This section of the report reviews the data used to assess travel patterns of TEZ residents, the methods by which this travel was analyzed, and the framework for interpretation of the results.

To assess travel patterns from TEZs, CTPP data for the full SCAG region were used. CTPP data are special tabulations of American Community Survey (ACS) data that provide information on workers' residences and workplaces, as well as their commute behaviors. The CTPP data used for this analysis are based on the 2016 five-year ACS estimates, and are derived primarily from the home-to-work flow tables. The universe of travelers considered for these data is—at its most inclusive⁵⁸—workers 16 years and older. The travel represented in the flow tables is assumed to be typical weekday travel.

⁵⁸ The universe of auto and transit travel data is workers 16 years and over, while the universe for low-income travel data is workers 16 years and over in households. Workers that are excluded from the low-income universe are those living in group quarters such as college dormitories or group homes.

Selecting Variables and Filtering Data

To assess travel of TEZ residents, CTPP data were filtered to include home-to-work travel from TEZs to any other location in the SCAG region. Counts of people traveling by mode were then identified. Some portions of the analysis consolidate travel modes into one of two categories: transit and auto. In these consolidations, transit trips were defined as those made by bus or trolley bus, streetcar or trolley car, subway or elevated train, railroad, or ferryboat. Auto trips were defined as those made in single-occupancy vehicles, carpools, and taxicabs⁵⁹. In other analyses in this report, auto travel is broken out into carpool and single-occupancy vehicle (SOV) modes.

These two consolidated types of travel categories assessed—auto and transit—are used to balance simplicity and interpretability of analysis with an actionable understanding of travel from TEZs in the context of road pricing. Understanding auto travel from TEZs is one of the most crucial elements of this analysis, as people driving under a road pricing program will pay the road price and see travel time improvements, whereas transit riders will likely not pay any road user fee and may also see travel time reductions. Understanding transit travel is also important for assessing where alternatives to auto travel exist and where gaps in the transit network need to be addressed.

Two cartographic tools were employed to visually analyze these data: flow lines and trip volume choropleths. Flow lines are visual representations of origin-destination (OD) pairs, where line weight and color represent the volume of trips in an OD pair. Choropleths use color to indicate where greater volumes of trips start or end. In this analysis, trip origins are home locations and trip destinations are work locations. It is important to note that most work travel is symmetrical, meaning the home location where a worker begins their home-to-work trip is generally the same location they end their work-to-home trip. In most cases, workers make a home-to-work trip and work-to-home trip each day.

Choropleth maps—unlike flow line maps—include intra-zonal travel in their visualization of data. This is because a flow map inherently connects two points with a line, so travel that does not occur between those two points isn't visualized. Choropleth maps, on the other hand, visualize a volume of travel beginning or ending in a place; this means travel can be visualized even if it starts and ends in the same TEZ.

In flow line maps, OD data are commonly filtered using a threshold that serves as a floor for representation of data. This means that lines showing fewer than a certain number of trips are not shown on some maps in this document. This filtering reduces the number of lines on the map and makes it possible to clearly visually identify the common OD pairs.

Flow maps are valuable tools for identifying common travel flows between common origins and destinations but can mask the total amount of travel starting and ending in a location if that travel is dispersed among many lower-intensity flows. Choropleth maps are good tools for showing the total amount of travel starting or ending in a location, regardless of whether the flows are concentrated.

Understanding TEZ Travel before Implementing Mobility Innovations

Much of the assessment of TEZ travel flows in this analysis is based on travel patterns from TEZs to workplaces by the consolidated auto and transit modes described above. These flow patterns provide crucial information on the travel of the SCAG region's disadvantaged residents, which is a necessary foundation for equitable planning and implementation. This travel should be understood before beginning the process of implementing mobility innovations, such as road pricing.

TEZ travel data also have uses beyond baseline assessments prior to mobility innovation implementation. For example, TEZs could be used to help locate transit agency implementation of battery-electric buses (BEBs) in places where transit service is needed, and the pollution reduction impacts of BEBs would be significant. Considerations for assessing auto and transit travel flows from TEZs are described below.

AUTO TRAVEL FROM TEZS

The amount of auto travel from TEZs to or through places that could implement road pricing is an important baseline metric that should be understood before assessing such a program's impact on TEZ communities. If a road pricing program, for example, were to require a large number of auto travelers from TEZs to begin paying a road user fee when commuting, that program may have an inequitable impact on TEZ residents that already face structural disadvantages pertaining to their access to mobility. Stated plainly, pricing auto travel coming from a low-income neighborhood with high levels of pollution and poor transit access may exacerbate existing inequities. Understanding the current landscape of auto travel from TEZs is the first step in determining the equity impacts of future mobility innovations.

In contrast, road pricing is also likely to reduce congestion, providing subsequent reductions in air and noise pollution in TEZs, which are especially burdened by negative environmental impacts from both local and regional traffic. Road pricing would also likely decrease auto travel times for TEZ residents, which could counter the impacts of priced travel in these communities.

TRANSIT TRAVEL FROM TEZS

Understanding existing transit travel patterns from TEZs is also an important baseline assessment before considering road pricing's potential impacts and benefits. A high number of transit trips in an OD flow from TEZs likely indicates there is transit already available from these communities, which may represent viable options for unpriced travel should an OD pair become priced in the future. These transit trips also represent potential travel flows that would likely benefit under a road pricing program, should transit speed and reliability be improved by reduced congestion from road pricing or other mobility innovations. An absence of existing transit OD pairs between TEZs may also indicate a gap in the transit network where investment may be beneficial.

⁵⁹ These modes are included in all CTPP data, and may not be applicable to the SCAG region.

Results

The results component of *Understanding TEZ Travel* is broken into two sections that provide a regionwide assessment of TEZ travel:

REGIONAL TEZ TRAVEL PATTERNS

This section identifies major employment destinations of TEZ travel, residential origins of TEZ travel, and flows of regional travel from TEZs. Maps of both transit and auto travel from TEZs are included.

COUNTY-LEVEL TEZ TRAVEL PATTERNS

This section describes differences in TEZ travel by county and identifies the top TEZ-based travel destinations in each county.

Regional TEZ Travel Patterns

Travel from TEZs occurs in every county in the SCAG region, by every mode of transportation. Travel is most common by auto and transit, however, and is examined in this portion of the report in these two modal categories. **Figures 17 through 28** show auto and transit travel patterns from TEZs to worksites in the SCAG region. The maps are presented at both the SCAG region and Los Angeles urbanized area⁶⁰ extents, to provide both full regional context and more detailed information in the SCAG region's most populated area. Descriptions of travel patterns precede these maps, and a summary discussion follows, highlighting findings from this regional TEZ travel analysis. In the auto travel maps below, carpool and SOV travel are shown as single, consolidated "auto" flow lines.

Auto Travel from TEZs to Work in the SCAG Region

Consistent with population size and overall travel demand, most commute travel by auto from TEZs occurs in the Los Angeles urbanized area. The most concentrated OD flows of this travel are shown in **Figure 17**. Outside of the Los Angeles urbanized area, significant TEZ auto travel OD pairs exist from Calexico to communities to the north such as El Centro, Imperial, and Brawley, as well as within Calexico. There are also significant auto flows out of TEZs in the Oxnard area, although these flows are somewhat dispersed and head to a mixture of agricultural and industrial/commercial destinations to the north and east. There is also some travel from the Riverside County community of Blythe to points west, although the destination tract for this travel is so large as to obscure the employment centers attracting this travel.

It is also notable that there is relatively little intercounty auto commuting occurring from TEZs. Although some major flows cross county lines between Los Angeles, San Bernardino, Orange, and Riverside counties, there are no major TEZ auto commute flows into or out of Ventura County, or Imperial County. The maps shown in this portion of the report filter out relatively small commute flows (in **Figure 17**, this includes all trip flows of 69 or fewer) so it should be noted that there are many smaller flows that are left off the map, for cartographic legibility purposes.

Given its population, most of the auto travel flows from TEZs to work in the SCAG region occur in the Los Angeles urbanized area. These flows are shown in **Figure 18**, where major destinations of concentrated flows are labelled. These high levels of auto travel flows from TEZs to work, relative to the areas outside the urbanized region, are due to the high density of both jobs and residents in the urbanized area. The most significant auto OD flows from TEZs to workplaces are destined for the major employment center of LAX. Auto travel flows to LAX largely originate east of the airport in communities such as Inglewood and Hawthorne. It is notable that one of the major job centers in the SCAG region, downtown Los Angeles, appears only as a mild concentration of auto travel flows to work from TEZs. This is likely due to congestion that impacts auto access to downtown Los Angeles, as well the availability of transit service to downtown Los Angeles. Flows to downtown are also distributed

among the multiple census tracts in the downtown area.

Other concentrated flows from TEZs to employment centers occur to destinations with high concentrations of manufacturing, warehousing, and distribution jobs, such as Vernon, the Torrance industrial/commercial area, Commerce, the City of Industry industrial/commercial area, and the industrial/commercial area east of Ontario Airport. Travel flows from TEZs to these types of job centers, which are sometimes called production, distribution, and repair (PDR) areas, highlights the extent to which TEZ residents work in PDR industries.

For the most part, auto flows from TEZs to PDR destinations have concentrated origins from nearby communities. For example, TEZ auto travel flows to Vernon and Ontario generally originate from within 10 miles, and TEZ auto travel flows to the PDR districts of Industry and Corona generally originate from within five miles. These distances are within typical transit commute distances and in many cases—such as the auto flows to Vernon—transit service is available. The high levels of auto travel in places with transit service speaks to the comparative attractiveness of auto travel as a commute mode for people living in TEZs, from a cost, time, flexibility, or other perspective.

Although sometimes longer than auto flows from TEZs to PDR communities, TEZ auto flows to other types of major employment destinations, such as LAX, are also still generally 10 miles or fewer. This may reflect high levels of congestion that make trips longer than 10 miles extremely time-consuming, location choices of TEZ residents that elect to live close to employment centers, or other elements of land use and transportation dynamics.

⁶⁰ The term "Los Angeles urbanized area" is used throughout this document and refers to the urbanized area of Los Angeles and surrounding communities, including developed portions of the Los Angeles basin, Orange County coastal plain, San Fernando Valley, and San Gabriel/Pomona/San Bernardino valleys. This area includes parts of Los Angeles, Orange, San Bernardino, and Riverside counties. Maps throughout this document are produced at both the SCAG region and this Los Angeles urbanized area extent.

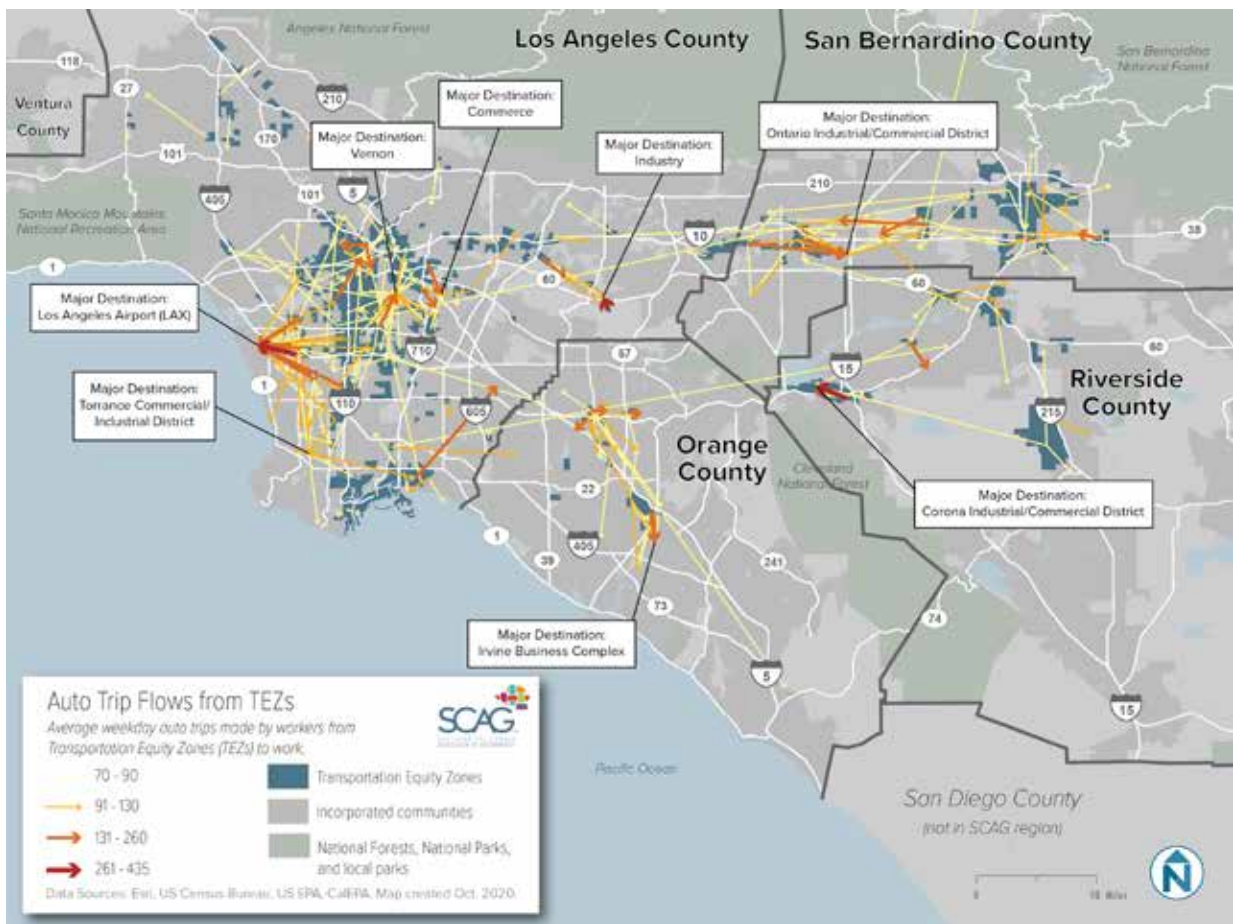
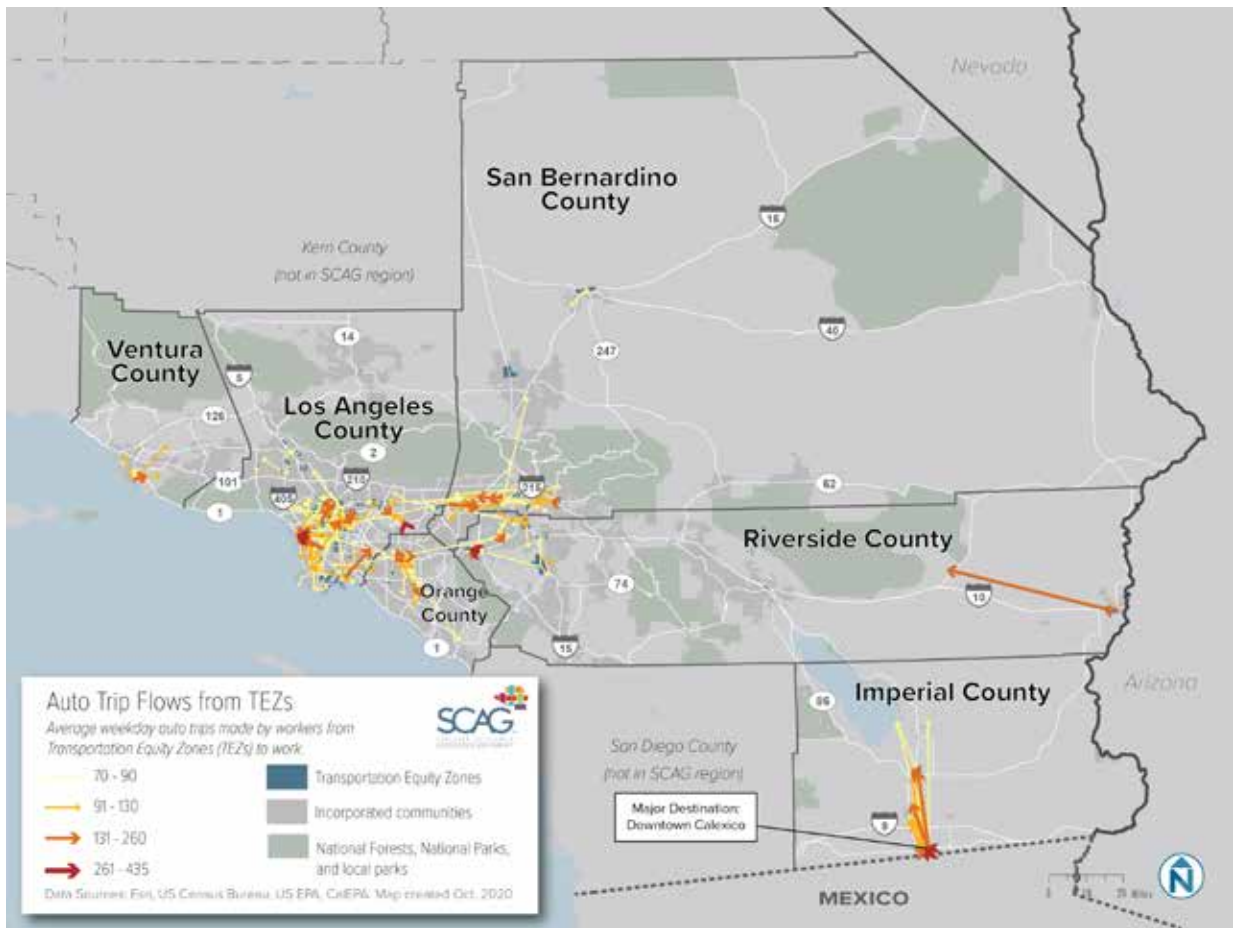


Figure 17. Auto Trip Flows from TEZs (SCAG Region Extent) [above] and Figure 18. Auto Trip Flows from TEZs (Los Angeles Urbanized Area Extent) [below]

TOTAL AUTO TRIP ORIGINS IN TEZS

Figures 19 and 20 show the total number of auto commute trips originating from TEZs in the SCAG region and Los Angeles urbanized area, respectively. Although most travel originates in TEZs located inside the Los Angeles urbanized area, there are several TEZs outside the urbanized area with significant numbers of TEZ auto commute trip origins. These include Calexico and Brawley in Imperial County, Mead Valley, parts of Corona, and the Riverside area in Riverside County, Adelanto and Barstow in San Bernardino County, and a small neighborhood in Oxnard, in Ventura County.

Within the Los Angeles urbanized area, TEZs with high numbers of residents commuting via auto each day are scattered throughout the region, with large concentrations near Buena Park in Orange County, in Long Beach, Harbor Gateway South, Inglewood, and near downtown Los Angeles in Los Angeles County, and in Montclair and the San Bernardino area in San Bernardino County. In Riverside County, TEZs with high numbers of residents making commute trips by auto live in Mead Valley, parts of Corona, and Jurupa Valley. It is notable that TEZs located near downtown Los Angeles have relatively lower numbers of auto commute trip origins, likely due to the increased viability of transit as a commute mode.

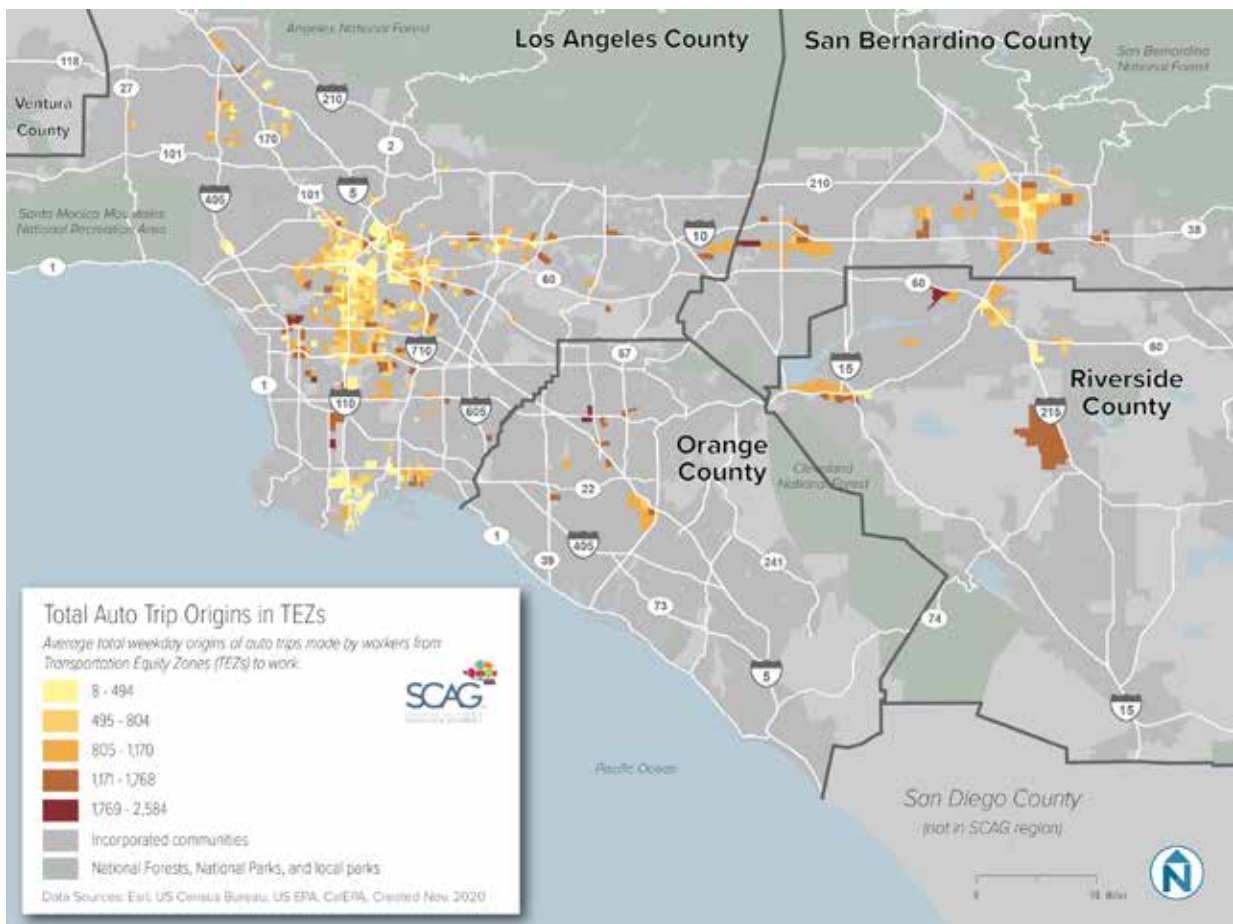
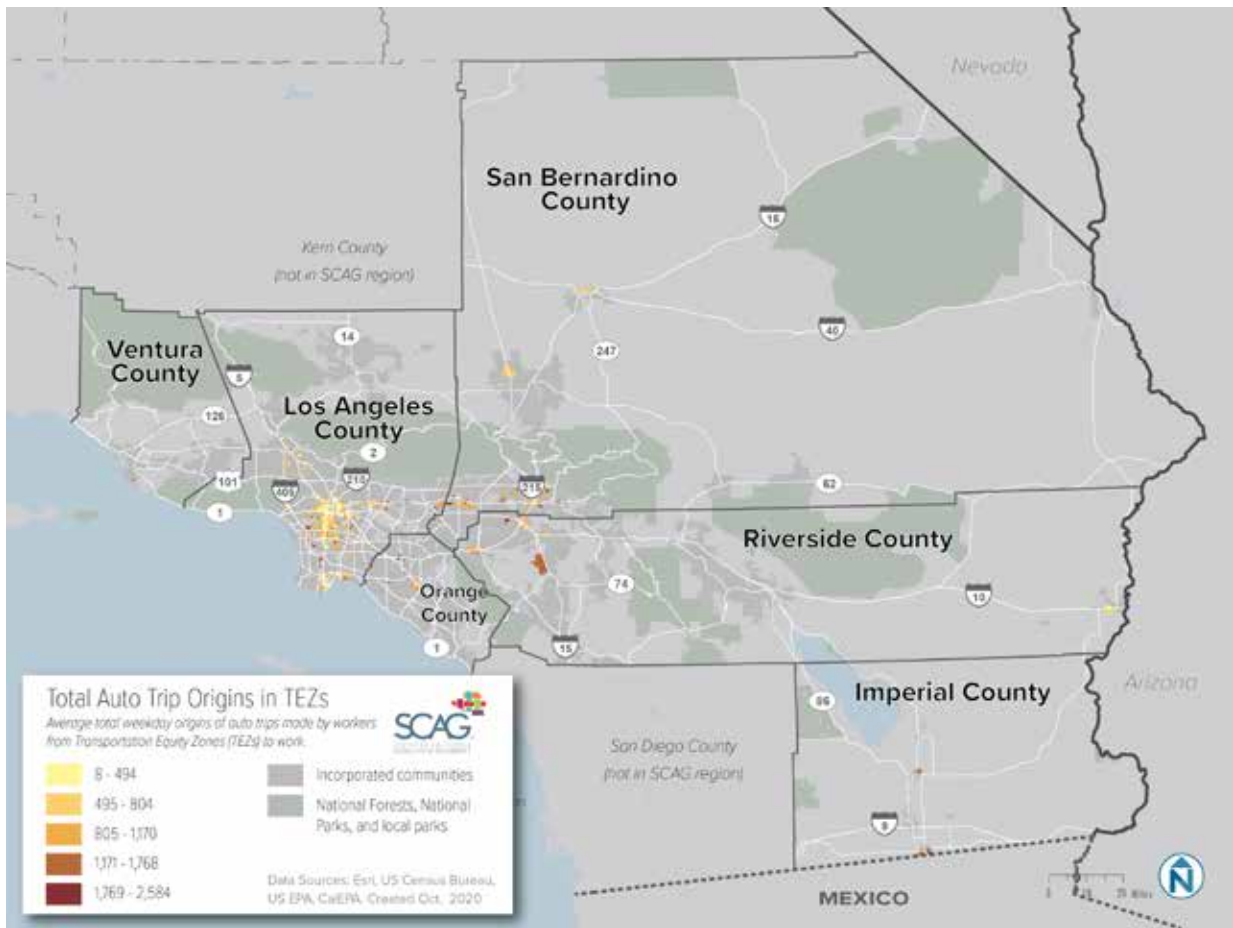


Figure 19. Total Auto Trip Origins in TEZs (SCAG Region Extent) [above] and Figure 20. Total Auto Trip Origins in TEZs (Los Angeles Urbanized Area Extent) [below]

TOTAL AUTO TRIP DESTINATIONS FROM TEZS

Figure 21 shows the total number of destinations of auto trips from TEZs and identifies the census tracts with major TEZ resident employment. The light-yellow areas show places with the fewest destinations of auto trips from TEZs, and places with no color indicate approximately zero auto commute destinations of people living in TEZs. Nearly all of the developed land in the SCAG region sees at least some auto commute travel from TEZs, although outside the Los Angeles urbanized area there are fewer high-volume TEZ destinations. Some of the few major destinations outside the Los Angeles urbanized area for auto commute travel from TEZs include parts of Imperial County in and surrounding Calexico, El Centro, and Brawley, as well as the PDR and retail area in Simi Valley (Ventura County), the Castaic Junction warehouse district in unincorporated Los Angeles County, and parts of Santa Clarita. Most of the places that stand out as large, distinct destinations for TEZ auto travel are in the Los Angeles urbanized area (**Figure 22**). They include downtown Los Angeles, LAX, Vernon, Commerce, the Ontario industrial/commercial area, Irvine Business Complex, the Torrance industrial/commercial area, the Compton/Carson/unincorporated Los Angeles County industrial area, the Corona industrial/commercial area, and the City of Industry. Many of these destinations are PDR zones with large numbers of warehousing, transportation, and manufacturing jobs, while others are dense hubs of office job activity that are also home to high numbers of service and retail jobs. Other key destinations of auto travel from TEZs are business district locations, including downtown Los Angeles, UCLA, Century City, Irvine Business Complex, and downtown Long Beach. Although transit service is available to most of these destinations, it is generally of a lower quality than transit options that provide access to business districts such as downtown Los Angeles and downtown Long Beach. The high levels of TEZ-based auto commuting to these locations suggests that despite transit availability, auto travel remains the preferred commute option for many TEZ residents.

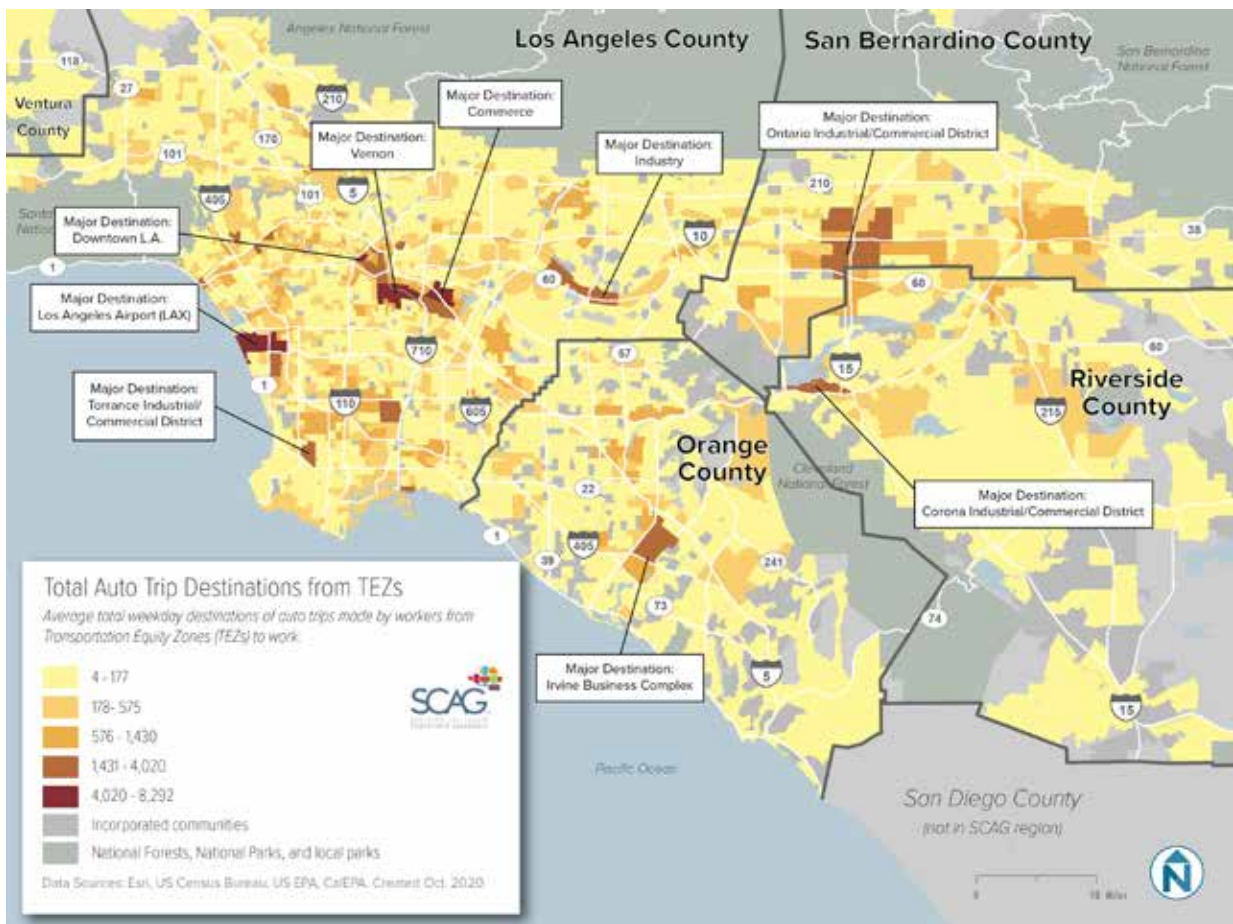
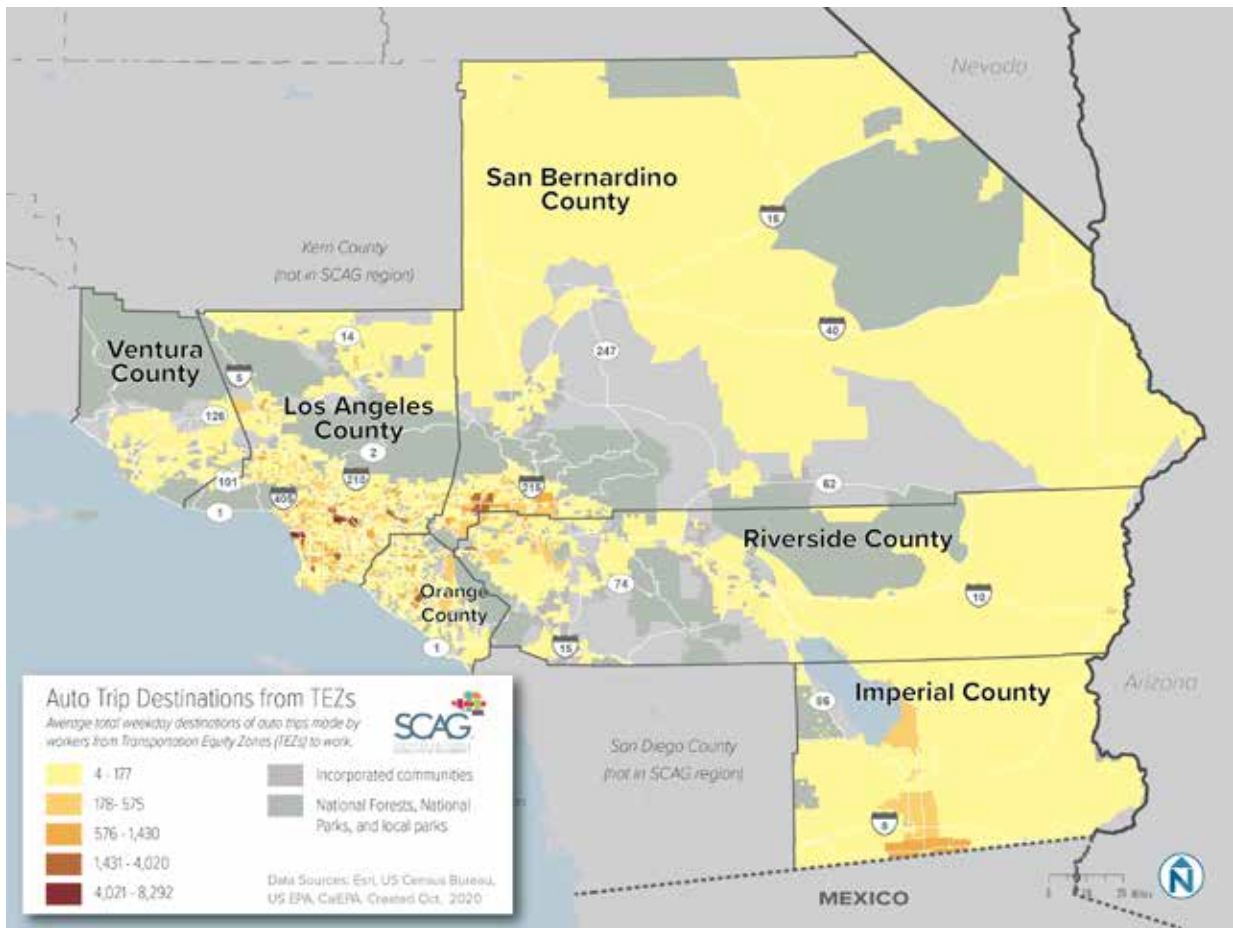


Figure 21. Total Auto Trip Destinations from TEZs (SCAG Region Extent) [above] and Figure 22. Total Auto Trip Destinations from TEZs (Los Angeles Urbanized Area Extent) [below]

Transit Travel from TEZs to Work in the SCAG Region

Commute travel by transit from TEZs occurs primarily, though not exclusively, in the Los Angeles urbanized area, where transit is available and is more competitive with auto travel as a commute mode. The most concentrated OD flows of this travel are shown in **Figure 23** and **Figure 24** with the largest OD flows destined for downtown Los Angeles, LAX, and Vernon. **Figure 23** shows the extent to which this transit travel is concentrated in Los Angeles County, with some flows in San Bernardino and Orange counties but very little transit travel from TEZs originating in Ventura, Riverside, and Imperial counties. Like the auto flows shown in the previous section, there are relatively few major intercounty transit commute flows from TEZs, although some do appear in **Figure 23** between Los Angeles, San Bernardino, and Orange counties. Outside the Los Angeles urbanized area, some transit travel follows the same pattern as the auto travel patterns from Calexico TEZs, although with smaller trip volumes. These trips likely represent commuting via Imperial Valley Transit, which operates service within and between Imperial County's largest communities. Although this service is likely not competitive with auto travel, it is a reliable source of transportation for people without access to a vehicle or who choose to ride transit, therefore representing an important mobility offering in this area from an equity perspective. Other TEZs outside the Los Angeles urbanized area do not experience significant transit travel even where transit is offered, such as on Palo Verde Valley Transit Agency bus service in Blythe, Gold Coast Transit in Oxnard, or Victor Valley Transit in Barstow, which is likely due to the reduced competitiveness of transit relative to carpooling.

Transit commute travel from TEZs in the Los Angeles urbanized area is heavily concentrated in downtown Los Angeles, with major flows to the downtown core originating from TEZs within approximately 10 miles in most directions (**Figure 24**). This travel is facilitated by a multi-agency rail and bus network that is oriented towards downtown Los Angeles. Significant transit commute travel from TEZs is also directed to Vernon and LAX from nearby neighborhoods. Many TEZ residents commute out of downtown Long Beach via transit (likely bus service provided by Long Beach Transit), although their destinations are varied. The Old Ranch portion of Seal Beach, encompassing some agricultural land and jobs, is one major destination for TEZ transit travel originating in Long Beach. Other destinations in Los Angeles County with significant numbers of TEZ residents commuting via transit include Rosemead, the City of Industry, and the Torrance industrial/commercial area, all of which are destinations for relatively short OD flows. These short OD flows likely represent transit that is highly competitive with driving, due to short trip times.

In Orange County, significant transit TEZ trip flows originate in the Anaheim/Fullerton area, Santa Ana, and Tustin. These flows have destinations near Disneyland in the resort/convention district, Irvine Business Complex, John Wayne Airport, and Newport Beach. Most transit travel in Orange County is facilitated by Orange County Transportation Authority bus service, although Anaheim Resort Transportation likely facilitates some of the TEZ-based commute travel in the resort/convention district, via circulator routes (e.g., the Clementine Line or the Hotel Circle Line) that serve hotels and restaurants. In San Bernardino County, transit travel flows from TEZs to work are longer and end in industrial/commercial and retail centers such as the Ontario Mills mall complex. These trips are likely primarily made on Omnitrans bus service.

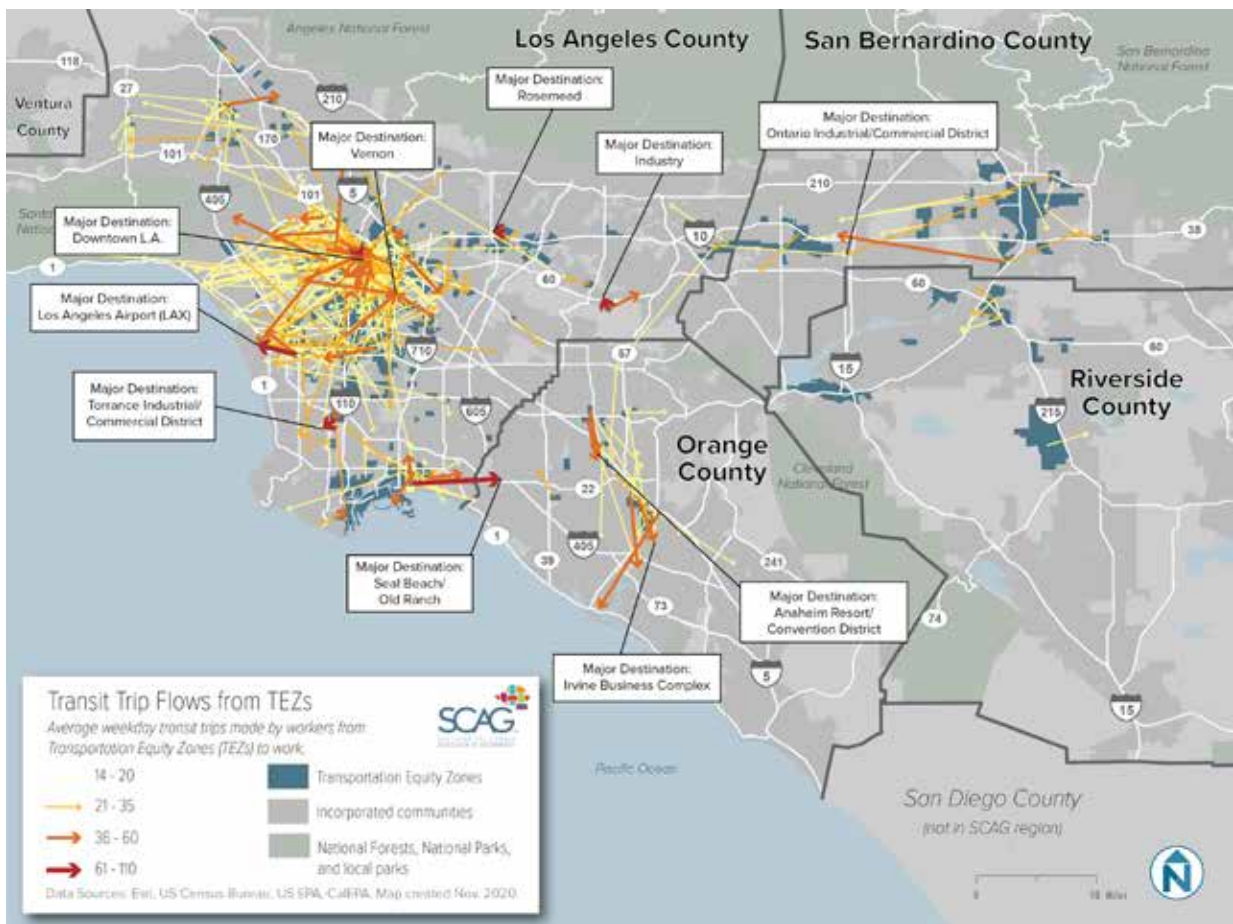
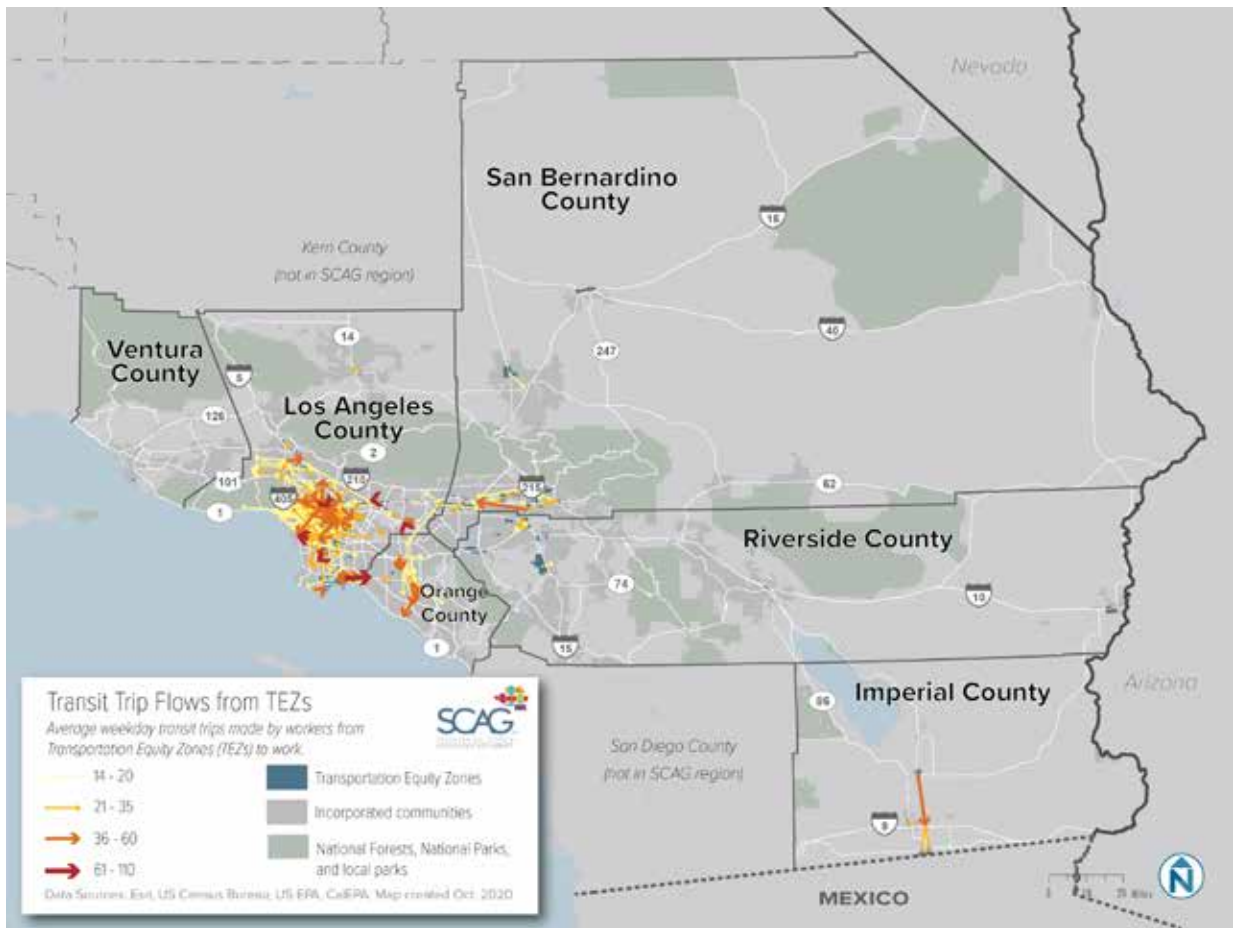


Figure 23. Transit Trip Flows from TEZs (SCAG Region Extent) [above] and Figure 24. Transit Trip Flows from TEZs (Los Angeles Urbanized Area Extent) [below]

TOTAL TRANSIT TRIP ORIGINS IN TEZS

The TEZs with the greatest total number of transit commute trip origins are highly concentrated in Los Angeles County, with very few TEZs outside the Los Angeles urbanized area producing large numbers of transit trips to work (**Figure 25**). The relatively low density of transit trip origins outside the Los Angeles urbanized area is largely due to transit service that is likely not competitive with driving, due to the roads with less congestion, nearly universal auto access, relatively high levels of auto ownership, and low-density land uses in the SCAG region outside of the Los Angeles urbanized area. The Los Angeles urbanized area is home to more frequent, higher-capacity transit service, such as light rail, local heavy rail, and bus rapid transit, which is able to carry far more passengers than local bus transit service that is generally offered in suburban, exurban, and rural parts of the SCAG region. In the Los Angeles urbanized area, transit trip origins from TEZs are highly concentrated south and west of downtown Los Angeles, where LA Metro bus and rail access make commuting by transit highly competitive with autos, and residential land uses are relatively dense (**Figure 26**). Southern Los Angeles County communities such as the Harbor Gateway South neighborhood and downtown Long Beach also produce large numbers of transit commute trips, as do the Van Nuys/ North Hills neighborhoods of Los Angeles.

Outside of Los Angeles County, relatively high numbers of transit commute trips originate in TEZs in parts of Fullerton, Anaheim, and Santa Ana in Orange County, and in Mead Valley and parts of Riverside in Riverside County. Transit trips from TEZs in Riverside County are likely primarily made on Riverside Transit Agency's bus service, which serve TEZs in Mead Valley and the city of Riverside. Transit commute trip origins from TEZs in San Bernardino County are relatively few but primarily occur in the San Bernardino and Ontario areas, where regional transit operator Omnitrans offers bus service.

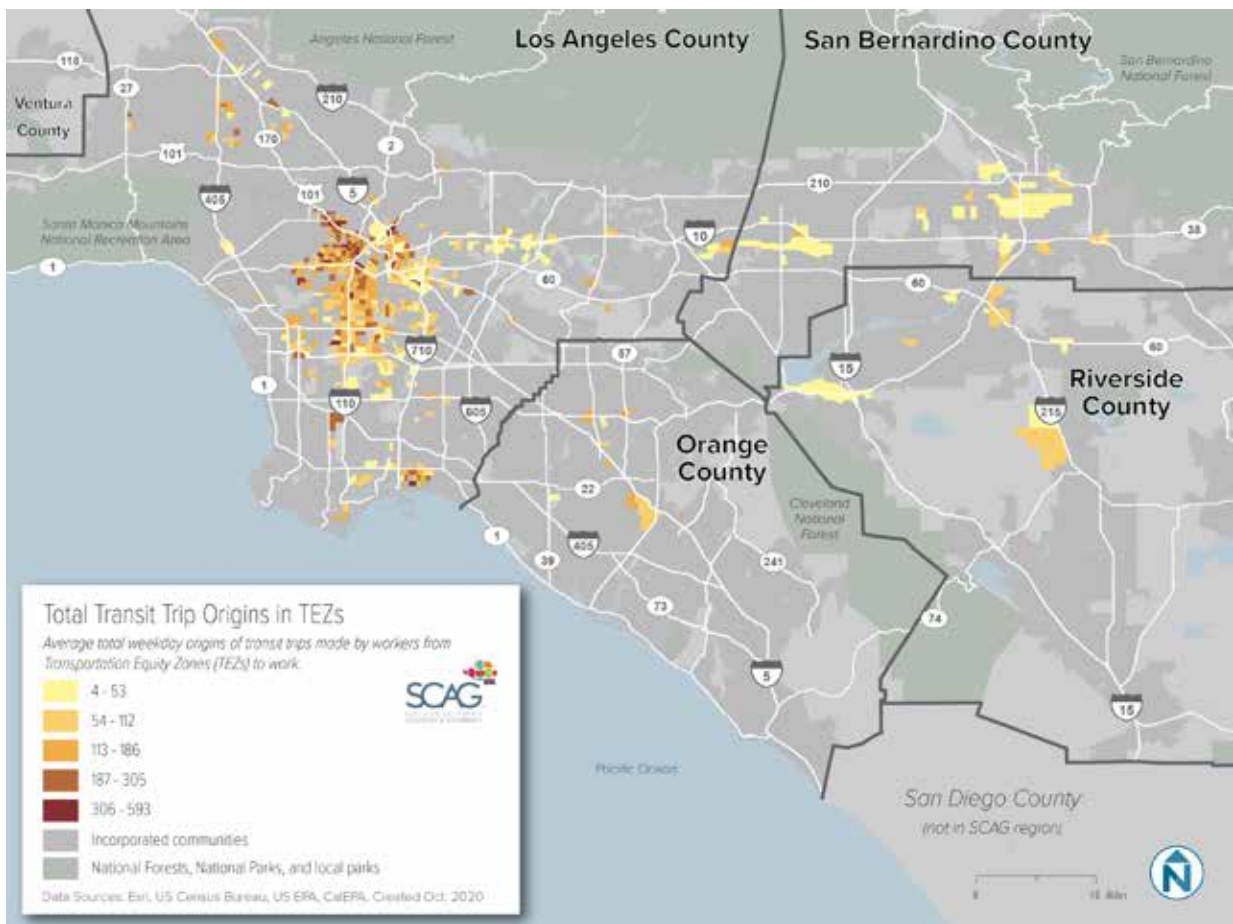
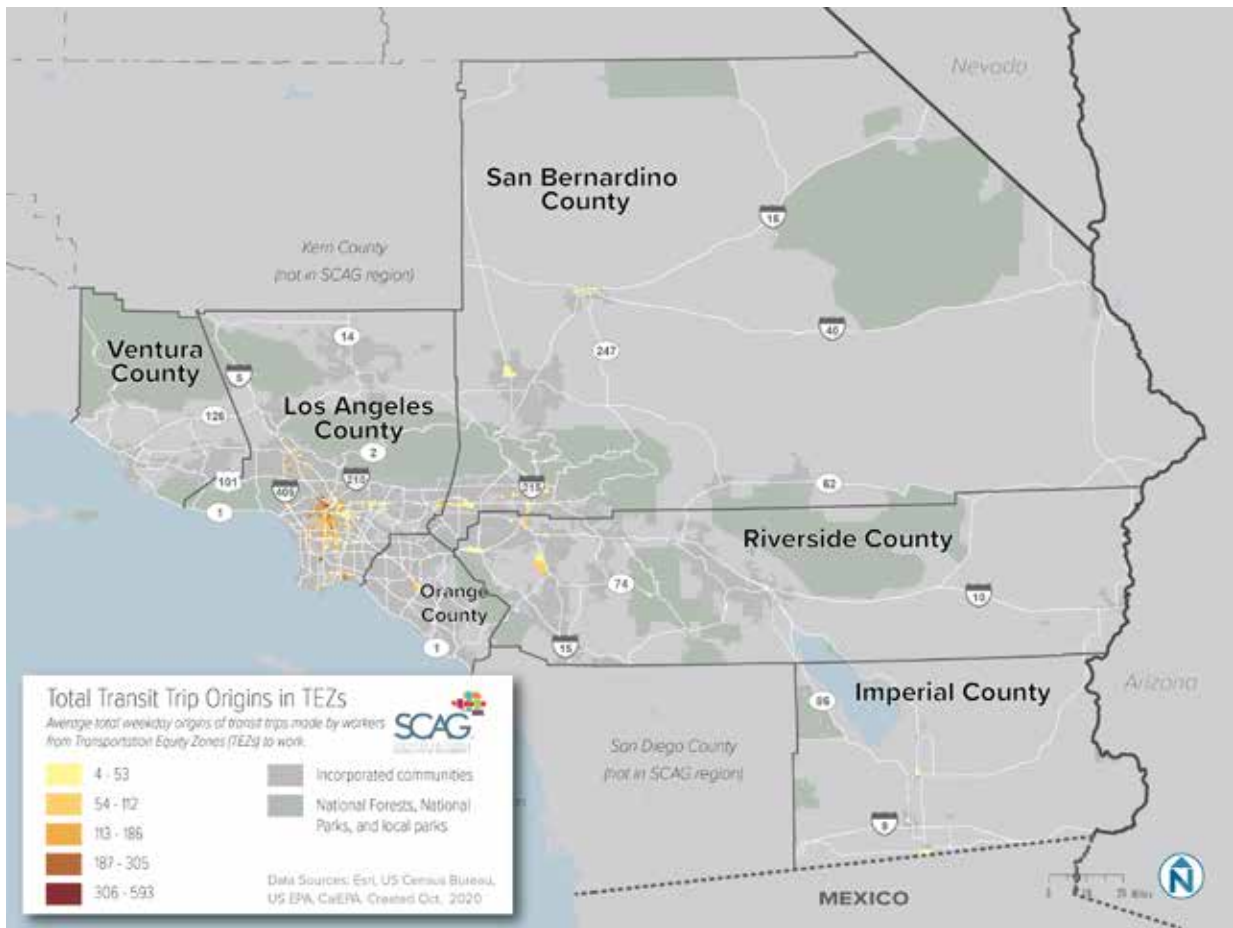


Figure 25. Total Transit Trip Origins in TEZs (SCAG Region Extent) [above] and Figure 26. Total Transit Trip Origins in TEZs (Los Angeles Urbanized Area Extent) [below]

TRANSIT TRIP DESTINATIONS FROM TEZS

The destinations of transit commute trips from TEZs are even more concentrated than origins in the Los Angeles urbanized area, where transit service is available and oriented around major employment destinations (**Figure 27**). Outside the Los Angeles urbanized area, the only census tract with considerable transit commute trip destinations from TEZs is the El Centro area in Imperial County, which is served primarily by Imperial Valley Transit.

Although public transit is provided outside the Los Angeles urbanized area by agencies such as Imperial Valley Transit in Imperial County and Sunline Transit Agency in Riverside County, low-density land uses, widespread auto ownership, and low levels of traffic congestion in rural and exurban parts of the SCAG region contribute to higher rates of auto commuting by TEZ residents.

Figure 28 shows the total number of destinations of transit trips from TEZs in the Los Angeles urbanized area, identifying places that large numbers of TEZ residents commute to via transit. Places that stand out as major destinations are LAX, Vernon, and Downtown Los Angeles. Downtown Los Angeles is heavily served by rail and bus transit from throughout the urban area, while Vernon is served primarily by LA Metro bus, as well as the LA Metro B Line rail to the west. LAX is served by LA Metro C Line rail, LA Metro bus, Torrance Transit, LADOT bus, Big Blue Bus, Culver CityBus, and other providers, although nearly all transit access involves an additional shuttle trip to the terminal area or other airport workplace destination. While transit access

to downtown Los Angeles is generally competitive with driving due to the low cost and relatively fast travel times available by rail and certain bus lines, transit access to Vernon is largely via local bus, which is often not competitive with auto as a commute mode.

Transit commute trip destinations from TEZs also occur at lower concentrations throughout the Los Angeles urbanized area, with many occurring west of downtown Los Angeles along Santa Monica Boulevard, in Commerce, the City of Industry, and scattered throughout south Los Angeles County. Outside of Los Angeles County, transit commute trip destinations from TEZs have concentrations near Disneyland, John Wayne Airport, and Irvine Business Complex in Orange County; these destinations are served by Orange County Transportation Authority (OCTA), Anaheim Resort Transportation, and the Irvine Shuttle, with OCTA carrying the bulk of bus passengers throughout Orange County.

In San Bernardino County, there are some concentrations of transit commute trips from TEZs in the Ontario Mills mall area and the Mountain Grove/Tri City shopping center area, which are served by Omnitrans bus service. In Riverside County, the census tract with the greatest number of transit commute trip destinations from TEZs includes the quarries, related manufacturing sites, and some of the PDR district surrounded by I-5, Lake Mathews, Cajalco Road, and SR 91. These destinations are served by Riverside Transit's regional bus and Corona Cruiser local bus service.

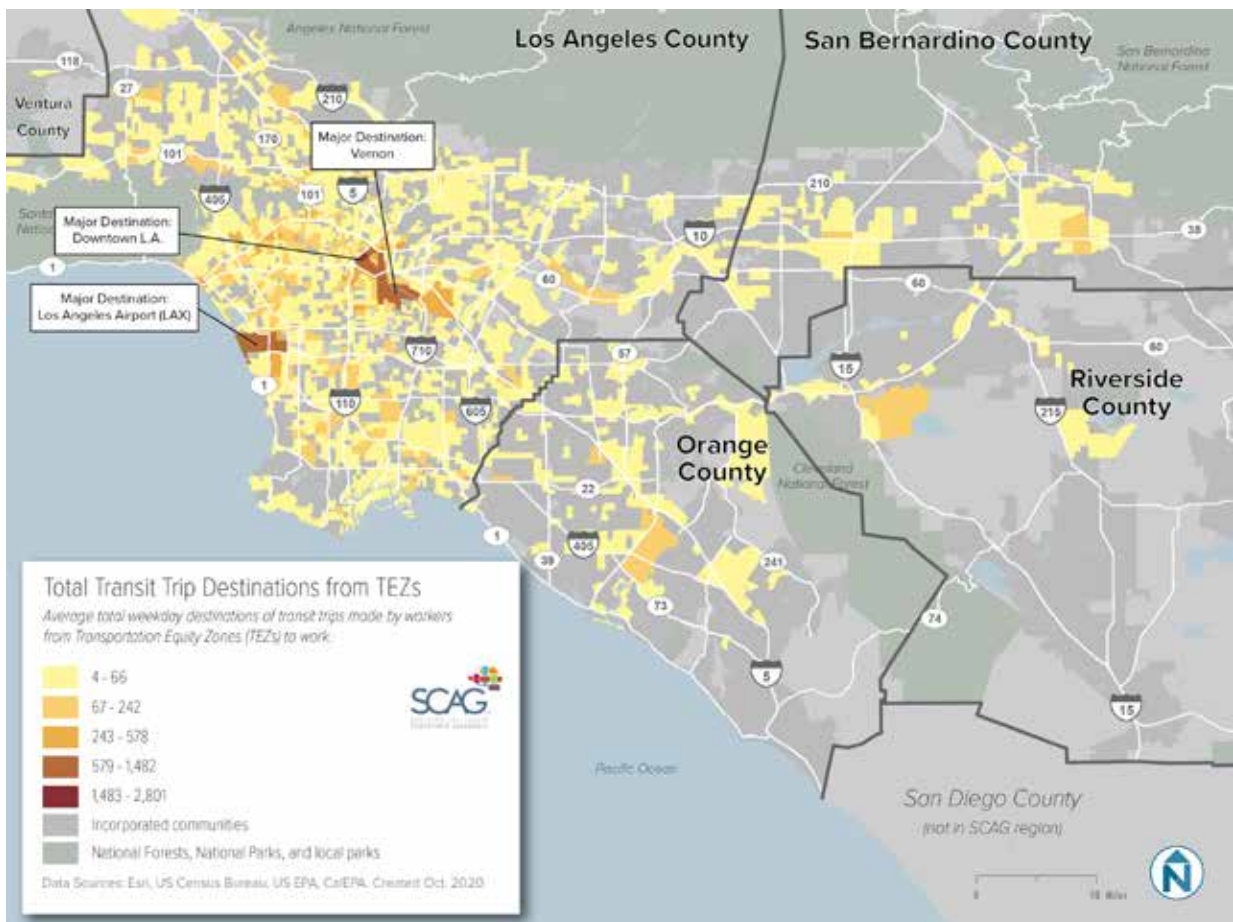
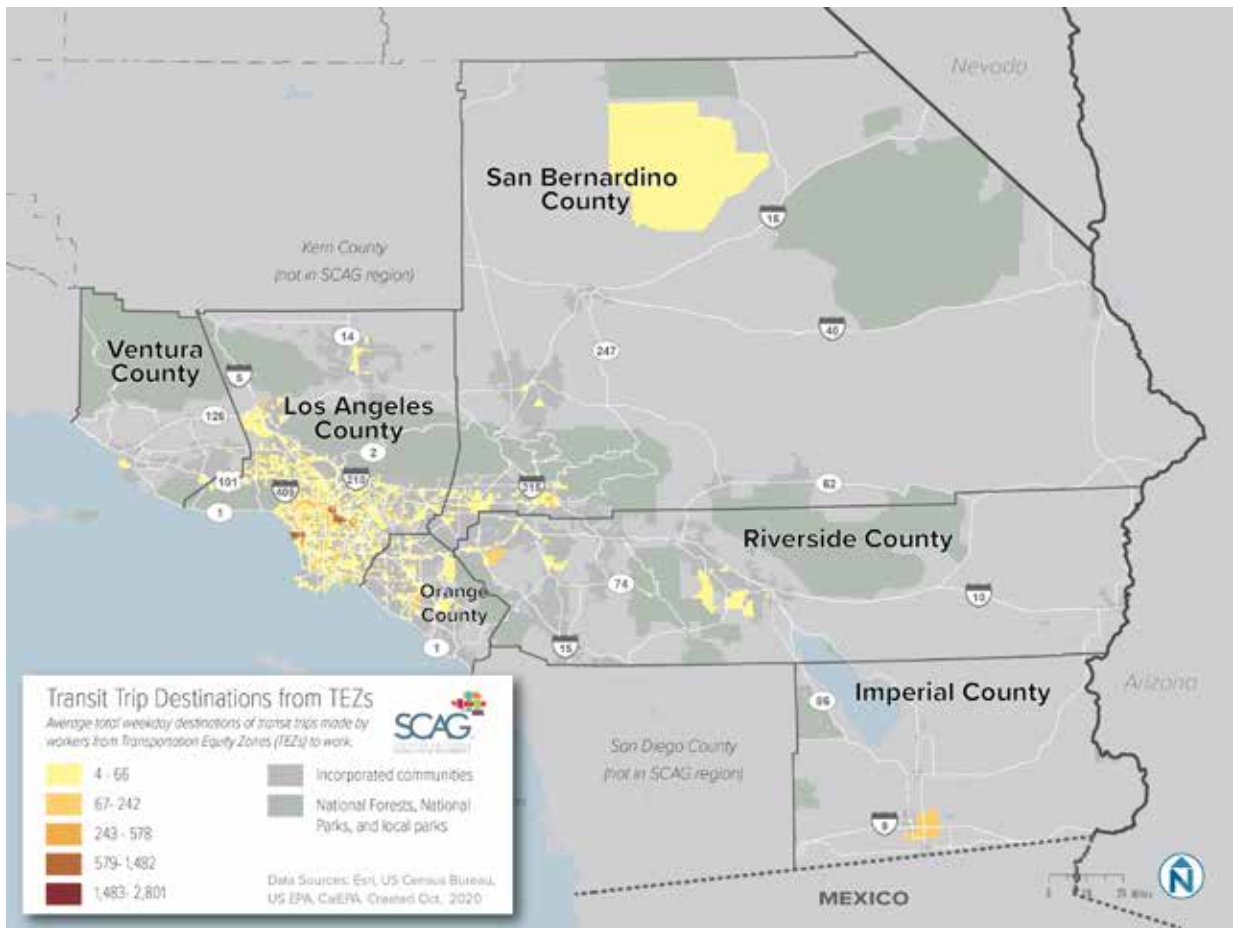


Figure 27. Total Transit Trip Destinations from TEZs (SCAG Region Extent) [above] and Figure 28. Total Transit Trip Destinations from TEZs (Los Angeles Urbanized Area Extent) [below]

TRANSIT TRIP ORIGINS IN TEZs AS A PERCENT OF TOTAL ORIGINS

Figures 29 through 32 show the percent of TEZ-based commute trips that are made using transit, in terms of origins and destinations. Generally, TEZs with more transit access show higher percentages of residents using transit to commute than TEZs with less transit access. In the SCAG region at large, this means that TEZs with the greatest percentage of residents using transit to commute are concentrated in central Los Angeles. Outside central Los Angeles, where transit service is less competitive with driving, very few places have high percentages of TEZ residents commuting via transit (**Figure 29**).

Within central Los Angeles, the TEZs closest to downtown Los Angeles have the highest percentage of residents using transit to commute; most of this commuting occurs to downtown Los Angeles via LA Metro rail and bus service (**Figure 30**). In south central Los Angeles, many TEZs with high percentages of transit commuters show flows to downtown Los Angeles, Vernon, or LAX. Other TEZs with high percentages of residents commuting via transit are in downtown Long Beach and Westwood. Outside of the Los Angeles urbanized area, where land uses are less dense, roadways are less congested, and auto ownership is more prevalent, transit commute trips from TEZs almost never exceed 15% of all commute trips.

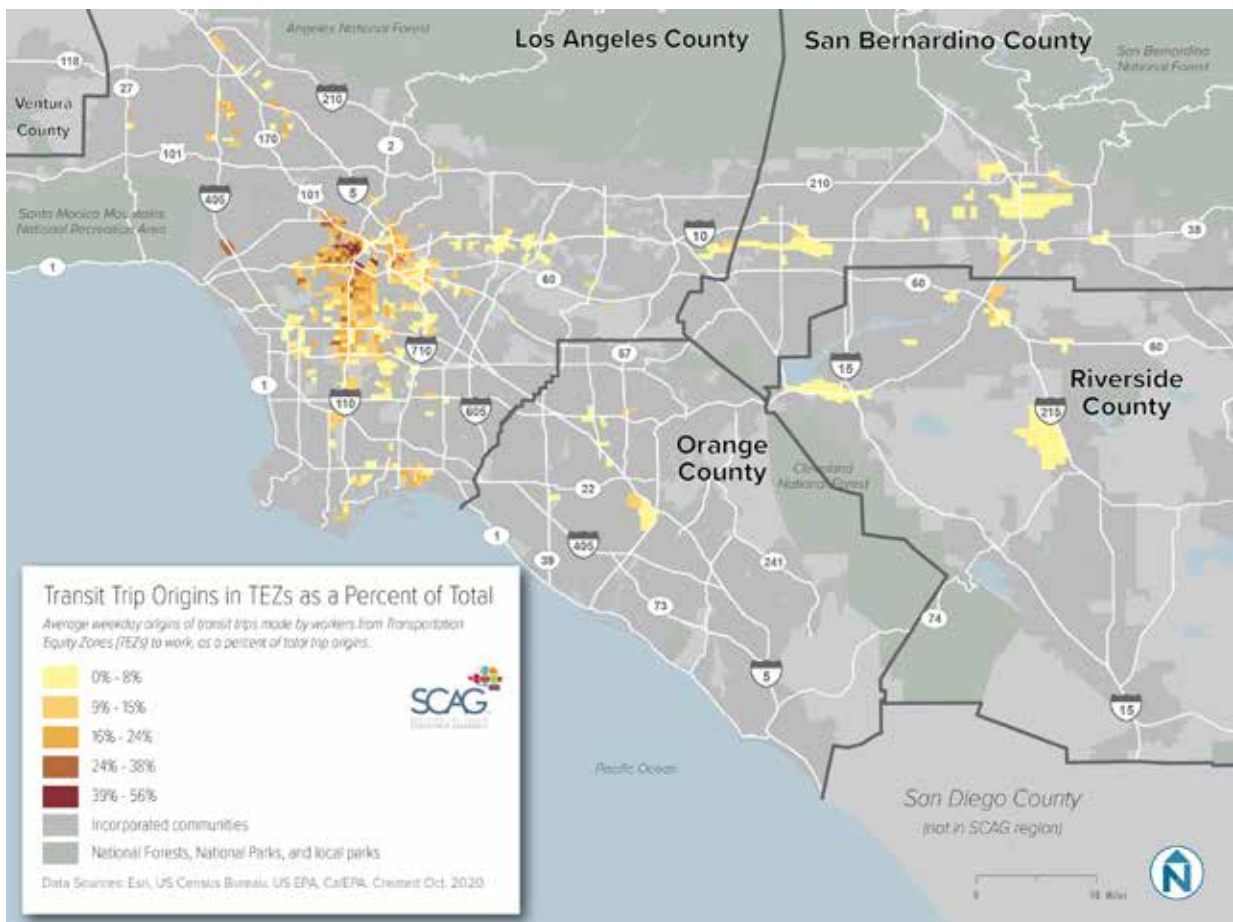
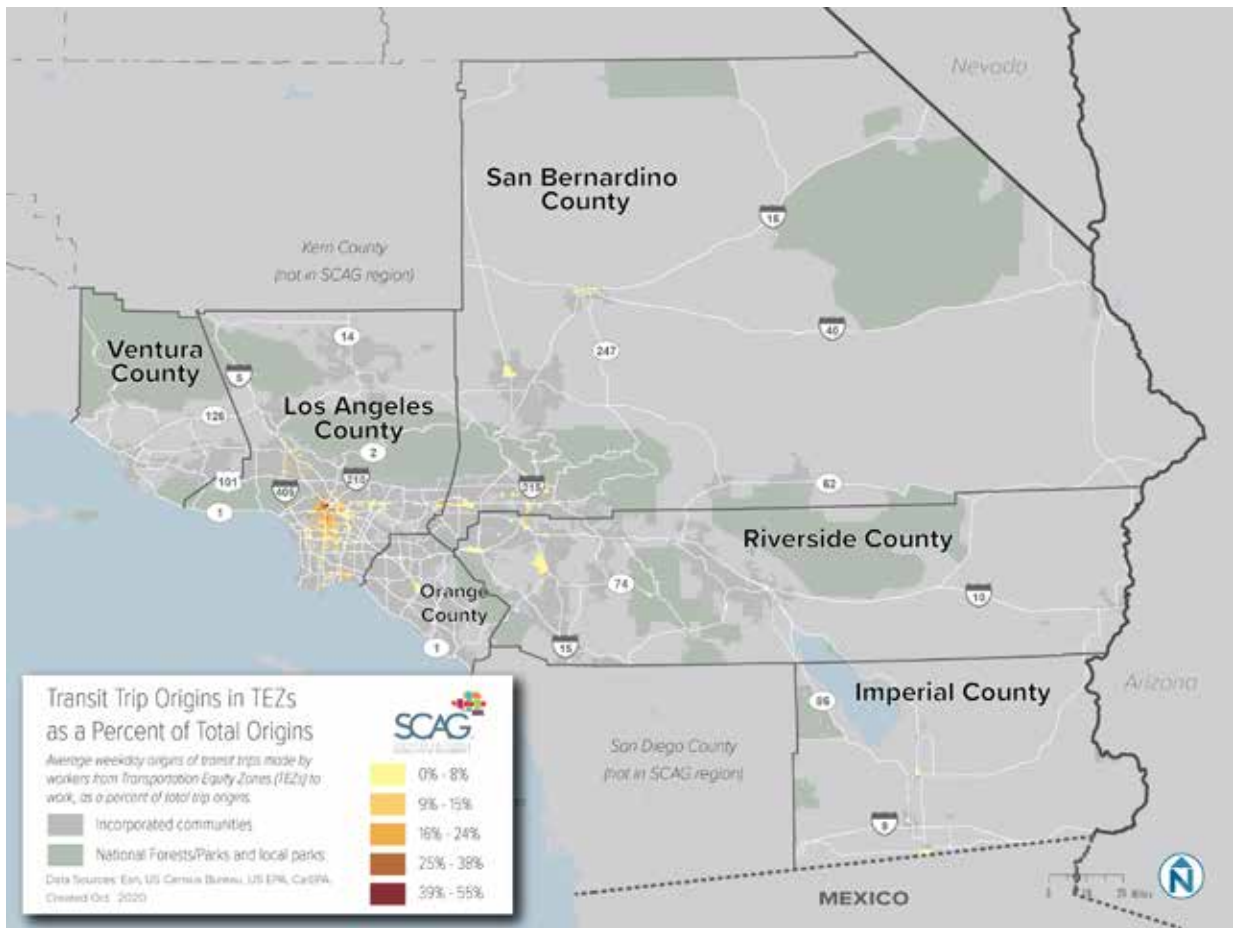


Figure 29. Transit Trip Origins as a Percent of Total Trips (SCAG Region Extent) [above] and Figure 30. Transit Trip Origins as a Percent of Total Trips (Los Angeles Urbanized Extent) [below]

TRANSIT TRIP DESTINATIONS FROM TEZs AS A PERCENT OF TOTAL DESTINATIONS

Figure 31 shows census tracts in the SCAG region, symbolized by the percent of total commute trip destinations from TEZs that occur via transit. These results show that many work destinations are reached via transit by people from TEZs at high rates, even outside of major transit hubs such as downtown Los Angeles. Some places outside the Los Angeles urbanized area show relatively high rates of trip destinations from TEZs via transit, such as El Centro in Imperial County and the Six Flags area in northern Los Angeles County.

Within the Los Angeles urbanized area, places that have more transit service generally show a greater percentage of commute trip destinations from TEZs via transit. These places include downtown Los Angeles, western Los Angeles County, including Santa Monica, and south-central Los Angeles.

Other parts of the Los Angeles urbanized area that are not heavily served by transit also show relatively high percentages of trip destinations from TEZs as being made by transit. These relatively small destination tracts occur in Riverside, San Bernardino, Orange, and Los Angeles County (**Figure 32**). This phenomenon likely illustrates destinations where transit service works well for the TEZ residents that use it. For example, if a TEZ is connected to a shopping mall via a single transit route, much of the travel to that employment destination from that TEZ may be via transit, even if the shopping mall is not well connected to

other parts of the region. The alignment, timing, and transfer opportunities on that route may suit TEZ commute trips well. Examples of this (highlighted in **Figure 32**) include the Old Ranch Town Center in Seal Beach, which is transit accessible via OCTA routes 42 and 42A, and the Pacific Coast highway commercial district of Newport Beach, which is accessible via OCTA Route 1. Other tracts with relatively high percentages of transit commute trips from TEZs are likely served by several transit routes that bring commuters from a dispersed set of TEZs. Examples of this include the Pacoima neighborhood of north Los Angeles, where LA Metro routes 90, 233, and 744, as well as LADOT route 409, serve the commercial district, and the East Compton neighborhood in unincorporated Los Angeles County, where LA Metro routes 125, 127, 260, and 762 provide bus service to commercial corridors.⁶¹

⁶¹ The transit routes called out here refer to these routes' current alignments and patterns, whereas the CTPP travel data analyzed in this report is from several years prior to 2020. Although many transit routes in the SCAG region have not seen alignment changes, it is possible the transit travel flows described here did not utilize the exact routes listed. Although alignments may have changed between the time the CTPP data were developed and now, it is likely the current level of service is equal to (or less than, given service cuts caused by COVID-19) that provided when the CTPP data were developed.

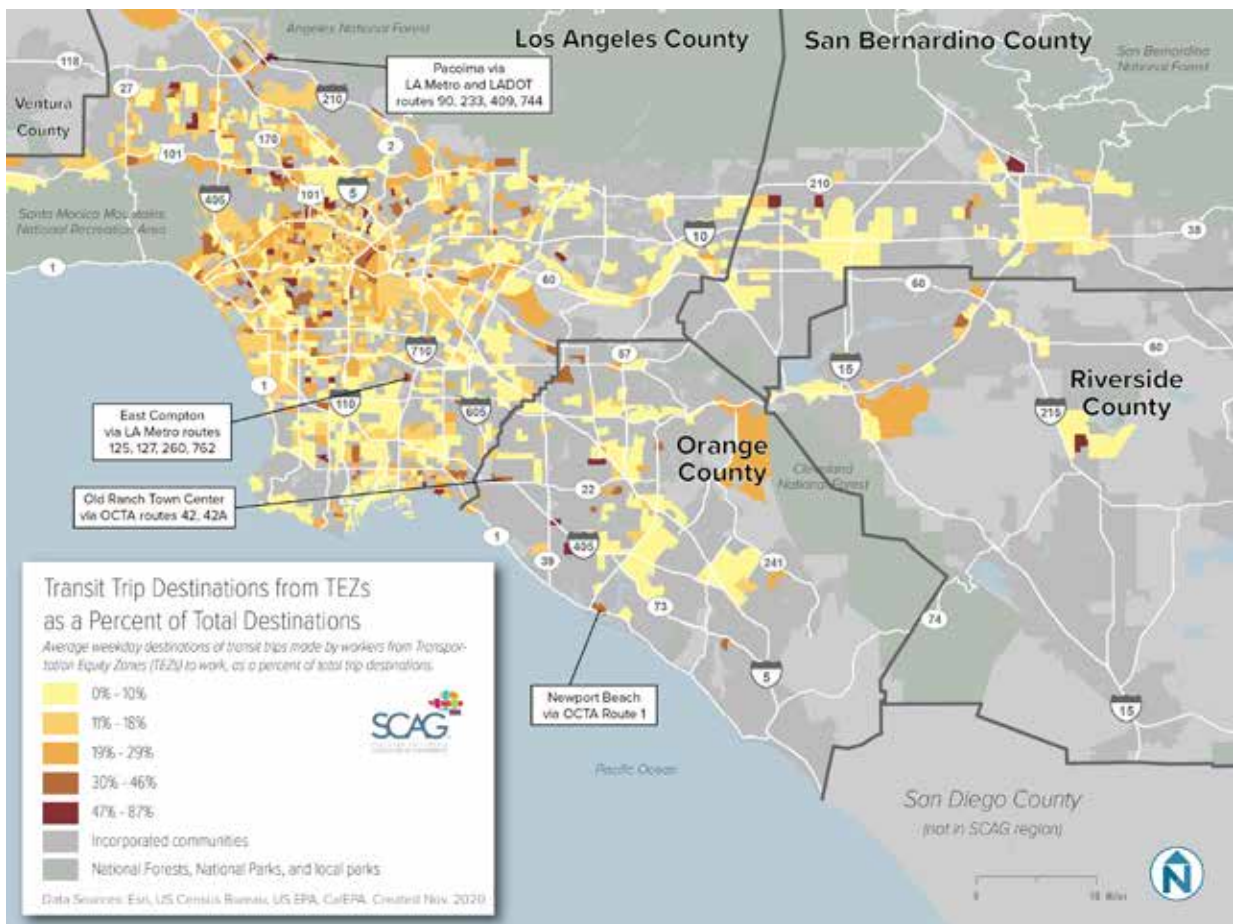
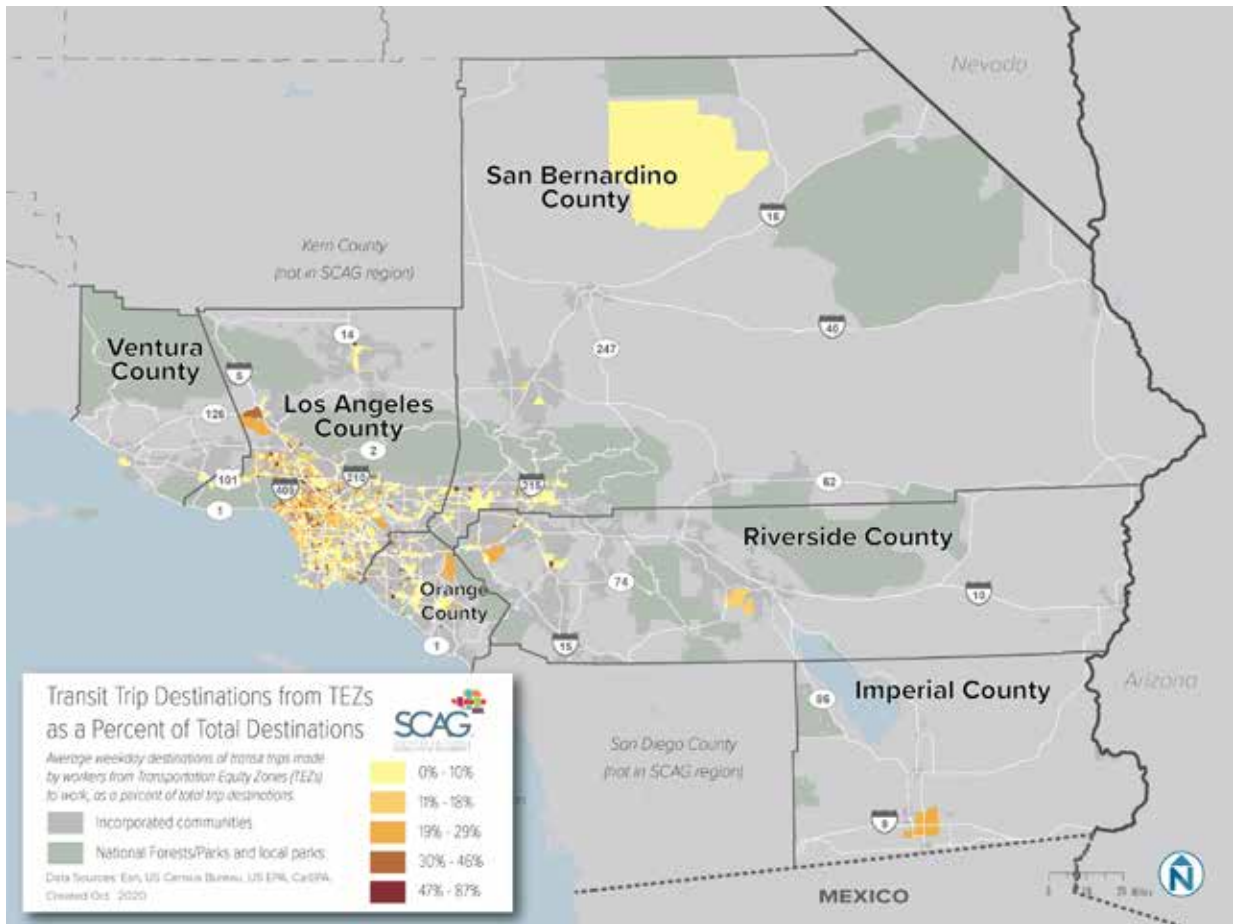


Figure 31. Transit Trip Destinations as a Percent of Total Trips (SCAG Region Extent) [above] and Figure 32. Transit Trip Destinations as a Percent of Total Trips (Los Angeles Urbanized Area Extent) [below]

Key Findings: Regional TEZ Travel Patterns

The following key findings synthesize the patterns of auto and transit travel from TEZs mapped in the sections above. The findings represent high-level takeaways that can provide important context for more nuanced, in-depth analyses of future potential mobility innovations programs such as road pricing.

MAJOR COMMUTE FLOWS ACROSS THE SCAG REGION

The regional TEZ travel flow maps identify several common origin-destination flows from TEZs to work. Many of these key destinations are profiled in a later section of this report, providing more in-depth information on travel from TEZs to those locations. Major regional commute travel patterns from TEZs to employment centers include:

- Various communities within a 10-mile radius to Vernon
- Various communities within a 10-mile radius to downtown Los Angeles
- Inglewood, Hawthorne, and other south central Los Angeles communities to LAX
- Downtown Long Beach to various communities
- Corona south of SR 91 to the Corona industrial/commercial district
- Rowland Heights to City of Industry
- Various Pomona and San Bernardino Valley communities to the Ontario industrial/commercial district
- Santa Ana to Irvine Business Complex
- Travel between Calexico, El Centro, and Brawley, and within Calexico

WITHIN LOS ANGELES COUNTY

Los Angeles County is home to the greatest amount of travel from TEZs to work in the SCAG region. This is, in part, because Los Angeles County is home to more TEZs than other counties, due to its large population. It is also because Los Angeles County is home to several major employment hubs where people from TEZs work, such as downtown Los Angeles, LAX, and Vernon. Understanding that much of the TEZ travel in Los Angeles County is concentrated into major employment centers helps ensure that any potential future mobility innovations affecting these commutes can be assessed for equity impacts early in project development.

OUTSIDE LOS ANGELES COUNTY BUT WITHIN THE LOS ANGELES URBANIZED AREA

The Los Angeles urbanized area extends well beyond the City of Los Angeles or Los Angeles County, including Orange County and portions of Riverside, San Bernardino, and Ventura counties, encompassing the vast majority of the region's travel. Major flows of TEZ commute travel in this region gravitate towards PDR and commercial districts, such as the Ontario industrial/commercial district in San Bernardino County, the Corona industrial/commercial district in Riverside County, and the Irvine Business Complex in Orange County.

Although some transit service is available to most of the major employment centers where TEZ residents work in the Los Angeles urbanized area, there are not typically as many transit options in these places as there are in Los Angeles County. Understanding how TEZ commute travel in these lower-density urban and suburban environments works is crucial to ensuring any potential future mobility innovations strengthen existing non-auto commute options.

OUTSIDE THE LOS ANGELES URBANIZED AREA

Outside of the Los Angeles urbanized area, people living in TEZs are far more likely to use autos for commuting compared to inside the urbanized area. Much of this travel behavior can be attributed to the lack of transit service in these communities, as well as the increased competitiveness of driving as a commute mode where land uses are low density and roads are relatively uncongested. Major TEZ travel flows to places like downtown Calexico are nearly entirely taken via auto, despite the availability of some transit service. There are some communities outside of the Los Angeles urbanized area with high transit commute mode shares from TEZs (relative to surrounding areas), such as El Centro in Imperial County, Palm Desert in Riverside County, and parts of Victorville in San Bernardino County.

Acknowledging the importance of autos to TEZ commute travel outside the Los Angeles urbanized area ensures that mobility innovations account for disproportionate impacts of a program such as road pricing on travelers that depend on autos for essential trips. If mobility innovations occurring in places like Calexico raise the cost of travel by auto, mitigations should be focused around increasing and improving non-auto mobility options to benefit TEZ residents. This could take the form of improvements to the transit network or other alternatives to SOV travel.

PRODUCTION, DISTRIBUTION, AND REPAIR DISTRICTS ARE SIGNIFICANT DESTINATIONS FOR TEZ COMMUTES

Production, distribution, and repair (PDR) districts are major destinations for workers living in TEZs, in nearly all of SCAG's counties. Places like the Corona industrial/commercial district in Riverside County, Vernon in Los Angeles County, the Simi Valley industrial/commercial district in Ventura County, and the Ontario industrial/commercial district in San Bernardino County are significant destinations for workers living in TEZs. In Los Angeles County, people from TEZs commute to these destinations by auto and transit, but outside of Los Angeles County, commute travel to PDR destinations is primarily via auto. In Los Angeles County, many transit trips from TEZs to PDR districts are short, suggesting transit is both available and competitive with auto travel for many workers.

TEZ COMMUTING IS LARGELY LOCAL, SHORT-DISTANCE TRIPS

Despite trending headlines identifying growing numbers of 'supercommuters' that travel long distances via transit or auto to work each day,⁶² the data analyzed here suggest the majority of TEZ residents commute fairly short distances, via both transit and auto. In general, major transit commute flows from TEZs occur over distances of fewer than 10 miles and destinations are concentrated at major employment centers such as LAX and downtown Los Angeles. Auto commute flows from TEZs are also largely local, occurring in approximately 10-mile radii from major employment centers, many of which are PDR districts in places with limited transit access, such as Corona or Ontario. Although some notable intercounty flows do occur in the Los Angeles urbanized area, the largest flows—by far—occur entirely inside counties such as Los Angeles and Orange.

Travel analysis for the SCAG region confirms the extent to which TEZ resident commute travel is locally focused. When compared with travel from all origins in the SCAG region, TEZ travel—on average—occurs over shorter distance for all modes (**Figure 33**). The discrepancy in commute distances between travel from all origins and from TEZs is greatest for rail travel; this suggests TEZ residents may be more likely to use light rail or subway service

⁶² Curbed Los Angeles. August 15, 2019. *Number of LA residents dealing with commute times over 90 minutes surges*

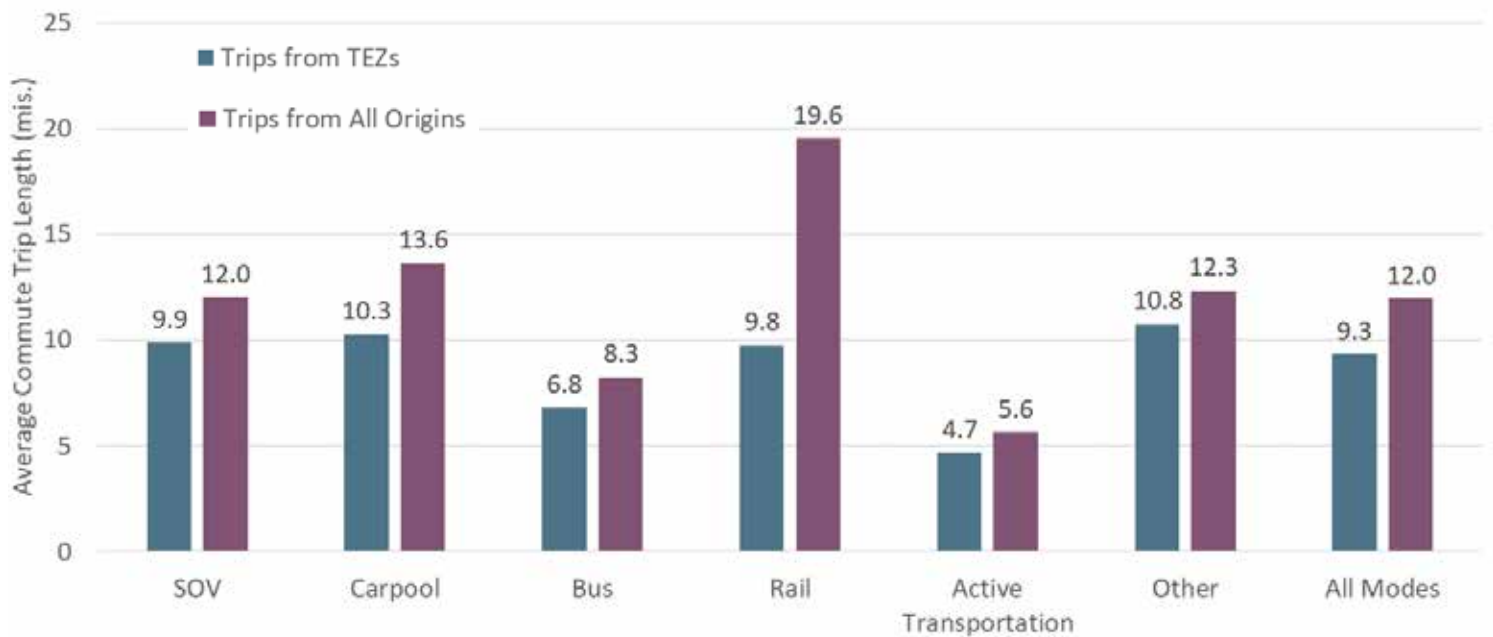


Figure 33. Average Commute Distance by Mode from TEZs and All Origins in the SCAG Region

and less likely to use intercity commuter rail. On average, people living in TEZs have commutes that are approximately three miles shorter than all commuters.

Autos (including both SOV and carpool travel) are the dominant mode of travel among TEZ commuters, but less so than for the general population.

Many TEZ-based auto commute flows occur between locations where transit service is a competitive alternative, suggesting some TEZ residents prefer to commute via auto, even when transit service is available. In downtown Los Angeles, for example, many TEZ residents commute via auto from just a few miles away, choosing SOV or carpool travel over local transit.

Because the auto flow and choropleth maps in this section of the report consolidate SOV and carpool travel into a single “auto” category, an assessment of the mode split between SOV and carpool auto modes is not provided. Auto travel is broken out into SOV and carpool modes in the following two sections of the report. Future research assessing the relationship among land use patterns, demographics, availability of transportation infrastructure and multi-modal transportation access, and attractiveness of carpool as a commute mode over SOV would be valuable. This research could help identify the impacts and benefits that future potential mobility innovations might have on carpool travel, and how that differ from the benefits and impacts they might have on SOV travel.

Mobility innovations, such as road pricing, often aim to reduce auto trips and associated congestion, pollution, and traffic collisions. This goal can be nuanced with the understanding that many people living in TEZs prefer to commute via auto, even when transit service is available. This may be due to convenience of having a vehicle for travel during off-peak hours, for trip-chaining purposes (e.g., picking up children after work or shopping before work) or for comfort and safety reasons. Understanding that some TEZ residents may prefer to travel via

auto due to these factors, even when investments are made to improve alternatives to driving, is important to contextualize the on-the-ground impacts of potential future mobility investments.

County-Level TEZ Travel Patterns

The SCAG region is the largest Metropolitan Planning Organization area in the county. It includes six counties with vastly different land use patterns and transportation facilities. Because the land use and transportation environment can differ so drastically among these counties, it is important to examine the difference in TEZ travel patterns among them. Understanding these differences adds nuance to regional TEZ travel patterns and can help better target future transportation investments.

Differences in county-level TEZ travel patterns provide important context for consideration when designing and implementing potential future mobility innovations, such as road pricing. Counties with high percentages of TEZ residents using transit to commute may see more benefit accrued to TEZ communities if road pricing revenues are invested in transit, for example. Counties with high percentages of TEZ residents that use autos to access work may be most inequitably impacted by a road pricing charge if mitigation measures are not intentionally designed and implemented to reduce impacts on those drivers, or to provide high-quality transit options instead.

How Do Travel Modes from TEZs Differ by County?

The mode of transportation TEZ residents use to make commute trips differs by county substantially. Los Angeles County, which is the highest-density among SCAG counties and has the most transit service, has the lowest rate of TEZ-based SOV commute mode share, at 62%, and the highest rate of transit usage, at 13% (**Table 4**). Imperial County, which is largely rural with some low-density urban areas, has the highest share of SOV commute mode share for trips originating in TEZs, at 73%. Other counties in the SCAG region have TEZ-based commute SOV mode shares of between 65% and 72%. Transit commute mode share among TEZ residents varies dramatically, from 13% in Los Angeles County, where bus and rail service are widely available, to only 1% in Ventura County, where transit service is not a competitive commute option for the county's two TEZs.

When assessed at the SCAG regional level, 64% of all TEZ-based commute trips are made via SOV, 12% via carpool, and 11% via transit. This finding highlights the importance of the auto to workers living in TEZs; it is the dominant mode of transportation and used for both carpooling and SOV travel.

Table 4. Mode Share of Commute Trips from TEZs by County

Mode	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	SCAG Region
SOV*	73%	62%	70%	68%	72%	65%	64%
Carpool**	10%	11%	17%	17%	15%	31%	12%
Bus	2%	12%	5%	2%	3%	1%	10%
Rail	0%	1%	0%	0%	0%	0%	1%
Active Transportation	4%	6%	4%	7%	4%	1%	6%
Other***	11%	7%	4%	5%	6%	2%	7%
Total	100%	100%	100%	100%	100%	100%	100%

*SOV includes driving alone, taxicab, and motorcycle.

**Carpool includes carpools of two or more people.

***Other includes ferryboat, work from home, or "other method".

Comparing TEZ Travel with All Travel in SCAG Counties

In all SCAG counties, TEZ residents' commute modes reflect a greater preference or dependence on transit. The following charts compare TEZ resident commute mode share to all residents' commute mode share for each SCAG county. In every chart, TEZ residents are more likely to use transit to commute and less likely to use SOVs to commute than all residents of the county. TEZ residents are also more likely to carpool than all residents. In all counties except for Ventura County, TEZ residents are more likely to commute via active transportation (i.e., walking or biking) than all residents.

IMPERIAL COUNTY

In Imperial County, TEZ residents are more likely than all residents to use active transportation, transit, and carpools for commuting. All residents are approximately 10 percent more likely than TEZ residents to commute via SOV (Figure 34).

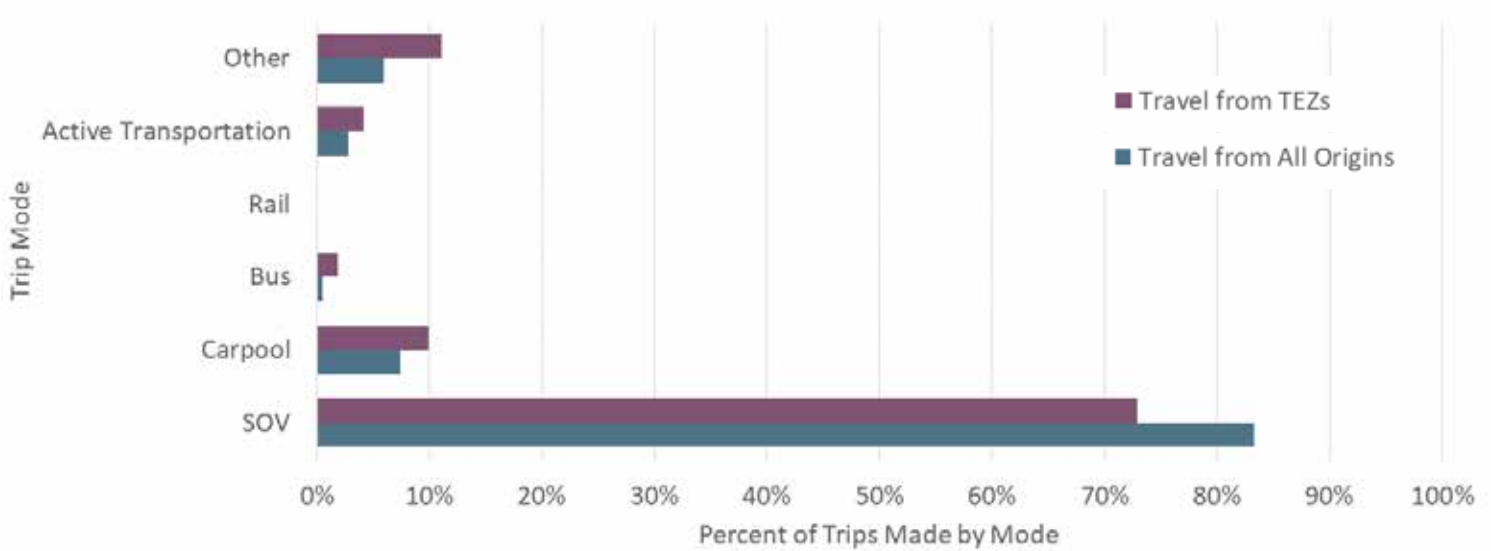


Figure 34. Mode Share of Commute Trips from TEZs vs. All Origins in Imperial County

LOS ANGELES COUNTY

In Los Angeles County, TEZ residents are more likely than all residents to use active transportation, transit, and carpools for commuting. TEZ residents are approximately four times more likely to commute via bus transit than all residents. All residents are more than 10 percent more likely than TEZ residents to commute via SOV (**Figure 35**).

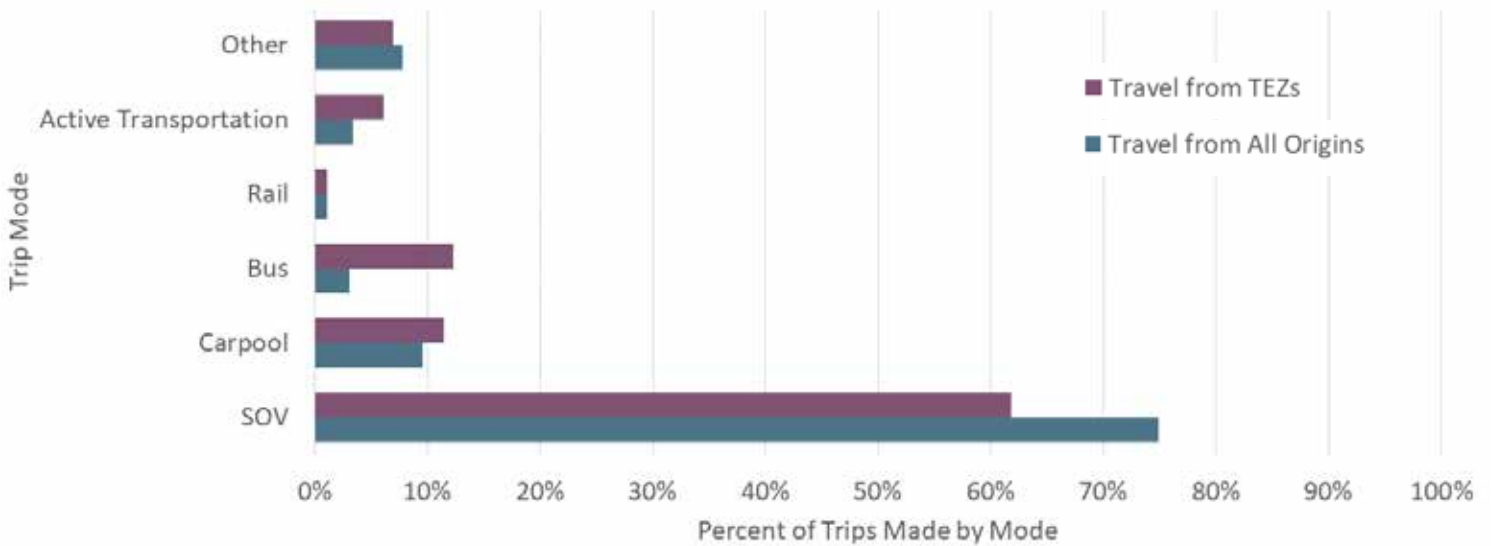


Figure 35. Mode Share of Commute Trips from TEZs vs. All Origins in Los Angeles County

ORANGE COUNTY

In Orange County, TEZ residents are more likely than all residents to use active transportation, transit, and carpools for commuting, although all residents are slightly more likely to use rail (this likely represents higher-income commuters riding Metrolink). All residents are eight percent more likely than TEZ residents to commute via SOV (**Figure 36**).

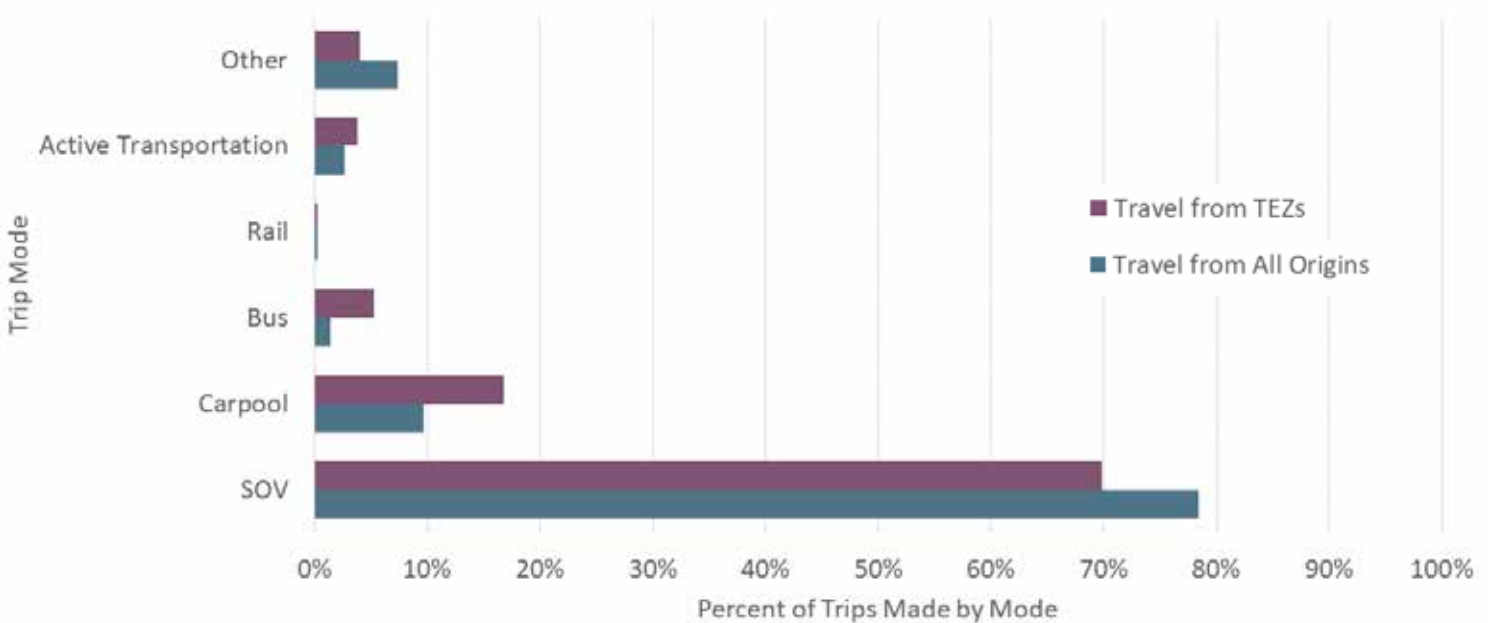


Figure 36. Mode Share of Commute Trips from TEZs vs. All Origins in Orange County

RIVERSIDE COUNTY

In Riverside County, TEZ residents are more likely than all residents to use active transportation, transit, and carpools for commuting. All residents are nine percent more likely than TEZ residents to commute via SOV (Figure 37).

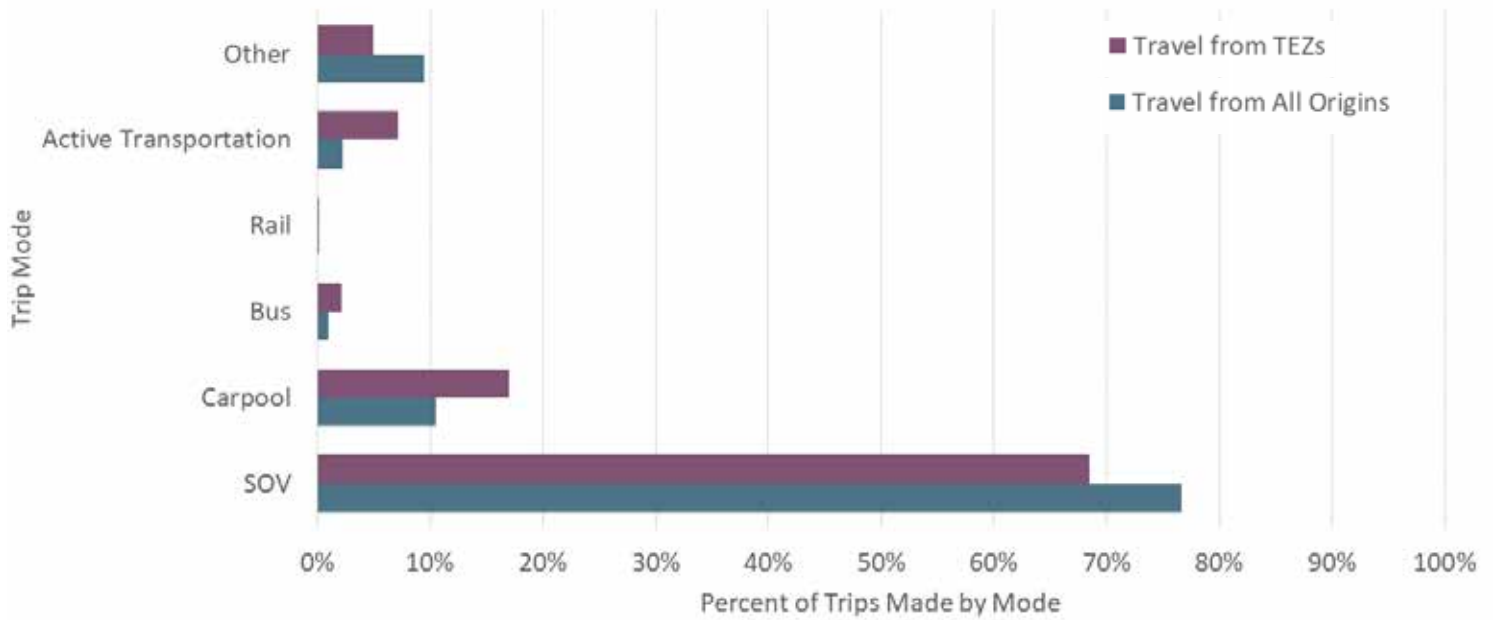


Figure 37. Mode Share of Commute Trips from TEZs vs. All Origins in Riverside County

SAN BERNARDINO COUNTY

In San Bernardino County, TEZ residents are more likely than all residents to use active transportation, transit, and carpools for commuting. All residents are nine percent more likely than TEZ residents to commute via SOV (Figure 38).

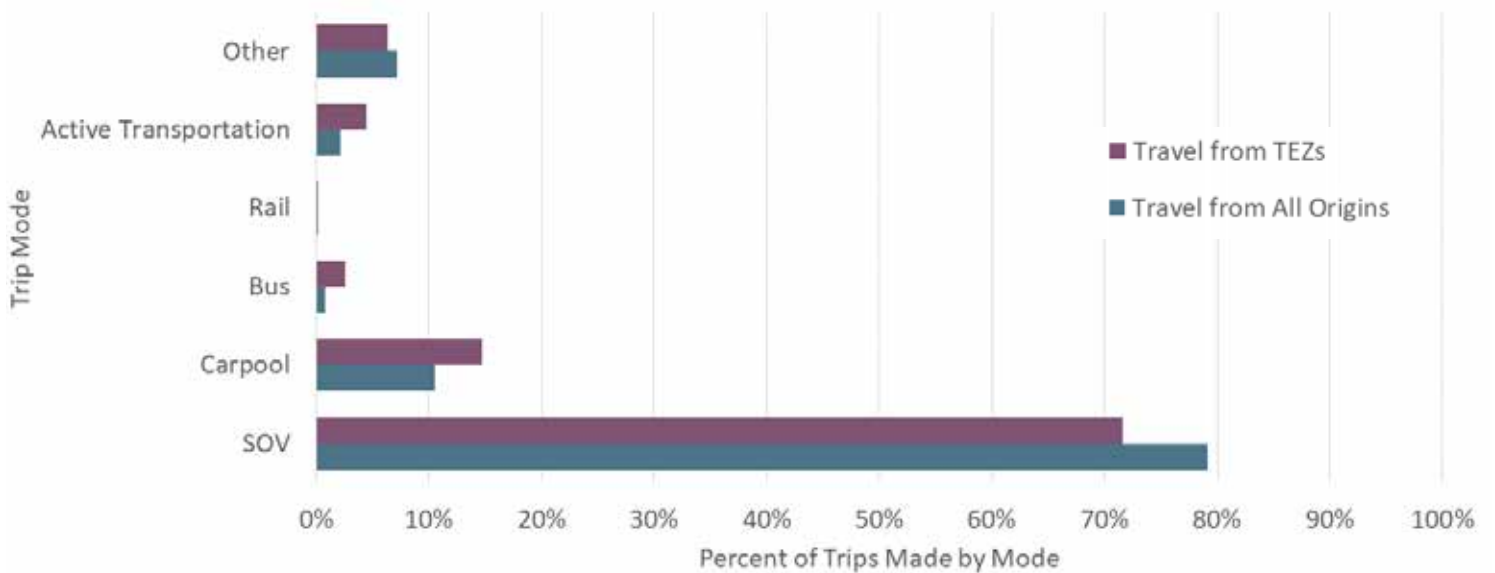


Figure 38. Mode Share of Commute Trips from TEZs vs. All Origins in San Bernardino County

VENTURA COUNTY

In Ventura County, TEZ residents are more likely than all residents to use transit and carpools for commuting. Unlike all other SCAG counties, all residents in Ventura County are more likely to commute using active transportation than TEZ residents. Ventura County also shows the greatest differential in carpool commute mode share between TEZ residents and all residents, with more than three times as many TEZ residents commuting via carpool than all residents. All residents are 12 percentage points more likely than TEZ residents to commute via SOV (**Figure 39**). The relatively high rate of carpooling as a commute mode by TEZ residents in Ventura County, compared to other counties in the SCAG region, is likely driven by the location of most TEZ residents in Ventura County (a small neighborhood in Oxnard) and their work destinations, which are distributed in agricultural areas that are not well-served by transit. For these TEZ residents, carpooling may represent a more affordable and convenient option than SOV travel for commute trips.

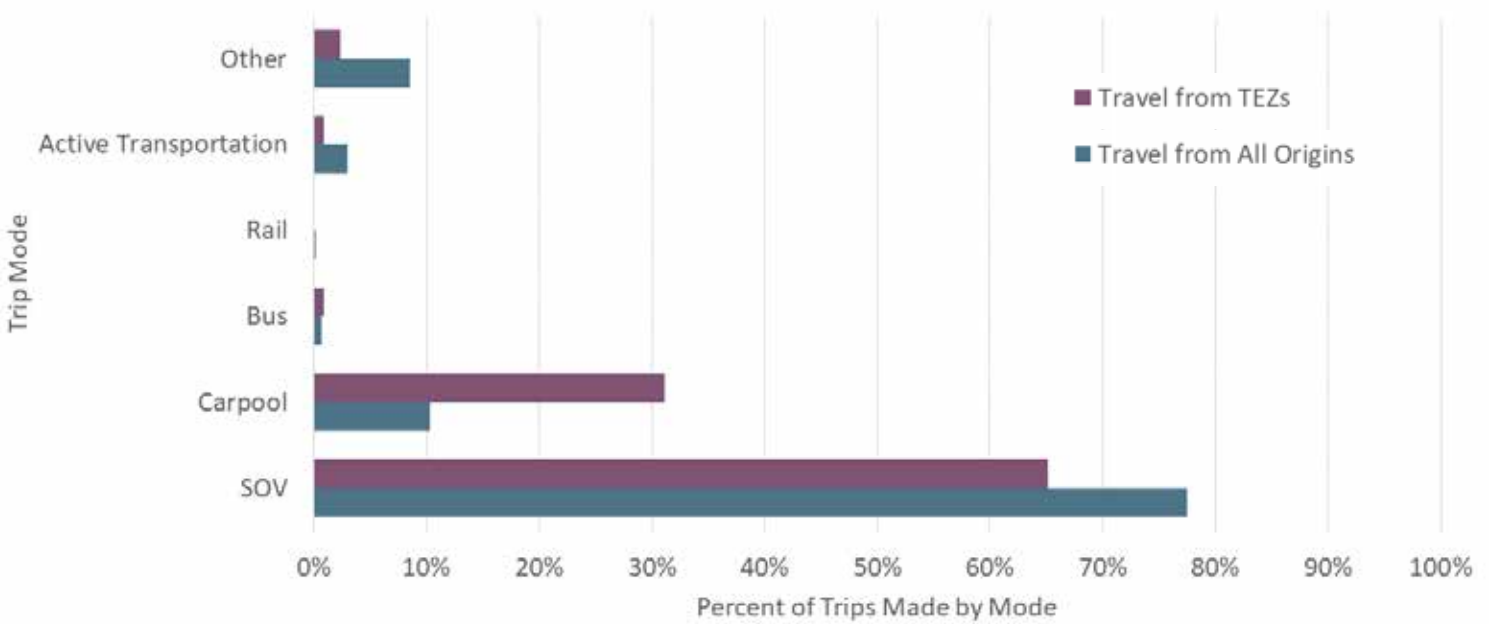


Figure 39. Mode Share of Commute Trips from TEZs vs. All Origins in Ventura County

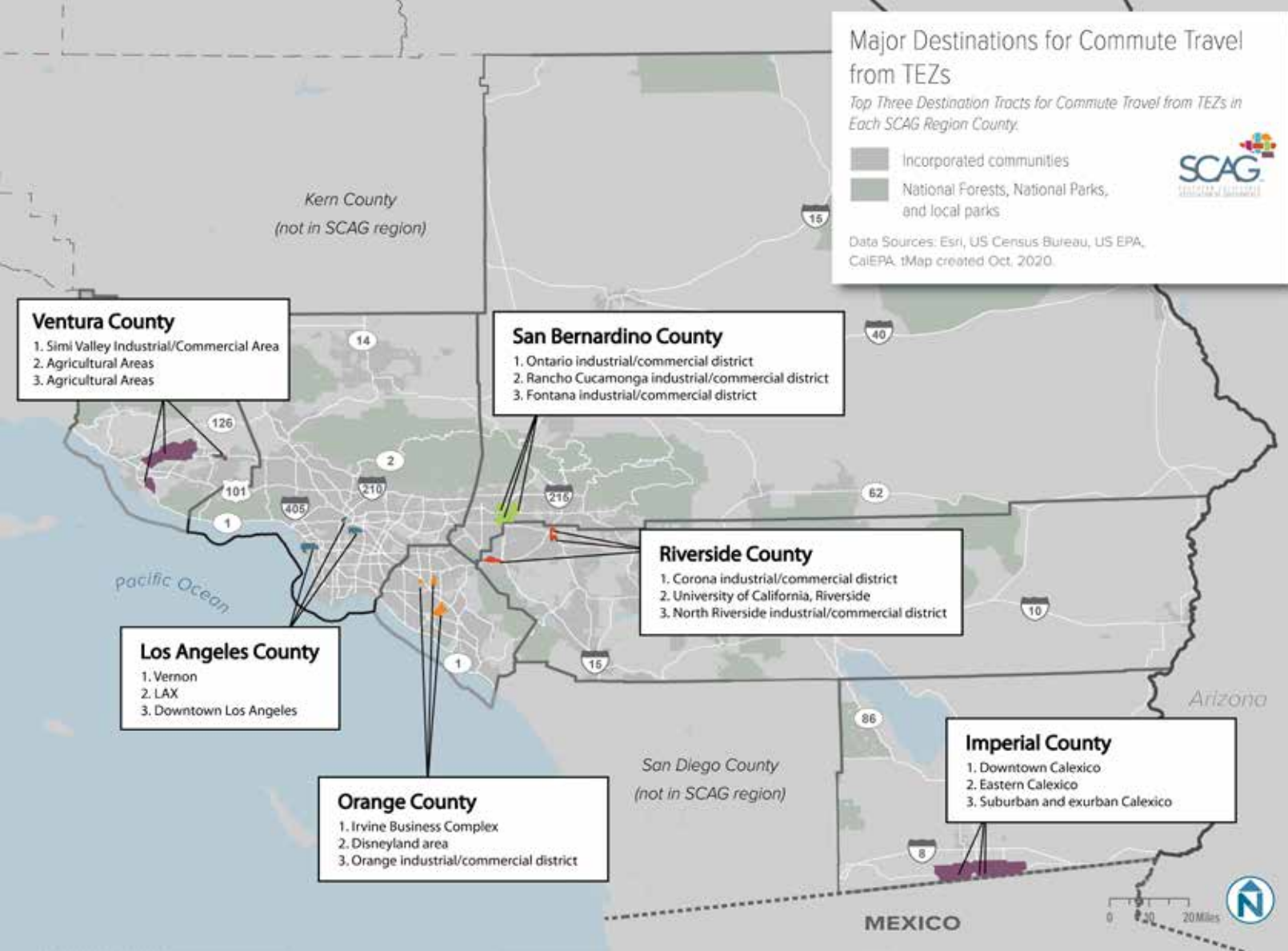


Figure 40. Mode Share of Commute Trips from TEZs vs. All Origins in Ventura County

Major Destinations for Commute Travel from TEZs by SCAG County

Each of the counties in the SCAG region contain key destinations for commute trips from TEZs. Destinations outside the urbanized areas generally have comparatively lower travel volumes, but are key employment centers for local TEZ residents, and provide valuable context for understanding future potential mobility innovations across the SCAG region. **Figure 40** and the bullets below identify the top three destinations for TEZ-based commute travel in each county.

IMPERIAL COUNTY: The top three destinations for TEZ commute travel in Imperial County are in downtown Calexico and the areas surrounding downtown Calexico.

LOS ANGELES COUNTY: The top three destinations for TEZ commute travel in Los Angeles County are Vernon, LAX, and downtown Los Angeles. Most of this travel originates from within Los Angeles County and within 10 miles of each destination.

ORANGE COUNTY: The top three destinations for TEZ commute travel in Orange County are Irvine Business Complex, the Disneyland area, and the Orange industrial/commercial district.

RIVERSIDE COUNTY: The top three destinations for TEZ commute travel in Riverside County are the Corona industrial/commercial district, University of California Riverside, and the north Riverside industrial/commercial area.

SAN BERNARDINO COUNTY: The top three destinations for TEZ commute travel in San Bernardino County are all concentrated near the intersection of I-10 and I-15: the Ontario industrial/commercial district, the Rancho Cucamonga industrial/commercial district, and the Fontana industrial/commercial district.

VENTURA COUNTY: The top three destinations for TEZ commute travel in Ventura County are the Simi Valley industrial/commercial district and large agricultural areas with distributed worksite destinations. Ventura County is the only county in the SCAG region with largely agricultural areas as a top destination for TEZ travel.

Key Takeaways: County-Level TEZ Travel Patterns

The commute travel patterns of TEZ residents in SCAG's six counties differ in significant ways, while also highlighting important similarities. The key findings from the county-level TEZ travel pattern analysis, which can be used to inform the design and implementation of potential future mobility innovations, such as road pricing, are the following:

Across all counties, the auto is the dominant commute mode for TEZ residents. Throughout the SCAG region, 64% of TEZ residents commute via SOV. A significant portion of TEZ residents carpool to work.

Across all counties, TEZ residents are much more likely than all residents to commute using non-auto modes such as transit. In some counties, TEZ residents are four or five times more likely than all residents to commute via transit.

Carpooling is an important commute mode for TEZ residents in all SCAG counties and particularly for those in San Bernardino, Riverside, Orange, and Ventura counties. The high levels of carpool commuting from TEZs, relative to all origins, is partially due to the design of the TEZ index (which includes zero- and one-car households) but is also driven by the limited nature of transit mobility in many parts of the SCAG region outside of the Los Angeles urbanized area. In Ventura County, for example, transit is unavailable for many TEZ commute trips and so carpooling is likely the most affordable commute mode for many TEZ residents.

Los Angeles County has the highest percentage of TEZ residents commuting via transit. 13% of all TEZ residents in Los Angeles County use transit to commute.



Key Regional TEZ Travel Destinations and Business Organization Outreach

KEY DESTINATION PROFILES

Commute travel from TEZs in the SCAG region is concentrated around key employment destinations of major employers or clusters of employers. This section of the report highlights nine key destinations for TEZ-based commute travel in the SCAG region. Destinations were selected to illustrate employment centers in each SCAG county of different types (e.g., airport, central business district, PDR district) and with different types of transportation access. Each destination's key transportation attributes are described, and major flows from TEZs to the destination are mapped. Charts are included that show the travel mode split for commuters to each destination from TEZs, and the average distance TEZ residents travel to each location, by mode. The destination profiles are listed in order of the total number of commute trips from TEZs, from largest to smallest.

Profiling key destinations for TEZ-based commute travel is important because it provides more specific examples of places where road pricing programs or other future potential mobility

innovations could have some of the largest effects on people living in TEZs. For example, understanding that many people from Inglewood TEZs commute to work at LAX helps to identify where potential impacts on employees would be concentrated if a program, such as road pricing, were to be implemented at LAX. Knowing where these commuters live could also inform future transportation investments to facilitate non-auto travel between Inglewood and LAX. This approach demonstrates the ability to apply the larger, regionwide findings at individual destinations, and to outline more nuanced transportation conditions and travel patterns to and from these locations

BUSINESS ORGANIZATION OUTREACH

As a part of the MIP project, business organization outreach was conducted to two of the major employers in profiled destination areas: LAX and the University of California, Los Angeles (UCLA). These organizations were identified due to their expressed interest in expanding their transportation demand management (TDM) strategies to reduce SOV trips from commuters, which is well-aligned with the travel analysis and desired outcomes from this report. This outreach took the form of interviews with transportation staff at each organization. Relevant findings from these interviews are included as case studies in this section of the report.

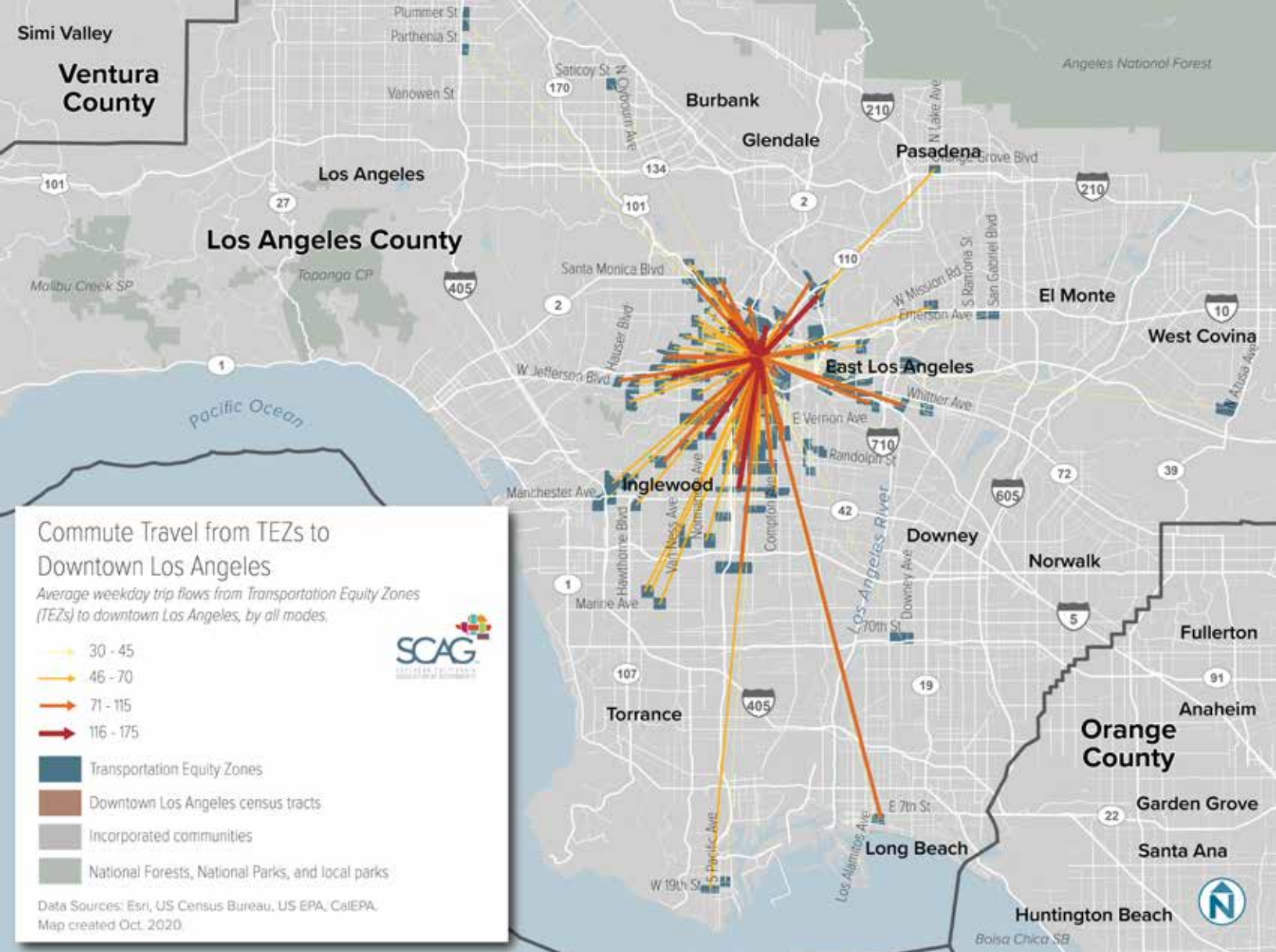


Figure 41. Map of TEZ Commute Flows to Downtown Los Angeles

Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Downtown Los Angeles

Downtown Los Angeles is the central business district for the Los Angeles urbanized area and is the hub of much of the Los Angeles area’s public transit network. Downtown Los Angeles is also a major destination for sporting events, performances, and other cultural events, and is identified by SCAG as a regional Job Center in the Connect SoCal RTP/SCS.⁶³ Many of the approximately 300,000 jobs in downtown Los Angeles are white-collar but the area is also home to tens of thousands of jobs in wholesale trade, accommodation, food services, manufacturing, and retail.⁶⁴

In this analysis, downtown is defined as the area bounded by SR 110 on the west, I-10 on the south, (roughly) W 2nd Street to the north, and (roughly) Maple Avenue/S Spring Street to the east. Most commute travel from TEZs to downtown Los Angeles

originates within ten miles of downtown, although there are notable flows from more distant origins, such as downtown Long Beach and San Pedro to the south and Van Nuys/North Hills to the north (Figure 41). Commute trips from TEZs to downtown Los Angeles that originate nearby generally begin to the west, south, and northwest, but not as prolifically from east Los Angeles County. Major origins include Inglewood, Mid City/Crenshaw, Cypress Park/Lincoln Heights, and south-central Los Angeles.

The portion of downtown Los Angeles identified as a key destination in Figure 41 is bordered by freeways on two sides: the SR-110 freeway on the western edge and the I-10 freeway on the southern edge. The area includes neighborhoods of South Park, the Financial District, Bunker Hill, and historic downtown. Auto access to the region is provided by freeways and surface roads from all directions of the Los Angeles urbanized area, although roadways are congested during peak hours.

Downtown Los Angeles is one of the most transit-accessible places in the SCAG region. Four primary transit systems serve downtown: LA Metro rail, LA Metro bus, Metrolink commuter

⁶³ SCAG. 2020. *Connect SoCal*. p. 89.

⁶⁴ Central City Association of Los Angeles. 2019. *DTLA Insights*. p. 25.

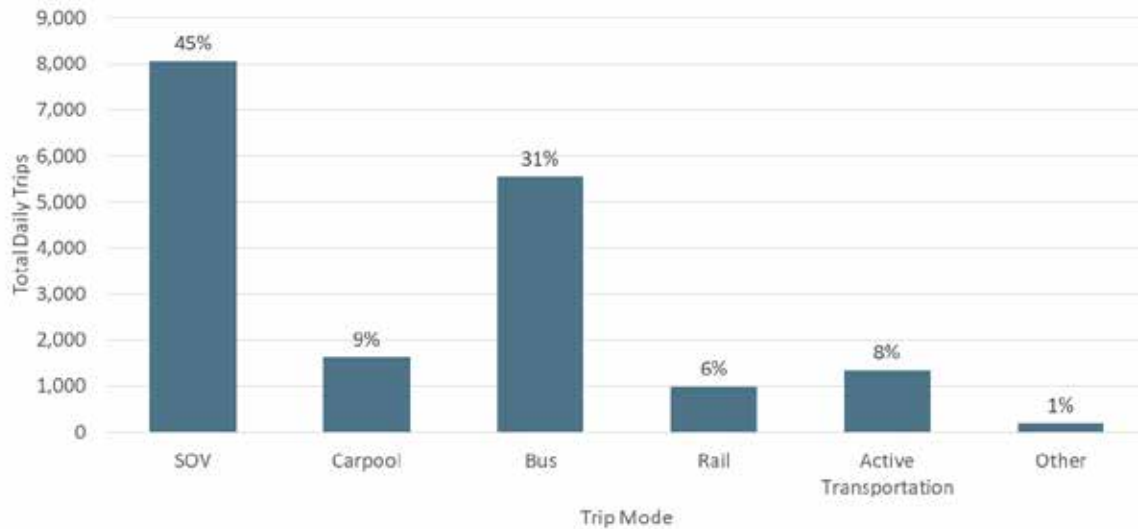


Figure 42. Mode Share of Commute Trips from TEZs to Downtown Los Angeles

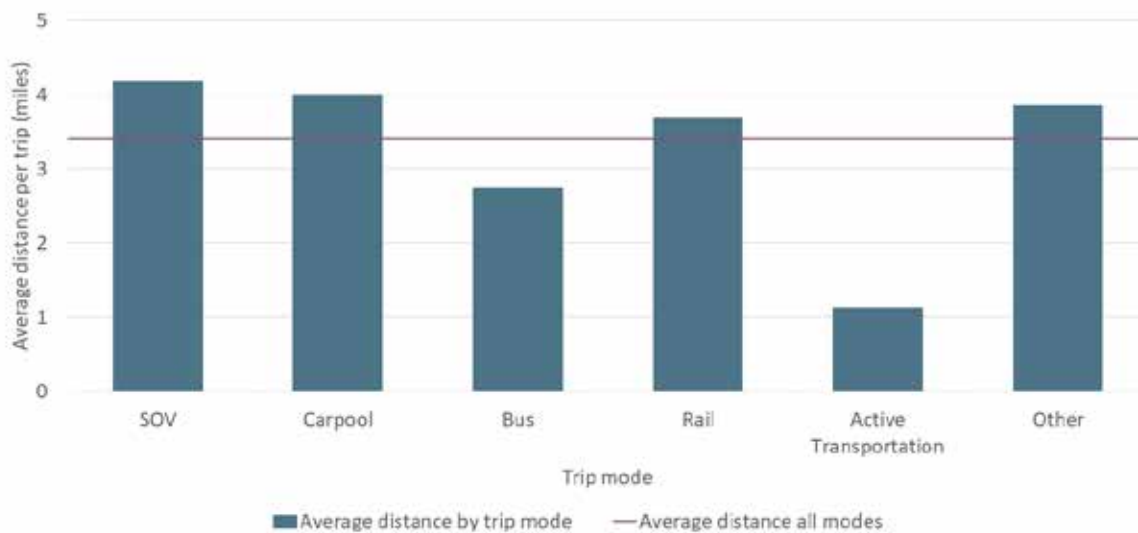


Figure 43. Median Distance of Commute Trips from TEZs to Downtown Los Angeles by Mode

rail, and LADOT bus. Metro rail has four lines (A, B, D, and E) converging at 7th Street/Metro Center Station; these connect neighborhoods to the west, north, and south to downtown Los Angeles. The LA Metro bus system operates more than 50 routes in and around downtown Los Angeles that connect surrounding neighborhoods to the area. LADOT also operates 14 commuter routes with service to downtown, as well as five downtown circulator routes. Metrolink commuter rail has a hub at Union Station, which is located to the east of the downtown area identified as a major destination for TEZ commute trips in this profile. In addition to these transit services, local transit agencies throughout the Los Angeles urbanized area provide service from other municipalities to downtown Los Angeles. In total, there are 11 transit operators providing bus service to downtown Los Angeles, including Santa Monica Big Blue Bus, Antelope Valley Transit, Santa Clarita Transit, Foothill Transit, Montebello Bus Lines, and Torrance Transit, among others. Orange County Transportation Authority (OCTA) provides inter-county connections to downtown, while the LAX FlyAway provides direct connections from LAX to Union Station.

The mode share of commute trips from TEZs to downtown

Los Angeles reflects the transit service offered: 37% of these travelers use transit, which is the highest percentage among key destinations profiled in this report (Figure 42). Downtown Los Angeles is also home to the greatest total number of transit commute trips from TEZs, at approximately 6,500 daily. Only 45% of these travelers commute via SOV, which is low for the SCAG region and reflects the competitiveness of transit as a commute mode to this destination.

The average distance commuted to downtown Los Angeles from TEZs is shortest for biking and walking trips, and among motorized modes is shortest by bus, highlighting bus transit’s competitiveness with other modes for shorter commute trips (Figure 43). The longest-distance average commutes from TEZs to downtown Los Angeles are made by auto, which likely represents the challenge of accessing downtown from more distant neighborhoods where transit could require multiple transfers or extended trip times.

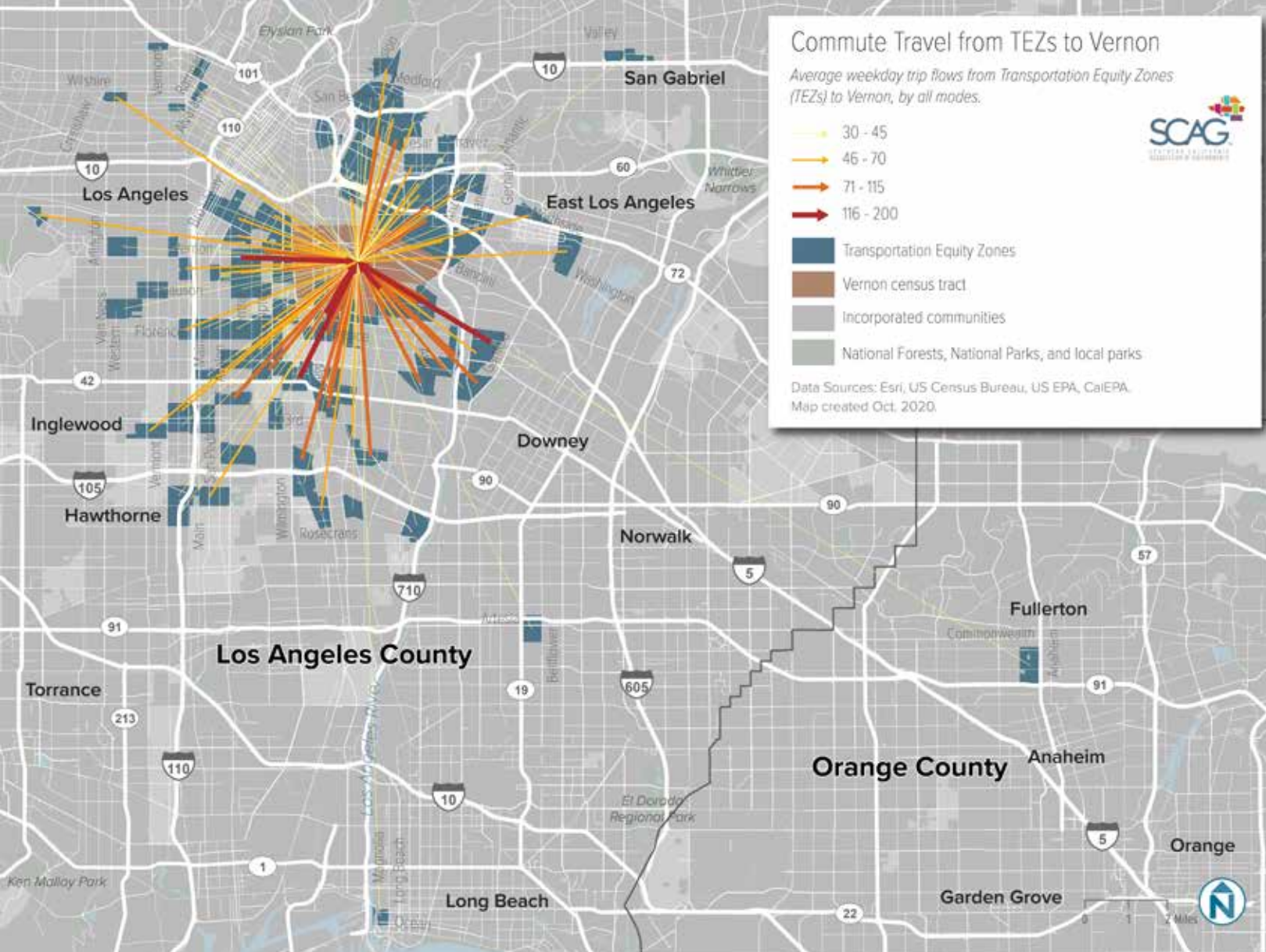


Figure 44. Map of TEZ Commute Flows to Vernon

Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Vernon

Vernon is a largely industrial community located about five miles southeast of downtown Los Angeles. The city is home to more than 1,800 businesses and 43,000 jobs, and is a vital economic engine for the region. Jobs in Vernon are primarily lower-wage positions in the manufacturing (43% of jobs), wholesale (22% of jobs) and retail (18% of jobs) sectors.⁶⁵

Commuter travel to Vernon from TEZs generally flows from nearby communities such as Bell, South Gate, South Central Los Angeles, and East Los Angeles (Figure 44). Although most of the TEZ-based commuter travel flows to Vernon are from within five to ten miles away, some flows from Fullerton and Lakewood TEZs

represent longer commute trips. The census tract used as the destination for travel flows in this analysis is roughly bounded by E 26th Street to the north, Atlantic Boulevard and S Downey Road to the east, Randolph Street and E Slauson Avenue to the south, and Alameda Street to the west.

Part of what has made Vernon a successful industrial hub for the Los Angeles region is auto access. The census tract identified as the key destination for TEZ commuter trips in Vernon is located near off-ramps from the I-10 and the I-5 to the north, and the I-710 to the east. Access to the area is also available via surface roads from nearly all directions, although the Los Angeles River serves as a natural barrier that directs vehicles into bottlenecks at bridge crossings. Access from the I-110 freeway is also possible to the west, although it is not as close as the aforementioned freeways.

⁶⁵ SCAG. May 2019. *Local Profiles Report 2019: Profile of City of Vernon*. p. 27.

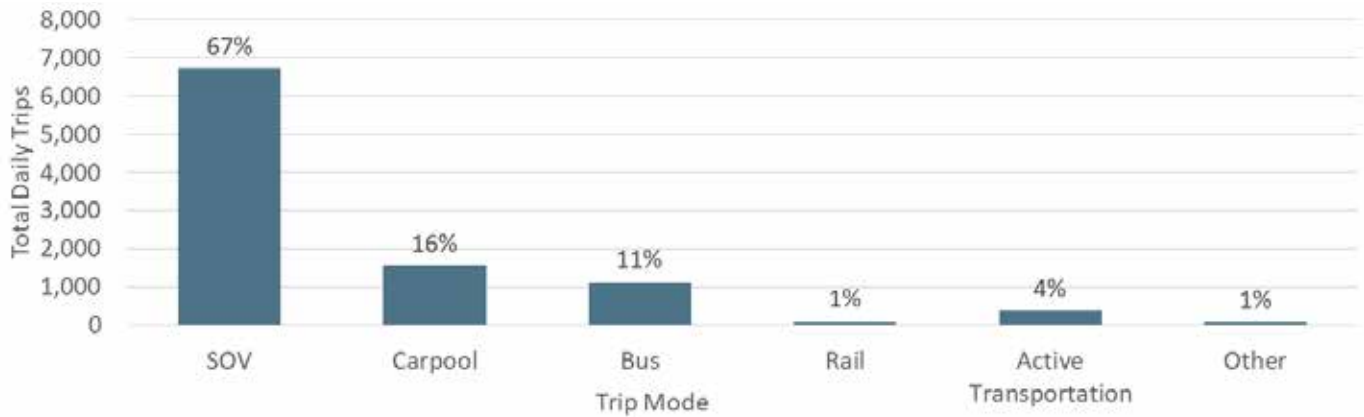


Figure 45. Mode Share of Commute Trips from TEZs to Vernon

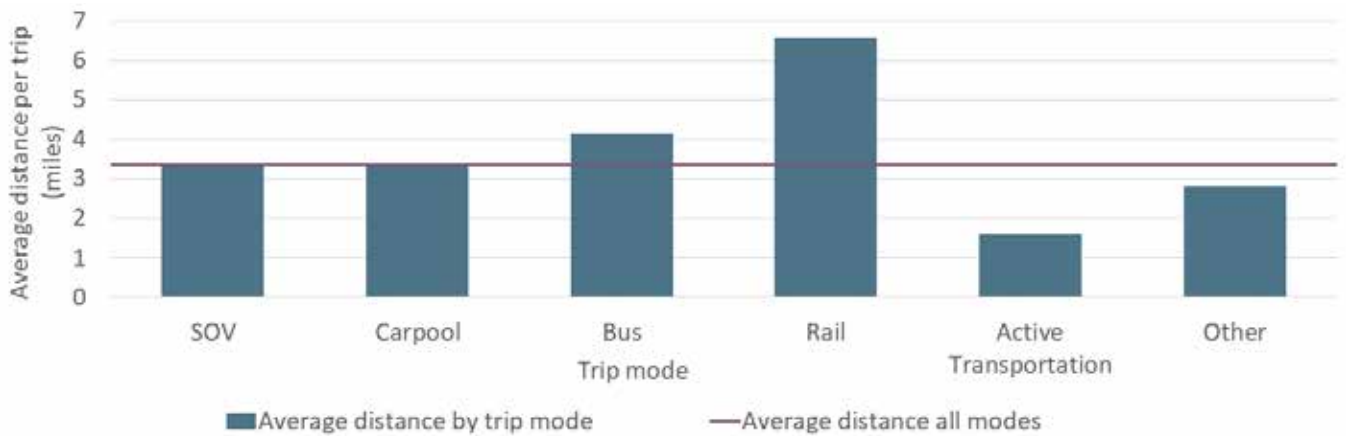


Figure 46. Median Distance of Commute Trips from TEZs to Vernon by Mode

Transit access to Vernon is not as robust as auto access, but presents important, high-quality connections that serve the area. The LA Metro Blue Line has two stops at the western edge of the Vernon key destination census tract (Vernon and Slauson stations). The area is also served by LA Metro local, rapid, and circulator bus routes that connect the Vernon area to nearby communities such as South Gate, downtown Los Angeles, south Los Angeles, Boyle Heights, and Lynwood. Overall, the area has several transit options, but few of them operate in their own right-of-way, which reduces its travel time competitiveness relative to auto travel, including SOV or carpool. As such, nearly 70% of TEZ residents commute to Vernon via SOV and 16% via carpool, making auto the dominant commute mode for TEZ residents working in Vernon (Figure 45). Only 1% of TEZ residents commute to Vernon via the LA Metro Blue line but 11% commute via the LA Metro bus routes to the area.

TEZ residents commuting to Vernon travel the farthest when they access the area by rail, suggesting LA Metro Blue line commute trips made by TEZ residents come from more distant locations than those made by TEZ residents using autos, perhaps due to the speed and reliability of rail (Figure 46). Bus and SOV commute trip distance to Vernon from TEZs is approximately equal, with bus trips originating, on average, a mile further than SOV trips. The general availability of bus transit to Vernon and the high numbers of auto commuters to the area suggests auto is competitive with transit as a commute mode.

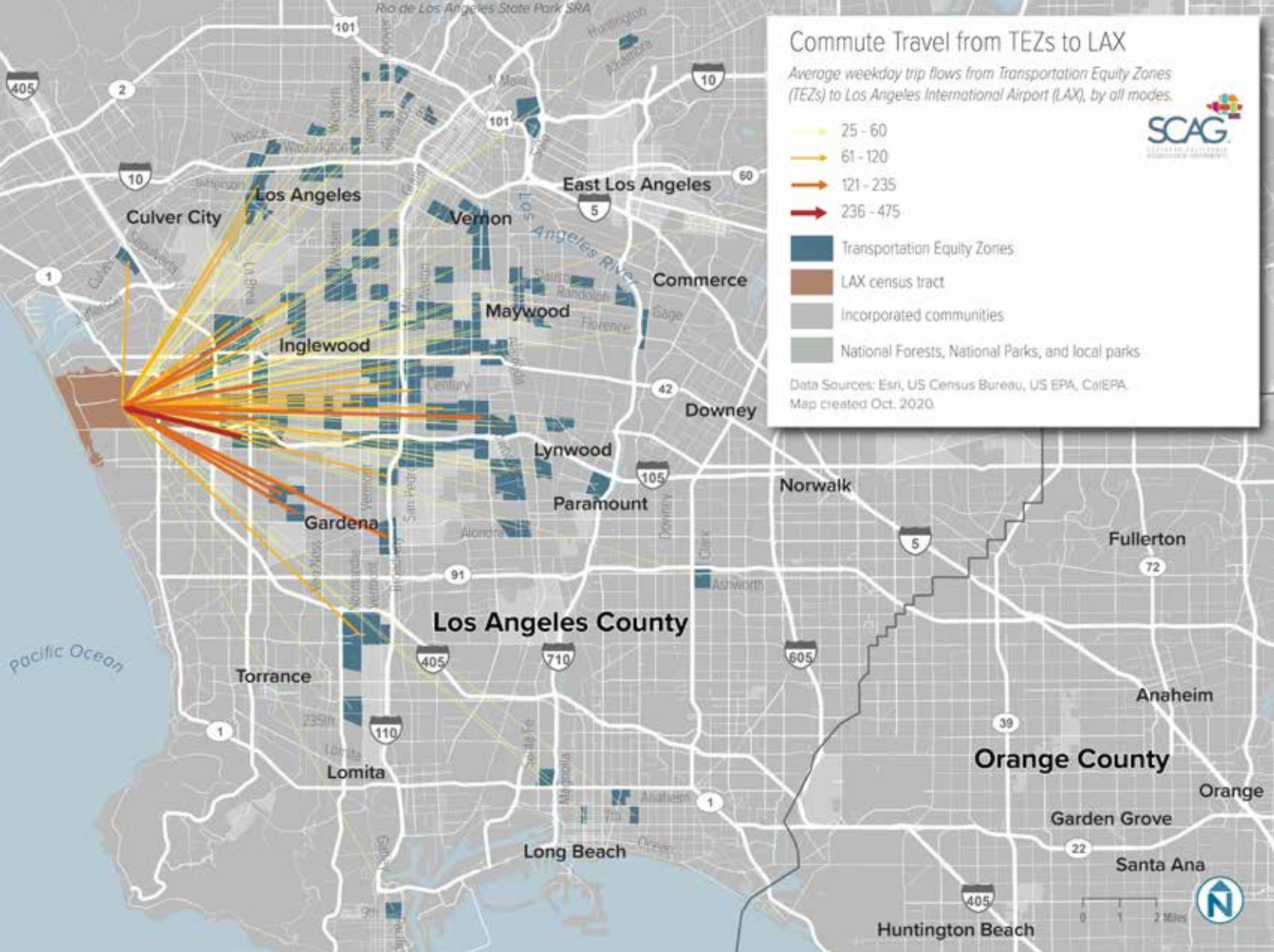


Figure 47. Map of TEZ Commute Flows to LAX
 Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Los Angeles International Airport

Los Angeles International Airport (LAX) is in the Westchester neighborhood of Los Angeles, roughly 18 miles southwest of downtown. LAX is the third-busiest airport in the world, serving more than 88 million passengers in 2019.⁶⁶ LAX is operated by Los Angeles World Airports (LAWA), a department of the City of Los Angeles, and is identified by SCAG as a Job Center in the Connect SoCal RTP/SCS.⁶⁷ Approximately 60,000 jobs are located at and around LAX that can be directly attributed to it.⁶⁸ Much of this employment is low-wage jobs in transportation, retail, and food service.

Most commute travel from TEZs to LAX is from neighborhoods five to 10 miles east of the airport, such as Hawthorne and

⁶⁶ Airports Council International. 2019. *World Airport Traffic Rankings*.

⁶⁷ SCAG. 2020. *Connect SoCal*. p. 89.

⁶⁸ Airport LA. 2020. *General Airport Information*.

Inglewood, although TEZ residents from throughout the southern portion of Los Angeles County commute to the airport as well (Figure 47). In this analysis, the census tract that serves as the destination for travel flows includes all of the runways and hangers, the Central Terminal Area, the Hyperion Water Reclamation Plant and Scattergood power plant, some of the hotels and car rental businesses northeast of the W Century Boulevard/S Sepulveda Boulevard intersection, and the PDR district bounded by Aviation Boulevard to the west, Imperial Highway to the south, La Cienega Boulevard to the east, and W Century Boulevard to the north.

LAX is well-served by roadway infrastructure: the airport is directly served by SR 1/South Sepulveda Boulevard and West Century Boulevard, both of which are major surface roads connecting to airport terminals and parking lots. The I-105 and I-405 provide freeway access to LAX. Although these roadways provide direct connections to the regional freeway network, they are frequently congested and travel times are unreliable.

LAX is served by the LA Metro C Line, LA Metro bus, Torrance

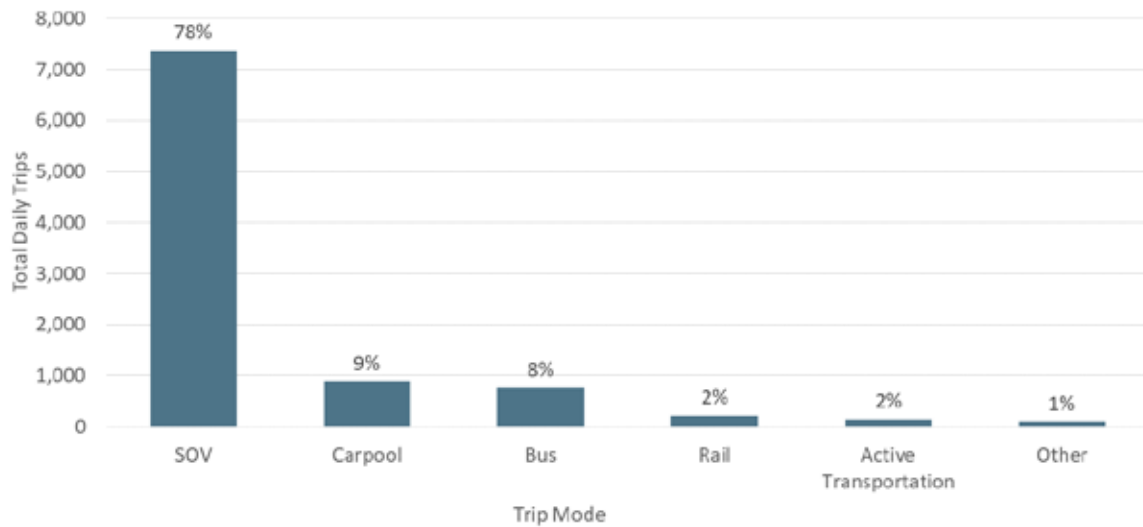


Figure 48. Mode Share of Commute Trips from TEZs to LAX

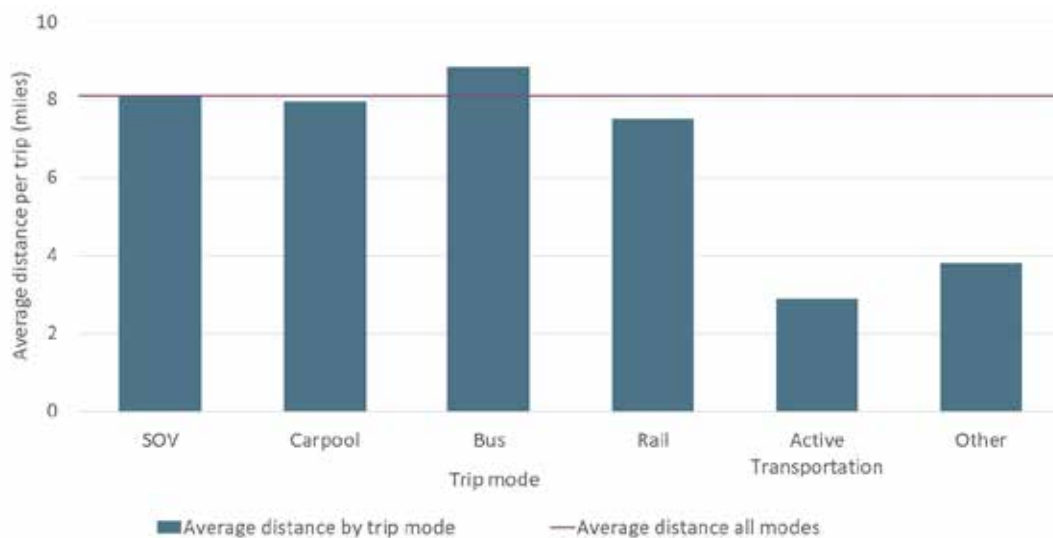


Figure 49. Median Distance of Commute Trips from TEZs to LAX by Mode

Transit, LADOT bus, Big Blue Bus, Culver CityBus, and other providers, although nearly all transit access involves a shuttle to the terminal area or other airport workplace destination after a transit trip, with the exception of the LAX FlyAway, a direct service provided by the airport that is currently operating between LAX, Union Station, and Van Nuys.

The challenges of accessing LAX via transit are illustrated in the mode split of commute travel from TEZs to the airport; nearly 80% of all TEZ residents commute to LAX via SOV and only 10% via transit (Figure 48). The surrounding pedestrian and bicycle networks in the area are also less established and inviting than those in places like downtown Los Angeles, which is reflected in the fact that only 2% of TEZ residents commute to LAX via foot or bicycle.

Commute trips from TEZs to LAX by SOV, carpool, and bus transit all average eight to nine miles, while rail transit trips average seven miles (Figure 49). The similarity in auto and bus transit travel distances suggest transit travel can be competitive with auto travel as a commute mode where both modes exist, but that some TEZs may not have quality transit connections to LAX. The

similar auto and bus transit commute distances may also indicate that workers from TEZs living farther from LAX are less likely to have access to a vehicle, or that due to the high costs of driving and time spent in congestion, may be more willing to accept a longer transit ride from both a cost and convenience perspective. Because the first-/last-mile connections for entering or exiting LAX are likely similar for those taking transit and driving (e.g., taking a shuttle bus from a remote parking lot or remote bus stop), and because buses and autos may be similarly impacted by congestion on roads surrounding LAX, the time advantages of commuting by one mode versus the other – particularly for longer commutes – may be limited. In other words, unreliable travel times due to congestion and long first-/last-mile journeys may make this a challenging commute, regardless of the primary mode used.

Case Study Interview: Los Angeles International Airport

As a part of the MIP project, select organizations were interviewed to discuss the impacts of congestion on their operations and employees. These conversations placed a focus on the relationship between travel and social equity. The Los Angeles World Airports (LAWA), who owns and operates LAX, was selected for interview because of the high number of TEZ residents that commute to the airport and the organization's ongoing efforts to combat congestion through increasing transportation connections to the airport. Although the focus of this work is on employee travel, insights regarding passenger travel to LAX are also included. LAWA staff were interviewed on September 30th, 2020 via Zoom videoconference.

EXISTING CONDITIONS

LAX serves two primary travel markets: airline passengers and employees,⁶⁹ both of which travel to LAX from throughout the region. The airport tracks passenger travel information via an online annual survey but does not have detailed information on employee travel, although a survey to collect these data is being developed.

LAX's passenger travel survey shows passenger travel is overwhelmingly via private transportation; approximately 90% of visitors to the airport come via SOV, carpool, taxi, and ridehailing. Ridehailing (i.e., demand-responsive rideshare provided by transportation network companies, such as Uber and Lyft) is a significant portion of this private transportation mode split, at 28%. Approximately 9% of visitors arrive via a shared or scheduled transportation service such as shuttle, hotel courtesy van, or the LAX FlyAway bus, while the remaining 1% of visitors use public transit.

LAX is heavily impacted by congestion, which affects both employee commute times and passenger access to terminals. Congestion at the airport occurs both during and outside typical peak commute times, increasing travel times and reducing reliability throughout the day. The most congested area is the Central Terminal Area (CTA), where most low-income employees at LAX work. Most of this congestion is due to terminal activity, such as passenger pick-ups and drop-offs. Significant congestion exists outside the airport as well, where much of the traffic is due to pass-through traffic that is unrelated to LAX. Much of the traffic on I-405, for example, is caused by vehicles traveling between north and south Los Angeles County.

The impacts of congestion vary for employees depending on the location of their worksite at the airport. Certain areas, such as the west side of the airport, are more difficult or impossible to access by transit, forcing employees to use auto modes that exacerbate congestion. Employees who drive to LAX parking lots as the first leg of their commute trip can spend up to 45 minutes to reach their worksite after parking. This added commute time is a result of several factors, including wait time for shuttles, walking distance to their work site, and congestion within LAX. LAWA believes congestion near LAX is one contributor to staff retention problems, although this appears to primarily affect higher-income employees that are drawn to opportunities at workplaces with more convenient commutes.

MITIGATING CONGESTION: CURRENT OFFERINGS AT LAX

LAWA currently offers several programs and services dedicated to improving the employee commute experience, including a vanpool program, subsidized transit passes, bicycle lockers, a carpool program, and trip planning. Vanpool is in high demand, particularly among long-distance commuters. More than 20% of LAWA employees participate in the vanpool program, with a majority traveling a minimum of 15 miles from origins as far as San Pedro, Irvine, and Ontario. Other long-distance commuters travel to work using LADOT's Commuter Express service, which provides connections from Ventura and Thousand Oaks to LAX. LAWA is also constructing the LAX automated people mover (APM), a circulator system that will connect the future LA Metro Crenshaw/LAX line Aviation/96th Station and car rental facilities to the CTA, improving non-auto access for passengers and employees.

LAWA is also working with local partners to offer additional non-auto commute options for airport employees. The City of Inglewood, for instance, is piloting an on-demand, app-based transportation service that serves Inglewood residents working at LAX (**Figure 50**). This service, called Iride, will serve many areas identified as TEZs. LAX employees will be able to reserve a ride and be dropped off directly at their worksite.

LA Metro is also piloting a microtransit program that includes LAX as a key service area. This on-demand service will be particularly beneficial for the approximately 13,000 badged employees living within 10 miles of LAX.

⁶⁹ According to LAX transportation planning staff, approximately 30,000 LAX employees live in Southern California and approximately 45% of these employees (~13,000) live within 10 miles of LAX.

ASSESSING EQUITY IMPACTS

Although all job classifications at LAX experience similar mobility and access challenges, LAX believes low-income employees are disproportionately impacted, due—in part—to the wage nature of their employment. Unlike many salaried employees, lower-earning waged employees' jobs are at greater risk if they are late to work, making a reliable commute even more important. Furthermore, these employees are less likely to be able to afford last-minute schedule adjustments, such as for family care or appointments, and may disproportionately bear the impacts of traffic impeding on their ability to make other important trips. These disproportionate impacts also likely apply to employees that work at hotels and other shift-based businesses adjacent to LAX. Many employees at these businesses—especially those working outside of typical nine-to-five shift hours—face barriers to using transit because existing service may not provide direct connections to their place of work, or transit service hours do not align with their shift times. As a result, employers in the area experience challenges retaining low-wage staff.

POTENTIAL SOLUTIONS AND NEXT STEPS

Transportation staff at LAX are planning several new programs and initiatives to address the impacts of traffic congestion. The Landside Access Modernization Program (LAMP), which is specifically focused on reducing congestion for people traveling to and from LAX, includes the forthcoming opening of the APM to alleviate congestion in the CTA and facilitate connections to the broader transportation network. Direct transit connections to the airport are also underway through the development of the LA Metro Crenshaw/LAX line, which will offer a light rail connection to the expanding footprint of LAX via the Airport Metro Connector Transit Station.

Additional shared mobility services are soon to launch, including Iride and the LA Metro microtransit pilot, which will provide more on-demand, shared mobility services at a low cost, and can help to reduce congestion for shorter trips to and from LAX. LAX is also developing a transportation management organization (TMO) for the airport, which will provide multi-modal transportation programs and services for LAX employers, with the intention of expanding offerings as resources become available. Given the major capital programs underway at LAX, increasing focus on congestion reduction policies and programs will remain a top priority for the coming years.

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Figure 50. Homepage for Planned Iride Service from Inglewood to LAX

Commuter Travel from TEZs to Ontario Industrial/Commercial District

Average weekday trip flows from Transportation Equity Zones (TEZs) to Ontario industrial/commercial district, by all modes.



Data Sources: Esri, US Census Bureau, US EPA, CalEPA.
Map created Oct. 2020.



Figure 51. Map of All TEZ Commute Flows to Ontario Industrial/Commercial District

Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Ontario Industrial/Commercial District

Ontario is a city in southwestern San Bernardino County, 35 miles east of downtown Los Angeles. Ontario is home to concentrations of low-wage industries such as manufacturing, wholesale, and retail. In total, Ontario hosts approximately 110,000 jobs, among which transportation accounts for 14%, retail 13%, and manufacturing 14%.⁷⁰ Ontario is the number one destination for TEZ commute travel in San Bernardino County and is identified as a SCAG 2020 RTP/SCS Job Center.⁷¹

The key destination profiled here is the Ontario industrial/commercial district, which is located east of Ontario International

⁷⁰ SCAG. May 2019. *Local Profiles Report 2019: Profile of City of Ontario*. p. 27.

⁷¹ SCAG. 2020. *Connect SoCal*. p. 89.

Airport and is home to major warehousing, logistics, manufacturing, auto dealership, and retail employment sites, including the Ontario Mills mall. The area used as the destination for this travel flow analysis is roughly bounded by I-10 and 4th Street to the north, Etiwanda Avenue to the east, E Philadelphia Street and Riverside Drive to the south, and Haven Avenue/S Archibald Avenue to the west.

TEZ residents commuting to the Ontario industrial/commercial district primarily travel from TEZs in San Bernardino County, Riverside County, and far eastern Los Angeles County, in the Pomona area (Figure 51). The most common commute trip flows from TEZs to the Ontario industrial/commercial district originate in Ontario, north and west of the Ontario International Airport, and the Montclair area. Flows from the east largely originate in San Bernardino, and flows from Riverside County originate in Corona, Mead Valley, the area near the Riverside Municipal Airport, and Rubidoux. The longest major commute pattern from

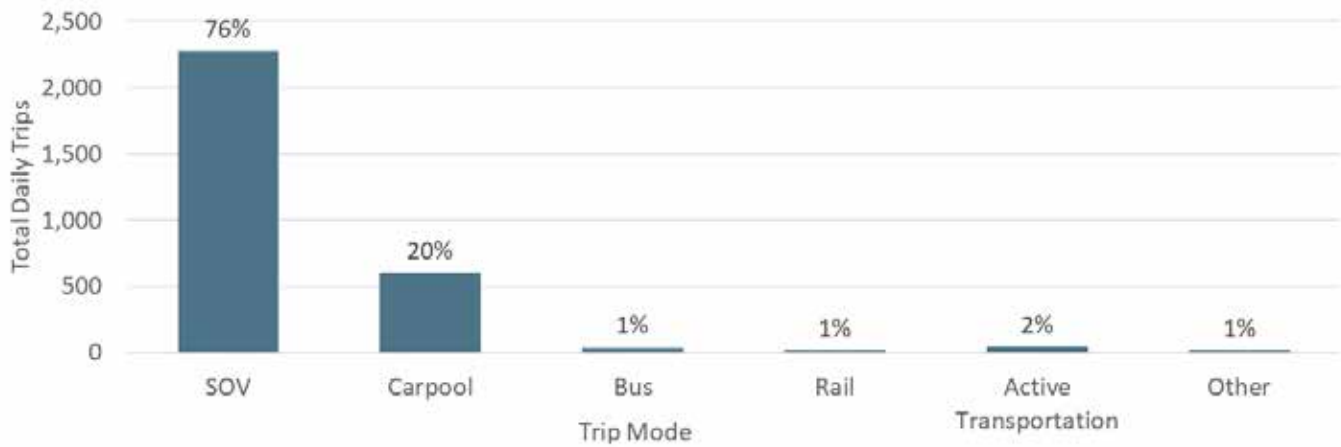


Figure 52. Mode Share of Commute Trips from TEZs to Ontario Industrial/Commercial District

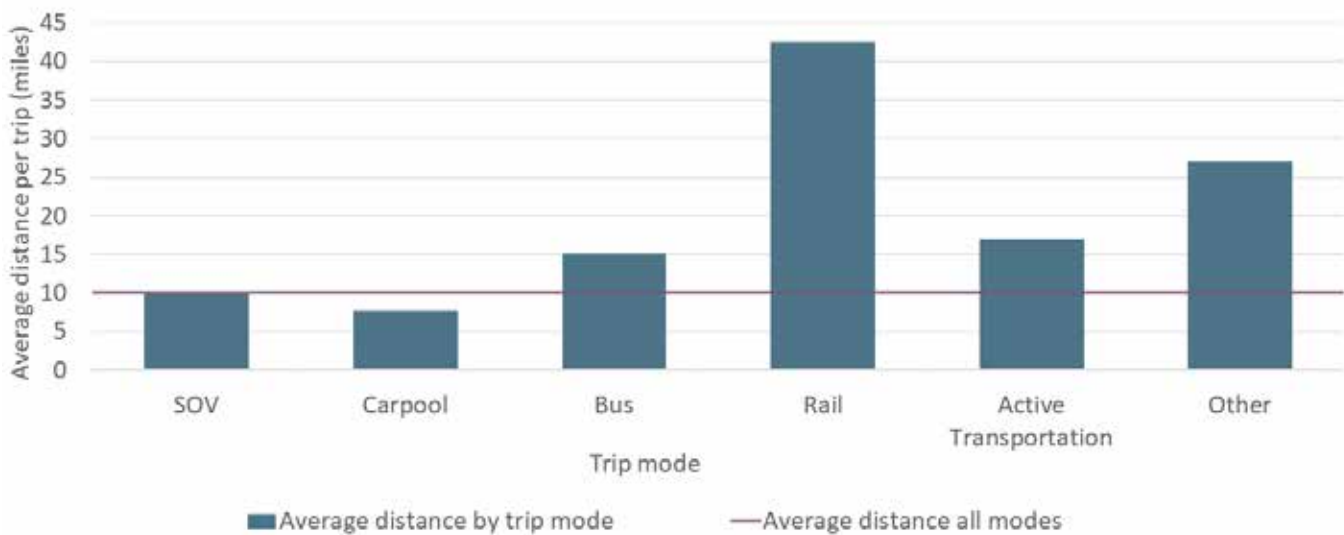


Figure 53. Median Distance of Commute Trips from TEZs to Ontario by Mode Industrial/Commercial District

a TEZ to the Ontario industrial/commercial district is from Boyle Heights, in Los Angeles.

The Ontario industrial/commercial district is centrally located in the Pomona Valley, with auto access via the I-15, I-10, and SR 60, contributing to the area’s success as a logistics hub for the Los Angeles urbanized area.

Transit access to the Ontario industrial/commercial area is sparse. In the southwestern portion of the industrial/commercial district is Metrolink’s Riverside line East Ontario stop, which connects Ontario to downtown Los Angeles and Riverside. Omnitrans, San Bernardino County’s regional transit agency, also operates local routes in the industrial/commercial area that connect it to Fontana, Pomona, Rancho Cucamonga, San Bernardino, and Montclair. Service on these routes is infrequent (providing service once or twice per hour at most), so they have limited value as commute modes for most travelers.

The lack of competitive transit access to the Ontario industrial/

commercial district is reflected in the TEZ resident commute mode share to the area: only 2% commute via transit (Figure 52). Nearly all TEZ residents commute to the Ontario industrial/commercial district via SOV and carpool.

The few TEZ residents that do commute to the area via Metrolink have the longest average commute distance, at approximately 43 miles (Figure 53). SOV and carpool commuters from TEZs to the Ontario industrial/commercial district have similar commute distances of eight to ten miles. The extremely high walk and bike average commute distance (17 miles) is likely the product of erroneously assigned trips in the CTPP data; the data include 20 active transportation commute trips that are 37 miles in length.

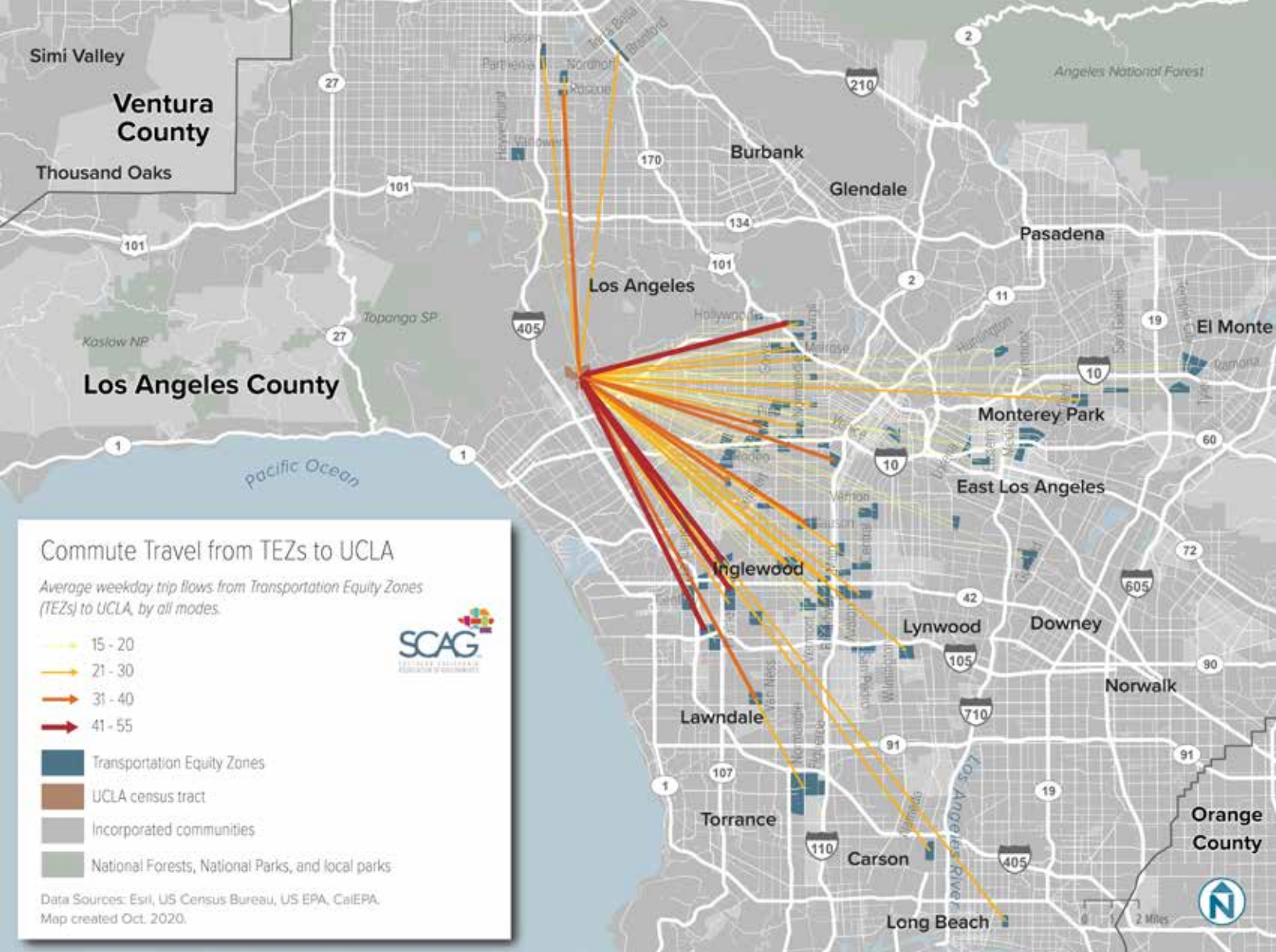


Figure 54. Map of TEZ Commute Flows to UCLA
 Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: University of California, Los Angeles

The University of California, Los Angeles (UCLA) is a major public research university in Los Angeles. The main UCLA campus is in the Westwood neighborhood of Los Angeles, about 15 miles west of downtown Los Angeles and five miles north of Santa Monica. UCLA is one of southern California’s top five employers, with more than 42,000 employees,⁷² and is identified by SCAG as a Job Center in the Connect SoCal RTP/SCS.⁷³ Although many jobs at UCLA are higher-paid faculty, staff, medical, and administrative

positions, the university area is also host to many food service, custodial, retail, and transportation jobs.

The census tract selected as the UCLA destination for commute travel from TEZs encompasses the UCLA campus and Ronald Reagan Medical Center, as well as the restaurants, retail, and other employers located on campus. Commute travel to this destination from TEZs is concentrated to the south and east, with the largest flows originating in the Lennox and Inglewood area, as well as the Little Armenia area. TEZ commute flows from the south originate as far as downtown Long Beach, and from the east as far as El Monte. Some commute travel from TEZs to UCLA originates to the north from the Van Nuys/North Hills neighborhoods in Los Angeles.

Travel flow data used in this analysis are for work trips only, so students are not included. If a student is employed at the university, they may or may not be included in the dataset

⁷² UCLA. *Careers Webpage*. Retrieved October 2020.

⁷³ SCAG. 2020. *Connect SoCal*. p. 89.

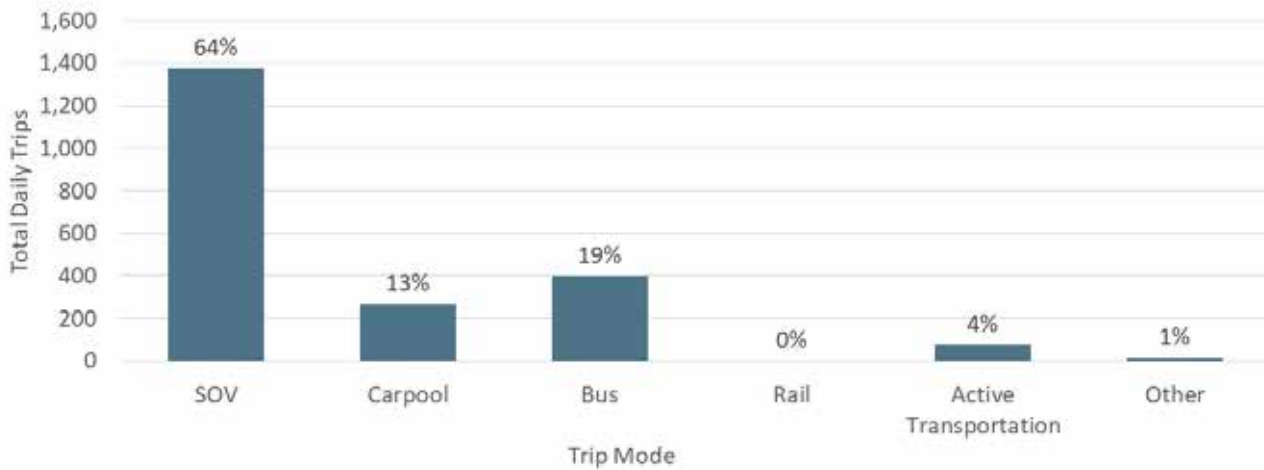


Figure 55. Mode Share of Commute Trips from TEZs to UCLA

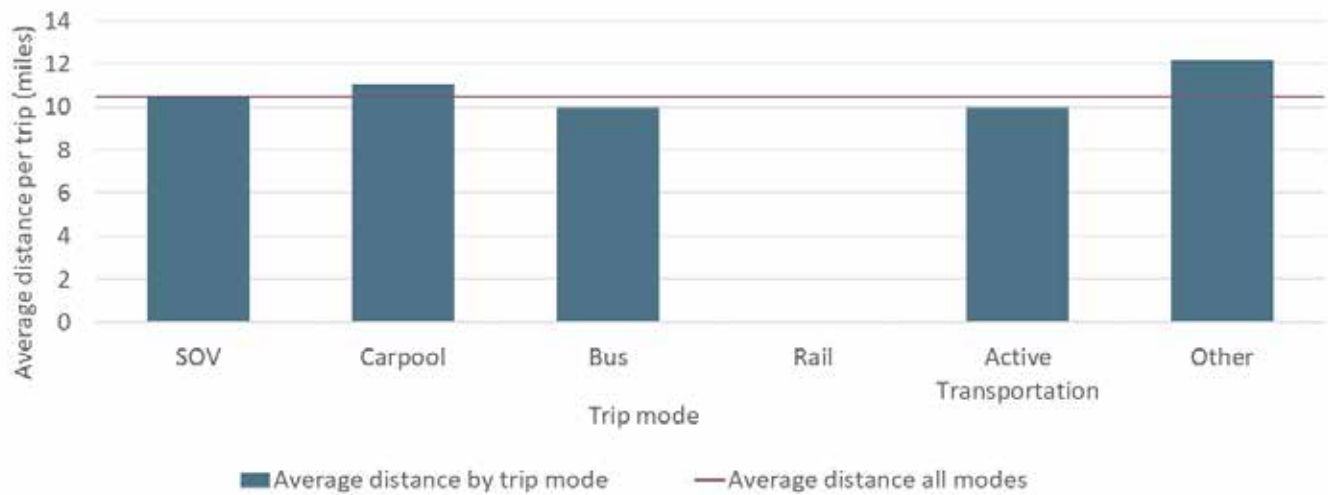


Figure 56. Median Distance of Commute Trips from TEZs to UCLA by Mode

depending on sampling procedures.

Auto access to UCLA from other parts of the region is primarily via the I-405 freeway and SR 2/Santa Monica Boulevard, as well as other surface roads. The hills north of UCLA serve as a barrier that funnels much of the vehicular traffic from points north onto the I-405. Approximately 65% of all TEZ residents use roadways to commute to UCLA via SOV, and 13% via carpool.

Local transit access to UCLA is via bus service provided by Bruin Bus (the UCLA bus service), Santa Monica Big Blue Bus, Culver CityBus, and LA Metro bus. Long Beach Transit, Antelope Valley Transit Authority, and LADOT Commuter Express also operate long-distance commuter routes to UCLA. These transit services carry approximately 19% of TEZ residents to work at UCLA (Figure 55).

The average commute distance to UCLA from TEZs is

approximately 11 miles; this distance holds true for most modes, although commutes from TEZs to UCLA by transit are generally slightly shorter than SOV or car commutes (Figure 56). This suggests most transit commuters from TEZs to UCLA are not using long-distance commuter buses from places like Long Beach and Lancaster, but are likely riding from closer origins, such as Los Angeles and Santa Monica instead. The high walk and bike average commute distance (10 miles) is unique among key destinations and may represent a particular travel pattern among key destinations profiled in this report: long-distance active transportation commuters from TEZs.

Case Study Interview: University of California, Los Angeles

As a part of the MIP project, select business organizations were interviewed and asked about the impacts of congestion on their

operations and employees. These conversations placed a focus on the relationship between travel and social equity. UCLA was selected for an interview because of the high number of TEZ residents that commute to the campus and the university's efforts to partner with transit agencies and private companies to reduce SOV travel to campus. Although the focus of this work is on employee travel, insights regarding student travel to UCLA are also included. UCLA transportation staff were interviewed on September 30th, 2020 via Zoom videoconference.

EXISTING CONDITIONS & EQUITY IMPACTS

The UCLA campus and surrounding Westwood area is home to approximately 45,000 students and 42,000 employees. At the main campus in Westwood, where most UCLA activities occur, UCLA surveys students and employees to assess travel behavior. These surveys find staff living within seven to 12 miles of campus generally drive or take transit, while students—who often live closer to campus—typically ride transit or walk and bike.

The high cost of living near UCLA campus creates unique mobility challenges for students and staff. Those who commute to UCLA from distant places such as Antelope Valley, Torrance, Long Beach, and the Inland Empire have few affordable transportation options that provide direct access from home to UCLA.

Affordability of transportation and housing is a particularly acute issue for students, who generally have lower incomes than employees (roughly 55% of UCLA students receive financial aid). A recent study by cityLAB UCLA that examined long-distance commutes of UCLA students found that the lack of affordable housing in Westwood, coupled with high transportation costs and limited transit service, have resulted in some students sleeping in their vehicles overnight instead of returning home.⁷⁴ Heavy congestion in the west Los Angeles area, particularly as travelers get closer to Westwood, also adversely impacts commuters traveling north from Long Beach and Gardena and those traveling to and from Riverside County. UCLA acknowledges that many low-income students cannot afford to live close to campus and therefore bear disproportionate impacts of congestion.

MITIGATING CONGESTION: CURRENT OFFERINGS AT UCLA

To tackle these challenges, UCLA Transportation offers several programs and services to meet commuter needs while encouraging shifts to non-auto modes. UCLA Transportation currently subsidizes transit service with seven local and regional transit agencies: BruinBus, LA Metro, Culver CityBus, Long Beach Transit, Santa Clarita Transit, Antelope Valley Transit Authority, and Big Blue Bus. Students and staff can purchase these monthly or quarterly passes at a discounted rate. UCLA Transportation has also partnered with Lyft to offer subsidized pooled ridesharing trips for anyone traveling to UCLA campus, provided their trip meets certain distance requirements.

UCLA Transportation previously offered a vanpooling service for long-distance employee or student commuters, but the program is not currently operating due to high operational costs and limited funding, particularly because of the COVID-19 pandemic. To further promote bicycling as a commute option, UCLA Transportation is also funding a Westwood bike study to encourage infrastructure investments in the area. UCLA Transportation staff consider facilities in and around campus to be limited and existing bicycle connections to off-campus student neighborhoods such as Palms and Koreatown to be limited, fragmented, or poorly maintained.

POTENTIAL SOLUTIONS & NEXT STEPS

Recent efforts to promote non-auto commute options have proven effective: daily auto trips in and out of campus, which include ridehailing trips, have decreased 15% from 123,000 in 2006 to 105,000 trips in 2020. Despite these positive results, UCLA Transportation acknowledges more can be done to improve equity in the commute experiences of low-income travelers and those with limited mobility options.

To further improve SOV trip reduction and sustainable mode shift outcomes, UCLA is considering fully subsidized transit for students, direct commuter transit service from Torrance and Gardena, collaborating with LA Metro to improve connections between LA Metro rail and bus service to UCLA, expanding electric vehicle charging infrastructure, and securing funding to reinstate the vanpool program. UCLA transportation staff are supportive of the LA Metro Sepulveda Transit Corridor project, which could improve non-auto access to campus for students and employees living north of Sepulveda Pass and to the south, near LAX. UCLA planners also acknowledge that increasing the amount of late-night and early-morning transit serving campus will help reduce SOV trips made by workers with overnight shifts, such as medical and custodial workers.

⁷⁴ cityLAB. September 2019. "My Commute is Hell": UCLA Students, Extreme Commutes, Impacts, Solutions.



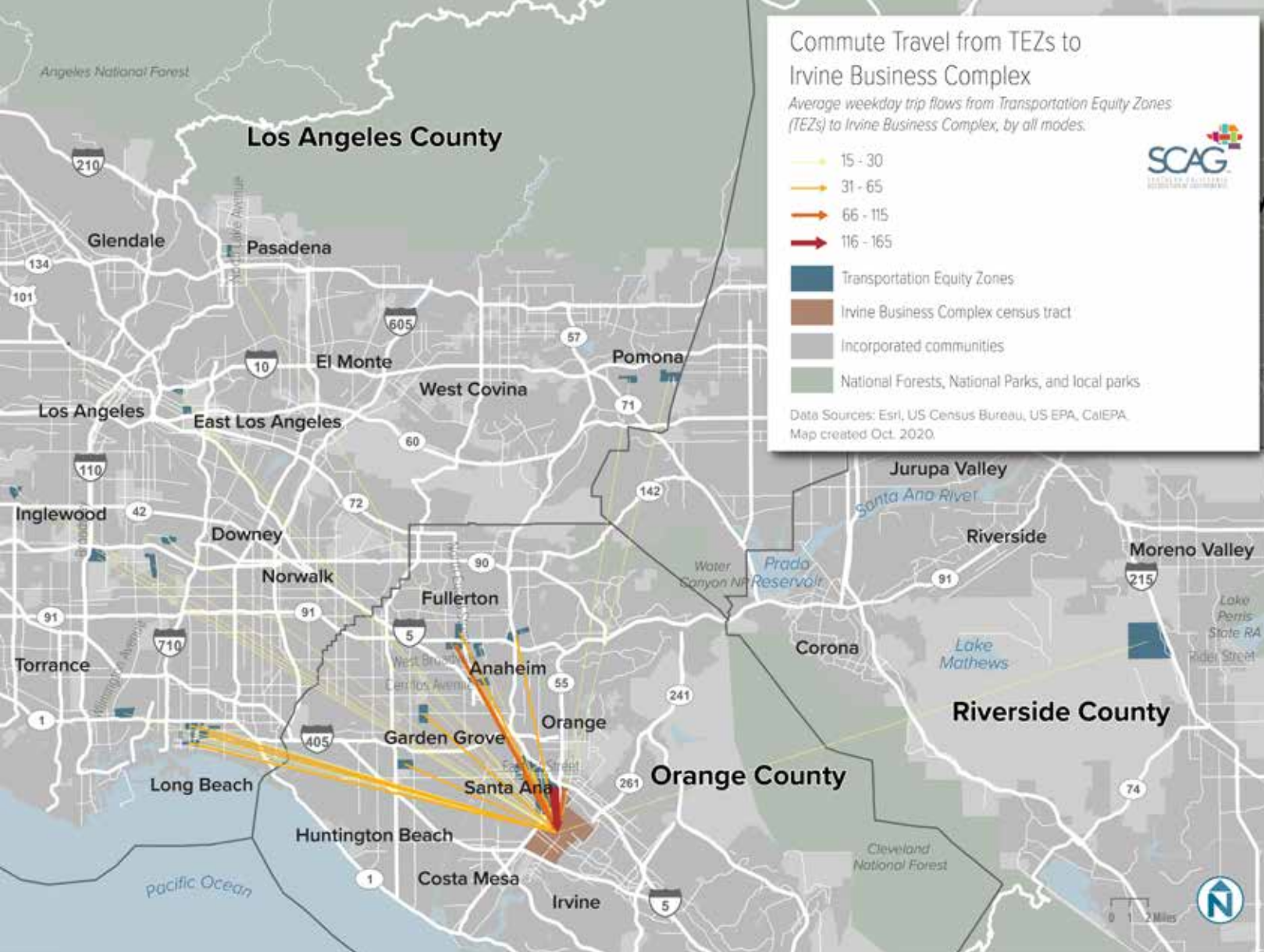


Figure 57. Map of TEZ Commute Flows to Irvine Business Complex

Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Irvine Business Complex

The Irvine Business Complex (IBC) is a commercial real estate development in the central part of Orange County, south of Santa Ana. Many corporations, particularly in the technology and semiconductor sectors, have their national or international headquarters here. Although IBC is home to a number of higher-wage office jobs, the census tract that is the key destination profiled here also includes a number of major retail, distribution, and manufacturing employment sites, which typically host lower-wage jobs. At a municipal level, Irvine is home to approximately 270,000 jobs, 14% of which are in the manufacturing sector, 5% of which are in the wholesale sector, and 9% of which are

in the retail sector.⁷⁵ IBC is the number one destination for TEZ commute travel in Orange County and is identified as a SCAG 2020 RTP/SCS Job Center.⁷⁶

Most commute travel to IBC from TEZs comes from the north and west, and originates in both Los Angeles and Orange County (Figure 63). Major TEZ-based commute flows come from Long Beach, Anaheim, and Fullerton. Smaller amounts of TEZ-based commute travel originate from the Inglewood area, East Los Angeles, and parts of the Pomona Valley. The census tract used as the destination for this travel flow analysis is roughly bounded by SR 55 to the west, I-405 to the south, Peters Canyon Creek to the east, and Edinger Avenue to the north. The tract includes the Irvine Business Complex, as well as similar business park-type

⁷⁵ SCAG. May 2019. *Local Profiles Report 2019: Profile of City of Irvine*. p. 27.

⁷⁶ SCAG. 2020. *Connect SoCal*. p. 89.

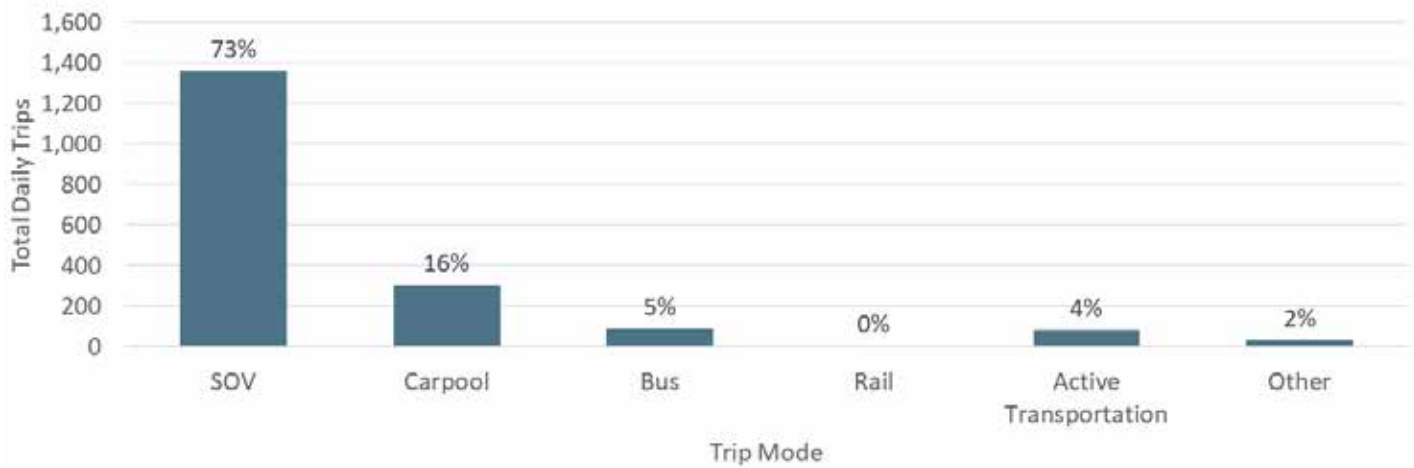


Figure 58. Mode Share of Commute Trips from TEZs to Irvine Business Complex

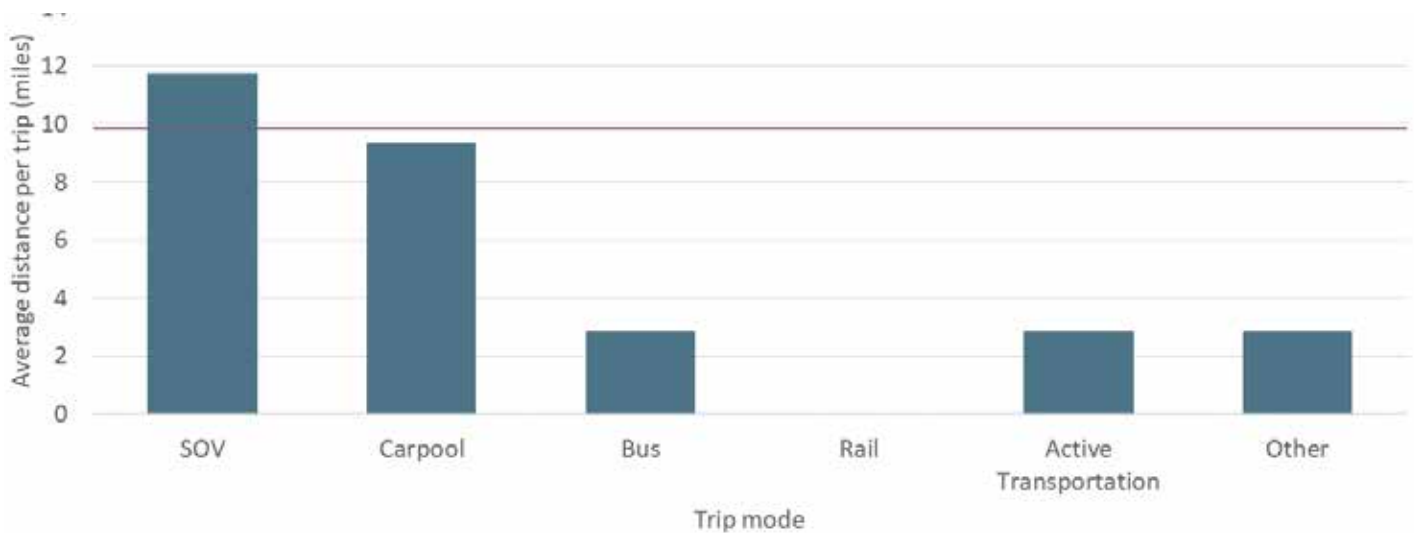


Figure 59. Median Distance of Commute Trips from TEZs to Irvine Business Complex by Mode

developments to the north and The District at Tustin Legacy mall.

Auto access to IBC is extensive; the area is surrounded by the SR 55, I-5, I-405, and SR 261/Jamboree Road. These roadways provide access to the rest of the region, including Riverside County via SR 91.

Transit access to IBC is primarily provided by Orange County Transportation Authority (OCTA), which provides local bus service and a feeder service to Tustin Metrolink station, which is about 1.5 miles outside the IBC key destination census tract boundary and is served by two routes (Inland Empire-Orange County Line and Orange County Line). OCTA's high-frequency bus network does not serve the IBC area.

Because most of the transit service to IBC does not directly connect the area with TEZs, the percentage of TEZ residents commuting to IBC via transit is low, at 5% (Figure 64). TEZ residents overwhelmingly commute to IBC via SOV (73% of

travelers) and carpool (16% of travelers). Given the limited transit service and the high carpool rate, there are promising opportunities to invest in bus transit improvements to IBC.

Because OCTA provides primarily local service to IBC, the average distance traveled by TEZ residents commuting to the area via transit is low, at approximately three miles (Figure 65). By comparison, average SOV and carpool distance traveled to IBC from TEZs is much longer, at 15 and nine miles, respectively. Although these trips may be possible by transferring among multiple transit agencies, auto remains the most competitive and convenient travel mode for workers to complete trips between places like Long Beach and IBC.

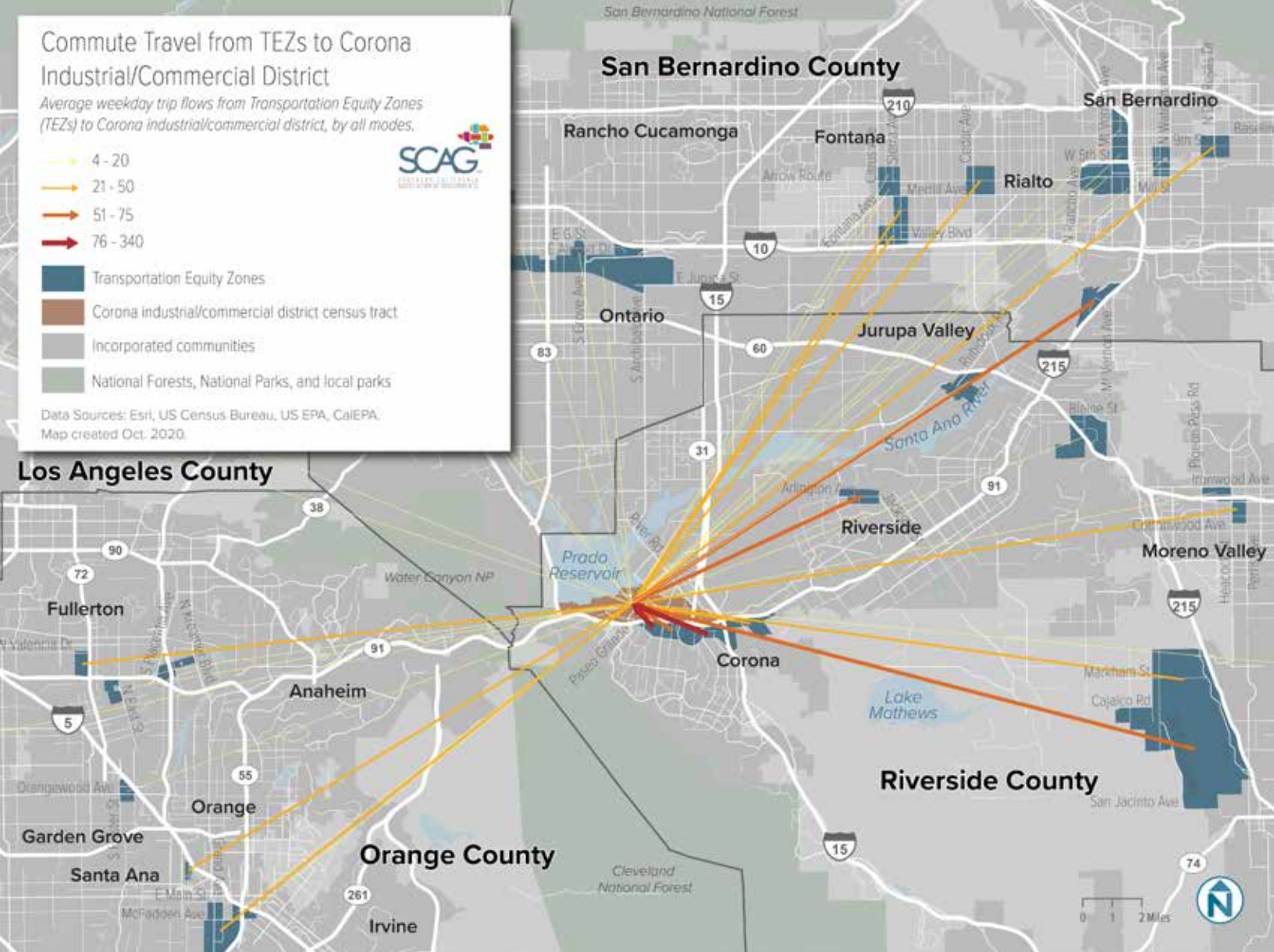


Figure 60. Map of TEZ Commute Flows to Corona

Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Corona Industrial/Commercial District

Corona is in northwest Riverside County, south of the Santa Ana River and at the intersection of SR 91 and the I-15 freeway. The city is home to approximately 80,000 jobs in industries including food, apparel, education, and logistics. Among these sectors, typically lower-wage retail jobs make up 17% of the workforce and manufacturing jobs 15% of the workforce.⁷⁷ Within the Corona industrial/commercial census tract, which is the key destination for TEZ travel profiled here, land use is primarily industrial and dominated by large warehouses and manufacturing buildings. Corona is identified as a SCAG 2020

RTP/SCS Job Center⁷⁸ and the Corona industrial/commercial district is the number one destination for TEZ commute travel in Riverside County.

Major commute flows from TEZs to Corona come from Los Angeles, San Bernardino, Orange, and Riverside counties, with the largest flows originating to the east, in the Highgrove/Grand Terrace, Riverside, and Mead Valley areas (Figure 60). The census tract that serves as the destination in this travel analysis is roughly bounded by the Prado Reservoir and Temescal Creek to the north, I-15 to the east, SR 91 to the south, and SR 71 to the west.

Corona is at the intersection of SR 91 and I-15, and is close to SR 71, which connects Corona to the Pomona Valley and I-10. The city's auto accessibility is part of the reason for its success as a warehouse and logistics hub for the region.

Transit access to the Corona industrial/commercial district is

⁷⁷ SCAG. May 2019. *Local Profiles Report 2019: Profile of City of Corona*. p. 27.

⁷⁸ SCAG. 2020. *Connect SoCal*. p. 89.



Figure 61. Mode Share of Commute Trips from TEZs to Corona

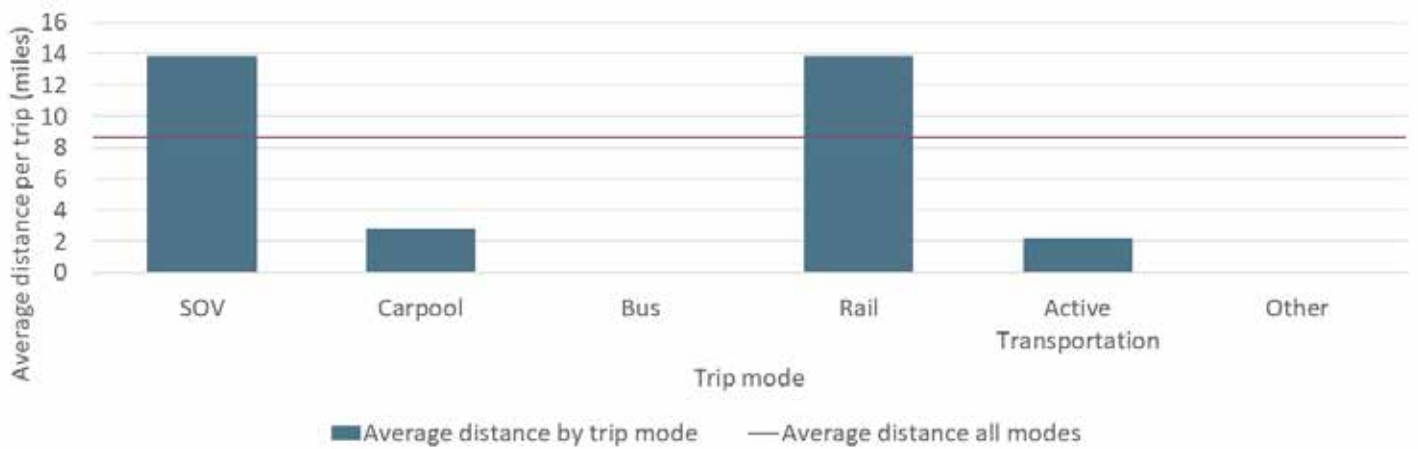


Figure 62. Median Distance of Commute Trips from TEZs to Corona by Mode

limited. Metrolink operates two rail routes that pass through Corona: Inland Empire-Orange County Line (San Bernardino to Oceanside) and 91/Perris Valley Line (LA Union Station to Perris South Station). There are two Metrolink rail stations serving Corona—West Corona and Corona North Main—and limited bus access via Corona Cruiser (Corona’s municipal transit agency) and Riverside Transit. Riverside Transit routes in the area connect the Corona industrial/commercial district with Riverside, Eastvale, Orange, and Temecula.

TEZ residents commuting to the Corona industrial/commercial district overwhelmingly travel by auto; 66% drive alone and 32% carpool (Figure 61). This carpool rate is high among key destinations profiled in this report and complements a 0.3% transit mode share for TEZ residents commuting to this destination, suggesting that carpooling may be filling a need that existing transit service is not. Most transit commute trips from TEZs to the Corona industrial/commercial district are reported

to be via rail; this low number is expected, as Metrolink service is infrequent and, as a commuter rail system, is more expensive than other transit options in the SCAG region.

The average trip distance for a commute trip from TEZs to the Corona industrial/commercial district is approximately nine miles, and SOV commute distances are higher than carpool distances, further supporting the hypothesis that commute trips currently being made as carpools may be well-served by transit, should it be operated more frequently, reliably, or at all, for these travel flows (Figure 62). Rail commute trips from TEZs to the Corona industrial/commercial district are the longest, but there are very few of these trips.

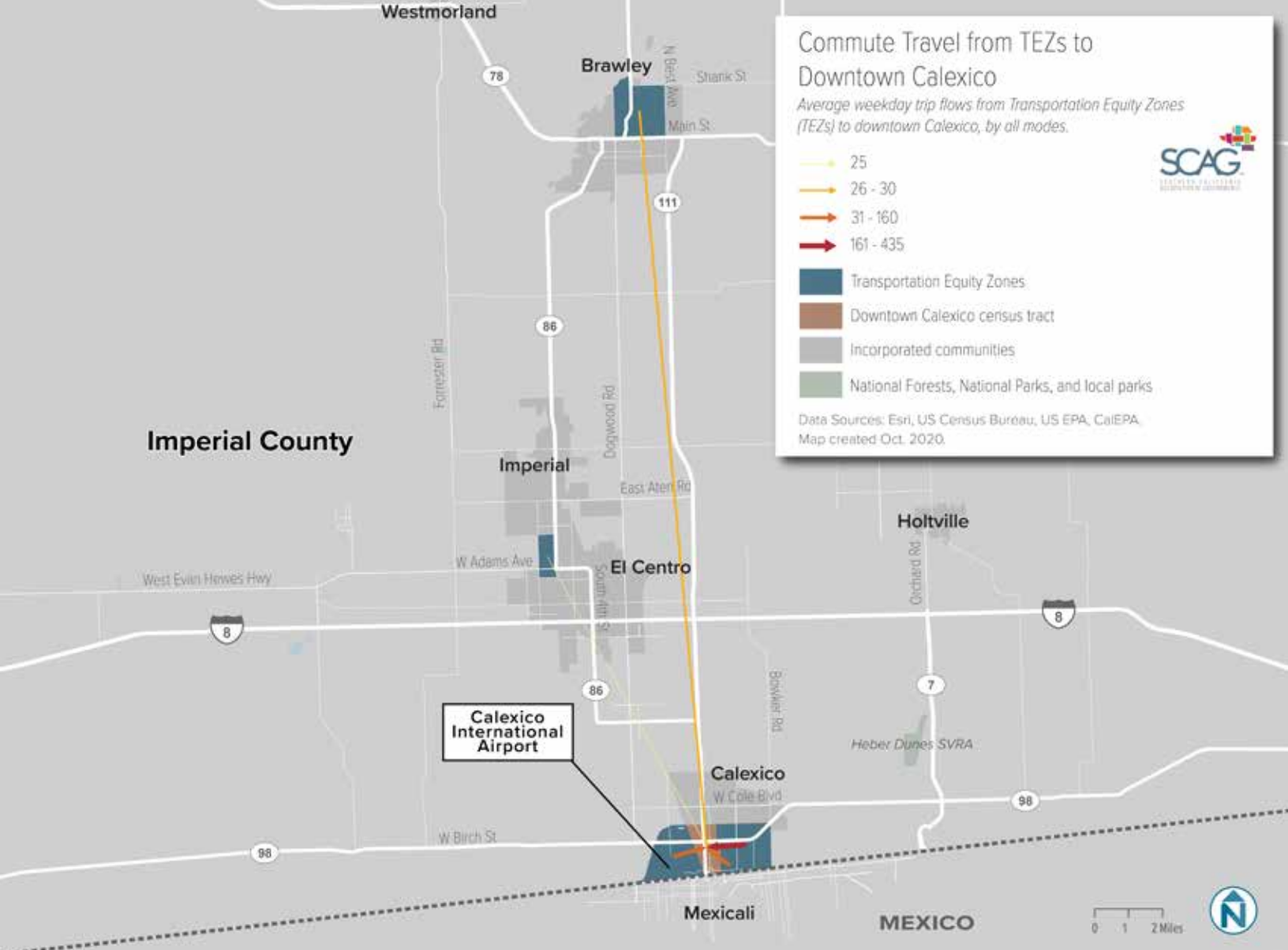


Figure 63. Map of All TEZ Commute Flows to Downtown Calexico

Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Downtown Calexico

Calexico is a small city in southern Imperial County, on the United States-Mexico border. Calexico is home to approximately 12,000 jobs, of which 25% are in the typically low-wage retail sector and 13% in the agriculture sector.⁷⁹ Downtown Calexico is the number one destination for TEZ commute travel in Imperial County, and is identified as a SCAG 2020 RTP/SCS Job Center.⁸⁰ The key destination census tract profiled here is the downtown core of Calexico on both sides of Imperial Avenue, including San Diego State University, Imperial Valley Campus and the border crossing.

TEZ residents that commute to downtown Calexico primarily come from the nearby eastern and western Calexico residential neighborhoods, while others come from the communities of Brawley and El Centro, to the north (Figure 63). The census tract used as the destination in this travel flow analysis is roughly bounded by Camacho Road to the north, Blair Avenue to the east, the international border to the south, and railroad right-of-way to the west. This tract includes San Diego State University's Imperial Valley Campus, the commercial district on Imperial Avenue, the border crossing, government buildings such as the Calexico City Hall and Mexican consulate. It should be noted that CTPP data used for this analysis does not include trips that originate in Mexico.

⁷⁹ SCAG. May 2019. *Local Profiles Report 2019: Profile of City of Calexico*. p. 27.

⁸⁰ SCAG. 2020. *Connect SoCal*. p. 89.

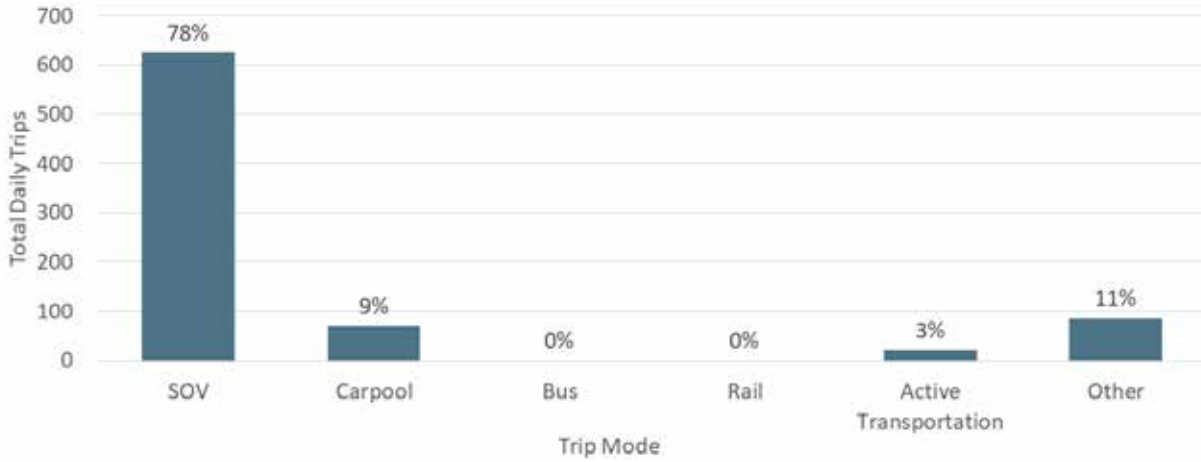


Figure 64. Mode Share of Commute Trips from TEZs to Downtown Calexico

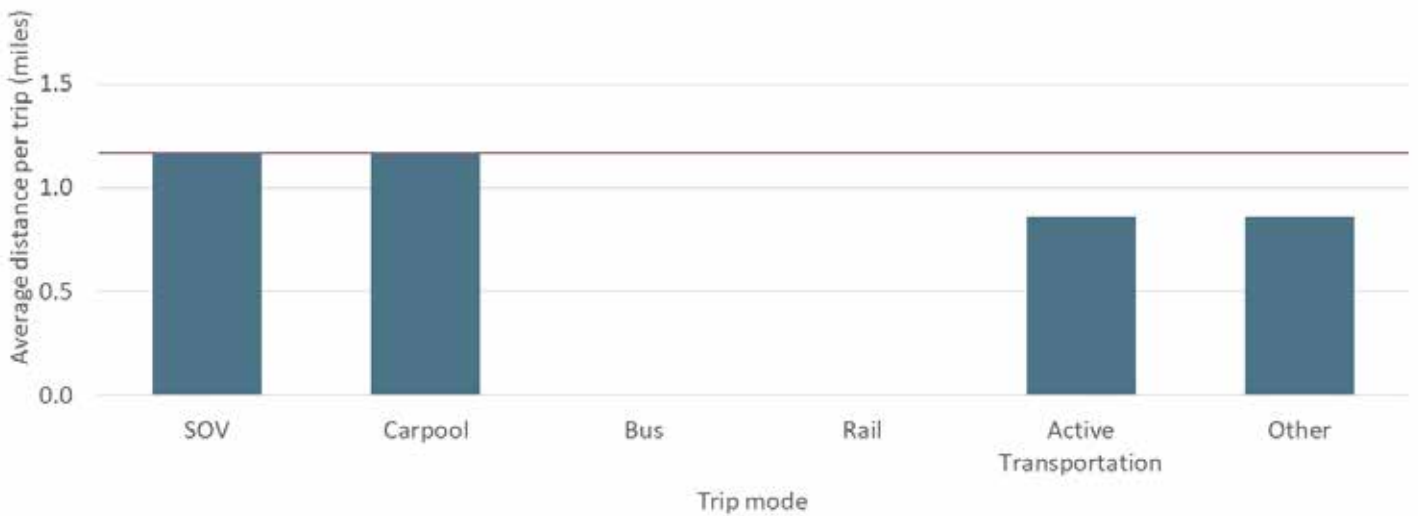


Figure 65. Median Distance of Commute Trips from TEZs to Calexico by Mode

Auto access to downtown Calexico is mainly via the two major highways, SR 98/Birch Street and SR 111/Imperial Avenue. SR 111 connects downtown Calexico with communities to the north and is also the primary route for Imperial Valley Transit vehicles traveling north/south.

Transit access to downtown Calexico is via Imperial Valley Transit routes that serve as both local circulators and intercity commuter buses. One route is an express route between Imperial Valley College and Calexico and the other two routes connect Calexico to El Centro and Brawley. These routes do not operate frequently, so they are not competitive with autos as a commute mode.

Nearly 100% of TEZ residents commuting to downtown Calexico do so via auto, as either SOV or carpool (Figure 64). This is likely due to the paucity of transit service connecting nearby TEZs to downtown Calexico, as well as the relatively high speeds and good reliability of roadways in the Calexico area, where congestion does not reach the intensity seen in the Los Angeles urbanized area.

The average distance traveled by a TEZ resident commuting to downtown Calexico is approximately equal via carpool and SOV (Figure 65). This suggests that carpool mode share may not be driven by geography or transportation infrastructure available, but by affordability concerns or lack of vehicle access. Carpool commuting from outside Calexico may indicate a travel demand that could be satisfied by transit.

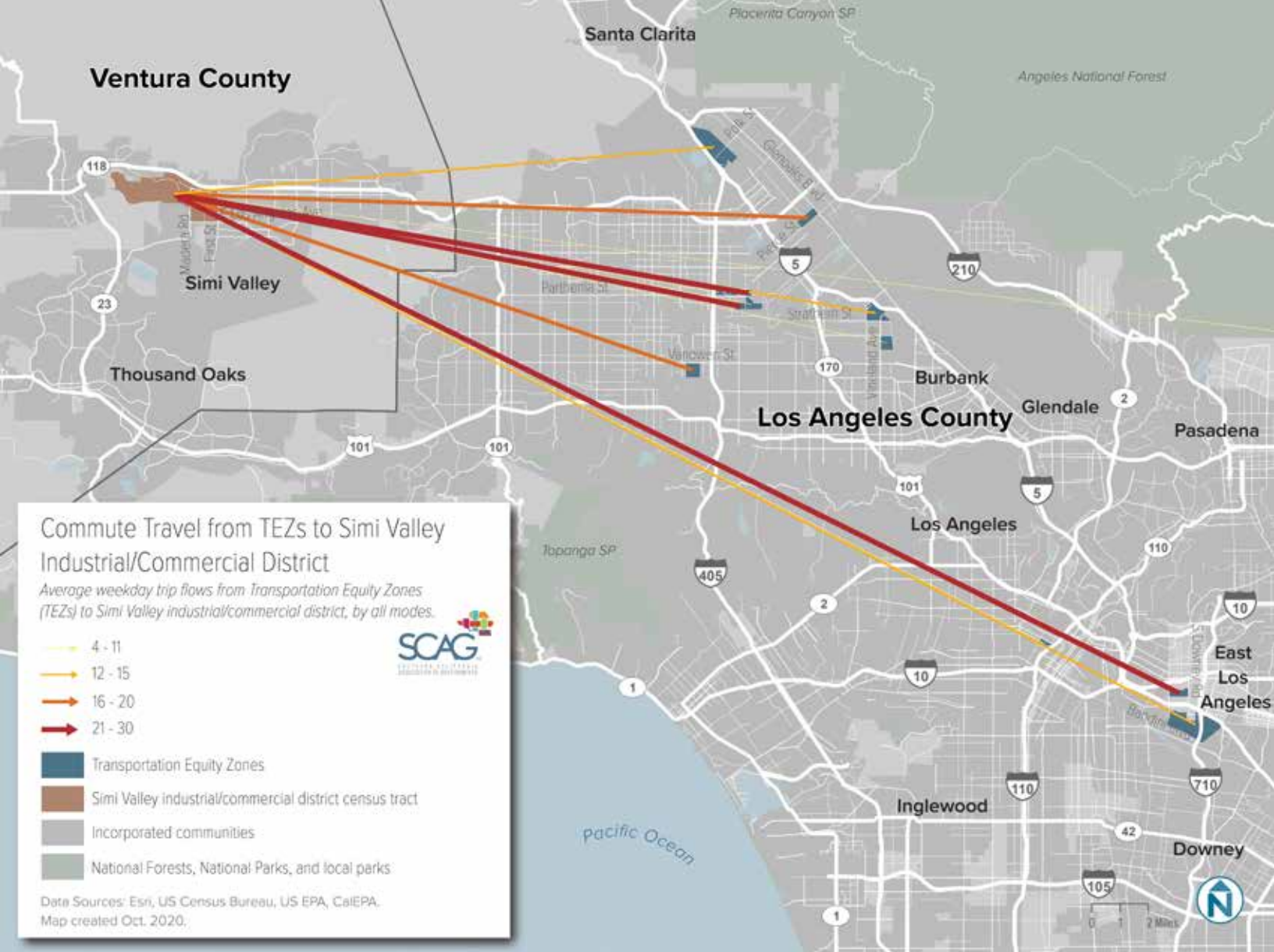


Figure 66. Map of TEZ Commute Flows to the Simi Valley Industrial/Commercial District

Note: Although this map does not show travel flows that originate beyond the extent of the map, this eliminates very few major travel flows. The vast majority of travel flows to this destination originate within the map extent. This map only shows travel flows of 30 or more trips and TEZs from which these travel flows originate.

Key Destination Profile: Simi Valley Industrial/Commercial District

Simi Valley is in the southeast corner of Ventura County, about 40 miles from downtown Los Angeles. Although Simi Valley land use is largely residential, the key destination census tract profiled here represents the industrial/commercial district in the northwestern corner of Simi Valley. Simi Valley is home to approximately 50,000 jobs, with generally lower-wage retail making up 19%, manufacturing making up 8%, and transportation making up 2% of these jobs. Although most jobs in Simi Valley are white-collar positions with typically higher wages, the industrial/commercial district is home to some of the lower-wage jobs identified above. Simi Valley is identified as a

SCAG 2020 RTP/SCS Job Center⁸¹ and the Simi Valley industrial/commercial district is the number one destination for TEZ commute travel in Ventura County.

Although Simi Valley is located in Ventura County, the major commute flows from TEZs to the Simi Valley industrial/commercial district are from Los Angeles County (Figure 66). Many of these flows represent long trips; major TEZ to Simi Valley flows originate in north Los Angeles neighborhoods of Sylmar, North Hills, and Van Nuys, and some originate in the Vernon/Maywood/East Los Angeles area. The census tract used as the destination for this travel flow analysis is roughly bounded by SR 118 to the north, First Street to the east, Royal Avenue and Tierra Rejada Road to the south, and undeveloped land to the west. Simi Valley is much more accessible via auto than transit. SR 118 directly serves the Simi Valley industrial/commercial area profiled here as a key destination, connecting Simi Valley to

⁸¹ SCAG. 2020. *Connect SoCal*. p. 89.

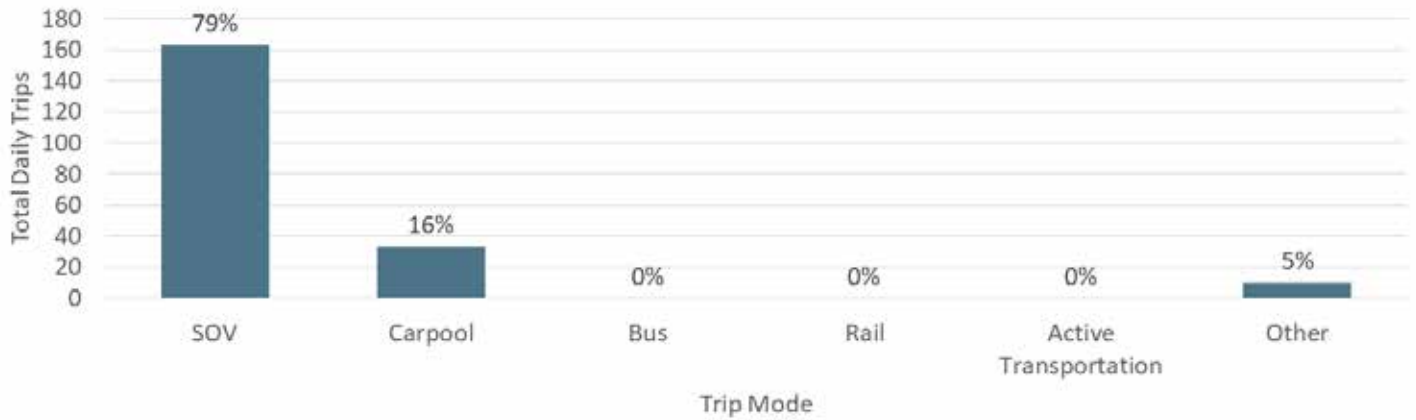


Figure 67. Mode Share of Commute Trips from TEZs to the Simi Valley Industrial/Commercial District

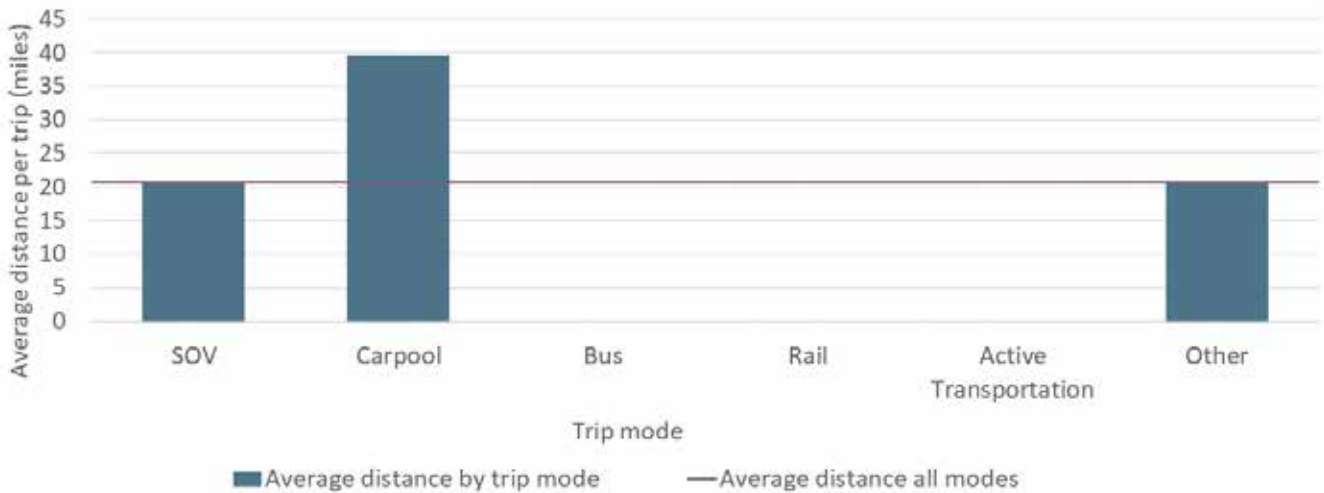


Figure 68. Median Distance of Commute Trips from TEZs to the Simi Valley Industrial/Commercial District by Mode

Oxnard and the US-101 freeway to the west and Los Angeles and the I-405 and the I-5 to the east.

Transit service to the Simi Valley industrial/commercial area profiled here is limited. Simi Valley Transit, the municipal transit agency, operates three local routes that connect the periphery of this key destination to the rest of Simi Valley and other transit services, including the Chatsworth Metrolink station. This service is infrequent and not an attractive commute option for most workers.

The dearth of transit service in the Simi Valley industrial/commercial area shows in the mode share of people commuting from TEZs to the area, where none (0%)⁸² of these travelers use transit (Figure 67). Nearly 100% of these travelers use auto, either as SOV or carpool trips, but it is also notable that the

number of TEZ residents commuting to this key destination is relatively low, in absolute terms.

Among the primarily SOV and carpool commuters from TEZs to the Simi Valley industrial/commercial district, carpool commuters typically travel longer distances than SOV commuters (Figure 68). This behavior may reflect a desire among TEZ-based commuters to reduce the cost of a long auto commute by sharing costs among multiple commuters. The relatively high average distance traveled is also likely due to lack of TEZs near the Simi Valley industrial/commercial district; housing costs in the area are generally high, relative to elsewhere in the SCAG region.

⁸² Actual transit riders may not be exactly zero because CTPP is based on 2016 five-year ACS estimates. Nonetheless, the data indicate that transit commute trips and transit share on total trips is insignificant at best.

Key Findings: Key Regional TEZ Travel Destinations and Business Organization Outreach

Examining TEZ commute travel to key employment centers expands upon the story evident in regionwide and county-level statistics, while providing a more nuanced examination of the complexity of travel patterns and choices to and from these communities. The key destinations analyzed above include PDR districts, business centers, an airport, and a university; although every employment destination is unique, some of the travel patterns highlighted in these profiles may be applicable at similar destinations elsewhere in the SCAG region. This baseline understanding of TEZ-based commute travel is the first step in assessing the potential impacts and benefits of any future potential mobility innovations, such as road pricing. Some of the key findings from this section of the report that make up this baseline understanding are:

TEZ COMMUTE FLOWS ARE LARGELY LOCAL.

Most of the significant commute flows from TEZs to major employment destinations are within approximately 10 miles of the employment destination. In lower-density environments, such as the Corona area and Ventura County, trip distances are somewhat longer. The impacts of congestion likely play a role in limiting the distance of commute trips (by both auto and transit), as living in closer proximity to the workplace is of increasing importance when commute times can be highly variable and unreliable for both auto and bus transit travel.

CARPools ACCOUNT FOR A DISPROPORTIONATE SHARE OF TEZ TRAVEL.

Residents of TEZs make between 9% and 32% of trips to major employment centers via carpool. These relatively high numbers suggest carpooling is an attractive alternative to SOV commuting, particularly where there is very limited transit service. In general, places with limited transit access, such as Corona, have higher rates of carpool commuting by TEZ residents.

RAIL IS NOT A MAJOR COMMUTE MODE FOR TEZ RESIDENTS.

In general, relatively few TEZ residents commute to work in the profiled key employment destinations via rail. This is partially due to the limited nature of access to rail transit (rail lines generally have far fewer stops than bus routes) but may also be due to the high cost of rail transit fares relative to auto and bus transit travel, particularly when it comes to commuter rail, and to the sometimes-elevated housing costs near rail stations.

EMPLOYMENT CENTERS ARE AWARE OF THE EQUITY IMPACTS OF CONGESTION BUT ONLY HAVE LIMITED TOOLS TO ADDRESS TEZ TRAVEL CHALLENGES.

The business outreach conducted for this portion of the report (to LAX and UCLA) revealed that major employers are aware of the impacts traffic congestion has on their employees, customers, visitors, and other stakeholders. These organizations are also aware of the inequitable impacts of congestion: lower-income travelers are often disproportionately impacted. Although both LAX and UCLA have implemented programs to reduce SOV trips and congestion, they continue to be challenged by congestion issues, which have negatively impacted staff recruitment and retention. Both LAX and UCLA are interested in the future potential benefits mobility innovations, such as road pricing, could yield for their organizations.

Future Research

The analysis conducted in this report develops a methodology for defining TEZs, identifies TEZs and conducts a high-level assessment of work travel from TEZs to major employment centers throughout the SCAG region. Although this analysis answers important questions about TEZ-based commute travel, it raises many more. Provided the appropriate resources, future research on the following TEZ-related subjects would be valuable:

Modifying the TEZ Index

Because the TEZ index scores all census tracts in the six-county SCAG region against one another, it does not ensure that an equal number of census tracts in each county are classified as TEZs. Although this approach produces valuable regionwide insights, it reduces the focus on travel in counties such as Ventura and Imperial, where only two and six TEZs were identified, respectively. Developing a county- or subregion- specific TEZ index or adjusting the index method to capture an equal number of TEZs in each county may be fruitful experiments that allow for greater focus on distinct travel challenges from disadvantaged communities in certain parts of the SCAG region.

Non-Work Travel

The analysis in this report assesses only commute travel. Other types of travel from TEZs, such as shopping or recreational trips, would also be valuable to understand from an equity perspective. Recent research highlights the importance of analyzing non-work travel for equity reasons; namely, because non-work trips are often taken by women and families, and may require more intricate trip planning and travel needs,⁸³ and also because new smartphone-based travel datasets are available that include these trip types. Leveraging these new datasets (while also vetting their collection methods and reliability) may produce greater detail and insights on TEZ travel, which would improve assessment of potential impacts and benefits related to future mobility innovations.

The Role of Carpooling

The analysis in this report produces high-level statistics on carpooling and SOV mode choice for work travel from TEZs, revealing that more than 10% of commute trips from TEZs are typically via carpool. Further research to better understand when, where, and why TEZ residents choose carpooling over SOV travel would be valuable, given the relationship between carpooling and potential future mobility innovations. In particular, more information on carpooling could help identify if carpooling is driven by lack of auto access and how carpooling affects trip-chaining opportunities (e.g., picking up children from childcare on the way back from work). This research may benefit from a qualitative component, such as interviews or focus groups.

Network Analysis

Although this work explores the origin and destination of travel flows from TEZs to major employment centers, it does not assess the path of travel on transit lines or individual roadways. Although this information cannot be known with certainty, it can be imputed. Understanding the network-level paths of travel that TEZ residents take would help more accurately assess the impacts of future potential mobility innovations such as road pricing.

⁸³ Los Angeles Metropolitan Transportation Authority. August 30, 2019. *Understanding How Women Travel*.

PART III: EQUITY TOOLKIT



The Equity toolkit highlights equity considerations for road pricing using accessible, non-technical language. The toolkit then provides a list of tools to mitigate impacts and elevate the needs of underrepresented communities. These tools include strategies for designing pricing programs more fairly and for reinvesting pricing revenue in a way that addresses potential equity concerns. The equity toolkit, combined with additional resources developed for the MIP project, can be adapted for outreach by agencies and community-based organizations. Additional community resources include a frequently asked questions document (Appendix E), a guide to transit funding and the impacts of COVID-19 (Appendix F), and materials used for the CAC workshops.⁸⁴

Equitable program design strategies include subsidies, credits, and payment accessibility measures.

- Subsidies lower the cost paid by certain users through mechanisms such as discounts or exemptions.
- Credits provide certain users with additional resources to pay for priced roads.
- Payment accessibility measures enable all users, including those facing technological or institutional barriers, to make road pricing payments.

Equitable revenue investment strategies increase the quality and accessibility of alternatives to solo driving.

- Investing in active transportation infrastructure can increase road safety, facilitate exercise, and provide alternatives to shorter auto trips.
- Investing in transit can improve non-auto travel by increasing transit speed, frequency, and reliability.
- Investments in first-/last-mile connections can expand access to transit within and beyond the immediate surroundings of a transit stop.
- Investments in carpool programs can enable easier and faster auto travel.

⁸⁴ Community resources are available at <https://scag.ca.gov/transportation-finance>

Overview of the Equity Toolkit

What is the Road Pricing Equity Toolkit?

This Road Pricing Equity Toolkit (Equity Toolkit) is a resource for public and private sector actors to identify mitigation strategies that support a more equitable road pricing program in their community. The toolkit's target audiences are people and organizations with limited familiarity with mobility innovation concepts who would like to enhance their understanding and participate in shaping road pricing and other mobility innovations in the region. One goal of the Equity Toolkit is to set a baseline understanding of what types of mitigation strategies exist for addressing equity impacts of road pricing and to describe the applications in which these strategies can be used successfully. This toolkit will help ensure interested community members can fully engage in discussions about where, when, and how to use these tools.

This Equity Toolkit describes road pricing equity mitigation strategies, opportunities, and potential implementation challenges. There are two ways road pricing can be more equitably implemented: 1) through program design and 2) through revenue investment.

Equity through Program Design

Program design includes when and where pricing will occur, how much drivers pay, and how payments will be collected. Program design also includes designation of discounts, exemptions, or rebates for certain travelers, which identify who will be priced and what their costs will be.

Equity through Revenue Investment

Revenue investment is how revenue from a road pricing program is used. Often, these revenues are invested in additional public transit service, active transportation facilities, or road maintenance. In many cases, the overall effectiveness of these mitigation strategies increases when they are combined.

Why develop an equity toolkit for the SCAG region?

Although road pricing is proven to reduce congestion, it has the potential to disproportionately impact low-income individuals and those with limited transportation options.⁸⁵ This Equity Toolkit identifies ways the SCAG region can address equity concerns that may arise while planning for future implementation of road pricing programs or low-emissions zones. These are not necessarily recommendations, but rather a menu of possible strategies that agencies could consider depending on their local context. By prioritizing equity in designing a road pricing program, an implementing agency can ensure that vulnerable communities experience the benefits of road pricing without regressive financial impacts.

⁸⁵ However, that does not mean lower-income people always oppose road pricing. Studies on SR-91 in Riverside, Orange, and Los Angeles counties show that about 75% of the vehicles in toll lanes belong to low- and middle-income people and over half of commuters with annual household incomes under \$25,000 approved of providing toll lanes. Source: Federal Highway Administration. March 2, 2020. *Congestion Pricing: Equity*.

Program Design Strategies

Equity mitigation strategies centered around program design are intended to adjust the parameters of a pricing program to prioritize those that may be most adversely impacted by the program. There are three general categories of program design strategies:

- **Subsidies:** Reduce the cost certain users pay through subsidies, discounts, or exemptions
- **Credits:** Provide monetary value that can be used to make road pricing payments
- **Payment Accessibility:** Ensure all users have access to road pricing payment systems

Subsidies

Subsidy-based equity mitigation strategies provide financial relief to drivers who may be disproportionately burdened by road pricing programs and may not have access to other reliable travel options. Subsidies reduce the amount that certain road users pay in comparison to the set price of the pricing program. This could range from a full exemption, where the user pays no fee, to a discount on trips of a specific type or during a specific time. Although subsidy programs are likely to have broad support among qualifying users, they have the potential to reduce the congestion reduction effects of a road pricing program, suggesting they should be used sparingly.^{86,87,88} When determining eligibility for an income-based subsidy program, a regional poverty scale—rather than national—should be considered to account for the high cost of living in the SCAG region.

DISCOUNTS reduce the cost of an access fee for specific users, whether it be users of a certain transportation mode or for populations requiring access to their personal vehicle for work purposes. This could also apply to specific geographic communities (e.g., TEZ residents). Discounts allow a road pricing system to maintain some demand management effects of a priced road, while reducing the cost for certain user classes that might experience disproportionate impacts when paying the full charge.

Table 5. Possible discount mitigation strategies

Mitigation	Description
Income-based discounts	Tailor prices to align with household incomes, where road users living in lower-income households pay a lower price than those from higher-income households.
Sustainable travel discount	Provide discounts for using more efficient transportation modes during the most congested times by providing discounts for those modes. This could include discounts for public transit, micromobility services, electric vehicles or shared rides. These discounts would likely be targeted towards specific populations such as youth, older adults, or people with low incomes.

EXEMPTIONS allow certain classes of road users to avoid paying a road price. Unlike discounts, exemptions do not allow a road pricing system to sustain any demand management effects for exempted users. For this reason, exemptions are generally used sparingly and for people who have limited options. Use cases for road pricing exemptions include people with disabilities, people underserved by paratransit, and people making essential healthcare trips.

Table 6. Possible exemption mitigation strategies

Mitigation	Description
Low-income household exemption	Exempt road users that live in very low-income households from paying the road price. Because exemptions are generally applied sparingly, an income-based exemption threshold is likely to be set for the most vulnerable travelers.
ADA/healthcare exemption	Exempt people with disabilities or people making essential healthcare trips. This allows people who cannot easily use non-automobile alternatives to maintain their mobility options. Healthcare trip exemptions often come in the form of rebates, which would need to be carefully designed to avoid misuse.

⁸⁶ Regional Plan Association. 2019. *Congestion Pricing in NYC – Getting it right*. p. 17

⁸⁷ Georgina Santos. 2005. *Urban Congestion Charging: A Comparison between London and Singapore*. *Transport Reviews*, 25:5, p. 522

⁸⁸ K.T. Analytics. August 2008. *Lessons Learned from International Experience in Congestion Pricing Final Report*. p. 4-2

MAXIMUM DAILY CHARGES limit the amount a road user can pay in a certain time period. Setting a toll maximum is an indirect way to discount and exempt trips, as some road users may make multiple trips during priced periods (e.g., a taxi driver). Like discounts and exemptions, maximum daily charges reduce the congestion reduction effects of road pricing by reducing the cost of repeated travel on priced roads. A maximum daily charge could also make the system more equitable for people that make multiple trips to the same location each day, such as those picking up and dropping off children for school or running multiple errands.

Table 7. Possible maximum daily charge mitigation strategies

Mitigation	Description
Maximum daily charge	Establish a maximum daily charge for road users to limit the financial burden for people that need to make multiple driving trips on a priced road each day, such as people picking up and dropping off children at school or childcare locations.
Maximum monthly or quarterly balance	Establish a balance cap for qualifying users to limit the potential for users to accumulate damaging amounts of debt from their accumulated road pricing charges. After users reach their balance cap, a payment plan could be developed, or other measures could be taken.

Credits

Credits can be deployed to incentivize sustainable trips and can be targeted geographically or demographically. A road pricing credit program can provide credits that can be directed toward payment of road pricing fees whenever the user takes a trip using a more sustainable mode, such as transit or bikeshare. Credit programs work in two directions: they incentivize sustainable trips, and they reduce the cost of driving trips on priced roads for those accruing credits from non-driving modes. These programs can be complicated to implement because many agencies and technology platforms must work together to provide integrated travel and payment information.

SUSTAINABLE TRIP CREDITS provide a credit reward for using sustainable travel. These credits can then be used to pay a road pricing charge. A sustainable trip credit program would require regional collaboration among non-driving service providers and any road pricing implementing agency.

Table 8. Possible sustainable trip credits mitigation strategies

Mitigation	Description
Sustainable trip credits	<p>Select classes of road users that make trips using transit or other sustainable modes receive a credit to be used on priced roadways. This mitigation is similar to the LA Metro Transit Reward program that rewards sustainable travel while also providing financial relief for driving trips.</p> <p>A high-performance sustainable trip credit system would not require travelers to report or track credits, and could be administratively inexpensive to implement.</p>

COMMUNITY CREDITS provide transportation credits to people within specific communities to use for any mode of transportation. Credits can be applied to road prices, transit fares, bike share trips, or other modes. A community credits program is also a type of revenue investment, as community transportation credits could be funded using road pricing revenues. Community credits can be targeted towards different demographics, such as people living in low-income communities without access to high-quality transit.

Table 9. Possible community credit mitigation strategies

Mitigation	Description
TEZ community credit	<p>Provide a travel credit to households in TEZs. This credit could be used to pay road prices, transit fares, micromobility charges, or other transportation costs. This program would be particularly effective in encouraging sustainable trips where those trips are less costly than a trip using priced roads.</p>

Payment Accessibility

Many low-income travelers may not have bank accounts or access to electronic payment systems. Ensuring a road pricing program is accessible to these road users can reduce disproportionate time or monetary costs these users may otherwise have to incur. Other road users have limited ability to pay large balances or up-front transponder costs. Without accommodating payment plans, it is possible these users could end up paying more than higher-income peers for the same road use, due to limited cash flow. These mitigations should be developed with a goal of reducing barriers for TEZ residents to access priced roads.

Table 10. Possible payment accessibility mitigation strategies

Mitigation	Description
In-person cash payments	Create a cash payment option for unbanked users. This could be pursued through partner retailers, such as PayNearMe, that are widespread in the region and easily accessible in TEZs.
Waive fees	Waive fees associated with obtaining transponders, processing payments, or accruing interest on unpaid balances. This can help make priced roads more accessible to people with limited cash flow and reduces the risk of low-income users accruing unnecessarily large balances of unpaid fees.
Extended payment plans	Establish extended payment programs for large road pricing balances accrued by low-income users.

Revenue Investment Strategies

Investing revenues from a road pricing program is another prime opportunity to prioritize equity. Under an equitable investment strategy, revenue is invested in service, infrastructure, or other resources in locations that benefit those who may experience disproportionate, negative impacts from a road pricing program. In this section of the Equity Toolkit, revenue investment strategies are separated into four categories:

- **Active Transportation:** Investments in services and infrastructure for non-motorized travel modes
- **Transit:** Investments in services and infrastructure for public transportation
- **First/Last-Mile Connections:** Investments in first-/last-mile connections that extend the reach of transit for those outside of a comfortable distance of existing routes
- **Carpool Programs:** Investments in services and infrastructure that support people making shared automobile trips

Investments

Investing the revenue from a road pricing program into the transportation system in an equitable manner means prioritizing people and places that have fewer, less-reliable transportation options. These investments are likely to vary depending on the agency using the funds and the jurisdiction in which they are expended. This section of the Equity Toolkit describes non-auto investment equity mitigation strategies but acknowledges that revenues can also be invested in auto infrastructure. By and large, road pricing revenue investments should focus on providing efficient and equitable alternatives to driving and should complement the demand management goals of road pricing.

ACTIVE TRANSPORTATION INFRASTRUCTURE INVESTMENTS create and improve space for transportation modes with health benefits, such as walking and biking. Examples of active transportation infrastructure are bike lanes and paths, safe and connected sidewalks, ADA-compliant curb ramps and crossings, and off-street multi-use paths. Active transportation investments also support public transit as almost every transit trip begins and ends with a walking or biking component. Census data show that low-income people are more likely to rely on walking and cycling to get to work than people with higher incomes, meaning that investing in this infrastructure is an equitable road pricing mitigation strategy in many communities.⁸⁹ In the auto-centric SCAG region, people without access to a vehicle have especially limited mobility. Active transportation investments in TEZs can improve accessibility to transit and make short, non-driving trips a more realistic option.

Table 11. Possible active transportation infrastructure investments

Mitigation	Description
Pedestrian and bike network improvements	Invest revenues in streets that support walking, biking, and other micromobility services (e.g., scooters). Prioritize active transportation by installing or improving sidewalks, protected or striped bike facilities, and bike and scooter parking areas. Improve universal accessibility by ensuring all streets and crossings are safe and comfortable for people with disabilities.

⁸⁹ Safe Routes to School Partnership. 2015. *At the Intersection of Active Transportation and Equity*. p. 8

TRANSIT INVESTMENTS improve mass transit service to make it faster, more frequent, and more reliable. This can mean adding new transit routes, adding capacity to existing routes, increasing route frequency, creating express routes, or building transit-supportive infrastructure. Improving transit makes non-auto travel more attractive and can provide people living in transportation-disadvantaged communities with greater access to opportunity.

Table 12. Possible transit investments

Mitigation	Description
Increase transit service	Invest in more frequent transit service to reduce wait times and maximize rider flexibility by adding additional trains/buses to routes. Increasing frequency at peak hours can support commuting during the most congested periods, while increasing frequency in off-peak hours can support communities with travel needs outside the peak period.
Increase bus capacity	Invest in additional capacity by upgrading standard buses to larger buses on heavily used bus routes. This can reduce standees, make trips more comfortable, and increase mobility for people living on crowded bus routes. Adding larger buses will also help riders maintain a greater social distance during the COVID-19 pandemic.
Transit-supportive infrastructure	Invest in infrastructure that makes riding transit safer, faster, and more reliable. This could include transit signal priority, bus-only lanes, transit shelters and amenities, and accessibility improvements. Give transit vehicles consistent priority on high-ridership corridors and at intersections where transit delay is incurred.
New transit service	Invest in new transit routes or extend existing routes to meet unserved demand for transit. This increases options for people looking for non-auto mobility options when road pricing is implemented.
Improved paratransit service	Invest in additional resources for providing paratransit service to support trip-making for people with disabilities. This could include adding service to destinations where it isn't currently available, increasing the number of paratransit vehicles in service to reduce wait times, or eliminating barriers to access.

FIRST-/LAST-MILE CONNECTIONS extend the reach of a transit service for people who do not live within a comfortable distance from a transit stop by ride-hail services, active transportation, or personal mobility device. These connections typically involve a small vehicle providing on-demand or fixed-route service that connects a neighborhood to a high-capacity transit line. Ride-hailing services such as transportation network companies (TNCs), taxis, or microtransit providers can partner with government agencies to provide rides, or small public transit vehicles can be used. First-/last-mile connections can also be provided at night or on weekends when transit service is less frequent. First-/last-mile services should be designed to accommodate those with unique travel needs, which might include providing accessible services or cargo storage for families traveling with children and goods. Other types of first-/last-mile connections include docked bikeshare or dockless micromobility (e.g., bikes or scooters) oriented around transit stops. If provided in TEZs, these services can expand non-auto mobility options for transportation-disadvantaged populations.

Table 13. Possible first/last mile investments

Mitigation	Description
Shared micromobility	Invest in low-cost, flexible options for short- or mid-length trips by expanding dockless or docked bikeshare services around transit stations. Equity can also be built into these services by providing discounts for low-income or other classes of riders.
Ride-hail services	Invest in ride-hail partnerships with providers such as TNCs, microtransit providers, or local taxi companies to provide shared, short trips between TEZs and transit stations at a reduced rate. Accessible payment options can help unbanked riders or those without smartphones. This investment increases the reach of public transit, providing greater mobility for people without access to a vehicle.

CARPPOOL PROGRAMS improve mobility for travelers whose only travel option is an automobile and can be an effective way to serve communities where travelers have similar trip patterns. Because the SCAG region has a large network of high-occupancy toll (HOT) and high-occupancy vehicle (HOV) lanes, carpooling gives travelers access to faster auto travel at a low or no cost. Carpool programs can be organized informally, by employers, or by government agencies.

Table 14. Possible carpool program investments

Mitigation	Description
Park-and-ride lots	Invest in designated carpool meeting points to maximize convenience and flexibility for people that share rides. This mitigation is best suited for lower-density places where people live farther from one another and public transit is not a competitive alternative to driving.
Carpool shuttle or microtransit	Invest in shuttles or microtransit between TEZs and pre-determined carpooling destinations to give more people access to carpools and faster, more reliable travel in a pricing zone, along a priced corridor, or in HOT/HOV lanes.

CONCLUSION



The SCAG Mobility Innovations and Pricing initiative represents a starting point in the broader discussion around the role of transportation equity in planning for innovative mobility programs. The process began to identify ways in which communities, implementing agencies, advocates, and decision-makers can work together to conceptualize, design, and implement road pricing programs and other innovations like zero-emission areas. What we found was that more equitable transportation policy must acknowledge – and account for – the larger systemic barriers that vulnerable communities face.

Communities Understand Transportation Inequity

Communities understand that transportation systems mirror broader societal inequities that disproportionately burden marginalized groups with the worst public health, personal safety, and economic outcomes of our society. In conversations with CBO representatives and members of target populations, we heard that any proposed transportation policy, program, or intervention must acknowledge these inequities and identify mechanisms to intentionally dismantle the decision-making and implementation processes that have historically and continue to systematically exclude socially vulnerable populations.

Diverse Travel Needs/Consistent Barriers to Access

Our analysis found that the travel modes and destinations for commuters in Transportation Equity Zones are diverse, underscoring the complex and multi-faceted travel needs that any transportation equity interventions would need to anticipate.

Still, while the travel needs for historically underserved communities are diverse, the transportation barriers that marginalized populations face are relatively consistent. These barriers include: (1) a lack of affordable and reliable mobility options (e.g., access to free/low-cost, safe, and frequent public transit), (2) a lack of affordable housing options near key destinations, (3) an over-reliance on police to enforce traffic and transit rules, and (4) opaque decision-making and engagement processes employed by public agencies and elected officials.

Moving Forward: Focus on Procedural and Outcome Equity

Community Advisory Committee members consistently reinforced the need for implementing agencies to build open and transparent public engagement processes that focus on procedural equity.⁹⁰ This includes ensuring that target populations are defined, identifying geographies of concern, and meaningfully engaging representatives from those demographics and communities in the conceptualization, planning, and implementation phases. Likewise, advisory committee members articulated the need for implementing agencies to specify how input will be used and define how community involvement may change outcomes. Finally, committee members expressed the need to have community oversight to ensure that program implementation and revenue expenditures are addressing the needs of target populations. Above all, public agencies must create and implement engagement processes by following the lead of the community.

Moving Forward: Be Adaptable and Flexible

The COVID-19 pandemic showed how quickly priorities can shift, and how quickly outreach strategies must be aligned to reflect those changes. For CBOs focused on immediate pandemic response needs, the more conceptual discussions around pricing and mobility innovations (rightly) lacked urgency. SCAG and the project team worked with CBOs to make the final workshop more relevant, including making space for committee members to share their pandemic-related priorities and become more flexible about the range of topics that the CBO-led events could cover. The flexibility allowed our team to surface discussions that resonated with our target audiences; at the same time, it reinforced the continued need for agencies and decision-makers to speak to the broader systemic inequities that vulnerable communities face.

Although the SCAG region may not face a comparable pandemic for decades, economic, climate-related, and sociopolitical upheavals will certainly occur in the future. The COVID pandemic was a clear example of how these shocks can occur in tandem and exacerbate long-standing issues, underscoring the need for adaptability and flexibility as communities work to plan for a more equitable future. In the context of transportation planning, it is important to acknowledge that, while transportation is a critical issue for many communities, other priorities may rise to the surface. Agencies should consider timing, engagement mechanisms, and event planning strategies to accommodate shifting priorities, especially as marginalized groups marshal resources to address urgent disaster relief, public health, economic, and/or housing concerns that become more urgent during a crisis. For agencies working to develop and implement more inclusive transportation policies and programs, this flexibility will enable governments to foster meaningful relationships that are responsive to community-identified priorities.

⁹⁰ Tom R. Tyler and Steven L. Blader. November 1, 2003. *The Group Engagement Model: Procedural Justice, Social Identity, and Cooperative Behavior*. Personality and Social Psychology Review.

APPENDIX A: SAMPLE OUTREACH FRAMEWORK

This sample framework can be adapted to engage communities around issues related to congestion pricing and zero emissions areas (ZEAs). We developed this document in early 2020 based on our experience with preliminary congestion pricing and ZEA planning efforts in Los Angeles County, with the Southern California Association of Governments (SCAG) as the lead agency. However, stakeholders can adapt reference materials, goals, and objectives to reflect their local context. While this framework was originally developed in January 2020, it evolved throughout the year before being finalized in December 2020.

Forming a Community Advisory Committee

Traditionally, public agencies design community engagement programs themselves – or in collaboration with consultants – before reaching out to the communities in question. These pre-structured engagement methods may prevent certain community members from fully expressing their ideas and preferences. In contrast, agencies should invite community members to participate in the design and administration of engagement programs as early as possible. To do so, agencies can form a Community Advisory Committee that includes members who can credibly represent the interests of underrepresented populations and/or other target populations.

Providing Context & Reference Materials

To begin the engagement process, it is critical to set context and share reference materials with participants. For each relevant pricing or ZEA initiative, the agency leading the engagement process (hereafter referred to as the “lead agency”) should share the following (to the extent that information is available/ shareable):

- Implementing agency goals
- Anticipated deliverable(s)
- Proposed timeline
- Opportunities to offer feedback/input

Defining Shared Outcomes

Below is a list of potential goals and anticipated outcomes for an engagement process. However, the Community Advisory Committee should vet, adjust (where needed), and approve the goals during their first convening.

- The lead agency will work with the Advisory Committee to create a high-level sample engagement process and refine a community-centered participation model.
- The goal for this process is to familiarize community-based organizations that engage with target populations about changes to the region’s mobility landscape (e.g., pricing and zero emission areas).
- The lead agency and other implementing agencies will use this as an opportunity to surface potential concerns, develop messaging, and inform outreach and engagement processes.

Answering Key Questions

Ahead of the first engagement, the lead agency should develop a short list of frequently asked questions (FAQ) to answer anticipated questions from Community Advisory Committee members. An example FAQ is listed below:

Describing the Project to Stakeholders

Q: Who is leading this engagement?

A: The lead agency is working with community stakeholders, technical experts, and local agencies to explore how we provide historically underserved residents with fairer, safer, and more reliable transportation options.

Q: What are you trying to accomplish?

A: This project has two goals:

(1) Listen: Using several methods and tools, SCAG and the consultant team listened to community-based organizations that work with historically underserved populations. Our goal is to convene an interdisciplinary group of experts, advocates, and community representatives to share their travel experiences, express concerns, and identify potential solutions that are responsive to their communities’ needs.

(2) Learn. We plan to facilitate a shared learning process that has specific learning outcomes for public agency stakeholders and community-based organizations. For agencies, community representatives will lend their expertise to inform participation strategies and provide nuanced feedback as it relates to issues of equity and inclusion. For committee members, the lead agency will share information related to the region’s growing menu of transportation options and provide general insights on common pricing mechanisms.

Q: What are the anticipated work products?

A: The final work product will include a resource that Committee Members and implementing agencies can use.

For agencies, the final deliverable will include a Committee-informed framework for building an inclusive, equity-focused planning, participation, and implementation process.

For Committee Members and community-based organizations the document will be a reference guide that explains key concepts related to pricing, uses plain language to decipher technical terms, and provides a list of policy interventions that may advance equity goals.

Q: Why is the agency leading this activity?

A: The lead agency is leading this effort to support local implementation efforts throughout the region. Our goal is to enhance public agencies’ understanding of critical equity issues and elevate the concerns of historically underrepresented populations. We are collaborating with nonprofit organizations to expand community (and agency) expertise, challenge assumptions, and test proposed solutions.

Articulating Relational Outcomes

As part of the process, the lead agency should articulate desired outcomes for the Community Advisory Committee workshop. This includes outcomes for both the Committee Members and the agency.

For Committee Members: Build a constituency of informed community groups that are prepared to engage with public agencies on issues of pricing and new mobility options.

For Lead Agency: Support collaboration between public agencies and community-based organizations, surface potential equity issues inherent in the travel needs of underrepresented communities, and establish networks to help facilitate ongoing discussions related to equitable mobility.

Defining Learning Objectives

The lead agency should also articulate learning objectives for committee members and the lead agency.

Learning Objectives for Committee Members

Organizations working with target populations⁹¹ can engage with the lead agency to familiarize participants with mobility innovation concepts generally, and to learn how those concepts may be implemented in the region. Equipped with that information, Community Advisory Committee members can articulate the potential impacts, desired outcomes, surface key concerns, and propose potential mitigation measures that apply to the target populations they serve. Committee Members should become familiar with the following:

#1: Mobility and Pricing Options

Existing Pricing Systems – High Occupancy Toll (HOT) lanes⁹², dynamic pricing via applications like Lyft and Uber, and emerging mobility trends (e.g., micromobility, traditional car-share, low-income EV car share)

New Pricing Scenario – (1) cordon, (2) area, (3) congestion point, (4) distance based, (4) full-facility, (5) managed lanes, (6) HOT lanes, (7) express lanes, (8) flat rate tolls, (9) dynamic or variable pricing

#2: Mobility and Pricing's Potential Impacts

The workshops should identify potential opportunities and barriers that community members might face if congestion pricing and/or a zero emissions area is implemented.

Opportunities could include the following:

- Time savings for drivers
- Faster and more reliable transit service
- Reduced local air pollution
- Reduced vehicle miles traveled (i.e., travel by car) and reduced greenhouse gas emissions (i.e., a cleaner environment)
- Increased walk/bike/scooter mode share
- Revenues that can be invested in improved transit service, air quality mitigation measures, and/or

⁹¹ In our SCAG-led engagement process, the target populations included (1) low-income communities of color; (2) populations with limited English proficiency; (3) transit-dependent and/or zero-car households; (4) women and female-headed households; (5) older adults; (6) youth; and/or (7) individuals with access and functional needs.

⁹² The Metro ExpressLanes on Interstate 10 and Interstate 110 in Los Angeles County are examples of HOT lanes.

- community benefits
- Increased safety for vulnerable road users

Potential barriers include:

- Higher monetary cost of personal vehicle transportation
- Disproportionate impact on target populations and exurban/rural drivers, who may have been displaced from areas undergoing gentrification

Learning Objectives for Public Agencies

For public agencies, potential learning outcomes may include the following: (1) Identifying existing community perceptions and sentiments related to pricing and new mobility options; (2) informing outreach and engagement processes so that agencies are responsive to underrepresented communities; (3) gaining a better understanding of how proposed policy interventions (e.g., subsidies, revenue expenditures, and community benefits) may be received by underrepresented communities; and (4) testing and refining messaging.

Outreach and Engagement Process

Based on the objectives outlined above, the lead agency, in collaboration with the Community Advisory Committee, should develop an outreach and engagement processes that can achieve the learning objectives. This process should rely on the following tools:

Employing Popular Education

Popular education is a peer learning model that facilitates shared learning, emphasizes participants' lived experiences, and values participatory modules to convey information. Popular education relies on four key elements: (1) a non-hierarchical structure, where facilitators and participants are seen as equal contributors; (2) the education process responds to the expressed needs of an organized group; (3) the group is involved in planning the training and any follow-up actions; and (4) acknowledges that community is the source of knowledge.⁹³

Co-Creating Key Messages

The lead agency should co-create messaging points with Community Advisory Committee members that can be refined by Committee members and further tested during engagement with the general public.

Partnering with Community Stakeholders

The Committee should reflect upon and share answers to the following questions: (1) What are some preferred mechanisms for agencies to meaningfully engage underrepresented communities? (2) What should agencies be prepared to share with communities? (3) What are the key decision points and how can community members and/or advocates engage with implementing agencies?

⁹³ Schugurensky, Daniel. 2010. *Popular Education: Comparative and International Perspectives*. University of Toronto.

Information Gathering and Feedback Mechanisms

This section identifies the data required to inform community-centered decision-making, including the tools necessary to gather new information.

Baseline Data Collection Options

Traditional baseline data collection may include the following sources: Longitudinal Employer-Household Dynamics, American Community Survey, household travel surveys, mobile/GPS datasets (as available). These can be important tools in localities where data are available.

Agencies may also use sentiment surveys for Community Advisory Committee members and community members. If taken before the initial workshop and after the final workshop, the agency can assess how sentiments have (or have not) shifted.

Measurements of Success

This section includes methods for measuring the success of the engagement process. They include measurements of overall project success, as well as measurements to track outcomes from the Advisory Committee and engagement processes.

Project-Specific Measurements (and key questions for organizers)

Attendance: Community Advisory Committee workshop attendance (Is it consistent? Are folks continually engaged? Do the groups represent a cross section of disciplines and geographies?); Community event/convening attendance (Did we reach target audiences? Did attendance meet expectations?); non-CBO outreach (Did engaged civic and business groups contribute meaningfully to the project?)

Feedback from Implementing Agencies: Is the equity analysis useful? Is the agency planning on engaging members of the Community Advisory Committee? Is the agency adapting any of the SCAG/community-developed materials?

Feedback from Community Advisory Committee Members: Was the training useful? Does the organization feel better-equipped to engage with implementing entities?

Geospatial Analysis: Identification of priority communities throughout the region using existing demographic and transportation data

Community Advisory Committee Outreach & Engagement Measurements (and key questions)

Number of CBO members engaged (e.g., via follow-up trainings or outreach activities) and how well they represent geographic and issue diversity.

Sentiment survey results (Did perceptions of mobility innovations change? If so, how?)

Demonstrated knowledge of mobility innovations and of its opportunities and barriers (e.g., co-created messaging, proposed mitigation measures, sharing popular education materials with members/constituents)

Readiness to engage with implementing agencies (e.g., defined plan to engage with implementing agency, contacts with agency staff, engagement or consultation on project planning and implementation etc.)

Sample Workshop Agendas

Below are sample workshop agendas that could be adapted for future engagement processes.

WORKSHOP #1: BUILDING SHARED UNDERSTANDING

WORKSHOP #1 OBJECTIVES

- Share mobility experiences: (1) Do you think the region's transportation system works well? (2) Who benefits? (3) Who is harmed or disadvantaged? (4) Would you like to see it change? If so, how?
- Survey sentiments: The team will send a survey in advance of the first workshop. It may include the following questions: (1) What transportation issues do you care about? (2) How much do you know about road pricing/zero emission areas/emerging mobility trends/transportation finance? (3) How do you feel about pricing (opposed vs. not sure vs. supportive)? (3) What would you like to learn more about?
- Introduce pricing and mobility innovation concepts: (1) cordon, (2) area, (3) congestion point, (4) distance based, (4) full-facility, (5) managed lanes, (6) HOT lanes, (7) express lanes, (8) flat rate tolls, (9) dynamic or variable pricing

WORKSHOP #1 FORMAT

- Intros and Framing
- Ground Rules: collectively decide on ground rules; (e.g., assume good intent, step up/step back, confidentiality, challenge with care, guidelines re: offering corrections vs. creating space to share experiences)
- Share Sentiment Survey Results + Small Group Discussion: sharing mobility experiences
- Introduction to Pricing Concepts
- Discussion: (1) initial reactions to concepts; (2) surface key questions and concerns; (3) identify what participants want to learn more about
- Preview Workshop #2

WORKSHOP #2: IDENTIFYING ISSUES AND ADAPTING DECISION-MAKING

WORKSHOP #2 OBJECTIVES

- Articulate equity concerns: (1) How can new mobility interventions perpetuate existing inequities? (2) How might they make them worse? (3) What are the concerns for your community and/or populations?
- Explore mitigation measures: (1) How do we expand the menu of mobility options to address the concerns of target populations? (2) What are our priorities for spending transportation revenue? (3) What tools have other places used to tackle this issue?
- Surface opportunities for communities and agencies to adapt decision-making: (1) How can public agencies change to accurately surface equity issues and meaningfully address concerns? (2) Who do they need to hear from? (3) What data should they consider?

WORKSHOP #2 FORMAT

- Workshop #1 Recap
- Small Group Discussion: discuss equity concerns and identify potential solutions
- Introduce Mitigation Measures: subsidies, exemptions, caps, mobility investments, and community investments that may address equity concerns

- Case Studies: present case studies (e.g., New York, London)
- Exercise: Getting from point A to B (status quo vs. pricing + mobility options vs. equitable pricing and inclusive mobility)
- Small Group Discussion Engaging with Agencies: What has worked well in the past? What has not? What would a more responsive process entail?
- Preview Workshop #3: office hours/prep time for Workshop #3

WORKSHOP #3: SHARED LEARNING

WORKSHOP #3 OBJECTIVES

- Support a committee member-driven agenda: give committee members an opportunity to share key takeaways and propose more equitable engagement strategies that agencies may employ
- Invite agency participation: provide a collaborative space for agencies to preview community concerns and present an opportunity for committee members to inform public agencies' outreach process

WORKSHOP #3 FORMAT

- Workshop #1 and #2 Recap
- Committee Presentations: (1) equitable vision for mobility in the region, (2) key questions and concerns, (3) how agencies can better engage historically underserved communities
- Consultant Team Presentation: data considerations for implementing agencies
- Q+A or Small Group Discussions

APPENDIX B: SAMPLE MEMORANDUM OF UNDERSTANDING

MEMORANDUM OF UNDERSTANDING BETWEEN «ORGANIZATION_NAME», Estolano Advisors AND Investing in Place

This Memorandum of Understanding, while not a legally binding document, does indicate a voluntary agreement to assist in the implementation of the SCAG Advisory Committee for Mobility Innovations (“Advisory Committee”). The agreement is between Estolano Advisors, Investing in Place (the “Consultant Team”), and «ORGANIZATION_NAME» (the “Committee Member”). It generally defines the overall program goals, describes the collaborative nature of the Advisory Committee, and explains the relationship between the Consultant Team and the Committee Member.

1. Parties. This Memorandum of Understanding (the “MOU”) is made and entered into by and between «ORGANIZATION_NAME» (the “Committee Member”), whose address is «ADDRESS», «CITY», «STATE», «ZIP_CODE», as well as Estolano Advisors and Investing in Place (“Consultant Team”), whose street addresses are 448 S. Hill St., Ste. 1105, Los Angeles, CA 90013, and 830 Traction Ave, 3rd Floor, Los Angeles, CA 90013, respectively.

2. Purpose. The purpose of this MOU is to establish the terms and conditions under which the Consultant Team and the Committee Member will coordinate and collaborate to implement the Advisory Committee.

The primary goal of the Advisory Committee for Mobility Innovations is to engage environmental justice groups and community-based organizations in discussions around equity, mobility innovations, and congestion pricing. Organizations will work with SCAG and the consultant team to inform the development of the equity analysis methodology for new mobility pilots (e.g., zero emission areas) and congestion pricing in Southern California. This engagement will rely on the expertise and insights of local partners to surface best practices, mitigation measures, and interventions that promote more equitable outcomes.

This MOU explains how the Consultant Team and Committee Member will work together to implement the Advisory Committee, laying out anticipated roles for each party.

3. Term of MOU. This MOU is effective on January 29, 2020 and shall remain in full force and effect through June 30, 2020. This MOU may be terminated, without cause, by either party upon 30 days written notice, which notice shall be delivered by email (sent to richard@estolanoadvisors.com), by hand, or by certified mail to 448 S. Hill Street, Ste. 1105, Los Angeles, CA 90013.

4. Responsibilities of Consultant Team. The Consultant Team is generally responsible for the following:

- Work with Committee Member staff to develop a scope of work, determine compensation structure, and required deliverables.

- After work has commenced, and if needed, work with Committee Member contact to amend an existing scope of work and/or deliverables (with SCAG approval)
- Facilitate workshops with the Advisory Committee, SCAG, the City of Los Angeles, and/or Metro
- Serve as the primary liaison between the Committee Member and SCAG staff
- Communicate SCAG questions, requests, and requirements in a timely manner
- Coordinate with Committee Member ahead of events and/or engagements to communicate expectations, address questions or concerns, and surface any potential issues
- Share background information and supporting materials to Committee Member ahead of engagements and coordinate with Committee Member staff to obtain supporting documentation
- Work with Committee Member to resolve issues, provide options to address Committee Member or SCAG concerns, and identify options to amend scope or terminate agreements if necessary

5. **Responsibilities of Committee Member.** Please select the appropriate option(s) below:

- Task A: Advisory Committee Workshops** – Attend four Advisory Committee workshops. Organizations are required to attend all four workshops. (anticipated hours: 18, **up to \$1,800 per organization**)
- Task B: Reporting + Direct Costs** – Administration, reporting, and direct costs (e.g., invoicing, billing, and submitting supporting documentation) for Task A activities (anticipated hours: 1-2, **up to \$200 per organization**)

Other: *please describe below:*

- Work with SCAG and the Consultant Team to attend workshops and support event implementation as outlined in Task A
- Select applicable tasks, propose a work plan, and coordinate with the Consultant Team to complete tasks and complete deliverables
- Where appropriate, coordinate with partners, members, allies, and/or key constituencies to raise awareness about mobility innovations and regional transportation issues
- Identify opportunities to engage stakeholders and constituencies that can provide feedback on local and regional mobility and transportation issues
- If applicable, identify opportunities to engage additional Committee Members as part of this process

6. **Compensation.** Total compensation shall not exceed \$2,000.

7. **Signatures.** In witness whereof, the parties to this MOU through their duly authorized representatives have executed this MOU on the days and dates set out below, and certify that they have read, understood, and agreed to the terms and conditions of this MOU.

Consultant Team

Richard France, Principal, Estolano Advisors Date

Jessica Meaney, Executive Director, Investing in Place Date

Committee Member

«PRIMARY_NAME», «PRIMARY_TITLE», Date

«ORGANIZATION_NAME»

SCAG Advisory Committee for Mobility Innovations

Scope of Work - «ORGANIZATION_NAME»

The primary goal of the Advisory Committee for Mobility Innovations is to engage environmental justice groups and community-based organizations in discussions around equity, mobility innovations, and congestion pricing. Organizations will work with SCAG and the consultant team to inform the development of the equity analysis methodology for new mobility pilots (e.g., zero emission areas) and congestion pricing in Southern California. This engagement will rely on the expertise and insights of local partners to surface best practices, mitigation measures, and interventions that promote more equitable outcomes.

The form below outlines the proposed tasks and responsibilities of the approved non-profit organization (Committee Member).

Community Partner Info

Contact Name: «PRIMARY_NAME»	Contact Email: «PRIMARY_EMAIL»
Contact Phone: «PRIMARY_PHONE»	Address: «ADDRESS», «CITY», CA, «ZIP_CODE»
Organization Name: «ORGANIZATION_NAME»	Website: «WEBSITE»
City/Community: «COMMUNITY»	County: «COUNTY»
Are you a non-profit organization? (Yes/No/Not Applicable): Yes	Do you have a fiscal sponsor? (Yes/No/Not Applicable): «FISCAL_SPONSOR»
If so, what type (e.g., 501(c)(3))? (list relevant Internal Revenue Code section): «IRS_CODE»	Have you worked with SCAG before? (Yes/No):
Brief Organization Description: <i>include a short description of the organization’s mission and goals, demographics served, and geographic area(s).</i>	
«DESCRIPTION»	

Proposed Scope of Work – *please select all that apply.*

Please note that pay ranges below are based on a rate of \$100 per hour. Compensation is based on total hours per task. The “up to” figure indicates the maximum pay rate per task.

- ✓ **Task A: Advisory Committee Workshops** – Attend three Advisory Committee workshops. Organizations are required to attend all three workshops. (anticipated hours: **18, up to \$1,800 per organization**)
- ✓ **Task B: Reporting** – Administration and reporting for Task A (anticipated hours for **TASK A: 1 – 2, up to \$200 per organization**)
- Other: *please describe below:*

Compensation Structure

IMPORTANT: Compensation is based on the rate of \$100 per hour. The figures below represent maximum compensation rates based on each task's total anticipated hours. If you anticipate exceeding the hourly maximum, please indicate any potential overages in your scope of work (the SCAG project manager will consider amounts exceeding the maximums listed below on a case-by-case basis). The team will provide a template to record time and provide supporting documentation for hourly rates.

- **Payment will be based on total documented hours worked plus any direct costs** (see "Eligible Direct Costs" for more information on documentation requirements for direct costs).
- **The total maximum compensation for each Partner is \$2,000.**

Task A: Advisory Committee Workshops

- up to \$1,800: Event preparation, travel time, and attendance (*anticipated hours: up to 4 hours per event, with 2 additional hours for prep and travel time*)

Task B: Reporting + Direct Costs

- up to \$200: Administration, reporting, and direct costs (e.g., invoicing, billing, and submitting supporting documentation) for Task A activities

(continued on next page)

Compensation Structure (cont.)

Eligible Direct Costs (check all that apply, provide estimated budgets, and budget assumptions)

Public Transit Fare (documentation required, receipt required for fares above \$10)
Anticipated Cost: \$ _____

Notes & Assumptions: _____

Personal Vehicle Mileage (documentation required, billed at \$0.58/mi.)
Total Anticipated Mileage: _____ @ \$0.58/mi. = \$ _____

Notes & Assumptions: _____

Personal Bicycle Mileage (documentation required, billed at \$0.04/mi.)
Total Anticipated Mileage: _____ @ \$0.04/mi. = \$ _____

Notes & Assumptions: _____

Other Direct Costs (describe expenditure): _____

Proposed Documentation (e.g., receipts): _____

Anticipated Cost: \$ _____

Notes & Assumptions: _____

Ineligible Direct Costs

- Decorations
- Unreasonable incentives, such as prizes for public participation or any promotional or marketing materials.
- Full meal reimbursements. Caltrans will only reimburse for light refreshments, which are considered items that would be served between meals - non-alcoholic beverages such as coffee, tea, juice, soda, cookies, pastries.
- Childcare: Unfortunately, childcare costs cannot be reimbursed due to direction from Caltrans, who is funding this project through SB 1. See the Caltrans' Sustainable Transportation Planning Grant Program guidelines [here](#) to learn of other ineligible costs

Deliverables

Task	Description	Deliverables
A: Advisory Committee Workshops	Attend three Advisory Committee workshops	(1) Attend three workshops; (2) workshop materials (e.g., feedback surveys, written feedback, etc.)
B: Reporting	Provide supporting documentation for invoicing, reporting, and documentation purposes	(1) Invoicing materials (e.g., timesheets and receipts); (2) written summary of feedback and recommendations

Roles and Responsibilities

Consultant Team

- Work with Community Partner staff to develop a scope of work, determine compensation structure, and required deliverables.
- After work has commenced, and if needed, work with Community Partner contact to amend an existing scope of work and/or deliverables (with SCAG approval)
- Facilitate workshops with Advisory Committee, SCAG, the City of Los Angeles, and/or Metro
- Serve as the primary liaison between the Community Partner and SCAG staff
- Communicate SCAG questions, requests, and requirements in a timely manner
- Coordinate with Community Partner ahead of events and/or engagements to communicate expectations, address questions or concerns, and surface any potential issues
- Share background information and supporting materials to Community Partner ahead of engagements and coordinate with Community Partner staff to obtain supporting documentation
- Work with Community Partner to resolve issues, provide options to address Community Partner or SCAG concerns, and identify options to amend scope or terminate agreements if necessary

Committee Member

- Work with SCAG and the Consultant Team to attend workshops and support event implementation as outlined in Task A.
- Select applicable tasks, propose a work plan, and coordinate with the Consultant Team to complete tasks and complete deliverables.
- Where appropriate, coordinate with partners, members, allies, and/or key constituencies to raise awareness about mobility innovations and regional transportation issues.
- Identify opportunities to engage stakeholders and constituencies that can provide feedback on local and regional mobility and transportation issues.
- If applicable, identify opportunities to engage additional organizations as part of this process.

APPENDIX C: COMMITTEE SURVEYS

SCAG Advisory Committee for Mobility Innovations: Workshop #1 Survey

Please complete this form in advance of the Advisory Committee's first workshop. We will share aggregated data during the convening. If you have questions or concerns, please contact Riley O'Brien at riley@estolanoadvisors.com.

* Required

1. Name *

2. Organization *

Mark only one oval.

- Alliance for Community Transit-Los Angeles (ACT-LA) *Skip to question 4*
- Asian Pacific Islander Forward Movement *Skip to question 4*
- Kennedy Commission *Skip to question 4*
- Koreatown Immigrant Workers Alliance (KIWA) *Skip to question 4*
- Long Beach Gray Panthers *Skip to question 4*
- Los Angeles Black Worker Center *Skip to question 4*
- Pacoima Beautiful *Skip to question 4*
- People for Mobility Justice (PMJ) *Skip to question 4*
- Safe Routes Partnership *Skip to question 4*
- Santa Ana Active Streets *Skip to question 4*
- Southeast LA (SELA) Collaborative *Skip to question 4*
- Southern California Resource Services for Independent Living (SCRS-IL) *Skip to question 4*
- Strategic Actions for a Just Economy (SAJE) *Skip to question 4*
- Other *Skip to question 3*

Skip to question 4

Organization Name

You selected "Other" from the organization pull down menu. Please let us know what organization you're with.

3. Organization Name *

Skip to question 4

Transportation Priorities

SCAG and the consultant team would like to get a sense of what transportation issues Committee members and their organizations prioritize.

4. Which of the following transportation issues are priorities for your organization and/or its members? *

Mark only one oval per row.

	Higher Priority	Lower Priority
Public Transit	<input type="radio"/>	<input type="radio"/>
Affordable Housing and Anti-Displacement	<input type="radio"/>	<input type="radio"/>
Environmental Justice and Public Health	<input type="radio"/>	<input type="radio"/>
Active Transportation (i.e., bicycling, walking, and rolling)	<input type="radio"/>	<input type="radio"/>
Road Pricing	<input type="radio"/>	<input type="radio"/>
Freight and Goods Movement (e.g., long-haul trips, local deliveries)	<input type="radio"/>	<input type="radio"/>
Law Enforcement and Policing	<input type="radio"/>	<input type="radio"/>
Vulnerable Road Users (e.g., youths, seniors, individuals with access and functional needs)	<input type="radio"/>	<input type="radio"/>
Economic and Workforce Development	<input type="radio"/>	<input type="radio"/>

- 5. Does your organization have a "higher priority" item that was not included in the previous question? *

Mark only one oval.

- Yes Skip to question 6
- No Skip to question 7

Skip to question 7

Transportation Priorities: Free Response

- 6. Please describe the your high-priority transportation issue(s) below:

Skip to question 7

Familiarity with Pricing, Zero-Emissions Areas, and Transportation Finance

These questions will help the team gauge Committee members' experience and familiarity with specific mobility concepts. There isn't a right or wrong answer, so please give an honest assessment. We'll check in after the workshops are complete to see how things shifted.

- 7. How much do you know about road pricing? *

See this article (<http://bit.ly/2GyMyPh>) for a description of pricing

Mark only one oval.

- I am not familiar with this concept
- I am somewhat familiar with pricing
- I am well-informed about this issue

8. How much do you know about low- or zero-emission zones? *

See this article (<http://bit.ly/37EGWPw>) for a description of a clean or low-emission zone

Mark only one oval.

- I am not familiar with this concept
- I am somewhat familiar with zero emissions areas
- I am very familiar with the concept

9. How much do you know about transportation finance? *

See the 2016 Regional Transportation Plan/Sustainable Communities Strategy (<http://bit.ly/2GWQ9qF>) for a summary of transportation finance in Southern California.

Mark only one oval.

- I'm not sure how we fund our transportation system
- I know we pay gas taxes, registration fees, and local sales taxes to finance our transportation -- but not much beyond that
- I understand how federal, state, regional, and local revenue streams fund our transportation system

Skip to question 10

**Where You
Stand**

Tell us what your stance is on the following issues. These responses will be aggregated and made anonymous.

10. Our transportation system is fair and benefits most people regardless of . . . *

Mark only one oval per row.

	Agree	Disagree
Disability Status	<input type="radio"/>	<input type="radio"/>
Age	<input type="radio"/>	<input type="radio"/>
Gender	<input type="radio"/>	<input type="radio"/>
Income	<input type="radio"/>	<input type="radio"/>
Race	<input type="radio"/>	<input type="radio"/>

11. Road pricing will make our transportation system more equitable. *

Mark only one oval.

- Highly Likely
- Somewhat Likely
- Somewhat Unlikely
- Highly Unlikely
- Not Sure

12. Road pricing will provide benefits for historically underserved communities. *

Mark only one oval.

- Highly Likely
- Somewhat Likely
- Somewhat Unlikely
- Highly Unlikely
- Not Sure

Skip to question 13

Workshop Goals & Topics

Let us know what you'd like to get out of the workshop and any topics you'd like us to cover.

13. Please share your goals for the first workshop *

14. Please describe any topics or subject areas you would like to address during the workshop *

Skip to question 15

Dietary Restrictions

15. Please let us know if you have any dietary restrictions

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SCAG Advisory Committee for Mobility Innovations: Workshop #1 Follow-Up Survey

Thank you for attending our first workshop on Friday, February 14, 2020. Please respond to this survey to help us plan for Workshop #2 on Tuesday, March 3, 2020. You may choose to keep your responses anonymous.

*** Required**

1. Did the workshop meet your expectations? If so, how? If not, why not? *

2. What worked well during the workshop ? *

This may include feedback on things like the meeting venue, topics covered, small group discussions, large group discussions, etc.

3. What could be improved for the next workshop? *

4. Are there topics or subjects that you'd like us to cover during workshop #2? *

As a reminder, the proposed goals for Workshop #2 are to (1) articulate equity concerns, (2) explore congestion pricing mitigation measures, and (3) surface opportunities for communities and agencies to adapt decision-making.

5. Is there any other feedback you'd like to share with SCAG and the workshop organizers?

6. If necessary, can we contact you about your survey responses?

Mark only one oval.

- Yes *Skip to question 7*
- I'd like to remain anonymous

Contact
Information

Thanks for agreeing to share your contact information. Please provide your name and email address.

7. Name

8. Email

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Google Forms

SCAG Advisory Committee for Mobility Innovations: Sub-Committee Interest Survey

Please use this form to indicate your interest in a sub-committee.

* Required

1. Email address *

2. Name, Affiliation *

3. Which of the following sub-committees are you interested in joining? *

Check all that apply.

- 1. Investing in alternative mobility options (e.g., bus service, transit, on-demand, etc.)
- 2. Enforcement and policing
- 3. Creating a community oversight board
- 4. Ensuring regional coordination to assist those who travel between counties
- 5. Virtual event brainstorming/feedback
- 6. Communications and messaging

Other: _____

This content is neither created nor endorsed by Google.

Google Forms

APPENDIX D: VIRTUAL ENGAGEMENT GUIDE

Overview

This guide was developed to document the process used to plan and produce virtual panel discussions that aired live on Facebook as part of the 2020 SCAG Mobility Innovations and Congestion Pricing (MIP) project. While it is intended to provide detailed instructions, the technical accuracy of the Zoom and Facebook Live instructions may change over time as these platforms get updated.

Given the challenges presented by the COVID-19 pandemic in conducting in-person community engagement, the project team and Community-Based Organization (CBO) partners successfully pivoted to producing live virtual events. Although virtual events can be less accessible to some communities due to lack of access to the internet and computers or smartphones, the project team made a concerted effort to reduce barriers to participation.

The CBOs recognized that using virtual environments for community engagement events makes access to them inequitable due to the digital divide. For this reason, and in order to make these events as accessible as possible, the CBO partners felt that broadcasting via Facebook Live to the CBO's home page would be most appropriate for their audience. For the CBOs' communities, Facebook was the social media platform with the fewest barriers to access. The site's ubiquity, familiarity, and ease of access made it their top choice to reach their communities.

However, producing directly on Facebook Live has limited functionality in terms of how many videos can be on-screen at once and the level of control of the project team to coordinate technical aspects on the back-end. As such, the team utilized Zoom as the primary platform for the panel, which can be thought of as the green room, while Facebook functioned as the place where the panel was broadcast and where the audience could watch and engage.

To ensure language accessibility, the project team incorporated Spanish interpretation via a conference call number, ASL interpretation within Zoom, and Closed Captioning via StreamText, a text platform that delivers real-time captions. See the Language Accessibility section below for more information on these elements.

Roles

The core project team served primarily a technical and production role, while the CBO partners led on identifying panel topics, themes, panelists, and moderators, as well as conducting outreach and promotion. This guide will focus on the roles of the core project team members.

Showrunner

This person coordinates and communicates with all team members to ensure a smooth production. Ahead of any run-throughs with facilitators, panelists, or interpreters, the Showrunner develops a variety of documents to help guide them. These include a cue sheet, a list of technical steps, a script, and a template for participant questions. For more information on these, see the Guiding Documents section.

The Showrunner acts as the primary timekeeper and makes sure all the pieces come together and that all team members understand their role and get the support they need to fulfill that role. They direct the Technical Producer I (TPI) when to initiate

various steps as the technical host of both the Zoom meeting and the Facebook Live video, such as taking the correct people on or off camera and audio, ensuring the video is being recorded, and initiating the live stream to Facebook. They communicate via text or the Zoom chat box.

The Showrunner also coordinates closely via text with the Technical Producer II (TPII) to make sure everything on Facebook Live runs smoothly, especially in the chat box, and that the Spanish interpreters and closed captioners have accessed the live video. The Showrunner retrieves Facebook audience chat box questions from the TPII via a shared participant questions document. After the TPII pastes questions into that document, the Showrunner can reframe or edit questions if necessary (i.e., if the question is confusing or not clear). From there, the Showrunner copies the questions into the Zoom chat box, where the panel facilitator then audibly relays them to panelists.

Finally, the Showrunner is supported by the Technical Producer III (TPIII) with timekeeping, providing a second set of eyes on the cue sheet and technical steps, and troubleshooting issues that may arise with the Spanish interpreters or closed captioners. They communicate via text or the Zoom chat box.

Technical Producer I

This person acts as the technical Host of the Zoom meeting, allowing them to mute/unmute all participants in the Zoom meeting, hide/unhide participants, and initiate live streaming to Facebook. The TPI must also be an administrator on whichever Facebook page the video is hosted. The TPI is behind the scenes in the Zoom meeting and the Facebook Live video the entire time.

Before initiating the Facebook Live video from Zoom, the TPI turns off the video and audio of all facilitators, panelists, and project team members in Zoom, except for the TPIII. In order to display a welcome screen, the TPI enables the TPIII to share their screen. This allows the TPIII to pull up a welcome screen slide in display mode. The TPI then hits the Record button in Zoom, initiates the stream to Facebook Live, chooses the correct Facebook Page to stream to, enters a name and description for the Live Video back-end, and then clicks "Go Live" on Facebook. Once the video is up on the page, the TPI keeps that browser window open (with the video muted) for the duration of the production, until the Showrunner directs them to end the Live video stream.

As the initiator of the Facebook Live video, the TPI has certain controls with regard to chatbox moderation, including the ability to hide and delete comments, as well as ban problematic commenters. If the TPII identifies an inappropriate comment or if a commenter posts multiple inappropriate comments, the TPII alerts the Showrunner and TPI. Depending on the situation, the Showrunner will instruct the TPI to either delete the comment or ban the commenter. See the Facebook section below for more information. The TPI communicates with the Showrunner via text or the Zoom chatbox, and with the TPII via text.

Technical Producer II

This person manages the Facebook Live chat box and must be an administrator on whichever Facebook page the video is hosted. Once the Live video appears and begins on that page, the TPII enters the chat box and "pins" a message instructing viewers how to engage. An example of this is, "Moderators may block commenters that use inappropriate language. For closed captioning, copy-paste [URL] into a separate browser. // Los moderadores pueden bloquear a los comentaristas que utilicen lenguaje inadecuado. Para audio en español, llame a [###]."

During the production, the TPII is on Facebook the entire time

(rather than Zoom) and communicates with the Showrunner and TPI via text. The TPII is focused on monitoring the chat box, which includes watching for audience questions that can be shared with the facilitator and panelists, as well as any inappropriate comments. The TPII reminds the audience throughout the production that they can enter their questions into the chat box, and copies any of those questions into a shared document with the Showrunner.

The TPII reports any inappropriate comments to the Showrunner and TPI, so that the TPI may block that commenter. In the event that this occurs, the TPII lets the audience know in the chat box. An example of this message is, “The comment above has been removed by the host; if you’d like to remove it from your chat window, please refresh your browser. // El comentario anterior ha sido eliminado por el anfitrión; si desea eliminarlo de su ventana de chat, favor de actualizar su navegador.”

Technical Producer III

This person supports the production team as a floater, a timekeeper, and by providing a Welcome Screen at the top of the show. Due to the nature of live events, it is advisable to build redundancy into roles as a contingency in case a disruption occurs. While the Showrunner is also monitoring timekeeping, it helps to have a backup. Similarly, the TPIII can help troubleshoot issues that may arise with the Closed Captioner or Spanish Interpreters on Facebook while other project team members are busy with other tasks. The TPIII is primarily behind the scenes on Zoom throughout the event (though may need to join Facebook if issues arise) and communicates with the Showrunner via text or the Zoom chatbox.

Tools and Technology

Zoom

In order to broadcast the panel from Zoom to Facebook Live, the project team used the Pro level of Zoom, which allows for meetings to be streamed directly to social media channels such as Facebook and YouTube. TPI played the role of technical host in Zoom, allowing them to control the audio and video of panelists and project team members, as well as to initiate streaming. One challenge that should be accounted for, especially in terms of interpretation, is the roughly 20-second lag between Zoom and the Facebook Live video. Due to the confusing nature of this, it is advisable to limit the number of team members toggling back and forth between the two platforms.

Facebook

Streaming a Zoom meeting to Facebook Live works by hosting it in a particular “place,” such as an organization’s Facebook page. Since the virtual events produced for the MIP project were intended to be led by CBOs and directed to their respective audiences, the project team decided to host the Live videos directly on the CBO’s Facebook page. This required getting permission from the CBOs to add the Showrunner, TPI, and TPII as administrators to their page. However, if the agency intends to produce Facebook Live videos on its own page, this step is not necessary.

In terms of comment moderation in the chat box, Facebook page administrators and Facebook Live hosts (i.e., the TPI) can hide and delete comments in the chat box, as well as ban commenters. However, viewers do not see these get deleted or hidden unless they refresh their browser. Although problematic comments and commenters were not an issue in the MIP project, the team developed boilerplate language which the TPII could enter into the chat box. See the Technical Producer II section for

sample language.

In addition to the 20-second lag mentioned above between Zoom and Facebook Live, project team members that do toggle between the platforms should be careful with their audio settings. Specifically, when opening or expanding the Live video within Facebook, the audio automatically turns on; unless computer audio is muted when this happens, the audio from the Live video will be heard within the Zoom meeting and create confusion. Again, the number of team members toggling back and forth between the two platforms should be limited to two or three people in order to reduce the potential for mistakes like this.

Start Meeting

Spanish interpretation for the event was provided through a conference call service called Start Meeting. Importantly, this service allowed for two meeting co-hosts (the team of two Spanish interpreters), as well as muting all callers. The project team set up the conference number and trained the interpreters on how to use it. On the audience end, viewers on Facebook Live simply call the number and listen in while watching the video. The project team included a note to instruct viewers about this in the description of the Facebook Live video.

Given the constraints of streaming Zoom to Facebook, specifically the approximate 20-second delay, the project team determined that the simplest way to coordinate the timing of Spanish interpretation was by having the interpreters work from the front end. In other words, the interpreters logged into Facebook to watch the live video and interpret from there. This ensured real-time captioning from the audience’s perspective.

StreamText

The closed captioners arranged for the captioning technology, StreamText, a text platform that delivers real-time/live captions, and can be accessed by a single web page. The project team provided a StreamText link to viewers in the Facebook Live video description, and encouraged them to open it in a separate browser. Users can view the live video in one browser and the captioning in a second browser, ideally situated side-by-side.

There are multiple ways to integrate captioning technology into live videos. The added step of opening StreamText in a separate browser may be considered a drawback in some ways. However, it also allows for participants to modify the size and color of the captions, and ultimately served its purpose effectively for this project.

Given the constraints of streaming Zoom to Facebook, specifically the approximate 20-second delay, the project team determined that the most simple way to coordinate the timing of captioning was by having the captioner work from the front end. In other words, the captioner logged into Facebook to watch the live video and caption from there. This ensured real-time captioning from the audience’s perspective.

Language Accessibility

When planning for language accessibility for a live event, virtual or in-person, it is important to budget for the time of the event and the time of the run-throughs. Interpretation and captioning companies often prefer to schedule more than one interpreter or captioner if the event runs longer than one hour to reduce the likelihood of fatigue and mistakes. Similarly, it is often difficult to book them for run-throughs unless they will be compensated for that time.

Spanish Interpretation

A team of two Spanish interpreters provided their services via conference call (StartMeeting) and interpreted directly from the Facebook Live video. They developed their own system for taking turns during the event. Because they were already using their phones for the conference call, the project team communicated with them via email and Facebook chat for any issues that arose during the event.

ASL Interpretation

A team of two American Sign Language interpreters provided their services within Zoom and switched being on-screen throughout the event. They developed their own system for taking turns and switched their own videos on and off (rather than relying on the TPI to do it for them). They communicated with the project team via the chat box in Zoom during the event.

Closed Captioning

One closed captioner provided their services via StreamText and captioned directly from the Facebook Live video. The captioner communicated with the project team via Facebook chat during the event.

Run-Throughs

The project team conducted at least one run-through prior to each event with all facilitators, panelists, interpreters, captioners, and any other team member with an active role. If working with a new team of interpreters and captioners for the first time, a run-through focused on their roles and integrating the technology they will use can help focus the conversation and make the most of their time. In addition, holding separate run-throughs for the interpreters/captioners versus the facilitators/panelists can allow for the latter group to quickly review any technical issues and focus more on the content and questions of the panel. Prior to any of these, the Showrunner and Technical Producers should conduct many run-throughs among themselves to experiment with the various platforms and get comfortable using them.

One thing to note is that Facebook Live does not allow for a test or private function. To work around this, the project team went Live on Community Arts Resources' Facebook page and included "Test" in the video description. Another option would be to create a fake Facebook page that is accessible only to the Showrunner and Technical Producers, and conduct run-throughs on the "fake" page, rather than on SCAG's real Facebook page.

Guiding Documents

Technical Steps

This document should articulate most if not all steps to be taken by the Showrunner and TPIs, as well as all other project team members with an active role, during the live event. This helps to clarify the sequence of steps and who has ownership of them. Reviewing them together during the run-throughs can ensure a shared understanding of what to expect during the production. If using a document sharing platform such as Google Drive, linking to the other guiding documents can help simplify access to them.

Cue Sheet

This document provides a quick overview of the production, including major steps or tasks, time, and persons involved. It also has a second tab with project team roles, names, and contact info. It can serve as a high-level, quick reference for all team members, and should also link to the other guiding documents.

Script

A baseline version of this document should be developed by the Showrunner (and any other project team member involved in curating the content of the virtual event) prior to the run-through with facilitators and panelists. During the run-through it can be vetted and modified as necessary with input from the facilitators and panelists. It should also include time markers to help with timekeeping.

Participant Questions

This document will be updated live during the virtual event by the TPII and Showrunner with any questions that the audience poses in the Facebook chat box. The Showrunner may edit them there if necessary (for example, if the language is confusing) before handing off to the facilitator in the chat section of Zoom. Again, it is important to emphasize to facilitators and panelists during the run-throughs that they will need to pay attention to the Zoom chat box in order to see these questions and for any other directions from the Showrunner. Depending on the audience, it may also be necessary to translate questions from another language.

Sample Technical Steps for Live Virtual Events

1. All join Zoom meeting and do introductions. Showrunner leads the group through steps.
2. Review roles, tech tools, and how/where the audience will view/listen/participate. Facilitators, panelists, and ASL interpreters add names/titles/pronouns to videos.
3. Review Cue Sheet, Participant Questions, and Talking Points.
4. Assume positions
 - i. TPII leaves Zoom, opens the correct Facebook page, and waits for the live video.
 - ii. Spanish interpreters start conference call as hosts, mute participants, leave Zoom, and go to the correct Facebook page to wait for a live video.
 - iii. Closed Captioner sets up StreamText, leaves Zoom, opens correct Facebook page, and waits for the live video.
 - iv. TPI hides all videos except TPIII; TPI enables TPIII to share screen and hits Record on Zoom.
 - v. TPIII shares screen and pulls up welcome slide in full screen/presentation mode.
5. TPI triggers the Zoom meeting to go Live on the correct Facebook page.
 - i. While in preview mode on Facebook:
 - TPI adds a title in English and Spanish for the Live video
 - TPI adds a description in English and Spanish for the Live Video
 - ii. TPI selects Go Live in Facebook
6. TPIII confirms seeing Live video to Showrunner and TPI via text. Below is a sample Facebook Live chat box language for TPIII to pull from.
 - i. PINNED: Moderators may block commenters that use inappropriate language. For closed captioning, copy-paste [URL] into a separate browser. // Los moderadores pueden bloquear a los comentaristas que utilicen lenguaje inadecuado. Para audio en español, llame a [phone #].
 - ii. IF COMMENTER IS BLOCKED / COMMENT IS DELETED: The comment above has been removed by the host; if you'd like to remove it from your chat window, please refresh your browser. // El comentario anterior ha sido eliminado por el anfitrión; si desea eliminarlo de su ventana de chat, favor de actualizar su navegador.
 - iii. DURING Q+A: Enter your questions for the panelists in the chat box! // ¡Ingrese en la ventana de chat sus preguntas para los panelistas!
7. Spanish Interpreters and Closed Captioner confirm they can see, hear, and open / expand Live video by adding a note to the Facebook chat box. TPIII texts Showrunner and TPI to confirm this step is completed.
8. TPI adds videos of facilitators, panelists, and ASL interpreters, then takes down the Welcome Screen. TPIII texts Showrunner and TPI to confirm this step is completed.
9. Showrunner instructs TPI to end the Live video on Facebook. Interpreters, Closed Captioner, and TPIII re-join Zoom to debrief.

Sample Script

This sample script was taken from the event held in partnership with Southern California Resource Services for Independent Living.

1:00PM

- CBO Host: Hello everyone! Welcome to our live discussion, brought to you in partnership with SCAG! I'm [Name], [Title] at [Org]. Today's discussion will focus on [description]. Today's panel will be facilitated by [Name], [Title] with [Org].
- Facilitator: Thanks for the introduction! Before we get started, I want to remind everyone that you can leave comments and questions in the chat box below. Please be respectful of other commenters and our panelists. We will start off with a discussion among panelists, and then open it up to an audience Q&A session a little after 2:00p.
- CBO Host: Also, if you'd like closed captioning, please open the link in the chat box in another browser. Para audio en español, llame a (617) 829-7737.
- Facilitator: Today we have three panelists joining us, and we're so grateful to each of them for being a part of this. They are...
 - [Names], [Titles] at [Organizations]

1:10PM

- Facilitator: Alright, let's get started!
- [Question 1]: What does the ADA mean for you and your agency?
- [1:21P - Question 2]: How will the ADA drive your agency's innovation, rather than simply compliance, of meeting the growing need of accessibility and equity?
- [1:27P - Question 3]: How has COVID impacted mobility for people with disabilities?

1:30PM

- Facilitator: Now we're going to begin the Q+A session. Again, please comment in the chat box to ask our panelists a question!
 - Note: Showrunner and TPIII coordinate behind the scenes on [link to Participant Questions]. Showrunner adds questions into the Zoom chatbox for Facilitator].

1:45PM

- Facilitator: We have time for one more question or comment from the audience.

2:00PM

- CBO Host: Thank you everyone for attending today. Thanks to our panelists, Access, Metro, SCAG, and to Ali Everett for facilitating.

Sample Participant Questions

Q #	Insert Question Text from Facebook Live Chat Box	Translation (if needed)
1	<p>“I think Hector’s point around accessibility in covid safe restaurant spaces is interesting and poignant, and represents another way that some of these temporary solutions are not fully in service to all members of our communities. I would be interested in learning more about ADA appropriate ‘guerrilla’ responses to planning and transportation services that might be implemented more easily now during covid.”</p>	
2	<p>“For each of you, Ali included, what is one opportunity in particular you see as a sustainable means to continue to build on and/or protecting the progress made per the ADA?”</p>	
3	<p>“With the heightened threats of natural disasters, more specifically the recent Fire dangers, how can we improve evacuations for those that require accessible forms of transportation for our most underserved communities?”</p>	

APPENDIX E: FREQUENTLY ASKED QUESTIONS

Context

Q: What organization is leading this project?

A: SCAG is leading this effort to support local agency decisions through dialogue with community stakeholder organizations and technical experts to increase understanding of critical equity issues that may arise with congestion pricing and low emission zones that lead with the concerns of underrepresented communities.

Q: What are you trying to accomplish?

A: Through this study SCAG is ensuring that equity issues presented by congestion pricing and low emission zones are at the forefront of the discussion and consideration by public agencies. SCAG is collaborating with nonprofit groups to expand community (and agency) expertise, challenge assumptions, and test potential solutions. This project has two goals:

Listen to stakeholders and community-based organizations that work with historically underserved communities in Southern California. Our goal is to convene an interdisciplinary group of experts, advocates, and community representatives to share their travel experiences, express concerns, and identify potential solutions that are responsive to their communities' needs.

Facilitate a shared learning process that identifies specific lessons for public agency stakeholders and community-based organizations.

Q: What is the expected deliverable? How will it be used?

A: The final result will be a resource that community-based organizations and implementing agencies can use.

For agencies, the final deliverable will include a Committee-informed framework for building an inclusive, equity-focused planning, participation, and implementation process for possible future congestion pricing and low emission zone programs.

For community-based organizations, the document will be a reference guide that explains key concepts related to pricing, uses plain language to define technical terms, and provides a list of policy interventions that may advance equity goals.

Q: What is the timeline for this project?

A: Virtual engagements will be completed by August 31, 2020. The Advisory Committee convened starting in February 2020, with committee activities completed by May 2020.

Q: Which area(s) will be studied?

A: The project focuses on the SCAG region, including the counties of Imperial, Orange, Los Angeles, Riverside, San Bernardino, and Ventura.

Low Emissions Areas

Q: What is a Low Emissions Area?

A: Low Emissions Areas (also known as Low Emission Zones or Clean Air Zones) are designated urban areas that use a suite of policies, infrastructure changes, and/or charging programs to achieve air quality improvements. These changes may include the following:⁹⁴

- Closing roads and streets within the zone to all vehicles (including electric vehicles)
- Banning most polluting vehicles from entering the area
- Charging fees to limit vehicle access (clean or zero-emission vehicles may enter the zone for free or at a discount)
- Banning or significantly restricting parking in the area
- Banning vehicle idling within the district

Q: Where is this happening in Southern California?

A: The City of Los Angeles is also developing a Zero Emissions Area implementation plan. The SCAG team can connect you with the agency directing this study if you have specific questions regarding timing and/or project scope.

⁹⁴ C40 Cities Climate Leadership Group. March 2019. *How to design and implement a clean air or low emission zone.*

Road Pricing

Q: What is road pricing?

A: Road pricing refers to any system in which drivers pay directly to use roads, as opposed to indirect payments such as fuel purchases and taxes. Drivers may pay to enter or exit a designated area, or they may pay for each mile driven. Tollways (i.e., highways that charge drivers a fee) are probably the most common form of road pricing in the U.S. You may have also experienced a form of road pricing if you have used carshare apps or pay-as-you-go auto insurance. While road pricing generally refers to fees paid by drivers, you may have also paid per mile to use apps for ridesharing (e.g., Lyft or Uber), bike sharing, and/or electric scooters.

Q: What is congestion pricing?

A: Congestion pricing, a form of road pricing, typically charges drivers at a variable rate based on demand. In other words, drivers pay more when and where there is more traffic. Congestion pricing encourages drivers to share rides, to travel at less-congested times, and to use non-automobile modes. Local governments typically use congestion pricing to manage traffic in congested urban areas that have a mix of high-quality alternatives to driving (e.g., frequent bus service, subways, and/or light rail, as well as attractive walking, bicycling, and rolling options). Revenues from congestion pricing can help fund these high-quality alternatives.

Q: How can congestion pricing benefit me?

A: By discouraging driving during congested periods, congestion pricing benefits many road users by making travel times faster and more predictable. For example, bus riders experience faster trips and shorter wait times. Reducing the number of cars on the road can improve air quality, reduce greenhouse gas emissions, and enhance road safety. Revenues from congestion pricing can be used to improve transit options and build safer connections for people bicycling, walking, or rolling to their destinations.

Q: What are the potential downsides?

A: Without the right mix of safeguards and intentional investment strategies, congestion pricing can create unfair outcomes. We list some common issues that stakeholders have raised when agencies have proposed congestion pricing projects in the past:⁹⁵

- Pricing is regressive and will disproportionately burden low-income drivers.
- A combination of upfront costs and financial requirements (e.g., access to a bank account or a credit card) for tolling technology (e.g., transponders) may be a barrier for low-income users.
- Pricing may create a two-tiered transportation system, where those who can afford to pay benefit from less traffic.
- For low- and moderate-income drivers that must travel by automobile, pricing may make traveling much more expensive.
- These are valid concerns that deserve careful consideration. Fortunately, each of these issues can be addressed. Communities can work with implementing agencies to devise an investment strategy that prioritizes enhancing mobility options for vulnerable communities. That, coupled with a mix of targeted discounts, exemptions, and subsidies, has the potential to address the equity concerns identified above.

⁹⁵ TransForm. March 2019. *Pricing Roads, Advancing Equity*. p. 10-11.

Q: Is there an example of congestion pricing that already exists?

A: Yes. Congestion pricing is currently used in London, Stockholm, Milan, Gothenburg, and Singapore. It is planned for New York in 2021, and is being studied in Seattle, San Francisco, and Vancouver. You may have already experienced a form of congestion pricing when using Lyft or Uber late at night or in the rain; as more customers request rides from a limited number of drivers, prices “surge” to adjust for demand.

Q: Where is this happening in Southern California?

A: Several studies have analyzed the potential for congestion pricing in the Los Angeles area. The most recent studies include SCAG’s “Mobility Go Zone and Pricing Feasibility Study”⁹⁶ and Metro’s forthcoming “Traffic Reduction Study.”⁹⁷

Q: How far are they along in the planning process?

A: These studies are in the early conceptualization phases. The SCAG team can connect you with local agencies directing these studies if you have specific questions regarding timing and/or project scope.

Q: How can my community get involved?

A: Metro’s Traffic Reduction Study has a community outreach and engagement component. The SCAG team can connect you to agency staff directing this project if you’d like to participate in their engagement processes.

⁹⁶ Southern California Association of Governments. March 2019. *Mobility Go Zone & Pricing Feasibility Study*.

⁹⁷ Sotero, Dave. September 28, 2020. *Metro to hold four public meetings to provide details on Traffic Reduction Study*. Los Angeles Metropolitan Transportation Authority.

Pricing and Low Emissions Areas: Beyond the Basics

Q: Will pricing make traveling more expensive for some users? Is there potential to decrease overall transportation costs?

A: Yes, and yes. Congestion pricing will make driving more expensive for some users. It also has the potential to reduce travel costs for other road users. Congestion pricing uses fees to discourage driving during high-demand travel times. But those fees can be structured so that they reduce the financial burden for vulnerable populations. This may include offering discounts, subsidies, or exemptions to low-income drivers and travelers with disabilities. Congestion pricing systems can also use revenues to invest in programs and infrastructure that reduce travel costs and create time savings for historically underserved groups. This includes offering incentive programs like deeply discounted (or free) transit fares and bikeshare discounts for low-income households.

Q: What types of subsidies could be used? How do they work? Who is eligible?

A: Cities have designed congestion pricing programs with a variety of exemptions, subsidies, discounts, incentives, and caps to reduce the burden for sensitive groups. Although these subsidies vary based on the particularities of the pricing program, we've listed some common tools below:⁹⁸

- **Discounts:** congestion pricing programs may reduce fees for low-income drivers, drivers with disabilities, carpools, and/or low- or zero-emission vehicles.
- **Exemptions:** programs may allow specific drivers to avoid paying fees; in London, the congestion pricing zone initially exempted alternative fuel vehicles.
- **Caps:** congestion pricing programs can include caps for specific groups, like small businesses. The cap sets a maximum charge over a specific time period. In New York, one proposal would subject small businesses to a maximum daily fee, allowing qualifying drivers to make multiple trips in and out of the pricing area without being charged additional fees after they've hit the cap.
- **Incentives:** congestion pricing programs may also offer incentives that reward individuals for using alternate travel options. This includes reduced transit fares, bikeshare discounts, and/or low-income carshare programs.

Subsidies and incentives can be structured so that they reduce travel costs for vulnerable populations while encouraging more efficient travel patterns. This can include offering the steepest discounts and subsidies to low-income households and employing income-based travel incentives.

⁹⁸ TransForm. March 2019. *Pricing Roads, Advancing Equity*. p. 10-11.

Q: How might agencies spend the revenue generated from congestion pricing?

A: Revenue expenditures are often tied to explicit goals. A transit provider may invest revenues in bus and/or rail improvements within a pricing area. Agencies often use a portion of revenues to provide subsidies and discounts for specific users. Below is a list of potential revenue expenditures:

- Facility operation and maintenance costs
- Transit operations and maintenance costs (e.g., vehicle repair, vehicle maintenance, infrastructure maintenance, vehicle drivers, etc.)
- Transit infrastructure, service, and vehicle costs (e.g., transit vehicle purchases, building or extending new transit lines, transit stations, etc.)
- Enhanced infrastructure for people who walk, bike, and roll (e.g., upgraded sidewalks and bikeways, pedestrian and cyclist roadway safety improvements, etc.)
- Air quality mitigation measures (e.g., urban greening investments, electric vehicle charging infrastructure, low-income electric car share, etc.)
- Community benefits (e.g., community-identified mitigation measures and/or transportation enhancements)

Q: How do we measure success? What performance indicators have been used to measure equity outcomes?

A: Communities can assess the outcomes of pricing programs using a variety of metrics and indicators. These indicators should be informed by overall project goals and expected outcomes. The best performance indicators should account for the entire population that might be affected by the pricing program, not just those who are expected to pay fees.⁹⁹ Below is a sampling of potential indicators (please note that these indicators are illustrative and would need to be considered in the context of overall program goals, anticipated benefits, and potential costs):¹⁰⁰

- Affordability: (1) Discount level on tolls for vulnerable populations; (2) Change in share of household income spent on transportation and housing; (3) Number of people from historically marginalized communities eligible for discounts; (4) Amount of toll revenue invested in subsidies.
- Improving Mobility Options: (1) Dollar amount invested in transit and alternative mobility options that benefit historically marginalized communities; (2) New transit miles, expanded routes, and/or new transit vehicle purchases that benefit historically marginalized communities; (3) Changes in transit speed, reliability, and quality; (4) Miles of safe bike lanes and sidewalks added or enhanced.
- Community Benefits: (1) Change in traffic injuries and deaths attributable to infrastructure improvements; (2) Change in number of bicycling, walking, and rolling trips; (3) Share of new clean vehicles that provide benefits to vulnerable communities; (4) Change in particulate matter and criteria pollutant levels in underserved communities.

⁹⁹ Robert D Plotnick et al. August 2011. *A Geography-Specific Approach to Estimating the Distributional Impact of Highway Tolls: An Application to the Puget Sound Region of Washington State*. Journal of Urban Affairs.

¹⁰⁰ TransForm, Nelson/Nygaard, Sam Schwartz Transportation Consultants, Silicon Transportation Consultants, enviroissues, and Daniel Firth. May 2019. *Seattle Congestion Pricing Study Phase 1: Pricing and Equity White Paper*.

APPENDIX F: Transit Funding Primer



A Primer on Transit Funding and Potential COVID-19 Impacts

August 2020

A Primer on Transit Funding and Potential COVID-19 Impacts

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ABOUT SCAG

SCAG is the nation's largest metropolitan planning organization (MPO), representing six counties, 191 cities and more than 19 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future..

MISSION STATEMENT

To foster innovative regional solutions that improve the lives of Southern Californians through inclusive collaboration, visionary planning, regional advocacy, information sharing, and promoting best practices.

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A PRIMER ON TRANSIT FUNDING AND POTENTIAL COVID-19 IMPACTS

This primer was prepared as part of SCAG's Mobility Innovation and Pricing project. In order for our region to equitably provide innovative mobility services and programs, SCAG believes that policymakers must better understand the travel patterns and needs of underrepresented communities throughout the region. This effort aims to provide a forum for a shared learning experience with community members, that can provide a foundation for increased participation in transportation policy, both through COVID recovery and beyond.

To facilitate discussions with underrepresented communities on the potential impacts of COVID-19 on transit services, SCAG has prepared a primer on how transit in the region is funded, how those funding sources could be affected by COVID-19's impact on our economy and travel, and changes to transit agency operations to address public health concerns during the pandemic. These materials can help provide a starting point for discussions with community members on how to approach recovery in a way that builds a more equitable foundation for transportation innovations in the future.

The first section of this primer is intended to provide background on core funding sources that transit agencies throughout the SCAG region typically rely on to support their capital and operating programs. The second section then discusses the possible impacts of COVID-19 and associated policy responses on current sources of funding. Lastly, it surveys a variety of short-term changes transit agencies throughout the region have implemented in response to COVID-19, and preliminary plans for recovery.

1. CURRENT TRANSIT FUNDING SOURCES

Transit is generally funded through various programs and sources at the federal, state, and local levels. Local transportation includes both funding that is raised by local and county governments, and revenues generated directly by transit agencies. The table below describes the main categories of transit funding in the SCAG region, as well as the underlying sources of revenues that fund these programs.⁴

TABLE 1 Description of Transit Funding Sources

	Type of Transit Funding	Description	Main Source of Revenue
Local	Local Option Sales Tax Measures	Revenues are derived from locally imposed 0.5 to 2 percent sales taxes for select counties. Five counties in the SCAG region (all counties except Ventura) currently have sales tax measures dedicated to transportation expenditures. The percentage of sales tax revenues dedicated to transit varies among the counties.	Local sales tax revenue
	Transportation Development Act (Local Transportation Fund)	The Transportation Development Act (TDA) provides two major sources of funding for public transportation—the Local Transportation Fund (LTF) and the State Transit Assistance (STA) fund. LTF funds are derived from a 0.25 percent sales tax on retail sales statewide.	Local sales tax revenue
	Transit Farebox Revenue*	Transit fares collected by transit operators in the SCAG region.	Transit usage
	Highway Tolls	This category includes revenues generated from express lanes operated by LA Metro to fund transit in toll corridors. LA Metro operates express lanes along Interstate 10 and Interstate 110.	Express Lane revenue
	Transit advertising and auxiliary revenues*	Varies across agencies. Includes advertising, income of transit agency-owned property, and commercial revenues.	Various
State	State Transportation Improvement Program (STIP)	The STIP is a five-year capital improvement program that provides funding for capital projects that increase the capacity of the transportation system. The STIP may include projects on state highways, local roads, intercity rail or public transit systems. The Regional Transportation Planning Agencies (RTPAs) propose 75 percent of STIP funding for regional transportation projects in Regional Transportation Improvement Programs (RTIPs). Caltrans proposes 25 percent of STIP funding for interregional transportation projects in the Interregional Transportation Improvement Program (ITIP).	The STIP provides funding from the State Highway Account (SHA), which is funded through a combination of the state gas tax, the Federal Highway Trust Fund, and truck weight fees.

⁴ This list outlines the main sources of transit funding but is not exhaustive. Depending on the local jurisdiction, other sources of transit funding may include but are not limited to local general revenues, property taxes, development impact fees, and tax increment financing. For information on transportation funding in California more broadly see <https://dot.ca.gov/programs/transportation-planning/economics-data-management/transportation-economics/transportation-funding-in-ca>.

TABLE 1 Description of Transit Funding Sources Continued

	Type of Transit Funding	Description	Main Source of Revenue
State	State Transit Assistance Fund (STA)	The STA distributes funding to transit operators based on a formula. The funds can be used for either operational support or to fund capital projects based on local priorities.	The STA is funded by diesel sales taxes and the transportation improvement fee (an additional registration fee paid on the value of a vehicle) established under Senate Bill 1 (2017), which increased the state gas tax, and introduced other vehicle fees, to fund transportation statewide
	Cap-and-Trade Auction Proceeds	The Global Warming Solutions Act of 2006 (AB 32) established the goal of reducing greenhouse gas (GHG) emissions statewide to 1990 levels by 2020. In order to help achieve this goal, the California Air Resources Board (ARB) adopted a regulation to establish a Cap-and-Trade program that places a “cap” on the aggregate greenhouse gas emissions from entities responsible for roughly 85 percent of the state’s greenhouse gas emissions. As part of the Cap-and-Trade program, ARB conducts quarterly auctions where it sells emission allowances. Revenues from the sale of these allowances fund projects that support the goals of AB 32, including transit and rail investments.	Fee levied on GHG from the manufacturing and oil refining sector.
Federal	Federal Transit Administration (FTA) Formula Funding	This category includes a number of FTA programs distributed by formula, including FTA Section 5307 for transit capital and operating assistance under certain circumstances, and is distributed to urbanized areas with a formula based upon population, population density, number of low-income individuals, and transit revenue and passenger miles of service.	Federal gas tax, federal general funds
	Federal Transit Administration (FTA) Discretionary Grant Funding	This category includes discretionary grant funding available on a competitive basis through FTA 5309 Capital Investment Grants for new fixed guideways or extensions and bus rapid transit projects and projects that improve capacity on an existing fixed guideway system.	Federal general funds
	Other Federal Funding	The federal government also provides funding through programs such as Congestion Mitigation Air Quality (CMAQ) to fund new transit service and system expansion needs, in addition to numerous non-transit projects, that help support efforts to reduce mobile source emissions in areas designated as non-attainment or maintenance of the National Ambient Air Quality Standards (NAAQS). Other programs include the Surface Transportation Block Grant (STBG), which provides flexible funding to preserve and improve the conditions on federal-aid highways, public roads, pedestrian and bicycle infrastructure, as well as transit capital projects.	Federal gas tax, federal general funds

Note: funding sources denoted by * are raised directly by transit agencies. Because direct funding sources (e.g. farebox revenue) are earned locally, they can be consolidated into the local funding category.

Table 2 shows the amount and percent of funding by source for all transit operators within the SCAG region based on historical data from the 2018 National Transit Database (NTD), the most recent year for which data is available. NTD data is self-reported by transit operators and must conform to standardized categories. Thus, funding from various state programs described above are aggregated into a single category, along with other minor discrepancies in categories. This data includes funding for both capital investment and operations.

While there is some variation between operators in the region, discussed further below, in aggregate, the largest single source of funding for transit in the SCAG region are sales taxes for transit enacted at the county level, which account for over 40% of all transit funding. Federal Transit Administration formula funding (13%), various sources of state transit funding (12%), and revenues from passenger fares (11%) also provide sources of transit funding.

TABLE 2 Percentage of Transit Funding in the SCAG Region by Source

Funding Program	Percent of Total Regional Transit Funding
Sales Taxes	44.20%
FTA Formula Funds	12.53%
State Transportation Funds	11.75%
Total of Passenger Fares	10.81%
FTA Capital Program	7.86%
Revenue from Local General Fund	3.75%
State General Fund Revenue	2.13%
Other Direct Revenue	2.05%
Tolls	1.34%
Other Federal Funds	2.91%
Other Local Funds	0.66%
TOTAL	100.00%

1.1 FUNDING SOURCE BY GOVERNMENT LEVEL

As described in the table above, transit funding comes from a variety of federal, state and local sources, in addition to revenues raised by transit providers directly. Figure 1 below shows the breakdown by funding source for all transit providers in the SCAG region. Directly generated funding includes farebox revenue and other revenue raised by transit agencies (including advertising, income of transit agency-owned property, and commercial revenues).

Local and directly generated sources provide almost 75% of all transit funding in the SCAG region. Further, the predominance of federal funding is restricted to capital uses. Local sources are necessary to support operations and maintenance needs, which will only become more critically important as transit agencies plan for COVID-19 recovery.

Each operator within the SCAG region relies on its own mix of funding from these sources. The chart below shows the distribution of revenues by funding source for each operator. Due to the unique funding mix of each operator, the degree of potential impacts from COVID-19 and associated policies may vary among operators. Note that this data does not include smaller transit operators within the SCAG region that did not report income to NTD.

FIGURE 1 Transit Funding Sources in the SCAG Region

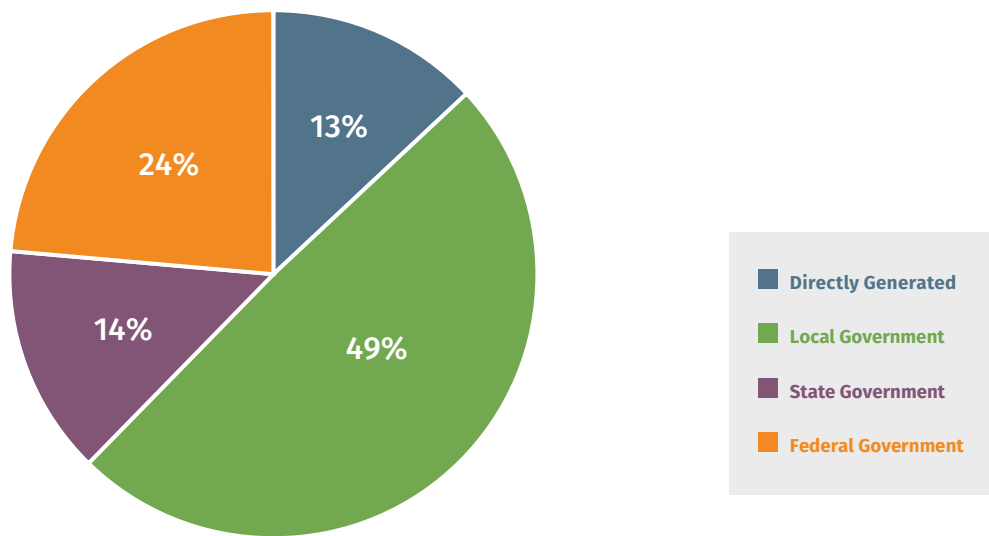
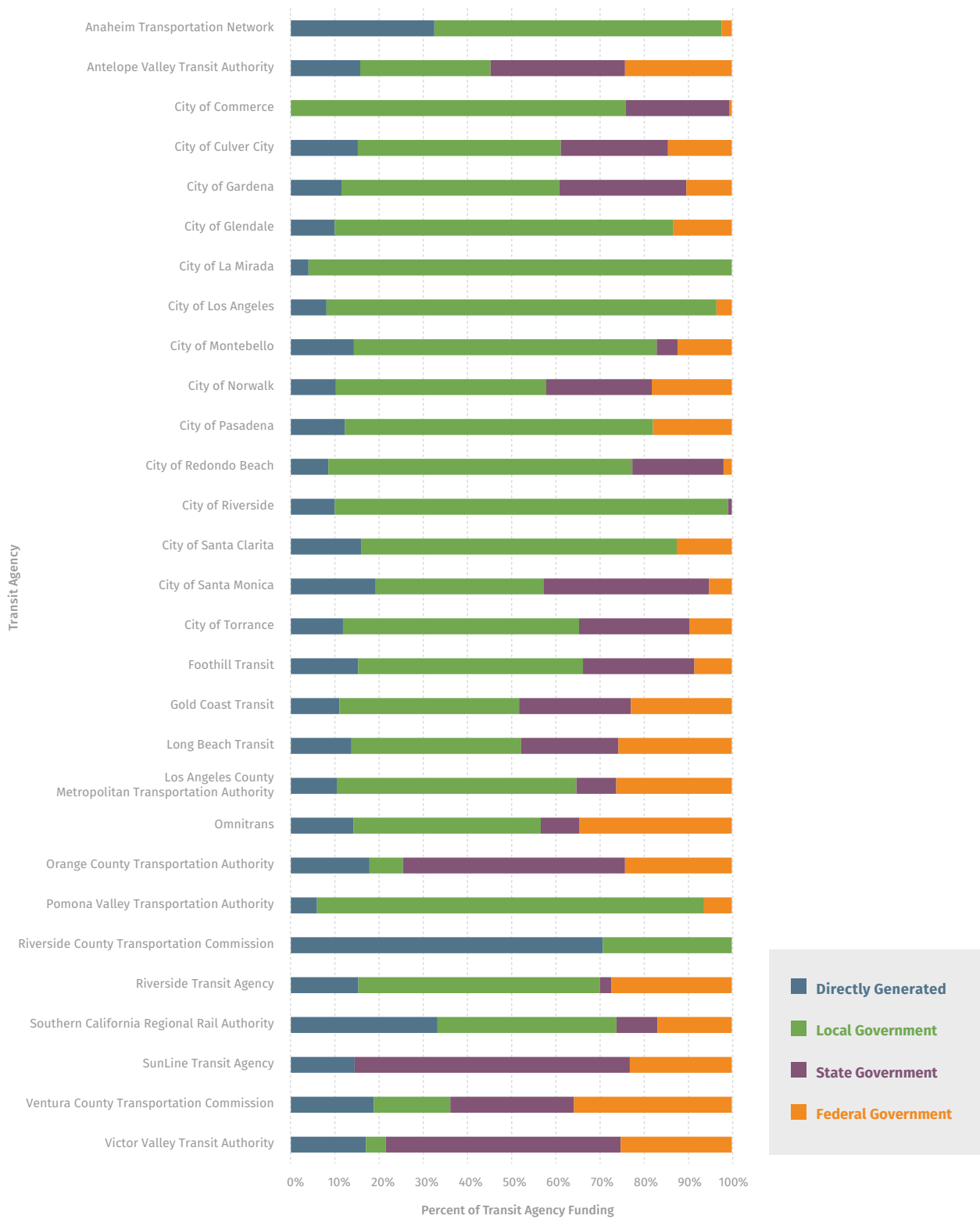


FIGURE 2 Transit Agency Funding Sources by Government Level



Note: Riverside County Transportation Commission is not a transit agency, but reports revenue from vanpool service to NTD.

2. IMPACTS OF COVID-19 TRANSIT FUNDING

The table below briefly describes in more qualitative terms, the possible impacts from COVID-19 and associated policies to each of the funding sources described above. SCAG and our partner agencies continue to monitor preliminary attempts to quantify the impacts of COVID-19 and associated policies on funding sources, but this assessment is intended to provide some context on how the source of funds, depending on how it's generated, can be impacted.

TABLE 3 Potential Impacts of COVID-19 on Transit Funding Sources

	Type of Transit Funding	Main Sources of Funding	Description of Potential COVID-19 and Associated Policy Impacts
Local	Local Option Sales Tax Measures	Local sales tax revenue	Local sales tax revenue is directly linked to general economic conditions. During a recession, people buy less, which reduces sales tax revenues.
	Transportation Development Act (Local Transportation Fund)	Local sales tax revenue	Local sales tax revenue is directly linked to general economic conditions. During a recession, people buy less, which reduces sales tax revenues.
	Transit Farebox Revenue	Transit usage	Transit farebox revenue is directly linked with the level of transit ridership. If people who can, choose not to ride transit due to health and safety reasons, farebox revenue will decline. Additionally, during the epidemic, some transit agencies suspended fare collection, and it remains to be seen when and how fare collections would be reinstated. Reductions in service that lower ridership would lower farebox revenues, but also lower costs.
	Highway Tolls	Express Lane toll revenue	Reduced travel due to a recession and a likely increase in telework could reduce congestion, lowering the incentive to use express lanes.
	Transit Advertising and Auxiliary Revenues	Various	Varies, but presumably would decrease in conjunction with a recession.

TABLE 3 Potential Impacts of COVID-19 on Transit Funding Sources Continued

	Type of Transit Funding	Main Sources of Funding	Description of Potential COVID-19 and Associated Policy Impacts
State	State Transportation Improvement Program (STIP)	State gas tax revenues	Gas tax revenue depends on how many miles people drive, which could decrease due to a recession and a likely increase in telework.
	State Transit Assistance Fund (STA)	The STA is funded by diesel sales taxes and the transportation improvement fee ("TIF," an additional registration fee paid on the value of a vehicle) established under SB 1	TIF revenues increase with the purchase of newer vehicles. While a recession may cause many to defer buying a newer and more expensive cars, early reports from China indicate that overall car purchases may increase because people want to avoid using transit, leading to a possible increase in revenues. Diesel fuel is purchased largely by trucks and depends on overall level of economic activity.
	Cap-and-Trade Auction Proceeds	Fee levied on GHG from the manufacturing and oil refining sector	Cap and Trade revenues are based on the emissions by manufacturing and oil refining in California. A reduction in overall economic activity due to a recession would reduce emissions from these sectors, reducing Cap and Trade revenues. Cap and Trade revenues from the oil refining industry would also decrease if people drive less due to job loss and increased teleworking.
Federal	Federal Transit Agency Formula Funding	Federal gas tax, federal general funds	Federal funding levels are determined through federal legislation. The main source of funding for federal transportation spending is the federal gas tax. Gas tax revenue depends on how many miles people drive, which could decrease due to a recession and a likely increase in telework. However, the federal government can use federal general funds for spending on transportation.
	Federal Transit Agency Discretionary Grant Funding	Federal general funds	Federal funding levels are determined through federal legislation. The main source of funding for federal transportation spending is the federal gas tax. Gas tax revenue depends on how many miles people drive, which could decrease due to a recession and a likely increase in telework. However, the federal government can use federal general funds for spending on transportation. FTA Discretionary 5309 Fixed Guideway Capital Investment Grants program is funded by federal general funds.
	Other Federal Funding	Federal gas tax, federal general funds	Federal funding levels are determined through federal legislation. The main source of funding for federal transportation spending is the federal gas tax. Gas tax revenue depends on how many miles people drive, which could decrease due to a recession and a likely increase in telework. However, the federal government can use federal general funds for spending on transportation.

2.1.1 ECONOMIC RECESSION

The likelihood of a prolonged economic recession resulting from COVID-19 will probably cause the greatest transit funding crisis in the SCAG region. The largest impact on transit funding will likely be a reduction in sales tax revenue, both because of the importance of this source of funding and a reduction in general consumer spending. This would result in a decrease in funding through local sales taxes, and also in state transit funding through the TDA. A reduction in consumer demand for goods would also extend to a reduction in trucking activity that would reduce diesel tax revenues that fund transit at the state level.

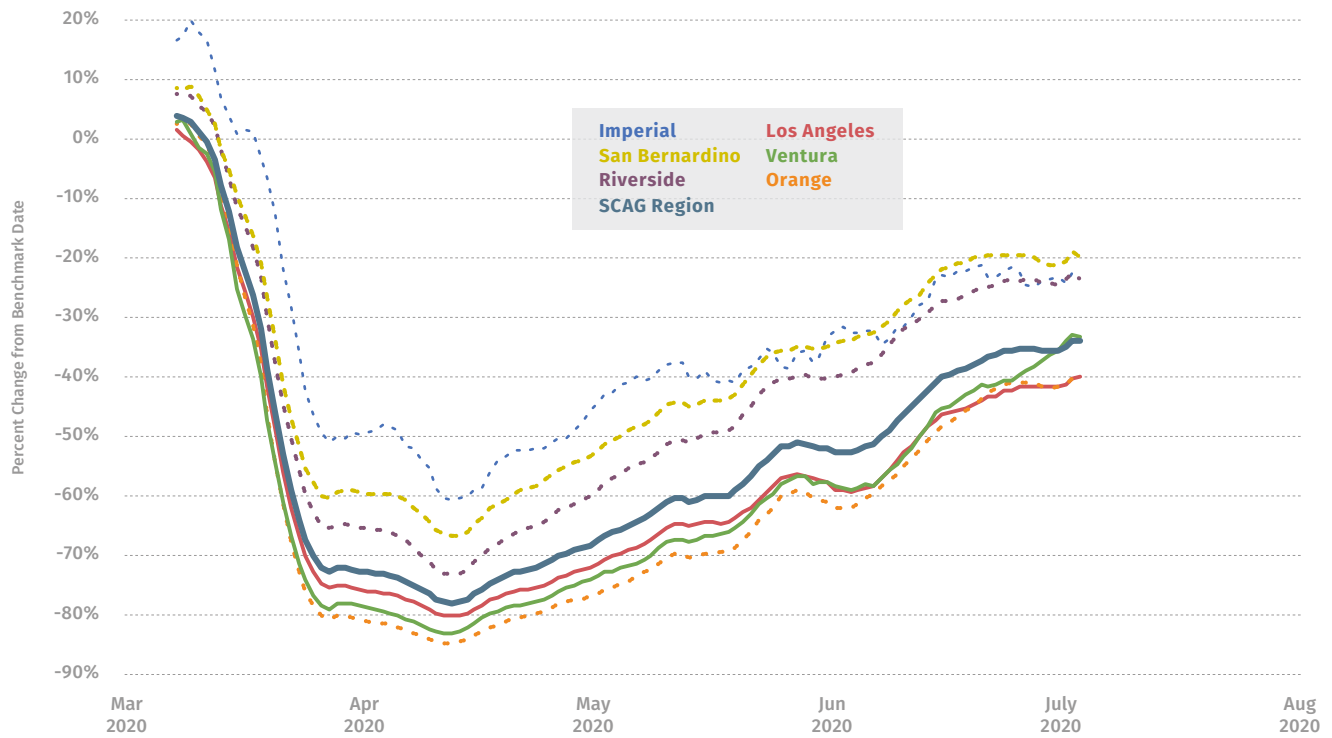
2.1.2 TRANSIT RIDERSHIP CHANGES

Transit farebox revenue is directly linked with the level of transit ridership. If people who can, choose not to ride transit due to health and safety reasons, farebox revenue will decline. Additionally, during the epidemic, some transit agencies suspended fare collection to limit driver/passenger interaction, and it remains to be seen when and how fare collection would be reinstated. Reductions in service that lower ridership would lower farebox revenues, but could also lower costs. As of June 2020, information reported to the California Transit Association (CTA) shows transit operators in the SCAG region have lost about 65% to 85% of their ridership. The region's largest operator, Metro, reported a 65% decline in bus ridership and 75% decline in rail ridership about two months into the stay at home order, and reported a 95% reduction in passenger fare revenues during the last two weeks of March. More recent data reported to the NTD suggest a modest recovery of ridership levels coinciding with the phased reopening of the economy, but overall ridership remains far below pre-pandemic levels.

2.1.3 VEHICLE MILES TRAVELED (VMT) CHANGES

Vehicle Miles Traveled VMT directly impacts funding sources derived from fuel taxes, including state and federal gas taxes. Stay-at-Home orders led to severe short-term reductions in VMT. The chart below shows the average reduction in daily VMT for each county in the SCAG region for the period of early March 2020 through mid-June 2020, compared with the average daily VMT for January 2020. At their lowest points in mid-April, daily VMT reductions ranged from 85% in Orange County to 60% reduction in Imperial County. Daily VMT has risen steadily since then as reopening has begun, and ranged from 20%-40% reduction by mid-July.

FIGURE 3 Percent Change in 7-Day Moving Average VMT by County (using January 2020 as benchmark)



Source: Streetlight Data

Longer-term forecasts of VMT depend on several factors. Historically, VMT has decreased in the short-term during past economic recessions but increased in the long-term in the SCAG region. Increases in telework, either on a short-term or permanent basis could lead to a decrease that is greater and longer compared to previous economic downturns. Conversely, travelers switching modes from transit to personal car due to health concerns, and possible service reductions, could put upward pressure on VMT and increase congestion. Early evidence from China shows that there has been an increase in vehicle purchases following reopening.

2.1.4 CARES ACT FEDERAL FUNDING PACKAGE

As part of the CARES Act, the federal government provided \$25 billion in emergency funding for public transit agencies nationwide, with \$22.7 billion provided through the Sec. 5307 Urbanized Area Formula Grant funding program⁴ and \$2.2 billion provided through the Sec. 5311 Rural Formula funding programs.⁵ The funding can be used for transit operations including operations and maintenance, safety and sanitation, and staff expenses (including salaries and administrative leave).

⁴ The CARES Act provides funding to the Section 5307 Urbanized Area Formula Grant program through the formulas identified in Section 5336, Section 5337 - State of Good Repair, and Section 5340 Growing States and High Density Formula Factors. These amounts are combined to show a single amount. An area's apportionment amount includes regular Section 5307 funds, Small Transit Intensive Cities funds, Section 5337 State of Good Repair, and Section 5340 Growing States and High Density States formula funds, as appropriate. See <https://www.transit.dot.gov/funding/apportionments/table-2-fy-2020-cares-act-section-5307-urbanized-area-apportionments>.

⁵ Section 5311 and Section 5340 were combined to show a single amount. The State's apportionment under the column heading "Section 5311 and 5340 Apportionment" includes Section 5311 and Growing States funds. See <https://cms7.fta.dot.gov/funding/apportionments/table-3-fy-2020-cares-act-section-5311-rural-area-apportionments>.

Under the Sec. 5307 urban program, the SCAG region will receive a total of \$1.612 billion. The funds are apportioned by area using existing FTA formulas to urbanized areas, as opposed to by transit provider. The distribution of funding depends upon population, density, and transit service. The initial federal apportionments are as follows:

- The Los Angeles-Long Beach-Anaheim area receives \$1,215,978,439.
- The Riverside-San Bernardino area receives \$137,566,673
- The Indio-Cathedral City, CA area receives \$16,055,891.
- The Lancaster-Palmdale, CA area receives \$47,875,609.
- The Mission Viejo-Lake Forest-San Clemente, CA area receives \$42,599,365.
- The Murrieta-Temecula-Menifee, CA area receives \$14,423,497.
- The Oxnard area receives \$41,148,230.
- The Santa Clarita area receives \$20,865,603.
- The Thousand Oaks area receives \$18,272,209.
- The Victorville-Hesperia area receives \$24,756,254.

Additional funding was apportioned to state governors for smaller urbanized areas, including in the SCAG region:

- The Camarillo area receives \$4,048,903
- The El Centro-Calexico area receives \$10,590,846
- The Hemet area receives \$9,841,873
- The Simi Valley area receives \$7,955,434
- The Yuma area receives \$60,951

Under the CARES Act, funding is received by the County Transportation Commissions (e.g. Metro, OCTA, RCTC), which then allocates the funding among transit agencies within the county. Because urbanized areas within the region spans multiple counties (for example, Los Angeles-Long Beach-Anaheim), SCAG first apportioned the funding among the County Transportation Commissions. Similarly, SCAG allocated funding for Metrolink throughout the region.

3. THE IMPACT OF COVID-19 ON TRANSIT OPERATIONS

Any funding changes that result from COVID-19 must ultimately be viewed through the lens of how they relate to the services offered to riders, and there is much that we cannot predict about what the transportation system and travel patterns will look like in the near future. Declining revenues will likely lead to a reduction in new capital investment and could lead to service reductions in some situations. But the impact from COVID-19 will undoubtedly be a transit system dramatically altered to reflect the “new normal”, incorporating concerns about health and safety of both passenger and transit agency employees, the likely continued implementation of some social/physical distancing measures, and adaptation to changing travel patterns. The crisis has highlighted more than ever that transit provides a critical “frontline” service to essential workers and the most vulnerable members of our communities.

3.1 HOW SCAG REGION OPERATORS ARE RESPONDING TO COVID-19

SCAG asked the transit agencies on its Regional Transit Technical Advisory Committee (RTTAC) to identify how they were responding to the COVID-19 crisis to 1) facilitate information sharing and inter-agency coordination and to 2) serve as a resource for agencies while planning for service changes. Transit agencies were asked to share information on safety measures, service changes, fare collection, communication strategies, changes to school service, challenges and next steps as they navigate the reduction in demand due to the shelter in place orders. The summary provided below reflects the responses received from March 30 to May 7. As transit operators navigate the current reopening measures in their respective counties and cities, conditions are changing. Agencies are setting up recovery plans for operations that align with health officials' directives. For instance, LA Metro's Recovery Task Force recommendations not only outlines what the agency is doing to increase service hours but also steps to reintroduce riders to transit and overall improvements in the long term.

3.1.1 PUBLIC HEALTH CONCERNS

Transit operators engaged in best practices to cleaning and disinfecting transit vehicles as recommended by the CDC and public health professionals in order to reduce the spread of the virus to transit workers and the riders. Most transit agencies increased cleaning and disinfecting buses and trains (e.g. Metro and Metrolink), and at transit stops, shelters, facilities and maintenance yards. High contact points such as doors, armrests, stop pull chords, fareboxes and Ticket Vending Machines (TVMs) were cleaned and disinfected regularly (e.g. Montebello Bus Lines, Antelope Valley Transit Authority, Victor Valley Transit Authority).

While many agencies required face coverings for both operators and riders (e.g. City of Beaumont), other agencies such as City of Norwalk Transit, Ojai and Gold Coast Transit, supplied face coverings to bus operators. To maintain social/physical distancing, agencies posted signs on the buses to alert riders to maintain at least six (6) feet separation per CDC guidelines. Long Beach Transit (LBT) launched a "Skip a Seat, Skip a Row, Stop the Spread" campaign to encourage social distancing on their buses. Agencies also erected barriers to protect bus operators.

3.1.2 SERVICE CHANGES

Agencies implemented service adjustments to respond to the slow ridership and lower demands following the stay at home orders. Service changes for most transit agencies in the region ranged from shift to weekend, Saturday/Sunday, holiday schedules, to completely newly created modified schedules. Metrolink started implementing reduced service changes in late March.

Other agencies like Foothill Transit created different scenarios through their Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) platform meant to be implemented as the crisis unfolded based on ridership levels. Imperial County Transportation Commission (ICTC) operated all transit services except Imperial Valley College stops, while LADOT implemented different changes by a percentage (e.g. 15% on DASH, 50% on Commuter Express) on the various services they provide based on ridership decline.

For agencies that operated school related schedules, such school trippers were either suspended (e.g. Orange County Transit Authority, Beach Cities Transit, Santa Clarita Transit, Montebello Bus Lines, Riverside Transit Agency) or reduced (e.g. LBT, Santa Monica Big Blue Bus) due to the school closures.

ADA Paratransit service providers continued to provide service but many rides were restricted to only medical or essential life sustaining (such as grocery) trips, e.g. Gold Coast Transit District. Access services did not implement any service reduction despite about 50% ridership decline, and offered only “solo trips” in lieu of shared rides due to the need for social/physical distancing.

3.1.3 REAR DOOR BOARDING AND FARE SUSPENSION

Transit agencies implemented mandatory rear-door boarding on buses to further protect operators and riders from contracting the virus. Boarding through the front doors were restricted to riders with mobility devices that require the use of the bus ramp. Rear-door boarding policies were associated with fare suspension for many agencies like Omnitrans, Sunline Transit, and LA County municipal bus operators.

3.1.4 OTHER CHALLENGES

In addition to the reduced fare revenues associated with the significant ridership loss, transit agencies outlined additional short- and long-term challenges that may impact the way transit is delivered in the region.

Agencies expressed concern about the ability to keep transit staff employed, and how to protect operators from catching the disease while they interacted with riders daily. The American Public Transportation Association (APTA) reported that an overwhelming majority of transit agencies are using their CARES Act funding to maintain their workforce and avoid layoffs.

Agencies also acknowledged the need for decision-making processes for future service modifications while others were concerned about how interruptions to planned service plan implementations and delivery schedule of infrastructure projects will impact planning (e.g. LADOT’s Zero Emission Buses)

Finally, not only did transit agencies fear the potential tax revenue reduction that will impact annual Transportation Development Act (TDA) allocations, they were also concerned about the additional cost related to increased cleaning and procurement of Personal Protective Equipment (PPE).

3.2 PLANNING FOR RECOVERY

As the stay-at-home orders are lifted and the economy gradually begins to reopen, safety and social/physical distancing requirements present a challenge to operators already facing funding shortfalls. Not only will transit agencies be confronted with increased costs due to cleaning and disinfecting, but they may need to operate more vehicles at greater frequencies to meet demand while still allowing for a 6-foot separation between passengers.

3.2.1 LEVEL OF SERVICE RESTORATION

Demand for transit may be returning, and transit agencies must determine whether to continue to run reduced services and gradually switch to regular schedules, or resume regular services outright. Beginning June 1, some agencies planned to resume regular local and commuter services, but the such plans will need to be considered through the lens of the safety and health of both transit workers and riders. The notion of people likely to return to their personal vehicles until such time when a vaccine is found is undauntedly true, but the demand for transit will continue to grow as the traffic congestion increases, among other factors. Non-essential workers returning to work including those who can no longer

afford cars due to pandemic related job losses, for instance, will benefit from frequent transit services. Transit agencies need to place themselves in the position to respond to the demand sooner than later. Some agencies have already received requests to restore Express lines but lack the fiscal capacity to quickly do so. Agencies are also thinking about how to safely run school trippers when schools reopen.

Los Angeles County Metropolitan Transportation Authority (LA Metro), the largest transit operator in the SCAG region issued a 4-phase plan to restore service as follows:⁴

- Phase 1 is projected to take place in June with some modest gains in service on their busiest corridors to accommodate returning non-essential trips.
- Phase 2 is projected to take place as early as July and August with additional service with an eye toward providing transit service for students returning to school and additional people returning to work.
- Phase 3 is projected to take place between September and November and include modest gains in service in areas where and when we see demand growing.
- Phase 4 is projected to take place between December and January and is expected to begin implementing changes and enhancements proposed under the ongoing NextGen bus restructuring effort.

3.2.2 FARE COLLECTION IN THE POST-PANDEMIC ERA

Transit agencies suspended fare collection to allow for rear-door boarding and limit interaction between riders and operators. When returning to regular or phased services, agencies now need to think about how fares will be collected. In concurrence with resuming regular schedules, some agencies have installed temporary and permanent barriers (eg. using plexiglass and vinyl) with plans to begin front door boarding and fare collection effective June. Agencies in the region with the TAP or other mobile ticketing systems may be able to quickly adopt a fare payment system, however, on-board cash fare collection will require additional training, planning and expertise. For instance, operators will need time to safely validate and quote the fare for cash customers which may likely cause delays on the systems.

3.2.3 CDC GUIDELINES FOR REOPENING TRANSIT

The CDC published guidelines for reopening transit urging agencies to adhere to public health protocols in their respective states and/or local jurisdictions. The CDC's mass transit decision tool provides information to transit agencies on how to promote healthy hygiene practices, such as, handwashing and wearing face coverings and communicating effectively with their employees especially those that interact with riders daily. The CDC also encouraged transit agencies to increase cleaning and disinfecting of vehicles and facilities and provided social distancing measures, for instance, blocking off every other seat (s) on transit vehicles.⁵

⁴ <https://thesource.metro.net/2020/05/14/metro-to-pursue-four-phase-plan-to-restore-bus-and-rail-service/>

⁵ <https://www.cdc.gov/coronavirus/2019-ncov/community/mass-transit-decision-tool.html>

3.2.4 APTA AND TRANSIT SERVICE RECOVERY

APTA issued a Pandemic Virus Service Restoration checklist to assist transit agencies as they restore service, incorporating best practices from transit agencies and information from the CDC and EPA. APTA also formed a new Mobility Recovery & Restoration Task Force led by LA Metro CEO Phil Washington. Its purpose is to develop a path forward for public transportation's core functions and financial stability and to explore new methods, tools, and approaches to reposition the industry's essential role in a post-pandemic mobility world. The end product will be a set of recommendations that cover a wide range of issues critical to public transit's success, including public and rider confidence, safe-guarding employees and riders, customer-focused operations, quick-strike rail and bus scheduling, as well as resiliency, equity and societal needs.



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