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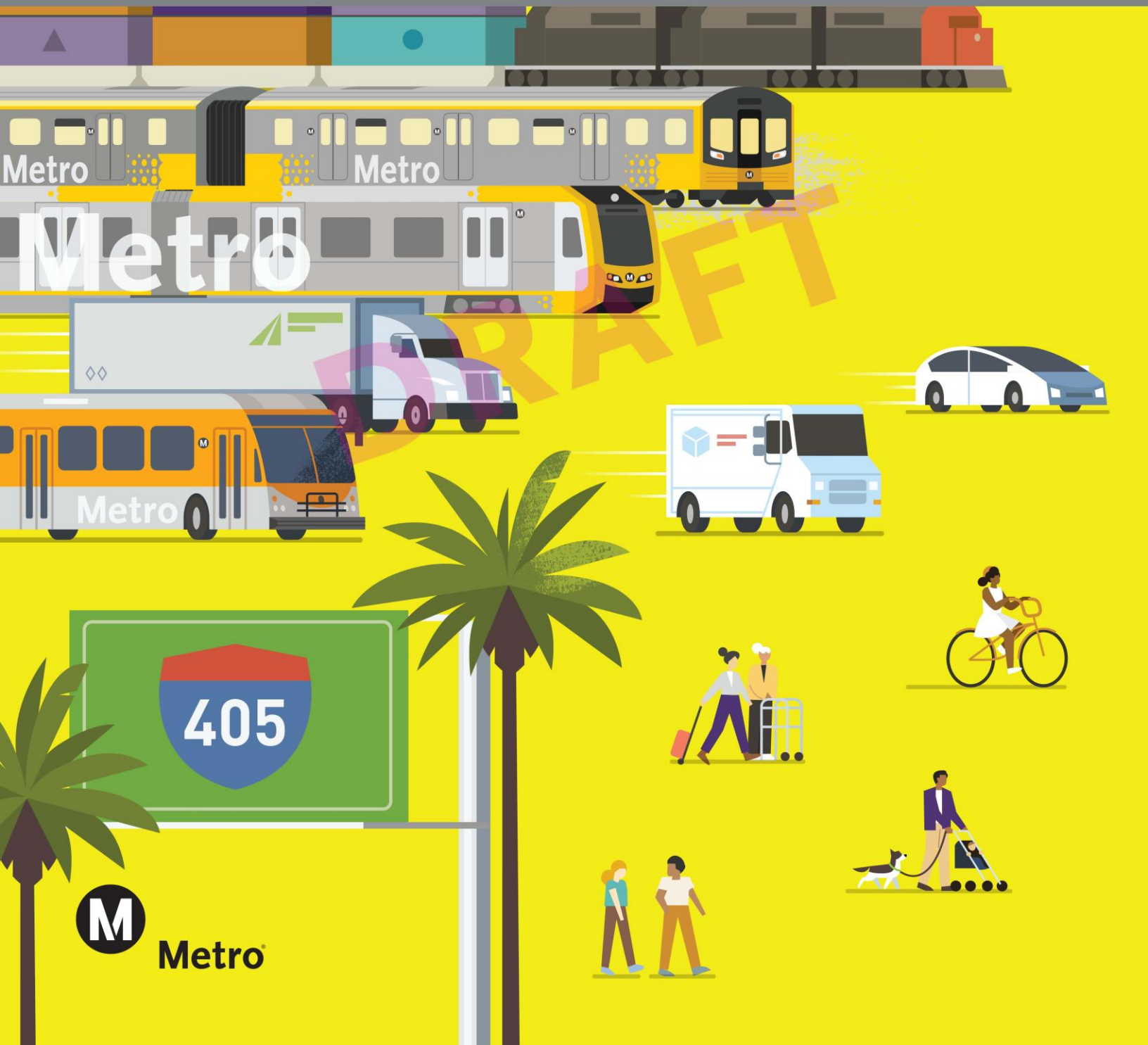
We're working on solutions for congested corridors.

I-405 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN

Spring 2022



Metro

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Preface

The Los Angeles County Metropolitan Transportation Authority (Metro) has long been committed to delivering multimodal options in Los Angeles (LA) County, as demonstrated by the various bus, rail, active transportation, managed lanes and highway operational improvements included in Measures R and M. Likewise, the State cemented its commitment to supporting a more robust multimodal transportation system throughout California with the passage of Senate Bill 1 (SB 1) in 2017. This landmark legislation established a new funding program known as the Solutions for Congested Corridors Program (SCCP) that is dedicated to constructing multimodal improvements for highly travelled and highly congested corridors.

SB 1 specifically identified the "Route 405 Corridor in the County of Los Angeles" as one of five examples of California's highly congested highly traveled corridors.[1] Metro is heeding the call and developing the I-405 Comprehensive Multimodal Corridor Plan (CMCP) to reimagine the possibilities for getting around one of the most congested corridors in LA County and the State.

The I-405 CMCP is a holistic and integrated vision with multilayer objectives to **improve mobility and accessibility through safe and sustainable solutions** and to **invest in infrastructure that supports our economy and the vitality of our communities** by reducing barriers and addressing disparities in order to **advance equity**.

Meeting the objectives set out in this plan will require partnership locally as well as with our state and federal partners. In pursuit of partnership, Metro intends to seek critical state funding made available through the SB 1 SCCP. To do so, Metro must first prepare a CMCP in accordance with the California Transportation Commission's (CTC) Comprehensive Multimodal Corridor Planning Guidelines to qualify projects for funding eligibility. At a minimum, a CMCP must meet the statutory requirements in the California Streets and Highways Code [SHC] to:

1) Be designed to reduce congestion in highly traveled corridors by providing more transportation choices for residents, commuters, and visitors to the area of the corridor while preserving the character of the local community and creating opportunities for neighborhood enhancement projects. [SHC 2391]

2) Reflect a comprehensive approach to addressing congestion and quality-of-life issues within the affected corridor through investment in transportation and related environmental solutions. [SHC 2392]

3) Be developed in collaboration with state, regional, and local partners. [SHC 2392]

4) Evaluate the following criteria as applicable [SHC 2394]
   - > Safety
   - > Congestion
   - > Accessibility
   - > Economic Development and Job Creation and Retention

[1] *SB 1 Chapter 2 SEC 43. (a) (5)*

> Air Quality and Greenhouse Gas Emissions Reduction

> Efficient Land Use

5) Be consistent with the goals and objectives of the Regional Transportation Plan [SHC 2393].

The I-405 CMCP meets theses statutory requirements and goes beyond to present a holistic corridor vision with clear improvement strategies that will help advance our progress on the plan's five goals to improve mobility and accessibility, advance equity, support economic vitality, achieve sustainability and enhance safety. The CMCP consists of five key elements:

> A corridor assessment that examines the conditions, challenges and needs of the Corridor's transportation system and communities;

> Defined plan goals that integrate and build on goals established by Metro and the state;

> A comprehensive list of multimodal projects for the Corridor planned by Metro, Caltrans and other local partners;

> A project evaluation that assesses projects against the CMCP goals as well as the criteria for SCCP; and

> Improvement strategies that incorporate individual projects and packages of improvements together to guide the plan's implementation upon adoption.

Within the improvement strategies the I-405 CMCP will identify competitive and strategic projects and project packages that could compete in upcoming cycles of the SCCP to support the successful implementation of critical corridor improvements. The intent of the CMCP is to provide Metro and our partners with a roadmap to guide the collaboration, delivery and implementation of projects that will not only meet the demands of today and those anticipated in the future, but also solutions that will help us on our path to realizing a more equitable, sustainable, efficient and connected I-405 Corridor.

Introduction and Background

CEO Letter

[Placeholder. To be included in final CMCP]

The I-405 Corridor in context.

Interstate 405 (I-405) is perhaps one of the most iconic, and congested, freeways in California and the US. Serving as a Corridor of local, regional and national significance, it links critical gateways and trade hubs including the Ports of Los Angeles and Long Beach (the San Pedro Bay Ports or SPB Ports) via I-710, Los Angeles International Airport (LAX), Long Beach Airport, and connects trips reaching California's Central Valley, the Mexican border, and the rest of the state (Figure 1). The I-405 freeway is equally important for commuters, residents and visitors across the region, carrying high volumes of vehicles particularly around places like LAX and the Cities of Inglewood and Long Beach. More than a quarter of LA County's population (nearly 2.8 million residents) live within three miles of the Corridor and about 28 percent of jobs in LA County (1.4 million) are located within those boundaries.[2]

Figure 1 Project Context Map

[2] *Population estimates are from the US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019). Employment estimates are from the US Census Bureau; Longitudinal Employer-Household Dynamics Survey; 2018*

While the I-405 freeway functions as the anchor of the study area, the highway is just one element of an integrated network of multimodal facilities. For this reason, the I-405 CMCP study area includes the full extent of the I-405 freeway in LA County—a total of 48.5 miles—as well as a travel "catchment area"[3] of three miles on both sides of the freeway. In its entirety, the freeway spans a total of 72.4 miles in California from I-5 in the San Fernando Valley to Irvine, where it reconnects with I-5 at its southern terminus in Orange County. The 48.5 miles of freeway in the CMCP study area is bisected by more than 50 major arterial interchanges and nine other freeway systems (I-605, I-710, I-110, I-105, SR-90, I-10, US-101, SR-118 and I-5). Unlike many other freeways, there is no parallel freeway facility to I-405 due to its location, which follows the coastline.

In addition to the freeway and expansive arterial and local roadway network, the I-405 "system of systems" also includes transit and rail services, and complete streets infrastructure such as bicycle and pedestrian facilities. Together, this multimodal network supports roughly 10.6 million daily trips—41 percent of all trips taken throughout LA County—for the people that live, work, visit and play in LA County.[4] Most of these trips are made in severely congested conditions where delays are frequent and travel times are long and unpredictable.

What does it mean to be "multimodal"?

A multimodal transportation network is one that provides a range of options to travelers, including public transportation, active transportation such as biking, walking and rolling, new and shared mobility, carpooling and shared-ride options, and facilitates the movement of goods.

[3] *Three miles is the standard catchment area at which trips are attracted to a freeway.*

[4] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*

The I-405 Corridor at a Glance

Nearly **2.8 million people** live within the I-405 study area—**more than a quarter** of LA County's population.

There are **1.4 million jobs** in the I-405 Corridor—an estimated **28 percent of the jobs** in LA County.

The I-405 Corridor area experiences **10.6 million daily trips**—approximately **41 percent of all daily trips** in LA County.

The I-405 freeway itself carries only **25 percent of daily vehicle miles traveled** (VMT) in the study area—14.4 million miles. **The other 75 percent—41.1 million miles**—occurs on the other freeways and arterials in the study area.

Approximately **97.5 percent of total trips in the Corridor occur by car**—a higher rate than the proportion of car trips occurring countywide.

70 percent of trips that start in the Corridor stay in the Corridor—and **80 percent of these trips** are less than 5 miles.

An estimated **14 percent of trips** that originate in the Corridor are from Equity Focus Communities (EFCs)—yet **21 percent of the study area's transit trips** originate within EFCs.

Bottlenecks along the I-405 **collectively cause more than 22,500 hours of vehicle delay** annually—**the equivalent of 2.5 years.**

By 2040, the I-405 Corridor study area will grow to house roughly three million people and 1.6 million jobs.[5] It will need to move about five percent more goods every year to support this growth.[6] This will result in greater demand on the Corridor's already congested infrastructure, creating further challenges to safety, reliability, sustainability, equity and the general travel experience. After more than a century of investment in highway expansion, it is clear that we cannot build our way out of congestion. Multimodal solutions that move more people within fewer vehicles—and within the existing footprint—are needed to address these challenges head on.

Metro and its partners have long recognized that the I-405 Corridor must be a cornerstone of the future regional and statewide transportation network. Nearly $5 billion in Measure R and M funding has been targeted for multimodal improvements directly within the I-405 Corridor area, with several billions in additional sales tax funding going to transportation projects serving the Corridor area [see sidebar]. Specifically, LA County voters have supported near-term efforts like the Crenshaw/LAX and Airport Metro Connector (AMC) projects, and longer-term efforts like the Sepulveda Transit Corridor Project, the C Line (Green) Extension to Torrance, the G Line (Orange) Bus Rapid Transit (BRT) Improvements and I-405 ExpressLanes to improve multimodal mobility in and around the Corridor.

Local Sales Taxes Pay for Transportation

Angelenos have demonstrated their commitment to a better transportation future by taxing themselves through four different half-cent sales taxes that fund transportation improvements in LA County:

> Proposition A (1980)

> Proposition C (1990)

> Measure R (2008)

> Measure M (2016)

Together, these local sales taxes contribute over $4 billion dollars annually, and make up the largest share of revenues for Metro's transportation capital and operating expenditures.

While these and other complementary projects will help improve the overall condition and performance of the Corridor itself, an integrated planning approach is required to achieve collective community, economic and environmental goals. This new approach will provide a multimodal, system-level "big picture" examination of the entire transportation network within the I-405 Corridor. It will reflect the future of mobility on and beyond the freeway to include high quality transit, active transportation and new and shared mobility services; address the interplay among transportation investments and strategies, land use policies and technology applications in achieving regional goals; and be driven by and responsive to community needs and priorities.

Why a Comprehensive Multimodal Corridor Plan?

The I-405 CMCP provides a guiding vision for addressing congestion and its impacts through a menu of multimodal transportation solutions along the I-405 Corridor. It provides an opportunity to think boldly about linking transformative improvements that will help reimagine the possibilities for getting around one of the most congested corridors in LA County and the State of California. The CMCP will help identify top performing projects across all modes (transit, active transportation, roadways, goods movement and more)

[5] Metro Travel Demand Model. Note: Population and employment forecasts from Metro's Travel Demand model are consistent with the SCAG Travel Demand Model.

[6] Port of Los Angeles freight market forecasts

Senate Bill 1 & Solutions for Congested Corridors

The Road Repair and Accountability Act of 2017 (SB 1) is a legislative package that invests $54 billion over a 10-year period to fix roads, freeways, and bridges in communities across California and puts more dollars toward transit and safety.

SB 1 created the Solutions for Congested Corridors Program (SCCP). SCCP is a statewide, competitive grant program that funds the construction of transportation improvements that address some of the most traveled and congested corridors in the state. Projects must achieve a balanced set of transportation, environmental and community access benefits.

SCCP makes $250 million available annually statewide. To be considered eligible for these grant funds, projects must be included in qualifying CMCP.

that help Metro and its partners make progress on collective mobility, environmental and equity goals, and position those projects for grant funding opportunities.

In particular, this plan will serve as a qualifying element for projects that are submitted to the SCCP, which makes $250 million available annually for transportation performance improvements [see sidebar].

To be eligible for SCCP funding, the I-405 CMCP must be developed in concurrence with the California Transportation Commission's (CTC) CMCP Guidelines [see sidebar]. Beyond meeting the statutory requirements, the CMCP Guidelines offer flexibility to ensure that individual CMCPs are context-specific and attuned to regional goals. As such, the I-405 CMCP has been developed to align with many of the plans and policies discussed in the following section.

The SCCP is just one of many funding opportunities that are geared toward multimodal investments. The state oversees numerous funding programs that support the delivery of transportation investments across different modes including the Active Transportation Program (ATP), Local Partnership Program (LPP), Low Carbon Transit Operations Program (LCTOP), State Transportation Improvement Program (STIP), Trade Corridor Enhancement Program (TCEP) and Transit and Intercity Rail Capital Program (TIRCP). The federal Infrastructure Investment and Jobs Act (IIJA)/Bipartisan Infrastructure Law (BIL) allocates $1.2 trillion for infrastructure between 2022 and 2026, including about $550 billion for surface transportation (transit, highways, active facilities, freight and intercity passenger rail). The BIL expanded funding for existing federal transportation programs such as Rebuilding American Infrastructure with Sustainability and Equity (RAISE), Infrastructure for Rebuilding America (INFRA), Buses and Bus Facilities and Low-No Emission programs. The BIL also created new federal funding opportunities through the establishment of programs like the National Infrastructure Project Assistance Program.

CMCP Guidelines

Metro is developing the I-405 Comprehensive Multimodal Corridor Plan in accordance with the California Transportation Commission's (CTC) Comprehensive Multimodal Corridor Plan (CMCP) Guidelines. The Guidelines require that the I-405 CMCP evaluate projects included in the CMCP by specific criteria detailed in statute as follows:

- Safety
- Congestion
- Accessibility
- Economic Development and Job Creation and Retention
- Air Quality and Greenhouse Gas Emissions Reduction
- Efficient Land Use

Through these funding opportunities, both our state and federal funding partners look to multimodal transportation solutions to generate broad benefits, similar to those outlined in the SCCP program guidelines [see sidebar]. As the goal areas and criteria for these various state and federal funding programs overlap, this CMCP serves as helpful guide to identify potential funding pathways for projects beyond SCCP. Multimodal corridor visioning and planning will help to identify a slate of projects that can draw down these funds and help realize multiple benefits for the I-405 Corridor and LA County.

We have a vision for the I-405 Corridor.

Metro's mission is to provide a world-class transportation system that enhances quality of life for all who live, work and play within LA County. Three key planning initiatives will guide Metro as the agency endeavors to achieve this broad mission countywide.

Vision 2028

Adopted by the Metro Board in June 2018, the Vision 2028 Strategic Plan presents the agency's big picture plan for improving mobility across LA County. As outlined in the plan, Metro's visionary outcome is to double the share of transportation modes other than solo driving. Its five goals underpin all of Metro's activities, including the I-405 CMCP. Goals include to:

> Provide high-quality mobility options that enable people to spend less time traveling;

> Deliver outstanding trip experiences for all users of the transportation system;

> Enhance communities and lives through mobility and access to opportunity;

> Transform LA County through regional collaboration and national leadership; and

> Provide responsive, accountable and trustworthy governance within the Metro organization.

2020 Long Range Transportation Plan (LRTP)

The 2020 LRTP lays out a vision and roadmap for bringing about a more mobile, sustainable and vibrant future for LA County. Through extensive public outreach Metro has distilled the region's desires into four goals: Better Transit, Less Congestion, Complete Streets and Access to Opportunity.

The 2020 LRTP outlines what Metro is doing currently and what Metro must do for LA County over the next 30 years to achieve these goals. In addition to aligning the I-405 CMCP goals with Metro's LRTP, the LRTP was used as a starting point to identify projects, initiatives and improvements for inclusion in this plan. The LRTP goals and framework are shown below.


We're guided by our Strategic Plan goals.
Vision 2028 Strategic Plan
We're creating
1 Faster Travel Options 2 Better Trips 3 Thriving Communities
Better Transit
Providing more transit options with improved quality and service
Transit Projects
Bus Improvements
New Mobility Options
Less Congestion
Managing the transportation system to reduce the amount of time spent in traffic
Roadway Improvements
Congestion Management
Improved and Efficient Goods Movement
Complete Streets
Making streets and sidewalks safe and convenient for everyone, to support healthy neighborhoods
Bike and Pedestrian Projects
Local Street Improvements
Station and Stop Access Enhancements
Access to Opportunity
Investing in communities to expand access to jobs, housing and mobility options
Workforce Initiatives
Support for Local Businesses
Transit Oriented Communities
Long Range Transportation Plan
We're committed to
4 Leadership 5 Accountability
Collaboration
Continuous Improvement
Customer Focus
Innovation
Inspired and Inclusive Workforce
Safety
Customer Experience Plan
COVID-19 Recovery Plan
We're intentionally focused on
eliminating racial and socioeconomic disparities and
advancing sustainable practices in everything we do.
Equity
Sustainability
Equity Plan
Moving Beyond Sustainability Plan

Metro's Equity Platform Framework

Metro's Equity Platform, adopted by the Board in February 2018, is a policy framework that defines steps for Metro to maximize its transportation authority as a lever to evaluate and address disparities in accessing opportunities that lead to upward social and economic mobility. The equity platform is structured around four pillars:

I. Listen and Learn;
II. Define and Measure;
III. Focus and Deliver; and
IV. Train and Grow.

Through the 2020 LRTP update process, Metro identified **Equity Focus Communities (EFCs)** throughout LA County, which are those that are most heavily impacted by transportation investments. EFCs represent approximately 30 percent of the population of LA County, and are defined as those census tracts where more than 80 percent of residents are non-white and more than 40 percent of residents are low-income, or where 40 percent of residents are low-income and more than 10 percent of residents do not have access to a personal vehicle.

In August 2020 the Metro Board adopted an agency-wide definition for equity to guide Metro's work in this space and create project-specific equitable outcomes [see sidebar].

Metro's Definition of Equity

Equity is both ***an outcome*** and ***a process*** to address racial, socioeconomic and gender disparities, to ensure fair and just access – with respect to where you begin and your capacity to improve from that starting point – to opportunities, including jobs, housing, education, mobility options and healthier communities. It is achieved when one's outcomes in life are not predetermined, in a statistical or experiential sense, on their racial, economic or social identities. It requires community informed and needs-based provision, implementation and impact of services, programs and policies that reduce and ultimately prevent disparities.

This plan recognizes that disparities exist throughout LA County, including within the I-405 Corridor, and they will persist if we do not intentionally work to eliminate them.

The I-405 Corridor Vision

Building on the principles outlined in Vision 2028, the 2020 LRTP and the Equity Platform, five goals emerged for the I-405 CMCP through a combination of stakeholder engagement and thorough analysis of Corridor conditions and needs. These are shown below.

I-405 CMCP Goals

Improve Mobility and Accessibility

Advance Equity

Support Economic Vitality

Achieve Sustainability

Enhance Safety

Vision: ***A more livable, accessible, equitable, sustainable, safe and vibrant I-405 Corridor.***

These five goal areas align closely with a number of state, federal and regional plans, policies and requirements as well as existing Metro plans, priorities, processes and Board policies (Figure 2).These goals were used to guide the development of specific project evaluation criteria, discussed in *"We evaluated improvements to the I-405 Corridor."*

Figure 2 I-405 CMCP Guiding Programs and Policies

FEDERAL	STATE	REGIONAL
> American Infrastructure Investment and Jobs Act (IIJA)/ Bipartisan Infrastructure Law (BIL)	> CMCP Guidelines > SCCP Guidelines > Climate Action Plan for Transportation Infrastructure (CAPTI) > California Transportation Plan (CTP) 2050 > SB 350	> SCAG Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS) > Long Range Transportation Plan > Vision 2028 > Equity Platform > Modernizing the Highway Program > Beyond Sustainability

Consistent with Metro's Equity Platform, the I-405 CMCP explicitly outlines "Advancing Equity" as a core goal. In the context of the I-405 Corridor, this includes expanding access to multimodal mobility options within EFCs and improving infrastructure that specifically serves EFC trips, reducing health impacts of transportation investments within EFCs, and lowering household transportation costs by making mobility options more affordable. All projects, strategies, and initiatives included in this plan were evaluated based on their ability to advance equity and support the other goal areas, in line with the Equity Platform's "Define and Measure" pillar.

We developed this plan in partnership.

The I-405 CMCP was developed through a stakeholder-guided process to ensure that the plan is representative of and responsive to the needs of the vast and diverse Corridor communities and users. Metro implemented a community engagement plan to encourage participation at every stage of the plan's development—from establishing plan goals and evaluation criteria to providing feedback on project evaluation lists. Stakeholders from 73 different agencies and organizations were involved throughout the development of this plan, including community-based organizations (CBOs), local jurisdictions, transit agencies, Councils of Governments (COGs), private sector stakeholders and more (see Figure 3 for a list of partners). These partners were convened across many different forums, including:

- **The I-405 CMCP Advisory Committee.** To-date, four Advisory Committee meetings have been held between May 2021 and March 2022. The CMCP Advisory Committee comprised a group of key stakeholders representing a wide range of interests across the Corridor. California Transportation Commissioner Hilary Norton and Caltrans District 7 Director Tony Tavares served as keynote speakers for the inaugural meeting. On average, 40 stakeholders across business associations, private industry, academia, non-profits, local/regional officials and public agencies have attended each of the meetings. The meetings provided an opportunity to share an overview of the project and gather feedback on the evaluation framework, as well as the preliminary project list and evaluation results. The Advisory Committee serves as a forum for reviewing and refining the analysis that formed the basis of the CMCP. Following the release of the Draft CMCP, and prior to consideration of the final plan by the Metro Board, the Advisory Committee is expected to meet again in Summer 2022.
- **Focus Groups.** In October 2021, Metro convened two focus group discussions with CBOs to provide an overview of the project and gather feedback on key challenges, priorities and projects in the study area. Key themes that emerged included prioritizing transit, enhancing east/west movement across the I-405 freeway, improving access to key destinations and integrating active transportation. In October 2021, the project team held an additional focus group with municipal transit operators to provide a project overview, share the preliminary evaluation framework and gather input on key priorities, projects and programs specifically related to transit. Representatives from nine transit providers as well as LA Metro Service Planning attended.
- **Council of Governments Coordination.** In August and September 2021, Metro hosted workshops with all four COGs in the project area (the Westside Cities, San Fernando Valley, South Bay Cities and Gateway Cities) to provide a project overview, share findings on existing corridor conditions and gain feedback on the draft goals and evaluation framework. In March 2022, Metro also hosted a joint COG briefing with the Westside Cities, San Fernando Valley and South Bay Cities COG staff to discuss and review the preliminary project list and evaluation. A separate meeting was held with the Gateway Cities COG to discuss the same issues and gather feedback. The COGs are joint powers authorities that focus on planning for each sub-region and serve as key partners with Metro on regional projects such as the CMCP.
- **Spotlight Interviews.** In Fall 2022, Metro conducted spotlight interviews focused on key trip generators throughout the study area, including UCLA, the City of Inglewood and Los Angeles World Airports (LAWA). These interviews were designed to gather information about key mobility challenges, as well as initiatives and opportunities to address those challenges.
- **Public Engagement.** Public engagement around the release of the Draft CMCP is planned for April and May 2022. It will include an online survey with in-person outreach at transit stops and stations to gather information about Corridor challenges and transportation priorities. In addition, a StoryMap

(project microsite) will serve as an interactive executive summary for the Draft CMCP.[7] Social media organic posts and online advertising as well as eblasts to Metro's databases across the project area will be used to notify stakeholders about the release of the Draft CMCP, the virtual public meetings, and the ways to provide comment.

Figure 3 Stakeholder Participation

CATEGORY	ORGANIZATION	ADVISORY COMMITTEE	FOCUS GROUP/ AND/OR INTERVIEW/ BRIEFING	COUNCIL OF GOVERNMENTS COORDINATION
Council of Governments	Gateway Cities	X		X
	Las Virgenes-Malibu	X		
	North Los Angeles County Transportation Coalition	X		
	San Fernando Valley			X
	South Bay Cities	X		X
	Westside Cities	X		X
Elected Official Offices	Office of Los Angeles Mayor Eric Garcetti	X	X	
	Office of Los Angeles County Supervisor Holly Mitchell, 2nd District		X	
	Office of Los Angeles County Supervisor Sheila Kuehl, 3rd District		X	
	Office of Los Angeles County Supervisor Janice Hahn, 4th District	X	X	
	Office of Los Angeles County Supervisor Kathryn Barger, 5th District	X		
	Office of City of Los Angeles City Councilmember, Paul Krekorian, District 2	X	X	
	Office of City of Los Angeles City Councilmember, Nithya Raman, District 4	X		
	Office of City of Los Angeles City Councilmember, Paul Koretz, District 5	X		
	Office of City of Los Angeles City Councilmember, Monica Rodriguez, District 7	X		

[7] *I-405 CMCP StoryMap: https://bit.ly/405cmcpstorymap*

CATEGORY	ORGANIZATION	ADVISORY COMMITTEE	FOCUS GROUP/ AND/OR INTERVIEW/ BRIEFING	COUNCIL OF GOVERNMENTS COORDINATION
	Office of City of Los Angeles City Councilmember, Mike Bonin, District 11	X	X	
Local Jurisdictions	City of Culver City	X		
	City of Inglewood	X	X	
	City of Los Angeles	X		
	City of Redondo Beach	X		
	City of Santa Clarita	X		
	Los Angeles Department of Transportation (LADOT)	X		
	Los Angeles County Chief Sustainability Office	X		
	Los Angeles County Department of Public Works	X		
Community Based Organizations	Chrysalis	X		
	CiclaValley	X		
	Community Health Councils	X		
	LA 28	X		
	Local Union 8	X		
	Long Beach Gray Panthers	X		
	Los Angeles County Bike Coalition	X	X	
	Move LA	X		
	Natural Resources Defense Council (NRDC)	X		
	Pacoima Beautiful	X	X	
	West Los Angeles Policy Advisory Board	X		
Economic & Workforce Development	FuturePorts	X		
	Harbor Trucking Association	X		
	LA County Economic Development Corporation	X		
	Los Angeles Area Chamber of Commerce	X		
	Los Angeles Cleantech Incubator	X		
	Pacific Merchant Shipping Association	X		
Private Sector	Northrup Grumman	X		
	United Parcel Service	X		
Hospitals	Cedars-Sinai	X		
	Valley Presbyterian Hospital	X		
Ports/Airports	Long Beach Airport	X		

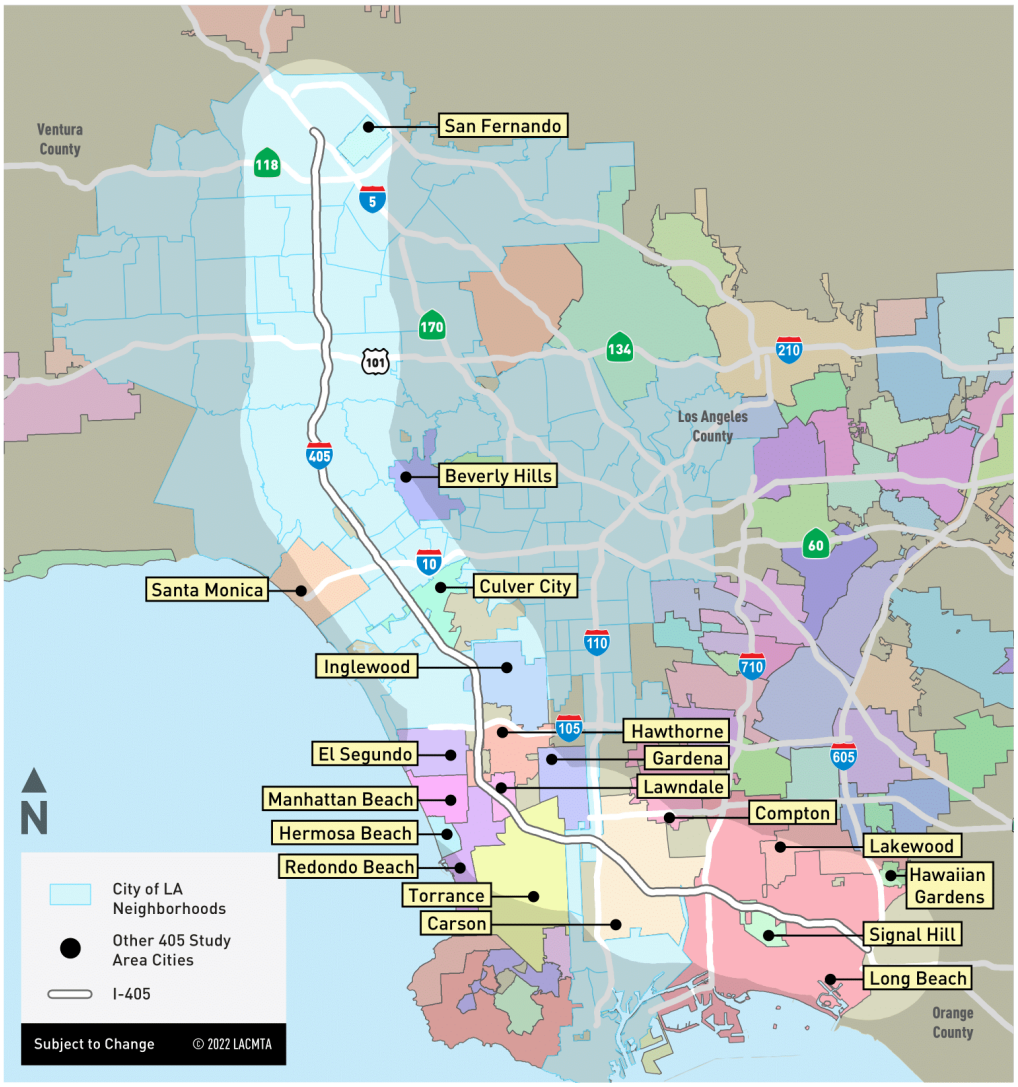
CATEGORY	ORGANIZATION	ADVISORY COMMITTEE	FOCUS GROUP/ AND/OR INTERVIEW/ BRIEFING	COUNCIL OF GOVERNMENTS COORDINATION
	Los Angeles World Airports	X	X	
	Port of LA	X		
	Port of Long Beach	X		
Regulatory Agencies	South Coast AQMD	X		
Research/ Academic	Cal State University, Long Beach	X		
	Loyola Marymount University	X		
	University of California, Los Angeles (UCLA)	X	X	
	University of Southern California (USC)	X		
Transit Agencies	Access LA	X		
	Access Services		X	
	Antelope Valley Transportation Authority (AVTA)	X	X	
	Beach Cities Transit	X	X	
	Big Blue Bus	X		
	Culver City Bus		X	
	LA Metro		X	
	LADOT Transit		X	
	Long Beach Transit		X	
	Metrolink		X	
	Santa Clarita Transit		X	
	Torrance Transit	X		
Transportation Management Organization (TMOs)	Go SaMo	X		
	Playa Vista Compass	X		
Transportation Planning Agencies	Alameda Transportation Authority (ACTA)	X		
	California Transportation Commission	X		
	Caltrans District 7	X	X	
	Caltrans District 12		X	
	Southern California Association of Governments (SCAG)	X		

The many partnerships informing this planning roadmap to-date will be equally important to maintain and strengthen as we shift toward seeking funding for the implementation and delivery of these corridor investments.

The I-405 is more than just a freeway.

The I-405 is more than just a freeway. It is a thread that weaves together four COGs, four LA County Supervisorial Districts, 20 individual cities and over 40 neighborhoods in the City of LA. It serves some of LA County's most traveled-to destinations, including UCLA, LAX, the Inglewood SoFi Stadium, the SPB Ports, and connects the western regions of LA County to the rest of California and beyond. The I-405 Corridor is home to 2.8 million residents, 1.4 million jobs, and welcomes millions of visitors annually to its many attractions.[8] In recognition that the Corridor functions as a link between numerous communities and destinations, the study area reaches beyond the highway and includes three miles on either side of the freeway.[9] Spanning approximately 319 square miles, the study area captures the northern most portion of the Corridor in the San Fernando Valley, down to the Gateway Cities where the I-405 stretches onward into Orange County (Figure 4). The people and places within this area are vast and diverse, and so are their mobility needs.

Figure 4 Project Orientation Map



[8] *Population estimates are from the US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019). Employment estimates are from the US Census Bureau; Longitudinal Employer-Household Dynamics Survey; 2018*

[9] *Three miles is the standard catchment area at which trips are attracted to a freeway.*

People

Nearly 2.8 million people live within the I-405 study area—more than a quarter of LA County's population.[10] As such, the study area presents a fairly representative cross section of the LA County population. While the Corridor has a diverse population overall, it is heavily segregated by race and income. It includes some of the wealthiest and some of the most disadvantaged communities across the LA region.

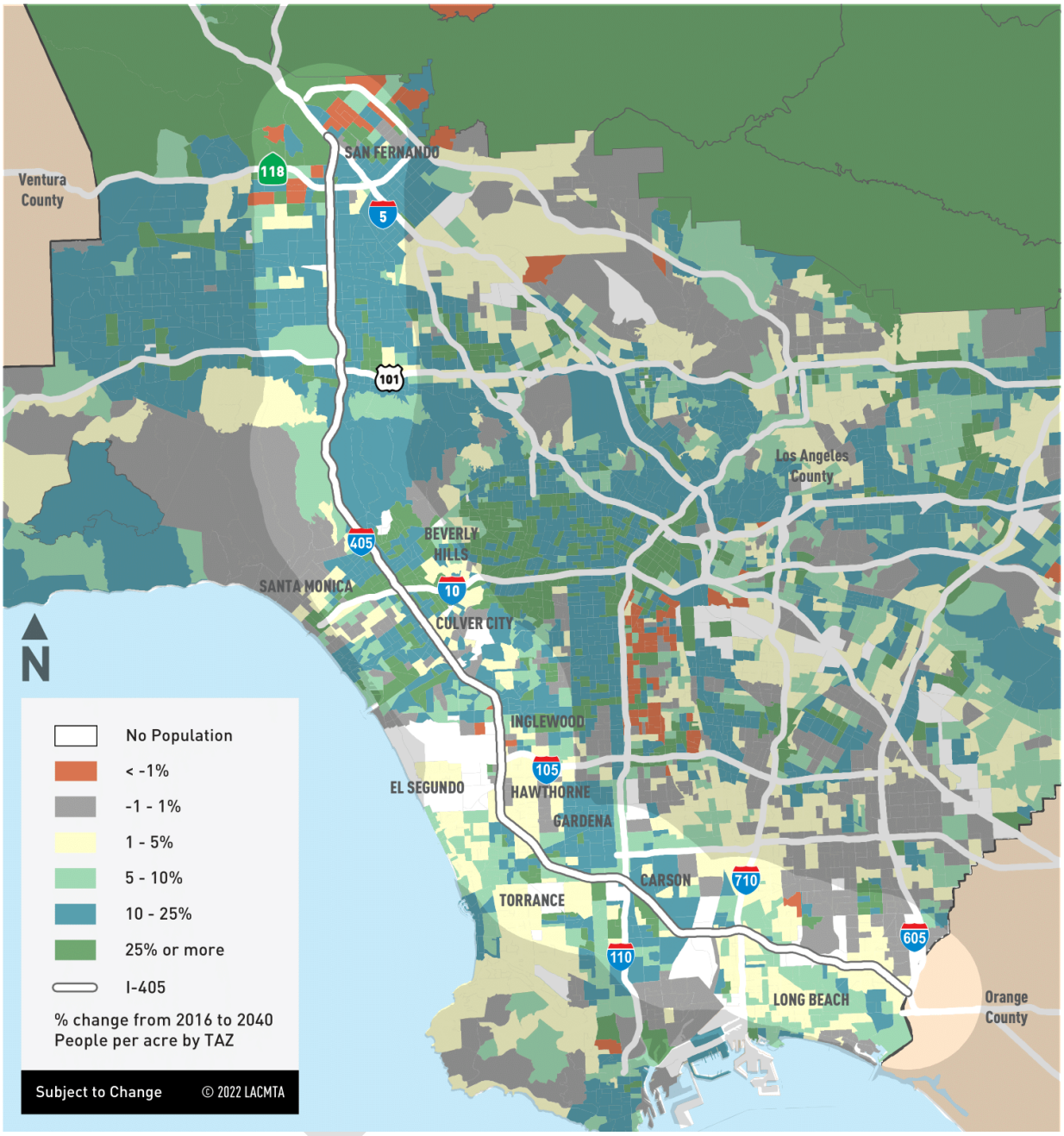
Population within the I-405 Corridor is expected to grow by a total of 12 percent by 2040 (0.4 percent annually), reaching nearly three million residents.[11] Population growth will occur throughout the Corridor, with some of the higher concentrations of growth in the northern part of the San Fernando Valley, Culver City Torrance, around the UCLA Campus, Inglewood and portions of Long Beach (Figure 5). This growth is projected for parts of the Corridor where there is already high population density. Population within the study area is expected to grow at a slightly slower rate than LA County and the six-county SCAG region as a whole, since most of the study area is already built out (Figure 5).[12]

[10] *There are currently Metro efforts underway that characterize population and travel behavior within LA County and along parts of the I-405 Corridor, including the recent Sepulveda Feasibility Study, which cites a population of 7.7 million served by the Sepulveda Pass segment of the I-405 Corridor. The 2.8 million population within the I-405 CMCP Corridor includes only those who live within the 3-mile catchment area surrounding the freeway, according to the US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019).*

[11] *Metro Travel Demand Model*

[12] *Ibid.*

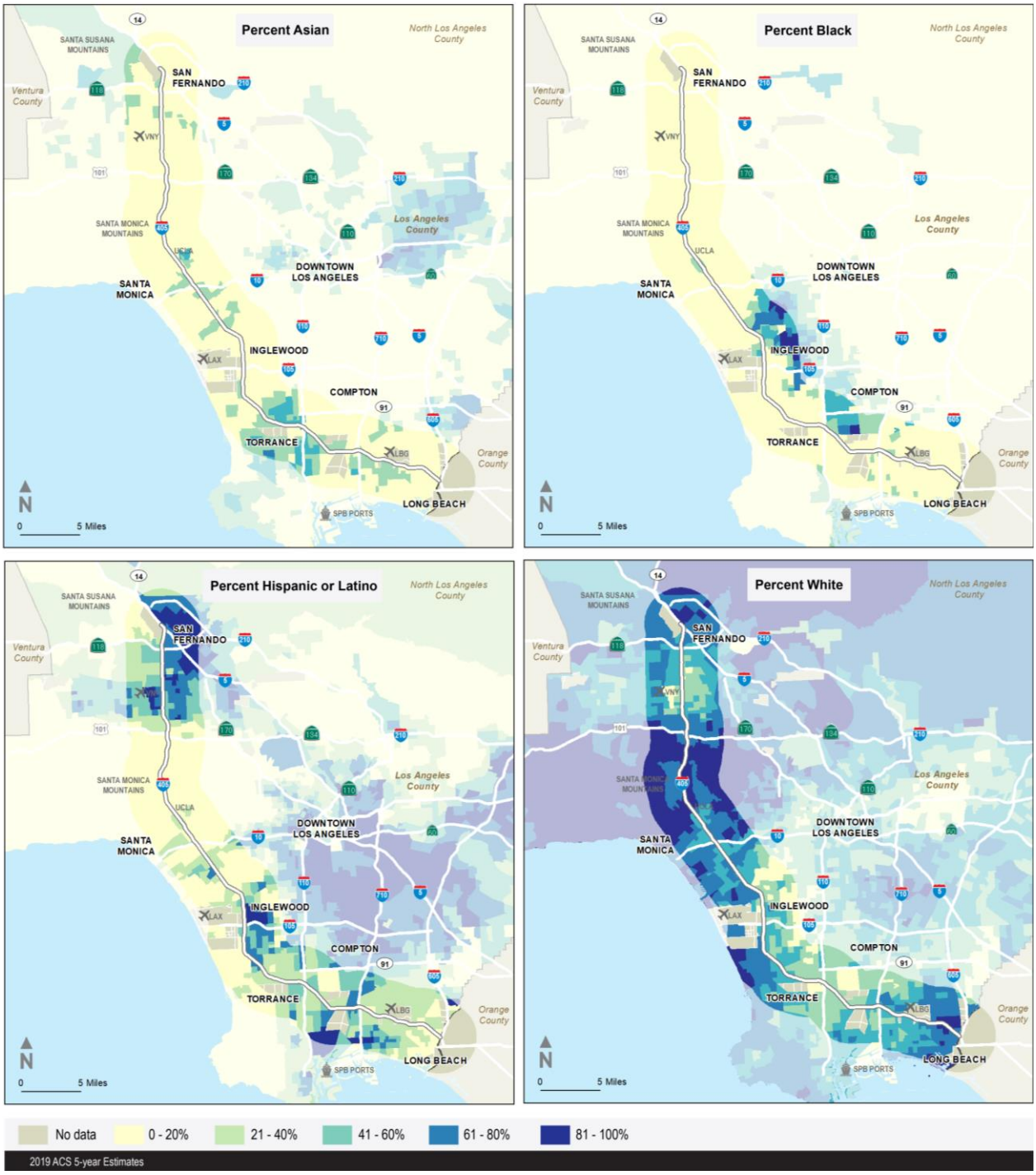
Figure 5 Population Growth by 2040



Source: LA Metro Travel Demand Model

Like most metropolitan areas across the US, **communities along the I-405 Corridor are highly racially segregated**, as shown in Figure 6. This is primarily due to post-war era land use and transportation policies such as redlining, restrictive covenants and exclusionary zoning that put up barriers to housing for people of color—particularly Black and African American residents—as well as major highway and development projects that caused widespread displacement. The legacy of those policies is apparent today in the disparities across health, housing, services, education and access to safe, affordable and reliable mobility.

Figure 6 Race and Ethnicity Along the I-405 Corridor

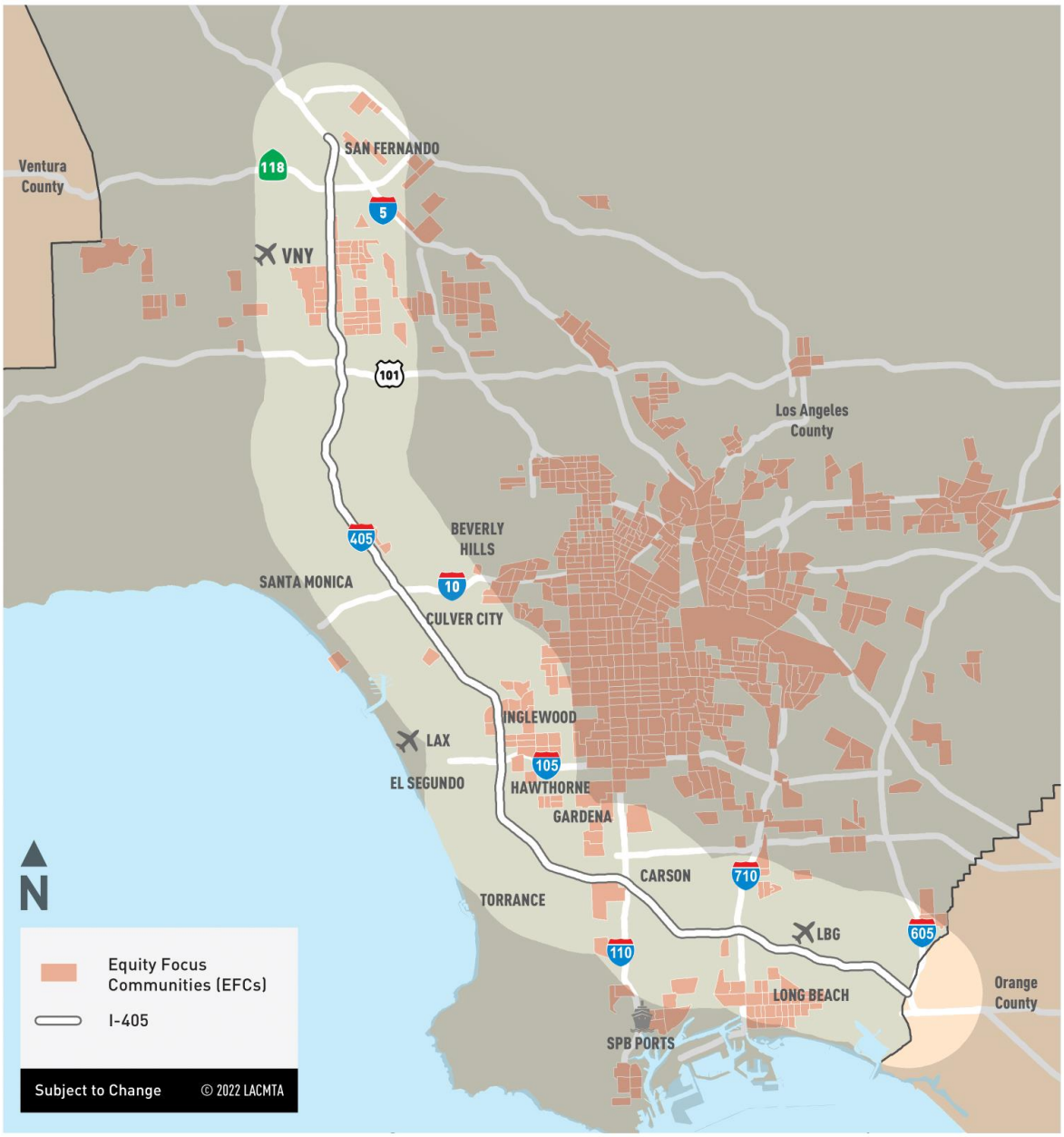


Source: US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)

Like most urban areas across the US, there is a strong linkage between race/ethnicity and income within the I-405 Corridor study area, with pronounced disparities in income levels between white communities and communities of color. Communities of color within the study area have some of the lowest household incomes, highest levels of poverty and lowest rates of auto ownership in the LA region. These areas include

portions of the San Fernando Valley, Inglewood, Carson and parts of Long Beach, where upwards of 80 percent of residents identify as Black/African American or Hispanic/Latino and earn less than $34,000 in annual household income—less than half the median household income in LA County.[13] In the Corridor's most affluent areas of Bel Air, Beverly Hills, Santa Monica, and Pacific Palisades—which are predominantly white—median household incomes exceed $136,000.[14] Figure 7 shows where EFCs, which are identified as low-income and majority non-white or low-income communities with limited vehicle access, are located throughout the Corridor.

Figure 7 Metro Equity Focus Communities



Source: Metro Equity Focus Communities

[13] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*
[14] *Ibid.*

One of the implications of these historical inequities is that within low-income communities of color, auto ownership rates tend to be lower, and transit usage tends to be higher. Almost 70 percent of Metro riders have an annual household income of less than $35,000, and roughly half of riders live below the federal poverty line.[15] For many of these communities, car ownership is not a choice. Yet due to the Corridor's auto-oriented nature, getting around without a car can be challenging, if not impossible. Where transit options do exist, it can take up to three times longer than traveling by car.[16] Furthermore, bicycle and pedestrian facilities are often unsafe, disconnected or lacking altogether.

Housing Affordability, Gentrification & Displacement

California's housing shortage is impacting where people can afford to live and what housing is available to them, including in LA County and communities along the I-405 Corridor. Growing demand for housing in urban areas has led to widespread gentrification and displacement, forcing many low-income residents and communities of color to move to more affordable areas that are often further from jobs, retail, services and high-quality affordable mobility options.

In 2018 the Urban Displacement Project highlighted Hawthorne, Gardena and coastal areas in Long Beach as places experiencing "advanced gentrification," and Compton, Inglewood and inland parts of Long Beach (south of I-405) as places that are susceptible and/or experiencing ongoing displacement. These patterns of gentrification and displacement can lead to a mismatch in jobs and housing, which impacts travel demand.

While auto-ownership remains lowest in low-income areas of San Fernando Valley, Inglewood and Long Beach, SCAG's 2018 study on *Falling Transit Ridership* noted that declining transit ridership was primarily being caused by rising auto-ownership among lower-income households in these areas. This is attributed to the lack of affordable housing countywide. As formerly high-transit usage neighborhoods gentrify and become increasingly unaffordable, high-income workers who are more likely to own vehicles move in, while low-income communities of color who rely more heavily on transit are displaced to less transit-rich areas. Should neighborhoods and communities throughout the study area continue to undergo rapid gentrification and displacement, future transportation investments should align with local anti-displacement policies[17], and ensure that those impacted by displacement have access to safe and affordable mobility options.

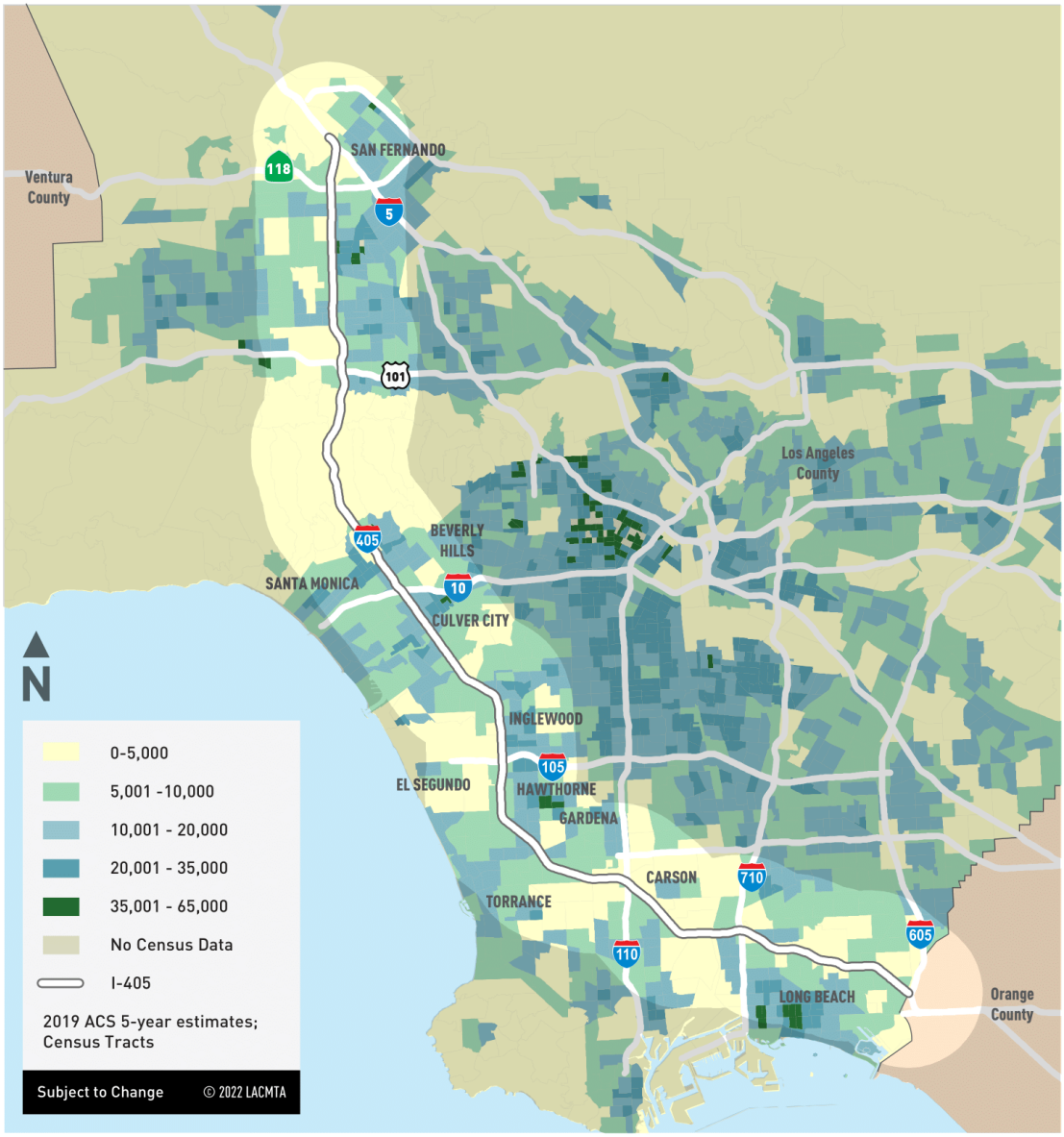
Places

Residents and major activity centers alike call the Corridor "home". Some of LA County's largest international gateways and attractions are along the I-405 Corridor. Moreover, the Corridor is home to many large employers, schools, businesses and entertainment venues. Key attractions include the Sepulveda Basin Recreation Area, the Getty Museum and Skirball Cultural Center, UCLA, the Santa Monica Pier, the new SoFi Stadium in Inglewood, LAX, the Aquarium of the Pacific, Long Beach Airport, Downtown Long Beach and many malls, universities, golf courses, parks and medical centers. Just beyond the three-mile travel shed is the Pacific Ocean, whose beaches run parallel to the Corridor and similarly attract many residents and visitors.

[15] *Metro Fareless System Initiative Fact Sheet; 2021; https://media.metro.net/2020/fsi_fact_sheet_ENG.pdf*
[16] Cambridge Systematics, LOCUS dataset, 2019
[17] *UCLA Center for Neighborhood Knowledge; https://knowledge.luskin.ucla.edu/2018/07/11/new-map-database-of-anti-displacement-policies/*

The study area has a diverse set of land use types, but **nearly half of the land within the Corridor is residential.** Of this residential land, nearly 80 percent is single-family homes.[18] The overall population density in the study area—approximately 7,300 residents per square mile—is similar to LA County as a whole. However, some neighborhoods, including portions of North Hills, Westwood, Culver City, Inglewood, Hawthorne and Long Beach (Figure 8) have between 35,000 and 65,000 residents per square mile—denser than much of New York City.[19] These high-density areas generate a lot of trips and that significant travel demand is directly linked to the Corridor's high levels of traffic congestion. Areas where there are high densities of people and destinations are also some of the most conducive to trips that can be taken on foot, by bike or by transit.

Figure 8 Population Density



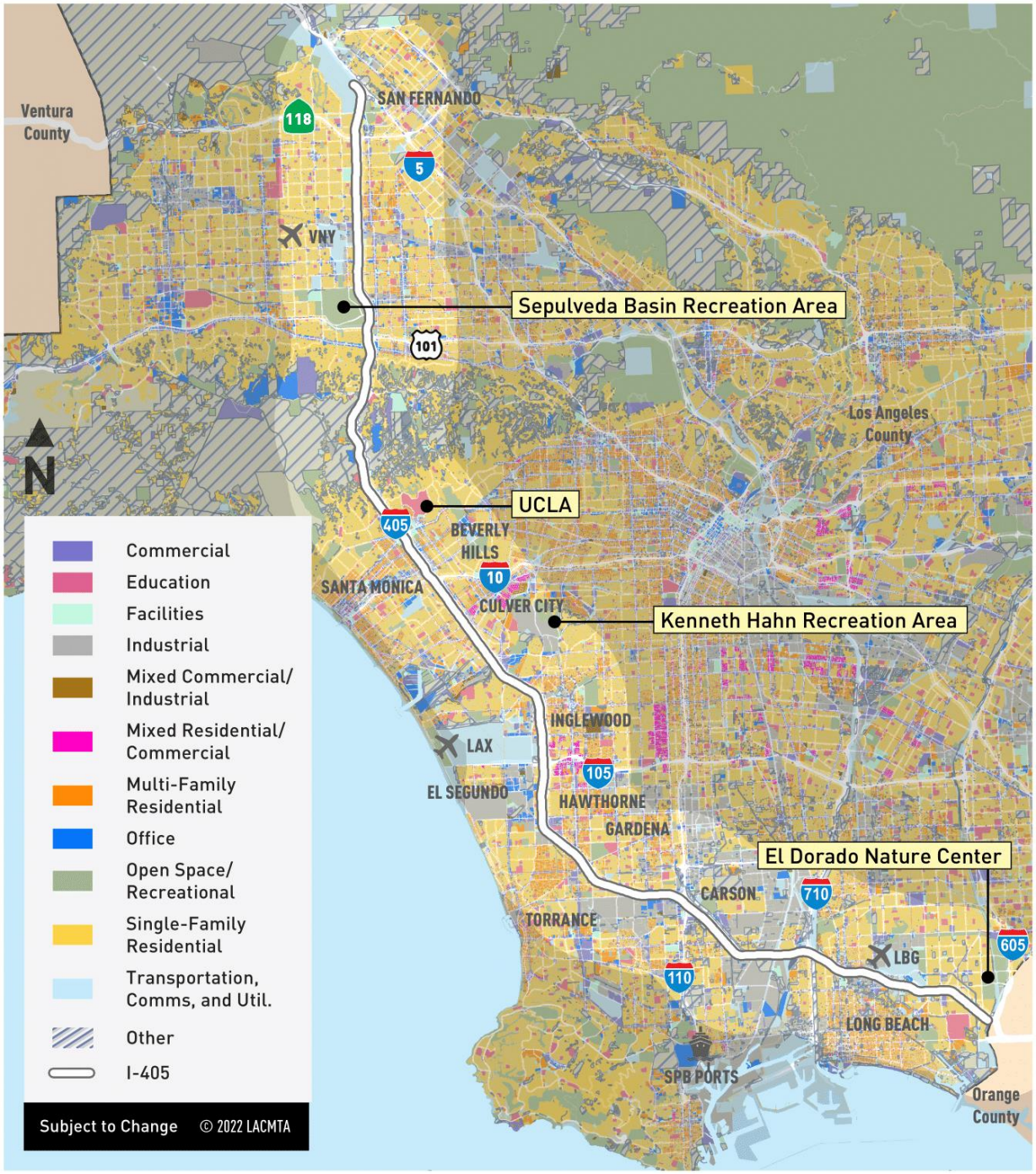
Source: US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)

[18] *SCAG, 2018*

[19] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*

Industrial land uses tend to be clustered throughout the southern part of the Corridor (Figure 9). The I-405 freeway itself is an anchor for regional employment, with pockets of commercial and office development clustered around off-ramps. The study area is predominantly zoned for future commercial, industrial, and/or mixed-use centers along key corridors, surrounded by single- and multi-family housing, mirroring the Corridor's existing land use patterns.

Figure 9 Land Use



Source: SCAG; 2018

Land use patterns dictate how we engage with and move through the built environment and influence how friendly, accessible and safe spaces feel. More dense and varied land uses are typically more supportive of transit, biking, walking and other low-carbon modes, while more spread out land uses are typically more easily accessed by car. Moreover, communities along the Corridor experience benefits and in some cases severe burdens as a result of how their neighborhoods were developed over time, as discussed in the previous section. This impacts not only people's mobility options, but access to jobs, goods, services, health care, education and more.

Metro and partner agencies are engaged in many efforts to encourage more transportation-efficient and transit-friendly land use patterns in an equitable way. Metro's transit-oriented communities policy focuses on a combination of first/last mile access, systemwide design and joint development efforts that will make it more convenient for those who live, work and play within the Corridor to get around without a car. However, different solutions will be required to address the unique needs of the Corridor's vast and diverse people and places.

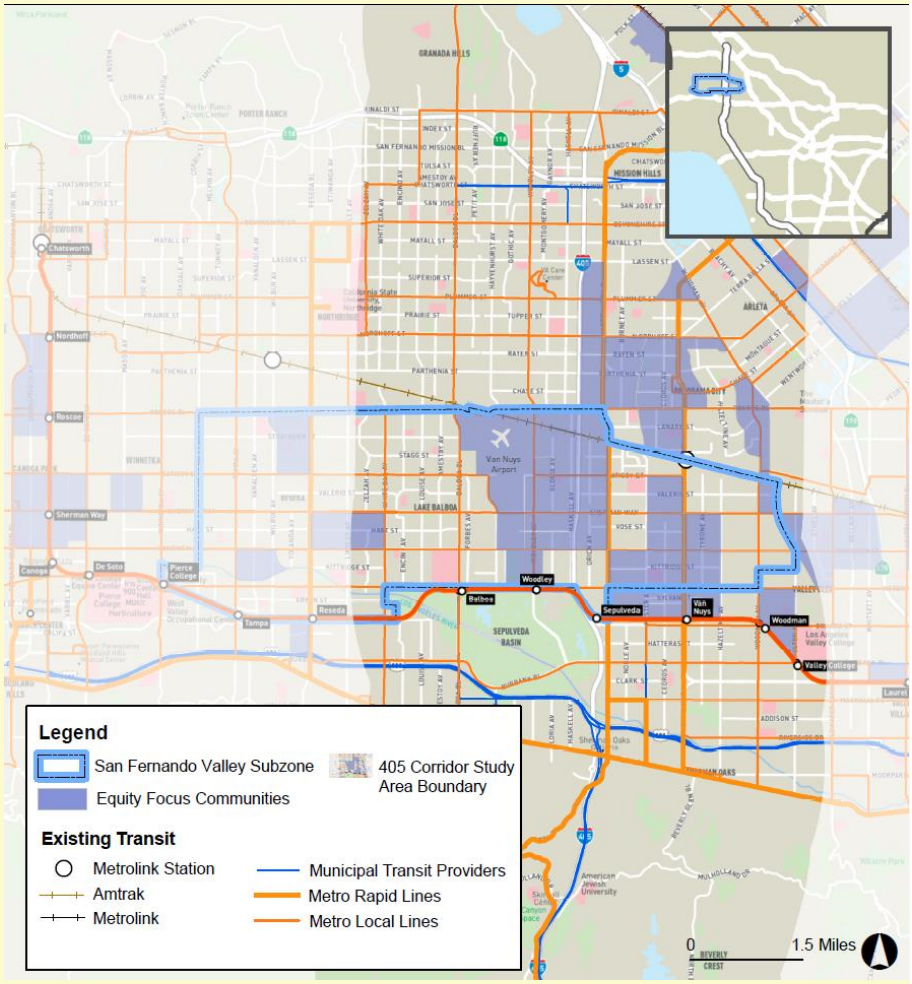
The San Fernando Valley

Located in the northern-most part of the study area—north of US-101—this portion of the San Fernando Valley (SFV) includes the City of San Fernando and many neighborhoods of LA including Sylmar, Granada Hills, Mission Hills, Northridge, North Hills, Arleta, Panorama City, Van Nuys, Sherman Oaks, Encino, Valley Glen, Lake Balboa and Sepulveda Basin. This area is predominantly Hispanic/Latino, and is home to many disadvantaged communities as defined by CalEnviroScreen, the Healthy Places Index and Metro's EFCs (see *Equity Focus Communities in the San Fernando Valley* spotlight). Areas east of the I-405 freeway generally have a low to medium concentration of health, recreation and educational facilities compared to other neighborhoods. Ventura Boulevard, a significant employment corridor, runs east-west along the southern part of the SFV. There are Metro Bus services throughout the SFV, including G Line (Orange) BRT service. Compared to other parts of the Corridor, this area is particularly lacking in high-quality bicycle and pedestrian infrastructure, yet has some of the highest rates of bicycle and pedestrian commuting.[20]

[20] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*

SPOTLIGHT—Equity Focus Communities in the San Fernando Valley

The northern-most segment of the I-405 Corridor runs through the most densely populated portion of the SFV and facilitates the movement of people and goods to this part of LA County. Out of over 200,000 people residing in the SFV spotlight area (outlined in blue to the right), more than one-third (36 percent) live in areas designated as EFCs. These EFCs are located within parts of the North Hills, Panorama City, Reseda and Van Nuys communities. Within the I-405 study area, this spotlight area has one of the highest concentration of EFCs.



Key Mobility Challenges

Nearly nine percent of workers living in this area walk, bike or ride transit to get to their jobs, compared to six percent of workers countywide, indicating that residents of these areas are more likely to rely on transit, walking, bicycling, scooting, shared rides and other shared mobility to access destinations and opportunities. At the same time, this area has some of the most apparent gaps in active transportation and transit infrastructure throughout the I-405 study area. One of the core gaps is a non-auto connection between the SFV, West LA and beyond.

In addition to these gaps, the existing transportation system and limited amenities available place a greater burden on those that opt for alternatives to driving, and those who do not have access to a vehicle. The SFV also suffers from extreme heat, forcing residents that walk, bike or wait for a bus to do so in high temperatures, and in some cases with little to no shade or shelter. Further, these travelers face safety challenges as several road segments are part of the City of LA's High-Injury Network (HIN), the subset of city streets where 70 percent of deaths and severe injuries for people walking have taken place.[21] Moreover, there are notably high bicycle and pedestrian collisions with vehicles in Van Nuys, especially along Van Nuys Boulevard, Vanowen Street, Sherman Way, and Sepulveda Boulevard.[22] Together, these conditions indicate that this part of the SFV, it's EFCs, and particularly its

[21] *Los Angeles Department of Transportation; 2021*

[22] *Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley; 2021*

residents that travel by transit, walking and biking have limited transportation options, and those options that they have are in many ways inhospitable.

Initiatives and Opportunities

People who live in EFCs in the SFV spotlight area depend on walking, bicycling and transit at higher rates than most other parts of the I-405 study area, yet experience many barriers to multimodal transportation and unmitigated impacts that affect public health, safety and access. The following multimodal improvements have potential to improve access and remove barriers for people who live in the spotlight area:

- **I-405 ExpressLanes** will improve travel through the Sepulveda Pass by moving more people in fewer vehicles, and improving travel times and flows for those driving over the pass.
- **The Sepulveda Transit Corridor Project** will address the lack of north-south transportation alternatives to driving over the Sepulveda Pass by providing a high-capacity transit option that will improve connectivity between the SFV and West LA.
- **Expanded transit options** will deliver better rail and bus service and improve connectivity to stations, including the North San Fernando Valley Transit Corridor Project, the East San Fernando Valley (ESFV) Light Rail Transit Project and ESFV First/Last Mile Plan and first/last mile improvements around the Van Nuys Metrolink station.
- **Safe and comfortable pedestrian and bicycle connections** and amenities (lighting, shade, seating and wayfinding) across the I-405 study area, including projects like the LA River Bike Path that will expand active transportation access and safety.
- **Increased density and diversity of land uses around existing transit stations,** including Metrolink and future light rail that will bring jobs and destinations closer to this area.
- **EV charging and affordable electric car share opportunities** such as BlueLA will increase sustainable mobility options for residents without vehicle access.

Westside Cities

The Westside Cities includes the cities of Beverly Hills, Santa Monica, Culver City, West Hollywood and unincorporated areas such as Ladera Heights, and the Mar Vista, Venice, Palms, Del Rey and Westchester neighborhoods of LA. These neighborhoods are generally located along the I-405 between I-10 and I-105. The residential communities in this area are typically much more affluent than LA County as a whole. This part of the Corridor includes a number of significant destinations and attractions, including the UCLA Campus (see the *UCLA Campus and Community* spotlight), the Getty Museum, the Ronald Reagan UCLA Medical Center, the Veterans Administration (VA) medical complex and outdoor recreation areas in the Santa Monica Mountains. Santa Monica and Venice are beachside towns that draw more than eight

The Impacts of COVID-19 on Tourism

The tourism industry experienced significant hardship during the COVID-19 pandemic. Hotel occupancy reached a nationwide low in April 2020, as both domestic and international travel plummeted. However, many indicators have nearly achieved pre-pandemic levels and travel is expected to return to 2019 levels by 2024, with domestic travel recovering slightly ahead of international.

million visitors each year to attractions such as the Santa Monica Pier, the Venice Canals, and beach areas.[23] While the residents located in this part of the Corridor are more affluent, many commuters and visitors travel to this high-opportunity area to access jobs, services, education and recreation opportunities.

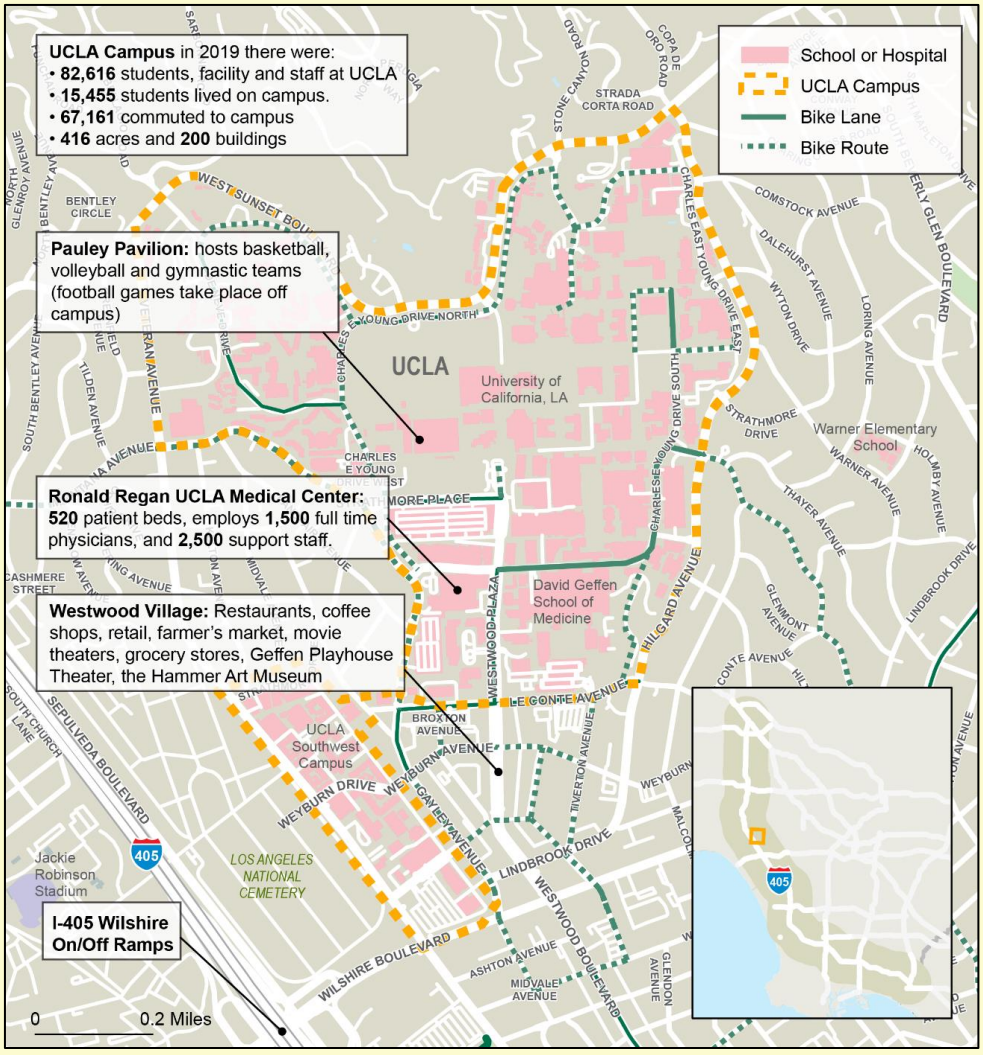
To the north is the Sepulveda Pass, where the Santa Monica Mountains constrain both sides of I-405 for approximately six miles. There are few roadway and transit alternatives to the I-405 freeway over the mountains, making it hard to travel between the north and south parts of this area. The Sepulveda Pass and surrounding communities face the highest wildfire risk in the Corridor, making the freeway and the few alternative roadways important evacuation routes.

Transit in Westside Cities is provided by a combination of the Santa Monica Big Blue Bus, Culver City Bus and Metro. While riders have access to transit services, many may have to transfer services when making trips that cross jurisdictions.

[23] *City of Santa Monica "About Us".*

SPOTLIGHT—UCLA Campus and Community

The UCLA campus is a hub of major activity along the I-405 Corridor. Located between the Sunset and Wilshire Boulevard exits of I-405, UCLA generates roughly 110,000 daily trips.[24] The campus minimizes daily auto trips through transportation demand management strategies so that most trips (over 63 percent) are made by transit, carpooling, biking, walking and other alternatives to driving alone.[25] While it is served by multiple well-used bus lines (both Metro and municipal bus services), service coordination and connectivity to campus present challenges for operators and passengers alike. Robust and well-connected mobility options will be critical to managing demand now and into the future.



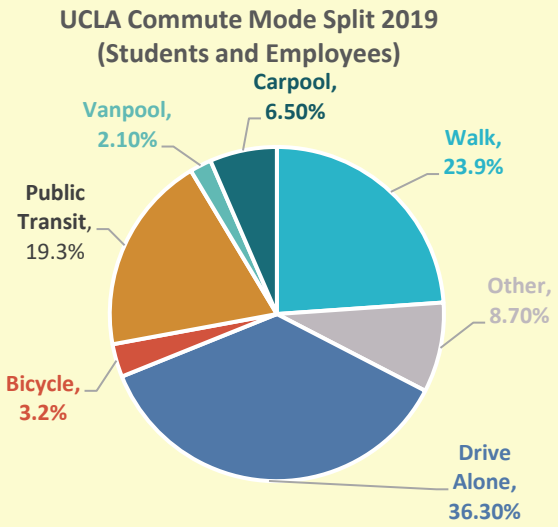
The UCLA Community

The UCLA campus has over 80,000 community members including over 40,000 faculty and staff, and another 40,000 in students. A growing student body with limited on-campus housing—roughly 37 percent of students live on campus—requires many to either pay for very expensive housing in surrounding areas or to live far from campus and commute longer distances. Thirty-one percent of students are first-generation and around 34 percent are Pell Grant recipients—which means they come from a household that earns less than $60,000 a year.[26] In addition to students and employees, campus facilities and venues attract visitors daily and the Ronald Reagan Medical Center is supported by over 4,000 staff serving hundreds of patients a day.

[24] Cambridge Systematics, LOCUS dataset; 2019
[25] *UCLA State of the Commute; 2019*
[26] *UCLA admissions statistics, "Facts and Figures"*

How People Travel to and from Campus

There are many existing mobility options serving the UCLA campus. There are eight transit operators serving the campus, and on average there are 802 buses traveling to and from campus every day. No rail currently serves the campus directly; however, the D Line (Purple) extension is under construction and the Sepulveda Transit Corridor Project would provide transit service parallel to I-405. In 2019, the League of American Bicyclists awarded UCLA with a gold-rating for being a bicycle friendly campus, with multiple active transportation facilities to support the large number of people biking, walking and rolling on the campus.



Source: UCLA State of the Commute; 2019

While driving is the dominant form of transportation in the I-405 Corridor making up roughly 98 percent of trips, mode split across students and employees who drive alone to campus is 36 percent, which is represented by 23 percent of students and 48 percent of employees.[27]

Key Mobility Challenges

Housing costs near campus are high and on-campus housing is limited, causing many people to live and commute from all over LA County. Twenty six percent of UCLA commuters come to campus from northern parts of the County. Many come from the SFV, where housing is more affordable, with some people traveling as far as Palmdale and Lancaster. Commuters from the SFV, who are disproportionately lower-income students and faculty, rely on the heavily congested Sepulveda Pass which has limited non-auto mobility options, adding to their travel time and transportation costs. Other key transportation challenges include:

> The I-405 is the main regional access route, and it is highly congested near campus. Key arterials such as Wilshire Boulevard, which is the main access route to campus, are also heavily congested;

> Many commuters (roughly one third) rely on a personal vehicle to access campus;

> Overlapping transit services on Westwood Boulevard and a high volume of buses exacerbate the already congested roadway;

> Connectivity via walking, biking and other active transportation modes to the campus from the surrounding street system is challenging due to heavy auto traffic, narrow lanes shared with autos and narrow sidewalks that hinder pedestrian safety;

> The I-405 is a physical barrier for campus access from the west side, especially for people walking, biking and rolling; and

> Additional traffic and mobility obstacles related to the significant truck and delivery trips that support the operations of campus facilities and retail in Westwood Village.

Initiatives and Opportunities

[27] *UCLA State of the Commute; 2019*

The UCLA campus will continue to be a major travel destination along the I-405 Corridor. The campus population is more likely than most to opt for alternatives to driving alone, when those options are plentiful, convenient and cost-effective. This presents a variety of opportunities to improve mobility and accessibility within the I-405 Corridor as well as the campus itself:

- **Build more on-campus housing** to reduce housing and transportation burdens for the student body, especially for those that currently have to contend with high housing costs near campus or are forced to commute long distances. UCLA has successfully reduced their trips generated for many years, in large part due to adding on-campus housing.
- **Continue transportation demand management strategies** such as parking management and telework policies that occurred at the start of the COVID-19 pandemic to reduce trip-making to and from campus, while retaining a collaborative learning environment.
- **Improve transit options.** As part of the D Line (Purple) extension, surrounding areas will need to accommodate high volumes of pedestrian travel as more people access campus by transit. In addition, there are opportunities for bus lanes on the I-405 freeway, and the Sepulveda Transit Corridor Project will provide a transit option for students and staff living in the SFV. In addition, improved coordination across the eight transit agencies serving the campus may help reduce bus congestion on Wilshire Boulevard while providing a similar level of service.
- **Improve connectivity for active modes across the I-405 underpass**. Freeway interactions for people walking or rolling are unpleasant due to high traffic, noise and unsafe conditions even on mostly separated pedestrian facilities like the I-405 underpass. Better lighting, wider sidewalks and protected crossings would help encourage more people to walk or bike to campus.
- **Improve convenience for essential auto trips.** There are many people for whom transit, walking or biking to and around campus is not an option, including custodial and maintenance staff that may need to work off-hours or travel long distances, or people with physical disabilities. Mode shift and congestion reduction strategies, such as the I-405 ExpressLanes project, will improve the ease of travel for individuals who must rely on a personal vehicle.

South Bay Cities

The South Bay Cities, generally located between I-105 and I-710, comprise multiple cities and employment centers that rely on the I-405 Corridor, including Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Lawndale, Manhattan Beach, Redondo Beach, Torrance and parts of Compton. Major trip generators in this area include the new SoFi Stadium and other sport complexes in the City of Inglewood, which can draw up to 90,000 people to the area on game days (see *Inglewood and the SoFi Stadium* spotlight), as well as the LAX airport situated west of I-405 that draws people from the greater LA region for travel and employment (see *LAX* spotlight).

While many South Bay Cities are predominantly residential, El Segundo and Torrance serve as significant employment centers, with major aeronautical facilities such as Northrup-Grumman, Lockheed Martin, Raytheon and Space X clustered just southwest of the I-105/I-405 interchange. Carson, parts of Compton and unincorporated areas such as Rancho Dominguez are home to many oil refineries, industrial facilities, distribution centers and intermodal freight facilities due to their proximity to the SPB Ports. Also located in Carson are Dignity Health Sports Park (home stadium for the LA Galaxy Major League soccer team) as well as the California State University Dominguez Hills campus, both of which are significant trip generators. During the summer, the beach is also a major activity center and attracts people from throughout the LA Basin.

Transit in this area is provided by a combination of Beach Cities Transit, GTrans, Torrance Transit, Long Beach Transit and Metro, with less coverage on the west side of I-405. These routes provide transit connections to the Metro C Line (Green) rail stations. There is limited bike infrastructure in this area, with most routes running north-south through the beach communities of Manhattan Beach and Redondo Beach.

SPOTLIGHT—Inglewood and the SoFi Stadium

Situated northeast of the I-405/I-105 interchange, the City of Inglewood has a population of approximately 100,000. New and planned developments are transforming the City into a major entertainment hub that will draw an increasing number of visitors from the LA Basin and beyond.

Coming Attractions:

- ***2023 College Football National Championship (CFP)***
- ***2026 FIFA World Cup***
- ***2028 Summer Olympics***

Located in Inglewood is the 70,000-seat SoFi sports stadium—home of the LA Rams and Chargers football teams—that is adjoined by the 6,000-guest indoor YouTube Theater. Hollywood Park Casino and the Inglewood Forum (17,000 guests) are also major destinations. Forthcoming is the Intuit Dome (18,000 guests) that will be the new home of the LA Clippers in 2024, the Aria Hotel and the Hollywood Park retail area.

Inglewood includes many EFCs. Fifty percent of residents identify as Hispanic or Latino and 40 percent as Black or African American.[28] Poverty rates in the City are some of the highest in LA County. While new developments may bring jobs and greater economic activity, there is also high potential for continued gentrification and displacement of long-time residents. Managing the mobility needs of community members and visitors alike and expanding access to opportunities through safe and affordable transportation options will be critical for the City's long term economic vitality and fostering a more livable community for its residents.

Mobility Options for Residents and Visitors

In addition to the I-405; I-105, and many large arterials and local roadways facilitate vehicle travel through Inglewood and to its many attractions. It is also served by the Metro C Line (Green), which runs parallel to the I-105 freeway. The city has a fairly consistent bus network provided by Metro, Long Beach, Torrance Transit and LADOT Commuter Express, primarily on the main arterials such as La Brea Boulevard, Century Boulevard, Manchester Boulevard, Inglewood Avenue, and others, with a bus transfer center in Downtown Inglewood. The area is also served by many new and shared mobility services including bike-share, car-share, scooter-share and transportation network companies such as Lyft and Uber.

[28] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*

Travel Patterns During Events

In February 2022, SoFi Stadium welcomed a crowd of 70,000 to see the LA Rams and Cincinnati Bengals playoff in Superbowl LVI 2022. Twenty thousand of those attendees reached the stadium through public transportation and parking shuttles provided by Metro, Municipal Operators and special event shuttles through partnership with the Super Bowl Organization. Metro parking lots were comparably priced with rates implemented by the City of Inglewood and LAX area to strategically utilize the parking available while minimizing spillover impacts on surrounding neighborhoods.

To support game-day operations on Metro services and shuttles, Metro mobilized an event strike force consisting of members from Metro's System Security & Law Enforcement, Communications, Rail Transportation Operations Supervisors (RTOS), Vehicle Operations (VO) supervisors, Customer Information and Customer Care employees, various field support staff as well as People Assisting the Homeless (PATH) support. Deployment of these resources is necessary to successfully manage and transport event-attendees, preserve quality service for regular transit users and reduce impacts on local streets and communities.

Key Mobility Challenges

There are many challenges associated with surges in travel demand that will only become worse if not addressed proactively. These include:

> Wide and busy arterials with fast-moving vehicular traffic that poses safety risks to people biking walking, and rolling;

- Limited transit and other non-auto mobility options;
- A lack of safe and connected bicycle and pedestrian facilities, especially first/last mile connections linking people to existing and future transit services;
- Long block lengths with limited pedestrian crossing opportunities;
- Coordination of Caltrans, Inglewood, LAWA and other traffic management systems to ensure the most responsive traffic operations during peak event times combined with LAX and other local travel demands; and
- Parking and traffic overflow into residential neighborhoods.

Initiatives and Opportunities

Upcoming transportation improvements are primarily focused on improving multimodal access and increasing flexibility in infrastructure to accommodate game-day and other event-related traffic. These include:

- **The Metro Crenshaw/LAX Project** will introduce three new rail stations within Inglewood (the Fairview Heights Station, the Downtown Inglewood Station and the Westchester/Veterans station). Additionally, the Aviation/96th Street Station and the Aviation/Century Station will connect travelers from LAX to Inglewood.
- **The Inglewood Transit Connector (ITC)**, a 1.6 mile elevated and automated transit system, will connect the K Line (at the Inglewood Downtown Station) to the Inglewood Forum, the SoFi Stadium and Intuit Dome. The ITC is anticipated to open in 2027, in advance of the 2028 Olympic Games. Mobility enhancement projects that address event venue access and venue/community mobility conflicts should be prioritized.
- **The Active Transportation and Safe Routes to School Plan** (soon-to-be-adopted) proposes a full network of bicycle facilities through the City of Inglewood. Three proposed bicycle facilities cross the I-405 freeway (on Florence Avenue, Hillcrest Boulevard and Arbor Vitae Street).
- **First/Last Mile Plans** such as the Inglewood First/Last Mile Plan, Inglewood Mobility Plan, and Arbor Vitae Bike Plan will ensure that residents and visitors have safe, convenient, and reliable access to and egress from current and future transit services.
- **Technology and Operational Improvements** such as the Prairie Avenue Dynamic Lane project, Crenshaw Resurfacing project, Downtown Inglewood ITS, Manchester/Prairie ITS, and CMS and CCTV signs will reduce congestion and improve the flow of vehicular traffic throughout the City.
- **Transit-Oriented Development Plans** in Downtown Inglewood, Fairview Heights, and Westchester/Veterans will locate more housing, shopping and services near current and future transit services, reducing reliance on personal autos. This is a critical strategy to accommodate future growth while managing growing demands on the transportation system network.

SPOTLIGHT—Los Angeles International Airport (LAX)

LAX, located directly west of I-405, draws travelers and employees from across the greater LA region and serves as a major cargo hub for domestic and international goods movement. It is the 5th busiest passenger airport and 4th busiest cargo airport in the US.[29] In 2019, LAX moved approximately 88 million passengers (departures and arrivals) and 2.2 million tons of air freight.[30] This significant movement of people and goods is supported by over 50,000 employees, employed by Los Angeles World Airports (LAWA) and other LAX campus employers. Together, these passengers, goods, and employees rely on the surrounding network of multimodal surface transportation infrastructure to access the airport in a convenient, safe and reliable way.

Mobility Options for People Traveling to and from LAX

Freeway access to LAX is provided by the I-405, I-105, Pacific Coast Highway (PCH), and many large arterials including Sepulveda Century Boulevards. The Metro C Line (Green) connects to LAX at the LAX/Aviation station. In addition, LAWA operates a FlyAway transit service that provides two express bus routes to and from LAX, Van Nuys and Union Station, the latter of which operates as an extension of the Metrolink system. Two routes—Long Beach and Hollywood—were recently terminated due to the COVID-19 pandemic. LAWA is in the process of strategically expanding FlyAway service across the LA region. The Microtransit service Iride Inglewood provides access in and around Inglewood. LAWA is conducting a pilot

[29] *LAWA 10-Year Summary of Passengers; 2008-2021*
[30] *Ibid.*

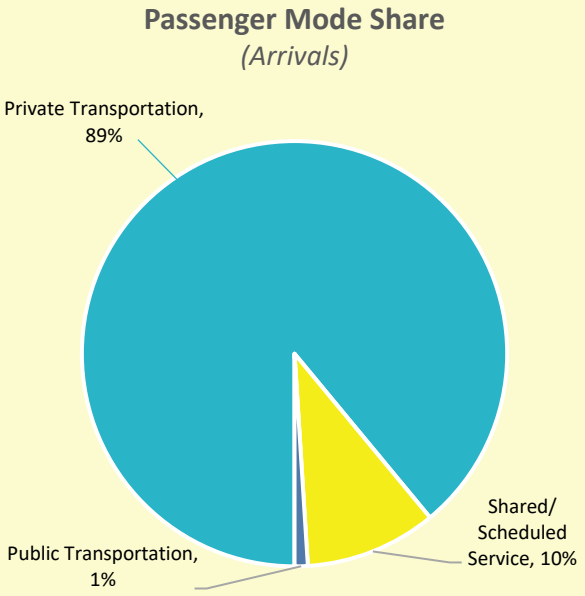
with Metro Micro to allow access to exclusive bus lanes on the arrival level of the Central Terminal Area (CTA).

Traveling to and from LAX

Eight-nine percent of passengers arriving to and/or departing from LAX use private transportation such as a private vehicle, rental car, or taxi. For those arriving by private transportation, 52 percent used the I-405 freeway to access LAX.[31] Ten percent used shared or scheduled services such as shuttle vans, hotel courtesy vans, and Flyaway services, and only one percent used public transportation.[32]

About half of LAWA's 50,000 employees commute regularly.[33] Employees' residences are most concentrated in Lenox, Inglewood, Hawthorne, the City of LA, and unincorporated areas of LA County. Only 27 percent live within five miles of the airport.[34]

Trucks account for roughly five percent of all daily vehicle traffic into and out of LAX.[35] The heavy truck routes serving the airport include Century Boulevard, Highway 1 (Lincoln Boulevard/Sepulveda Boulevard), Aviation Boulevard, Airport Boulevard and Arbor Vitae Street.



Source: LAX Passenger Survey; 2019

Key Mobility Challenges

Growth in passenger and goods movement is anticipated to worsen bottlenecks that currently exist within the airport complex, the surrounding surface streets connecting to the airport and the highway corridors that connect many of those trips—including the I-405. Core challenges include:

> Significant vehicle congestion within the airport's CTA and on the adjoining ground transportation network to and from LAX, including on the I-405, Sepulveda Boulevard, Century Boulevard, I-105 off ramps to Sepulveda Boulevard and the ramps leading to the arrival and departure terminals;

> Long wait times for trucks to load cargo (consistently exceeded 70 minutes) can exacerbate pressure on neighboring streets and create pollution from idling trucks; and

> Limited transit options that connect directly to the airport and low transit use to and from the airport.

[31] *LAX Passenger Survey; 2019*
[32] *Ibid.*
[33] *LAWA 2019 Transportation Management Organization (TMO) Employee Commute Patterns Study; 2019*
[34] *Ibid.*
[35] *LAWA Airfield & Terminal Modernization Project (ATMP), DEIR Appendix G Transportation*

Initiatives and Opportunities

To address existing congestion and future growth, LAX has a large capital program underway to improve mobility and accessibility to and within the LAWA campus for goods movement and for people arriving and departing by vehicle, transit and other modes. Key opportunities include:

> **The Automated People Mover (APM)** will connect to Metro's C Line (Green), and K Line (Crenshaw/LAX) at the new Airport Metro Connector (AMC) Station.

> **Intermodal Transportation Facilities (ITF) East and West** will function as the new gateway to LAX for passengers arriving and departing by automobile (with approximately 8,000 parking spaces), transit, taxis, shuttles and transportation networking company (TNC) vehicles outside of the CTA. ITF East is located adjacent to the new Consolidated Rental Car Facility (ConRAC).

> **Right-pricing vehicle access** through ExpressLanes and congestion pricing that incentivize shared rides or selecting less congested times to travel.

> **Improved traffic flow** related to roadway reconfigurations to provide access between the CTA, ITFs, and adjacent surface streets, including improvements to 96th Street between Airport Boulevard and Bellenca Avenue that will continue to support heavy truck access as part of the Land Access Modernization Plan (LAMP).

> **Intelligent Transportation Systems (ITS)** that optimize existing roadway networks by improving signal timing and directional wayfinding to respond to ongoing traffic.

> **Expanded FlyAway** service across the LA region, as well as other transit improvements that provide better coverage along with fast, frequent, safe and reliable service.

> **Active transportation** access improvements associated with the AMC, including an expansion of the bike network and bike storage which will be available to LAX employees and passengers wishing to take the Automated People Mover (APM) for travel into and out of the CTA.

Gateway Cities

The Gateway Cities, generally situated from I-710 to the Orange County Line, includes the cities of Long Beach, Signal Hill and Lakewood which are part of the Gateway Cities Council of Governments area. Like the South Bay Cities, there is a significant amount of industrial land in this area to support goods moving to and from the SPB Ports. While most of this area consists of single-family homes, downtown Long Beach is a major activity center that draws people from across the region. The Long Beach Airport handles more than 3.5 million passengers and over 20,000 metric tons of cargo annually, with the I-405 and adjacent facilities allowing travelers and goods to reach the airport.[36] Like Santa Monica, Downtown Long Beach is a tourist destination with shopping, restaurants, hotels, the Long Beach Aquarium, and beaches attracting six million annual visitors.[37] Long Beach Transit provides relatively thorough coverage and connectivity within the area, and Metro's A Line (Blue) rail service terminates in downtown Long Beach and connects to Downtown LA.

Jobs and industries

There are **approximately 1.4 million jobs in the study area—**an estimated 28 percent of the jobs in LA County.[38] Jobs are primarily concentrated along commercial corridors in the SFV and West LA, with LAX,

[36] Long Beach Airport" Flight Activity Report", December 2019

[37] Visit Long Beach "Long Beach Convention & Visitors Bureau."

[38] Corridor job estimate from the Longitudinal Employer-Household Dynamics Survey; 2018. LA County jobs from the California Employment Development Department (https://www.labormarketinfo.edd.ca.gov/file/lfmonth/la$pds.pdf).

Culver City, Hawthorne, El Segundo, Torrance, Gardena, Carson and Long Beach also having some of the Corridor's largest concentration of jobs (more than 30 jobs per acre). Major employers such as UCLA, LAX, Amazon, Universal Studios, Lockheed Martin, Northrop Grumman, Space X and the SPB Ports rely on safe and reliable infrastructure so that employees can access their jobs, residents and visitors can shop, eat and access services, and goods can be delivered in a timely and efficient manner.

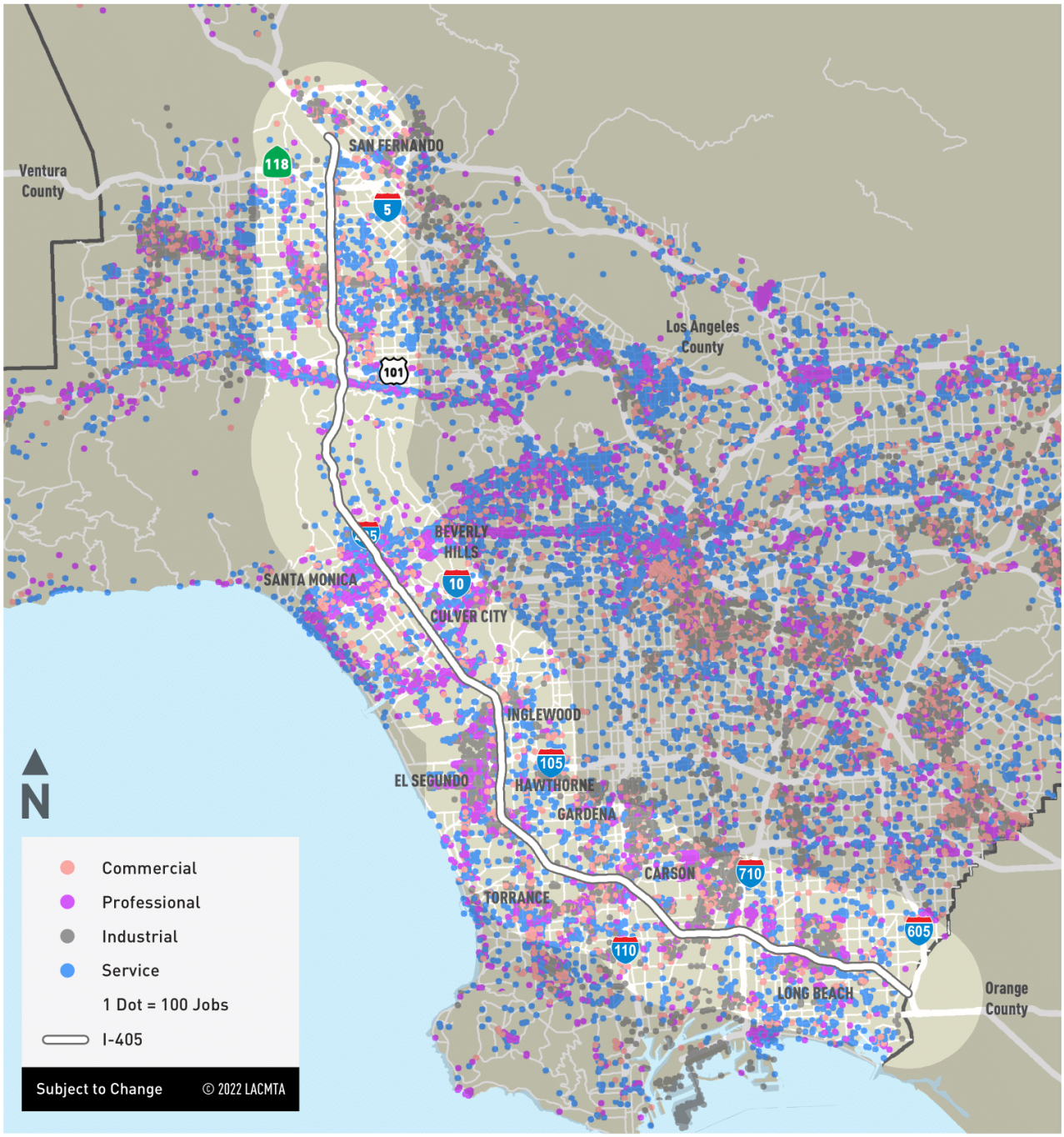
About a third of jobs in the Corridor are in "professional" sectors, which includes finance and management, real estate, information technology and other professional services (typically higher paying jobs). Another third is in the service sector, which includes health care, education, retail, and food and accommodation services (typically lower paying jobs).[39] This distinction is important as these sectors have different commuting and travel patterns. Professional sector jobs tend to have working schedules that adhere to an eight or nine hour work day (typically 9am to 5 pm), thus paralleling typical commute hours. Jobs in this sector are more likely to accommodate teleworking arrangements. Service sector jobs tend to require in-person work and are less likely to operate on a nine-to-five schedule and therefore may require commuting outside typical commute peak periods. Furthermore, in addition to serving the jobs located within the study area, the I-405 Corridor provides access to an additional two million jobs across the entire region.[40]

Industrial jobs, which make up 20 percent of the Corridor's employment, tend to be concentrated in the southern half of the Corridor where there are more port and industrial and warehousing land uses (Figure 10). These areas include portions of Long Beach, near LAX, Rancho Dominguez and Carson. The communities surrounded by this higher concentration of industrial sectors are among the populations with the lowest incomes, higher poverty rates and lowest rates of vehicle access within the study area. Since many industrial areas are difficult to access by transit due to more sparse land uses, commuting to these jobs can be an extra burden for the Corridor's industrial sector workers who are often low-income.

[39] *US Census Bureau, Longitudinal Employer-Household Dynamics Survey; 2018*

[40] *The Final Feasibility Report of the Sepulveda Transit Corridor Project (LA Metro 2019) indicates that approximately 3.37M jobs are served by the I-405 Corridor; our analysis indicates that 1.4M of those are located within boundaries of this study.*

Figure 10 Jobs by Sector



Source: US Census Bureau; Longitudinal Employer-Household Dynamics; 2018

Note: The commercial sector includes wholesale and retail trade; the industrial sector includes agriculture, forestry, fishing, and hunting, mining, quarrying, oil and gas extraction, utilities, construction, manufacturing, and transportation and warehousing; the professional sector includes information, finance and insurance, real estate and rental leasing, professional, scientific and technical services, management of companies and enterprises, administrative support and waste management, arts, entertainment and recreation, and public administration; and the services sector includes educational services, health care and social assistance, accommodation and food services, and other services.

Job growth within the I-405 Corridor is expected to occur at a faster rate than population growth, at about 0.7 percent per year.[41] The more than 1.6 million jobs forecast in the study area by 2040 represent a nearly 20 percent increase between 2016 and 2040 (Figure 11). Future job growth is clustered around existing commercial corridors within the study area. Historical data for the SCAG region shows that high-wage jobs and low-wage jobs have both increased rapidly over the last two decades, while middle-wage jobs have decreased.[42] If this trend continues the many inequities experienced today may be exacerbated. People who are unable to afford housing near their jobs may be forced to move further away, which will necessitate longer commutes and presumably more limited access to non-auto mobility options.

Figure 11 Summary of Population and Employment Trends

	EXISTING (2016)		FUTURE (2040)		GROWTH		GROWTH PER YEAR	
	Pop	**Emp**	**Pop**	**Emp**	**Pop**	**Emp**	**Pop**	**Emp**
Study Area	2,660,841	1,342,792	2,976,537	1,604,420	12%	19%	0.4%	0.7%
LA County	9,922,486	4,246,081	11,514,426	5,225,707	16%	23%	0.6%	0.8%
SCAG	18,321,856	7,428,556	22,137,997	9,848,152	21%	33%	0.7%	1.2%

Source: SCAG Travel Demand Model

The jobs housing balance may also be impacted by long-standing land use policies which continue to make single-family residences the predominant form of housing throughout the region. Connect SoCal describes the importance of integrating future transportation and land use investments, and prioritizing growth strategies such as infill and mixed-use development that support more dense living, working and traveling, thereby promoting non-auto travel and minimizing congestion. Recognizing that there is a strong interplay between land use and transportation, this plan includes a project evaluation criteria focused on each project's ability to be conducive and complementary to infill development and transportation-efficient land use. Not prioritizing these types of investments may limit future economic growth in the Corridor.

There are many existing travel options.

The I-405 freeway is the backbone of a larger, interconnected system. This system includes intersecting freeways, arterials and local roadways, multiple rail and transit options, active transportation infrastructure for people walking, biking and rolling, and shared mobility services such as ride-hailing, car-share, bike-share and scooter-share. Together, these mobility options—the I-405 "system of systems"—serve a staggering number of trips for residents and visitors throughout the region.

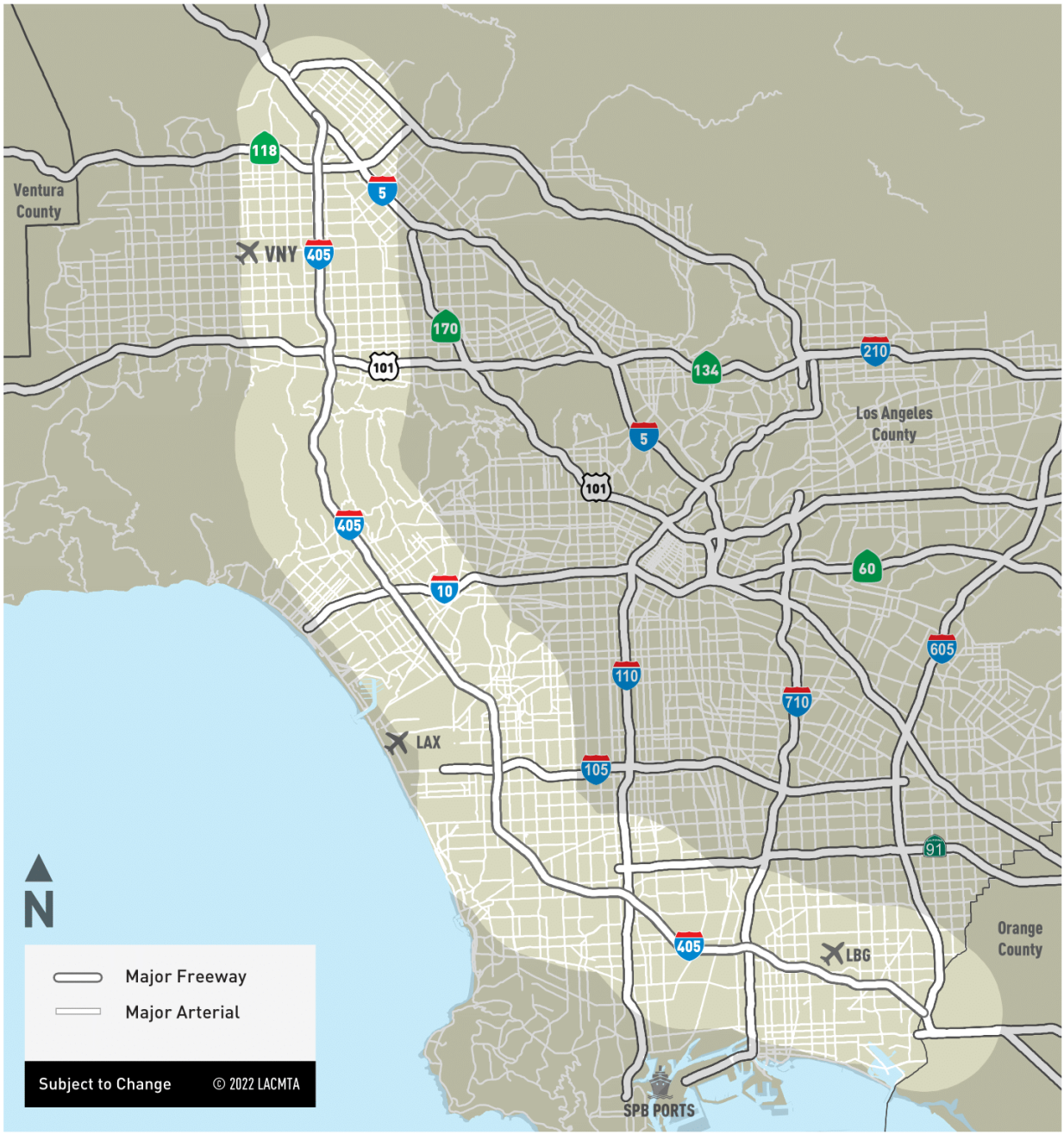
Freeways and arterials

The I-405 freeway itself carries only 25 percent of daily vehicle miles traveled (VMT) in the study area (14.4 million VMT).[43] The other 75 percent of daily VMT (41.1 million) occurs on the more than 50 arterial interchanges along the Corridor, the nine freeway systems that intersect the I-405 (I-605, I-710, I-110, I-105, SR-90, I-1 0, US-101, SR-118, and I-5) (Figure 12), and portions of Metro's Countywide Significant Arterial Network (CSAN) and Countywide Strategic Truck Arterial Network (CSTAN) that intersect and

[41] *Metro Travel Demand Model*
[42] *SCAG Demographics and Growth Forecast*
[43] *Highway Performance Monitoring System; 2017*

parallel the freeway. While the I-405 freeway is the central artery for travel throughout the Corridor, it experiences a high level of congestion in many locations and during many time periods. Several recurring bottlenecks are spread across the morning and afternoon commute periods (see *"There are several bottlenecks"* for more details on bottleneck locations).

Figure 12 Major Freeways Intersecting the I-405 Corridor



Source: SCAG and California State Geodata

The freeway and much of the surrounding arterial network are managed by different traffic management systems. Caltrans operates its Advanced Traffic Management System (ATMS) for the freeway system, while cities operate signals and Intelligent Transportation Systems (ITS) components through a city-monitored central Traffic Control System (TCS). Several jurisdictions operate their own TCS systems, independent of

one another.[44] Many of these arterials include traffic signals, traffic controllers, closed circuit television (CCTV) cameras, vehicle detection and communications to manage traffic along the Corridor.

Also, the freeway facilities have ramp metering, changeable message signs (CMS), CCTV cameras, and vehicle detection to manage and monitor traffic. For a corridor as large and complex as the I-405 study area, the coordination and integration across various traffic systems is limited and impacts the ability to manage Corridor traffic on the arterials and the freeway. There have been efforts for signal synchronization on some arterials in the study area to help manage traffic between local jurisdictions. However, integration of systems between arterials and the freeway have not been initiated at this time. Countywide efforts are underway to integrate systems between local arterials and freeways using Integrated Corridor Management (ICM) concepts. While these measures will aid in managing the highways and arterials, their effectiveness will be limited due to the significant current congestion on both the roadway and highway network.

Transit

The study area is served by Metro Rail, Metrolink, Amtrak and multiple municipal transit providers, including Metro. Three of Metro's existing rail lines have stations in the I-405 study area. The Metro A Line (Blue) runs from Downtown Long Beach to Downtown LA (7th St/Metro Center station), with seven of its 22 stations falling within the study area. The Metro C Line (Green) connects the City of Redondo Beach to the City of Norwalk and includes seven (of 14) stations within the study area. Lastly, the Metro E Line (former Expo Line) runs from Santa Monica to Downtown LA, with eight (of 19) stations within the study area.

Metrolink, the region's commuter rail operator, serves two stations in the northern portion of the I-405 study area. The Van Nuys Metrolink station is an intermodal facility situated roughly 1.5 miles east of I-405 between Van Nuys and Panorama City; and the Sylmar/San Fernando Metrolink station in San Fernando serves the Antelope Valley Line. Both connect to LA Union Station in Downtown LA. The Amtrak Pacific Surfliner, which operates along the Los Angeles—San Diego—San Luis Obispo (LOSSAN) rail corridor, provides interregional passenger service along the Pacific Coast, with a station located at the Van Nuys Metrolink Station (Figure 13). As discussed in subsequent sections, **these existing rail services, while extensive, do not currently offer competitive alternatives for many of the vehicle trips taken in the study area**.

[44] *Metro Connect-IT, Connect and Integrate Transportation Technology, An ITS Infrastructure for the LA Region; https://laconnect-it.com/wp-content/uploads/2019/01/LA-County-ITS-Architecture-FINAL-REPORT.pdf*

Figure 13 Regional Rail Facilities

Source: Metro and Metrolink

Metro operates bus service throughout LA County, including 70 routes that have at least one stop in the study area. There are a range of Metro service offerings within the study area, including local and circulator buses, Metro Rapid Lines (700 series), freeway express bus lines (500 series), the Metro J Line (Route 910 of former Silver Line), bus rapid transit with fixed guideway stations along I-110, and the Metro G Line (Orange), which is one of two Metro Bus routes that operate along dedicated lanes on freeways and surface streets. **This Metro service is complemented by several local and municipal transit operators that operate in the region** (Figure 14), including:

> LADOT (City of Los Angeles)

> Long Beach Transit (City of Long Beach)

> Beach Cities Transit (City of Redondo Beach)

> Antelope Valley Transit Authority (AVTA)

> Culver City Bus (City of Culver City)

> Big Blue Bus (City of Santa Monica)

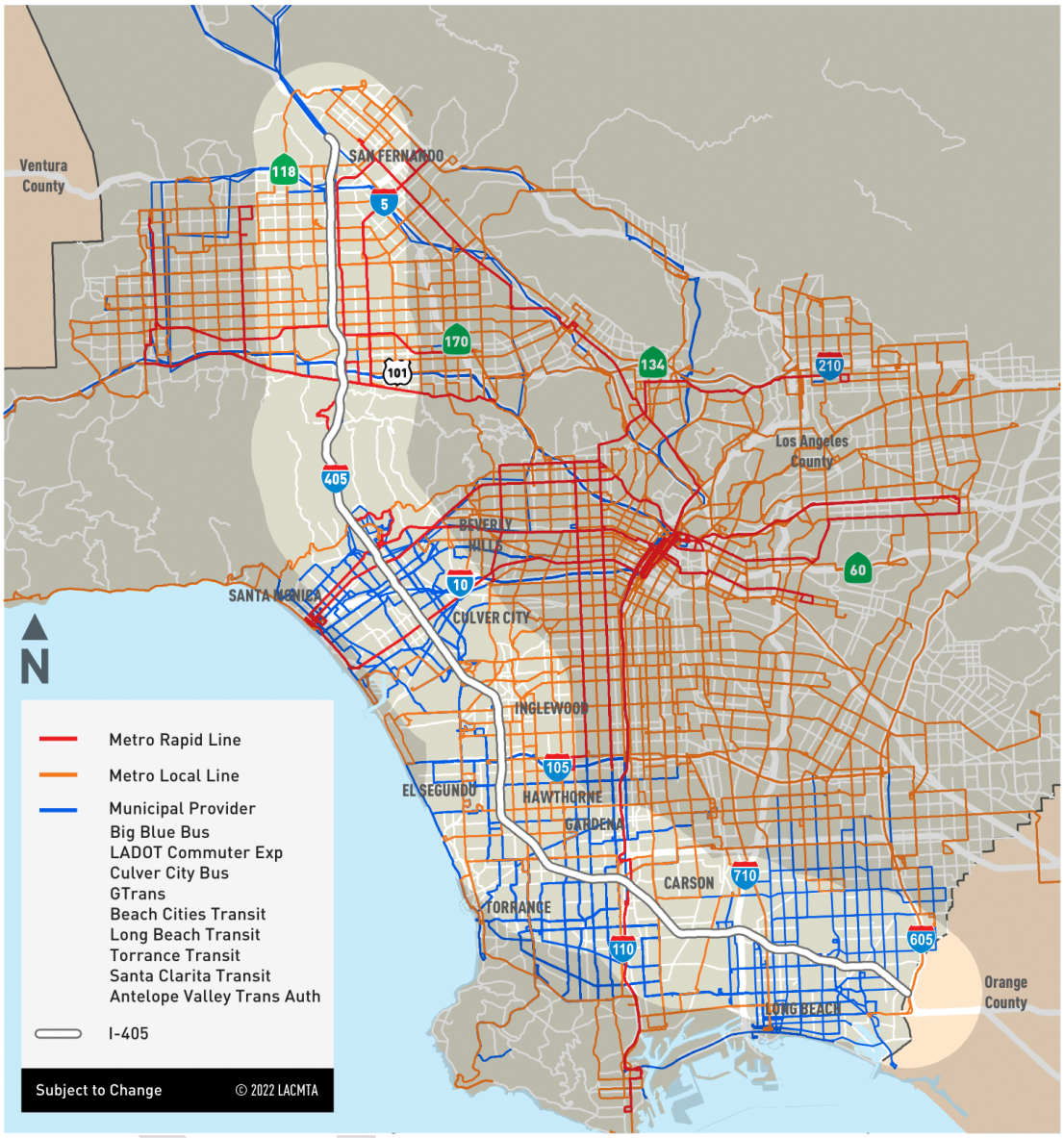
> GTrans (City of Gardena)

> Torrance Transit (City of Torrance)

> Santa Clarita Transit

Metro, LADOT, Culver City Bus, Big Blue Bus, GTrans and Torrance Transit have implemented transit signal priority (TSP) on select bus routes to provide enhanced transit service and schedule reliability. Multiple other efforts, including Metro's NextGen Bus Plan, are targeted at improvements such as transit-only lanes, all-door boarding, stop consolidation, curb extensions and queue jumps to help improve transit speed and reliability.

Figure 14 Existing Bus Network



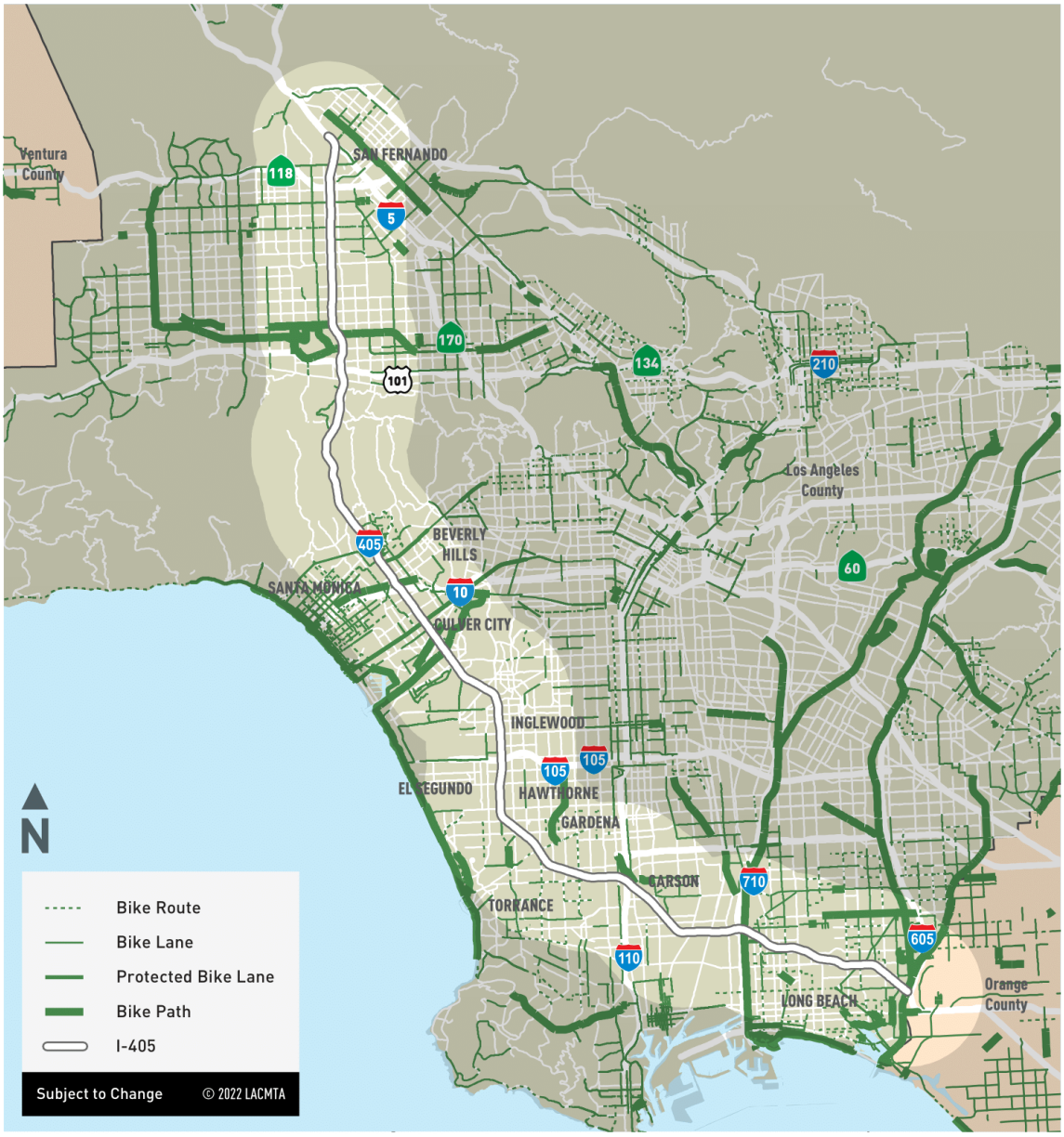
Source: Metro and Municipal Transit Providers

Active transportation

There are nearly 600 miles of bicycle infrastructure in the study area, predominantly concentrated in Santa Monica, Long Beach and around UCLA. More than half of these bike facilities are marked on-street bike lanes where bikes and motorized vehicles share the road, but the bike lane is separated by a painted stripe (Class 2). About a quarter are “sharrows” where the pavement is marked to indicate vehicles and people biking must share the road, but do not have a stripe to create a designated bike lane (Class 3). The remaining 20 percent are separated bike facilities (Class 1) or cycle-tracks (Class 4), which provide a physical separation between people biking and walking and vehicular traffic. Previous studies have highlighted significant gaps in this system that hinder the ability of the bike network to offer realistic alternatives to driving. In particular, useful north-south connections are lacking. These gaps are most pronounced in the San Fernando Valley and throughout the South Bay (Figure 15). Many of the east-west barriers to bicycling in the study area are caused by the I-405 freeway, as on- and

off- ramps cause breaks in otherwise connected bicycle infrastructure. The multiple conflicts and safety risks faced by people biking, walking and rolling in the Corridor are discussed in *"There are multiple collision hotspots"* section. Several cities, including LA and Long Beach (the two largest cities), have developed designated bike route system plans, but many gaps remain, and some cities have no bike or active transportation plans.

Figure 15 Active Transportation Facilities



Source: SCAG Bikeways, 2020

Shared mobility

Shared mobility options such as ride-hailing, bike-share, car-share, and scooter-share (summarized in Figure 16) continue to make up a growing part of the mobility landscape throughout the LA region. These types of shared services can provide a cost-effective and flexible option for those who are unable or choose not to own a personal vehicle, and/or for whom travel needs not adequately served by existing transit options. However, there can be

access challenges for low-income and/or unbanked populations that affect their ability to use these services. Existing services are especially popular in dense areas such as the UCLA campus, downtown Santa Monica and Venice Beach. It is important to note that transportation network companies and car share services also suffer from the same congestion on I-405 and the arterial roadway system, thus they also experience significant delays during many hours of the day.

Figure 16 Shared Mobility Options in the Study Area

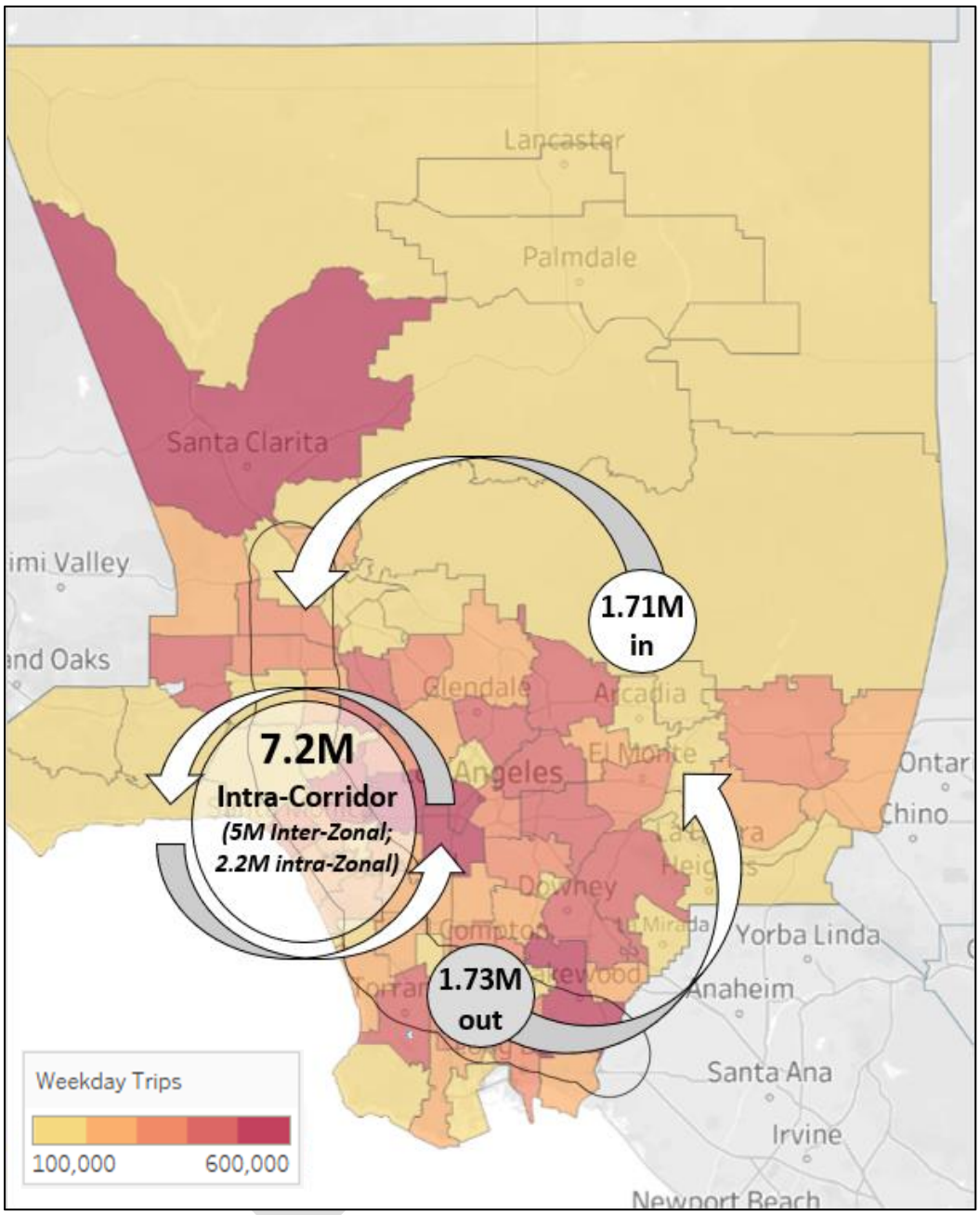
SERVICE	OVERVIEW	AREA OF OPERATION
Electric Scooters	Pay-per-mile shared electric scooters hit the Corridor in 2018 when Bird launched from Santa Monica.	While COVID-19 significantly reduced operations, scooters are still operating throughout the Corridor.
Bike Share	There are a few public operators in the Corridor including Metro Bike Share and Long Beach Bike Share. Santa Monica, UCLA, West Hollywood, and Beverly Hills operated complimentary bikeshare systems, but stopped operation everywhere but Beverly Hills in 2020 with the onset of the COVID-19 pandemic. Lyft e-bikes now operate in just the Santa Monica area.	Metro Bike Share has stations near the E Line (Expo) and beach path in LA. The Long Beach system is concentrated in downtown Long Beach, while Lyft operates from the beach to the I-405 and from San Vicente to Washington Boulevard.
Rideshare / Mobility on Demand	Private Transportation Network Company (TNC) operators like Uber and Lyft provide rideshare in the region. In addition, there are several mobility pilots that provide on-demand mobility options in certain areas.	LANow (LADOT) operates in Del Rey, Venice, Mar Vista, and Palms The Free Ride (Santa Monica) operates within Santa Monica city limits. Within the study area Metro Micro services Watts/Compton, LAX/Inglewood, Northwest San Fernando Valley, and UCLA/Westwood/VA Medical Center
Car Share	There are private car sharing operators in the Corridor such as Zipcar and Getaround.	These operate in the entire region. Stations for BlueLA, the City of LA's car-sharing program, are not located in the Corridor, but people could use them here before parking them elsewhere.

Travel patterns vary in the I-405 Corridor.

There are 10.6 million daily trips that start or end within the study area, making up 41 percent of the 25.6 million daily trips taken throughout LA County.[45] To highlight just how concentrated trip-making is within the I-405 Corridor, the study area (outlined in black in Figure 17) makes up only seven percent of LA County by land area and has 29 percent of the County's total road lane miles. Figure 17 shows the average daily number of trips throughout LA County in different travel zones, with the darker red zones indicating higher levels of trip-making, and the yellow zones indicating less trip-making. The circular arrows around the I-405 Corridor show that there are 7.2 million daily trips that both start and end within the Corridor. This is nearly 70 percent of the 10.2 million total daily trips that start in the Corridor. The arrows in and out of the Corridor represent the other 30 percent of trips that go in and out of the study area.

[45] *Cambridge Systematics, LOCUS dataset; 2019*

Figure 17 Average Daily Trips in LA County

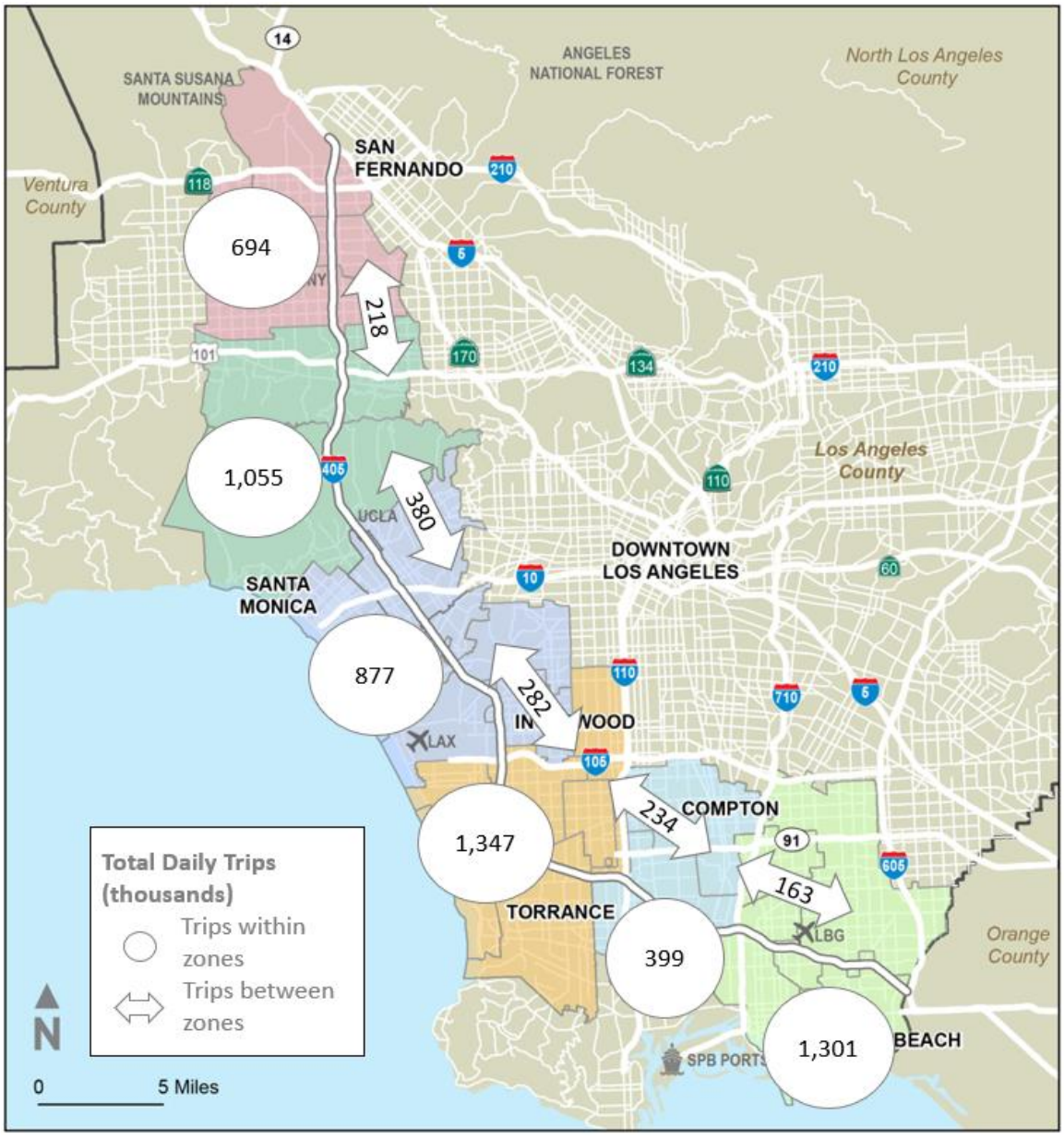


Source: Cambridge Systematics; LOCUS dataset; 2019

Within the I-405 Corridor, most travel occurs locally (within the travel zones shown in Figure 18 or between neighboring zones—indicated by the arrows). Very few trips span the entirety of the Corridor (SFV to/from Long Beach). While it is typical for trip-making to occur more locally, high levels of traffic congestion along the I-405 likely discourages longer distance, discretionary trips along the Corridor. The highest volume of travel activity occurs in the Torrance, Gardena and Hawthorne areas (shown in orange in Figure 18), with the Sepulveda Pass (dark green) and Long Beach, Signal Hill and Lakewood areas south of I-710 (light green) also having a large amount of travel activity. The areas of Santa Monica, West Los Angeles, Culver City and Inglewood (light purple) experience the most travel between zones. Even where travel is happening between

zones, the majority of that travel activity is between neighboring zones, demonstrating that most trips in the Corridor are short (see the *Most trips are short* section below).[46]

Figure 18 Travel Patterns Along the I-405 Corridor



Source: Cambridge Systematics; LOCUS dataset; 2019.

[46] *Data is not available for travel to and from Orange County; however, freeway segments in this area have some of the highest volumes.*

The Corridor is auto-oriented.

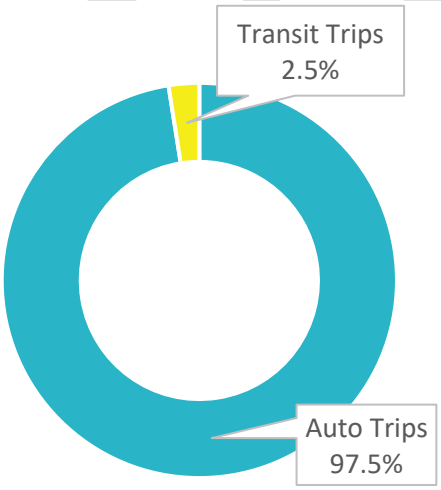
As in the rest of the LA Basin, the personal auto is the mode of choice for people traveling within the I-405 Corridor. **Approximately 97.5 percent of total trips occur by car** – a higher rate than the proportion of car trips occurring countywide (Figure 19).[47] Transit trips that start within the Corridor are concentrated in areas that tend to have higher population densities, and where residents and visitors have access to high-quality transit and rail options (Figure 20). Fewer transit trip originate in lower-density parts of the Corridor, and where there are more dispersed industrial land uses (Torrance and Carson). The section *Transit Ridership Remains Low* discusses the demographic and socioeconomic factors that impact transit ridership along the Corridor.

A Note on Methods

Location-based-services (LBS) data that aggregate anonymized cell-phone data were used to assess travel patterns within the Corridor. Data sources include the 2017 Travel Market Intelligence Dashboard (LOCUS and TAPCARD), the APC transit Dashboard, and the 2020 LOCUS Travel Tracker and LOCUS Traffic Footfall Tracker.

To examine trip origins and destinations along the Corridor for the I-405 CMCP, LA County was split into 78 "sub-zones" that are nested within the 20 travel districts used in previous analyses and consistent with the Regional Ridership Growth Action Plan (RGAP). These sub-zones are used to identify where the most trip-making activity is happening along the Corridor.

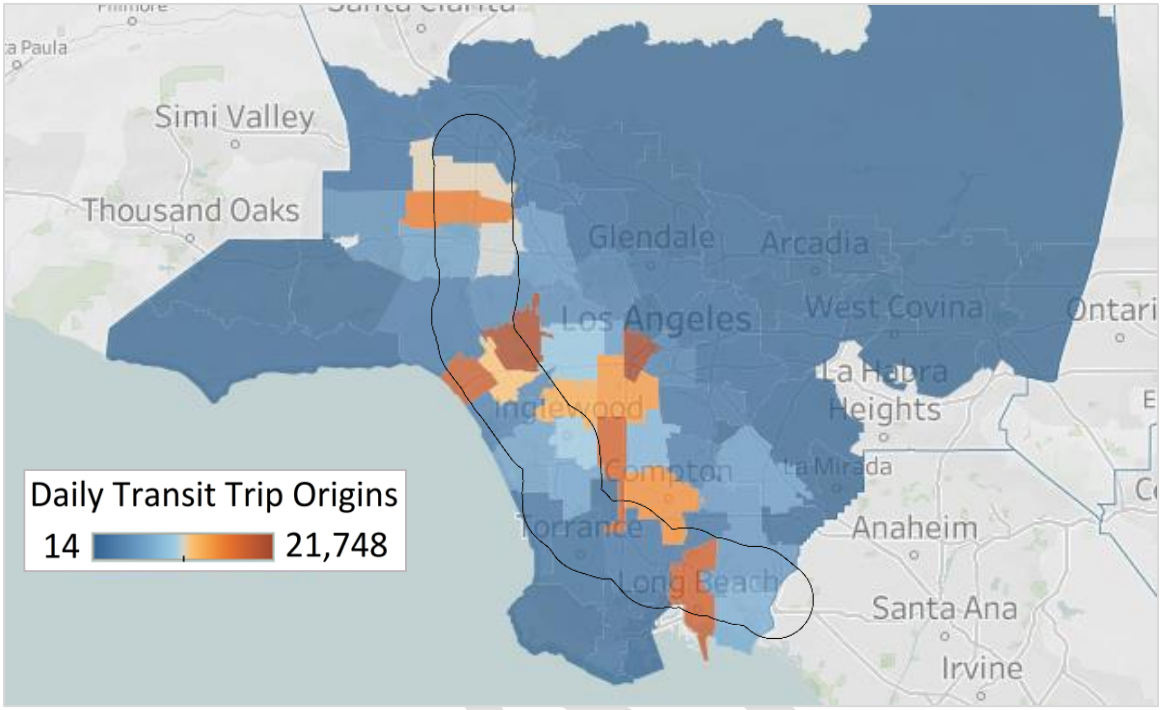
Figure 19 Mode Split



Source: Cambridge Systematics; LOCUS dataset; 2019

[47] Cambridge Systematics, LOCUS dataset, 2019. Note: The LOCUS dataset used to assess I-405 travel patterns does not account for bicycle and pedestrian trips. American Community Survey data from the US Census Bureau is used to assess bicycle and pedestrian travel for commute trips.

Figure 20 Transit Trip Origins



Source: Cambridge Systematics; LOCUS dataset; 2019

People travel differently for regular and non-regular trips.

People are more likely to ride transit for regularly-occurring trips such as commuting and school trips. **Within the I-405 Corridor, only 17 percent of trips are regularly-occurring.**[48] Non-regular travel includes trips such as shopping and recreation. Of those regularly-occurring trips, transit usage is twice as high (five percent) when compared to transit usage for all trip purposes (only 2.5 percent). In certain parts of the Corridor more than 10 percent of commuters use transit to get to work. These include Sylmar/San Fernando, Van Nuys/Sherman Oaks, Westside Cities, Inglewood/Hawthorne and Long Beach.[49] These areas also have some of the highest rates of bicycle and pedestrian commuting (upwards of 10 percent), and with the exception of the San Fernando Valley, some of the most

Why does trip purpose matter?

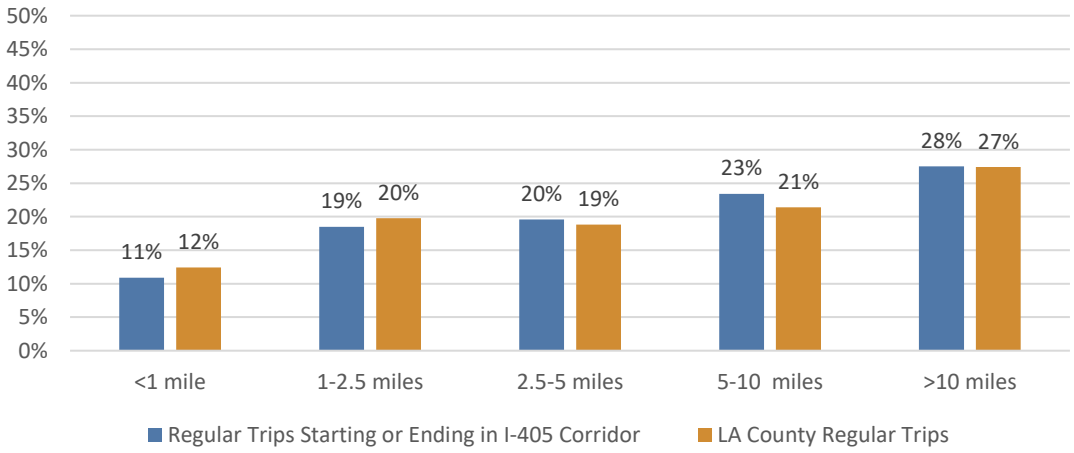
Understanding why these trips are occurring ("trip purpose") is important because different types of trips have different characteristics, different impacts on the system, and often require different mobility solutions. Expanding multimodal mobility options for commuters may require additional focus on travel demand management strategies such as ridesharing, vanpooling, express lanes, telework and commuter-focused rail and transit improvements, whereas shorter non-work trips may be better served by investments in local bikeways, greenways, bike- and scooter-share programs and other neighborhood-scale multimodal mobility services.

[48] *Cambridge Systematics, LOCUS dataset; 2019*
[49] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*

extensive active transportation infrastructure in the study area, as discussed previously. In areas with high active transportation usage, but where safe and connected infrastructure is lacking, there is potential to rebalance investments to better serve those trips.

Moreover, while regularly-occurring trips make up only 17 percent of Corridor-wide trips, they tend to be longer distances compared to those non-regular, one-off trips.[50] More than 50 percent of regular trips are more than five miles (Figure 21). These regularly occurring trips are generally made during peak travel periods that follow work-day and school-day schedules. The confluence of longer travel distances paired with these regular trips that are conducted in peak travel periods contributes to the severe congestion on the I-405 freeway and surrounding arterials.

Figure 21 Trip Distances for Regularly-Occurring Trips



Source: Cambridge Systematics, LOCUS Dataset; 2019

Most trips are short.

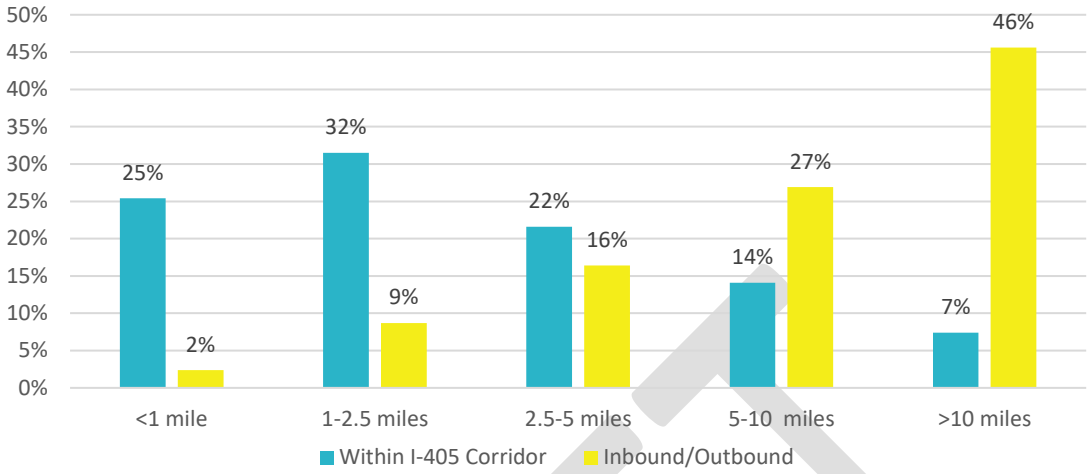
For the 7.2 million trips that start and end within the Corridor, a quarter are less than one mile, more than 55 percent are less than 2.5 miles, and 80 percent are less than five miles (Figure 22). Research shows that the average walking trip is 0.7 miles and the average cycle trip is 2.3 miles.[51] This suggests that there is significant potential to serve many trips in the Corridor through biking and walking, with the right type of investments in safe, connected and high-quality active transportation infrastructure.

Trips that are coming in and going out of the I-405 Corridor (roughly 30 percent) tend to be much longer. Roughly a quarter of these trips are more than five miles, and half are more than 10 miles. Many of these longer trips can be better served through transit—both by improving travel times, speeds, reliability and experience on existing services; and by expanding transit coverage and connectivity within and beyond the Corridor.

[50] *Cambridge Systematics, LOCUS dataset; 2019*

[51] *Kuzmyak, Richard J. & Dill, Jennifer. Walking and Bicycling in the United States. TRB News; 2012. https://onlinepubs.trb.org/onlinepubs/trnews/trnews280www.pdf*

Figure 22 Trip Distance for All Trip Purposes



Source: Cambridge Systematics, LOCUS Dataset; 2019

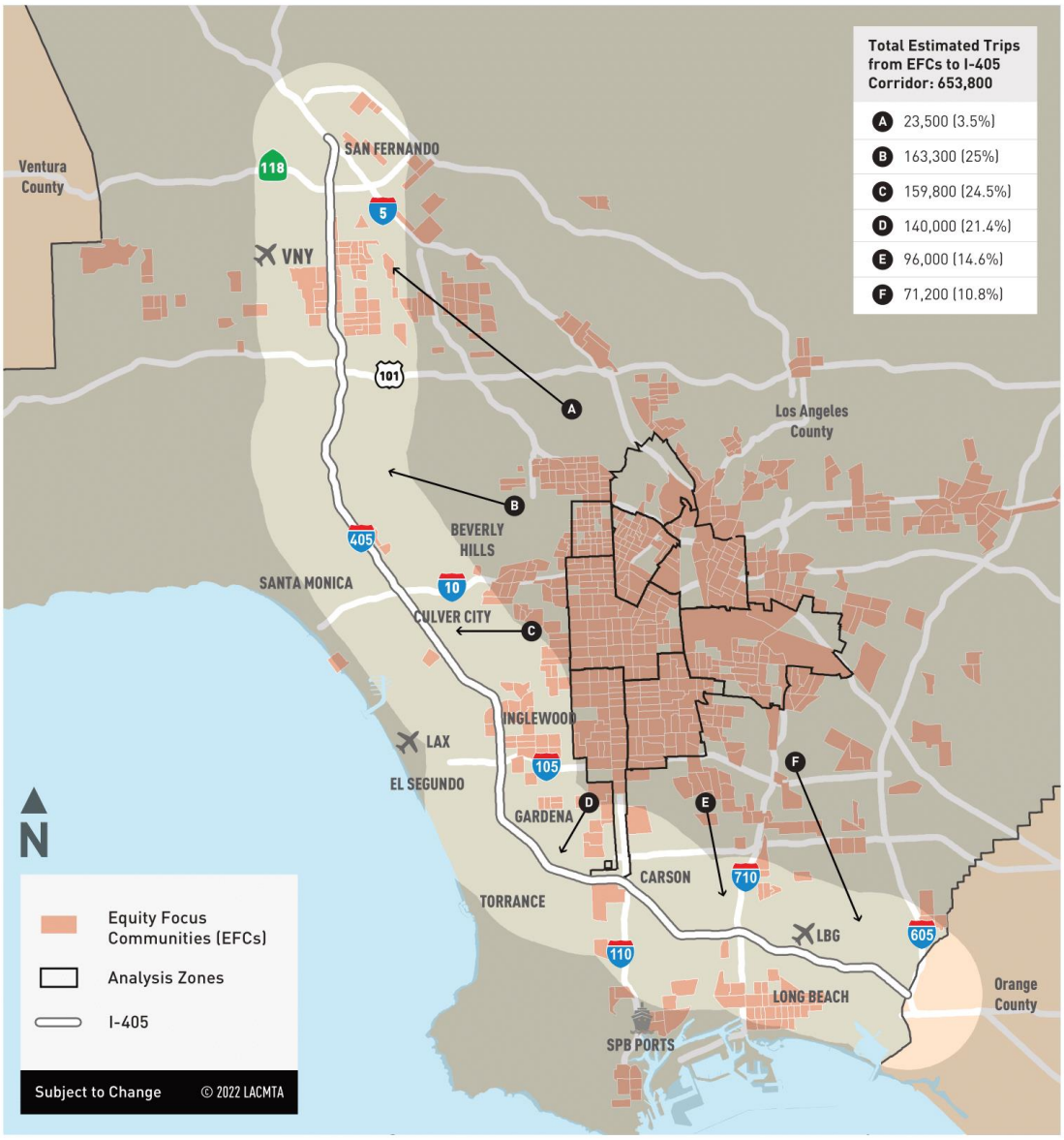
There are unique travel patterns in Equity Focus Communities.

Within the I-405 study area, EFCs are mainly located throughout the SFV (Van Nuys/Reseda), Inglewood and Central Long Beach (Figure 23). An estimated 14 percent of trips originating within the study area are from EFCs, and 21 percent of the study area's transit trips originate within EFCs.[52] For those trips that originate in EFCs within the Corridor, most (70 percent) are under five miles, and the majority are to and from directly adjacent neighborhoods.

However, most EFC travel activity within the Corridor is from EFCs located directly east of the study area, in Downtown LA and other parts of the Central City. Roughly 40 percent of all trips to and from the Corridor are from EFCs. The majority of these trips are destined for places along the Corridor that are high-opportunity areas where jobs and activity centers are located, such as UCLA and Santa Monica, Inglewood and LAX, Torrance and Carson. Although these communities are not located within the study area, serving these trips with safe, convenient and affordable mobility options is a central element of this plan.

[52] *Cambridge Systematics, LOCUS dataset; 2019*

Figure 23 Travel Patterns in Equity Focus Communities



Source: Metro Equity Focus Communities; Cambridge Systematics, LOCUS dataset; 2019

Goods movement in the I-405 Corridor.

Freight volumes on the I-405 freeway are generally lower than other freeways in LA County, making up only three to five percent of overall traffic, according to Caltrans.[53] Although some trucks from the SPB Ports use the Corridor, most regional freight movements occur on other routes (such as I-710), as most of the key nodes in the Southern California supply and distribution chain are not along I-405. Nonetheless, the I-405 Corridor provides an important freight connection to regional population clusters and air cargo facilities at LAX, and is key to serving the many restaurants, retail establishments and local delivery needs in the study area.

Despite lower-than-usual freight volumes on the I-405 freeway, certain stretches of the freeway carry more than 20,000 trucks per day, and a number of locations along the Corridor have been

[53] *Highway Performance Monitoring System; 2017*

identified as high priority freight bottlenecks.[54] The I-710, a primary connection to the SPB Ports and one of the highest truck volume routes in the country, intersects the I-405 in the Gateway Cities region. Additionally, as the pandemic has spurred widespread adoption and growth in e-commerce, reliance on deliveries instead of in-person visits to stores will continue to increase the number of truck deliveries throughout the Corridor, exacerbating congestion on local roadways and arterials, and potentially reverberating throughout the supply chain.

SPOTLIGHT—Goods Movement at the I-405/I-710 Interchange

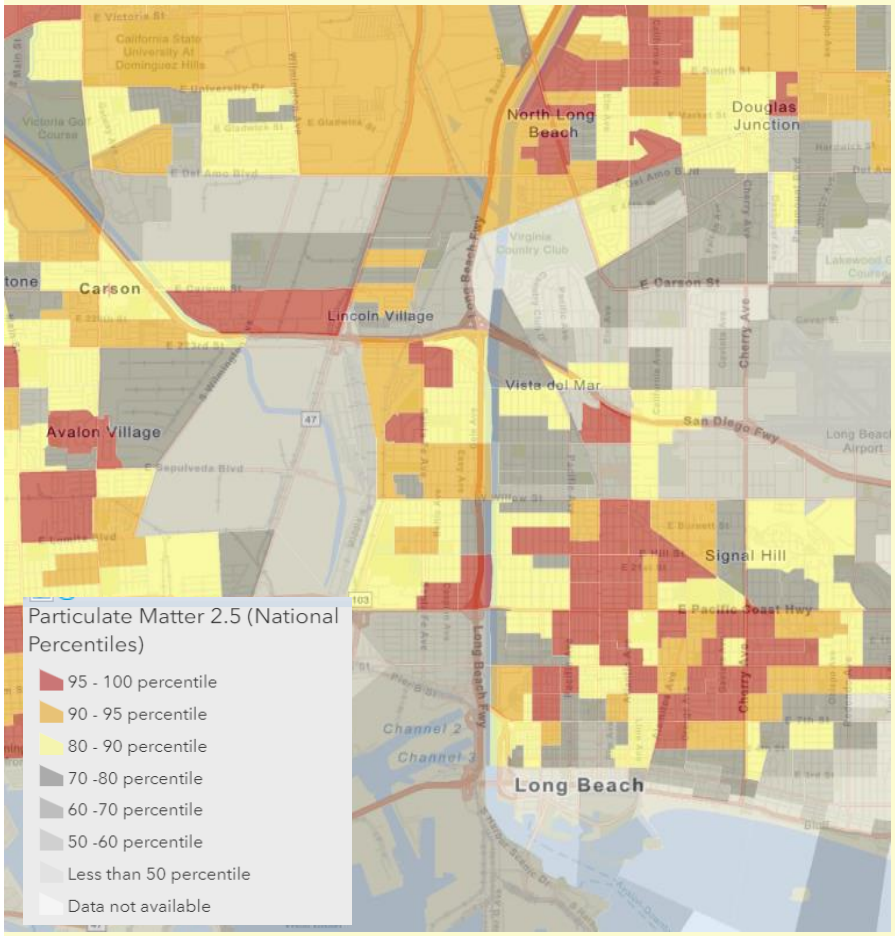
The I-405 Corridor has relatively typical truck volumes for an urban corridor; however, the southern part of the Corridor around the I-405/I-710 interchange has significantly more freight activity due to the nearby SPB Ports. In addition, the commercial land uses around the I-405/I-710 interchange are heavily logistics focused and include large areas of industrial facilities, warehousing, container storage and intermodal yards, generating great volumes of heavy-duty trucks on the I-710 and parallel arterial roadways. Meanwhile, these industrial land uses and heavily utilized roadway facilities are located adjacent to residential areas, and present significant community health risks associated with poor air quality from port-related truck and equipment emissions as well as other industrial activity that is not directly related to the ports. Many of the communities surrounding the I-405/I-710 interchange, particularly south of the I-405 freeway and northeast of the interchange, are Metro-designated EFCs.

Environmental Justice Issues

Regional and local transportation infrastructure investments have disproportionally impacted low-income communities and communities of color, who bear the greater share of pollution

[54] *Connect SoCal Goods Movement Technical Report; SCAG; https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_goods-movement.pdf*

burdens and environmental stressors. Goods movement is responsible for generating large amounts of criteria pollutants, as defined by the Environmental Protection Agency (EPA), from diesel trucks and ships that negatively impact the health of communities near the SPB Ports and along major trade corridors.



Of the six criteria air pollutants, particulate matter (PM) and ozone pose the most widespread and significant health threats. PM is a complex mixture of aerosolized solid and liquid particles; and the solid particles in PM are known as diesel particulate matter (DPM). The particles in DPM can reach deep into the lungs, causing health problems including heart and lung disease, asthma and lung cancer. Children and the elderly are most sensitive to the effects of DPM. Levels of DPM are elevated near the Port of Long Beach and along the I-710 freeway.

High Truck-Involved Collision Rates and Safety Concerns

There are a significant number of truck-involved collisions along the I-710 and the and I-405/I-710 interchange. Truck collisions that result in serious injury and fatalities also occur on major streets that run parallel to these two freeways, particularly to the west of I-710 on Alameda Street/SR-47 and near the Intermodal Container Transfer Facility. The high crash frequency along the I-710 freeway is correlated with areas that also experience significant delay.

Initiatives and Opportunities

Several proposed projects identified in the I-405 CMCP can help improve goods mobility while addressing environmental justice concerns in the area:

> **Clean truck technologies** are an important component of the California Sustainable Freight Action Plan (2016) which includes a Zero Emission Technology Target. Under this initiative, the California Air Resources Board (CARB) has a vision for zero emission

transportation where possible, and near-zero everywhere else. The first target is for over 100,000 freight vehicles and equipment capable of zero or near-zero emission in operation by 2030.

> **The I-710 Corridor Project** was reset by Caltrans and Metro in early 2021 due to concerns that the project would not meet desired outcomes for air quality, equity, mobility and sustainability upheld by the EPA. Metro initiated the I-710 Task Force in late 2021 to re-engage with local communities and regional stakeholders to develop a new approach to reduce disparities and improve mobility for communities adjacent to the I-710.

> **The Southern California International Gateway Project (SCIG)** would provide a new near-dock intermodal rail facility to handle containerized cargo transported through the SPB Ports. The project is located southwest of the I-710/I-450 interchange in the neighborhoods of Westside in Long Beach. BNSF Railway proposes to construct and operate the facility, that could handle cargo containers up to a maximum capacity of 2.8 million TEUs, or 1.5 million containers, per year. Most of the trucks currently traveling between the ports and Hobart intermodal railyard, near downtown LA, a journey of over 20 miles, would instead travel between the terminals and the SCIG facility, a distance of approximately four miles. There are sensitive sites near the SCIG, including schools, where source emissions exceed standard levels.

> **The Green Terminal Island (TI) Freeway Transition Plan** will transform a stretch of city-owned freeway on the western edge of Long Beach into a local serving road with an associated greenbelt with a linear park. The proposed project is based on extensive community input and considerations for the local history and environmental impact. The plan, as proposed, would help mitigate the environmental impacts of nearby polluting sources from the industrial land uses to the west of the project area.

Travel impacts of COVID-19.

The COVID-19 pandemic drastically altered how people live, work, play and travel. At the onset of the pandemic, social distancing and shelter-in-place policies required people (who had the option) to shift to virtual work, school and recreation almost overnight, nearly eliminating congestion and travel on roadways and devastating transit ridership. Overall travel volumes within the I-405 Corridor declined by about 33 percent for people living in the Corridor, and by about 40 percent for people living elsewhere.[55] In addition, travel distances decreased by about 20 percent on average from nearly 14 miles pre-pandemic to 11.3 miles post-pandemic, likely reflecting the decline in longer commute trips.

At the onset of the pandemic, transit ridership across all Metro services dropped from roughly 30 million to 10 million monthly riders. Since then, it has increased back to between 13 million and 15 million monthly riders, still far short of pre-pandemic levels.[56] Metro and transit agencies in the region were faced with making even more challenging decisions regarding service levels, coverage and equitable service delivery, all with significantly reduced fare revenues and operator shortages. Further, transit providers incorporated improved safety and sanitation measures for passengers and drivers, such as masks, hand sanitizers and frequent cleaning regimens, increasing overall operating costs.

[55] *Cambridge Systematics, LOCUS Dataset; 2019*
[56] *Metro Interactive Estimated Ridership Stats; https://isotp.metro.net/MetroRidership*

At the same time, there was a sharp uptick in active transportation both as a form of every-day transportation and for outdoor recreation. Online shopping led to a surge in e-commerce and deliveries, placing additional stress on supply chains already overburdened with distributing medical equipment, personal protective equipment, and other emergency supplies. With retail sales up 20 percent in March through July 2021 compared to 2019[57], an unprecedented number of ships began to back up at the SPB ports, causing a domino effect on the transportation system and the economy at-large. The pandemic highlighted the vulnerabilities of existing port infrastructure and the importance of building toward a more resilient future supply chain.

Much of the world is now pivoting from pandemic response to pandemic recovery. Metro's Board has committed to restoring service hours to pre-pandemic levels and has continued its implementation of the NextGen Service improvements. Many of those enhanced safety and sanitation measures on transit remain as LA County continues to manage COVID-19 case positivity. Many employers are now exploring or embracing a hybrid telework approach that would require employees to split their time working remotely and reporting into the office.

Although pandemic recovery is underway, the **long-term impacts of these trends are still highly uncertain**. Will people who are able continue to work from home do so? Will travelers continue to be apprehensive toward transit and shared modes? Will excitement about walking, biking and slow streets improvements continue? While it is unclear how the mobility landscape will shift over the long-term, the multimodal strategies developed as part of the I-405 CMCP will play a critical role in shaping how that future unfolds.

The Corridor faces many challenges.

The I-405 Corridor faces many challenges including safety issues, poor air quality, public health concerns, deteriorating infrastructure assets and inequitable access across the Corridor's many communities. There are also many global forces at play such as worsening climate change, changing political and economic conditions and demographic trends that exacerbate these challenges. Many of these are a byproduct of the staggering levels of traffic congestion. While these challenges are significant, multimodal improvements can play a role in shifting this dynamic and addressing these impacts head on.

Roadways are heavily congested.

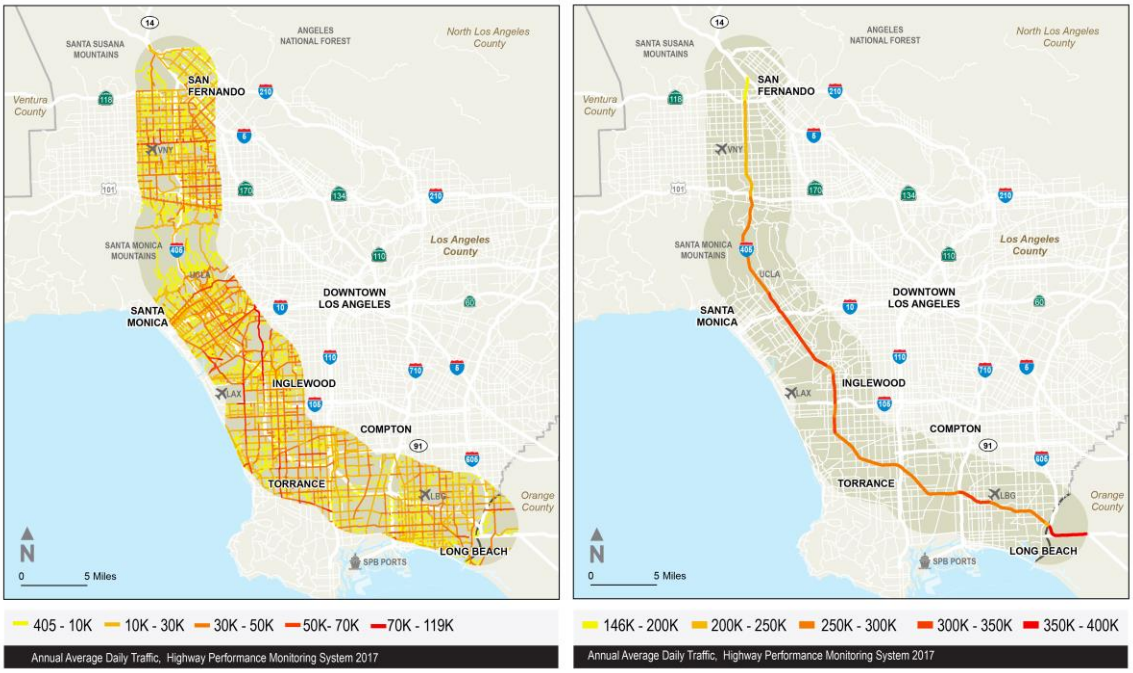
As discussed, the I-405 Corridor is highly auto-oriented, and therefore suffers from crippling traffic congestion and delay. **Nine out of the top 30 highest volume freeway segments in California are on I-405** within the study area.[58] Daily vehicular volumes are over 350,000 near the Orange County Line, over 300,000 near LAX and I-10, and over 200,000 near US-101 in the SFV (Figure 24). In 2013, the I-405 was named the busiest interstate in any US city.[59] According to INRIX, a nationwide provider of transportation data**, I-405 between I--105 and US-101 is now the 9th most congested freeway segment in the US.**

[57] *Supply Chain Bottlenecks at US Ports. Congressional Research Service; 2021; https://crsreports.congress.gov/product/pdf/IN/IN11800*

[58] *Caltrans Traffic Census; 2019*

[59] *I-405 in LA Named Busiest Interstate in Any US City ; CBS News ; https://losangeles.cbslocal.com/2013/08/20/i-405-in-la-named-busiest-interstate-in-any-us-city/#:~:text=According%20to%20the%20U.S.%20Department,the%20busiest%20interstate%20in%20America.*

Figure 24 Vehicle Miles Traveled

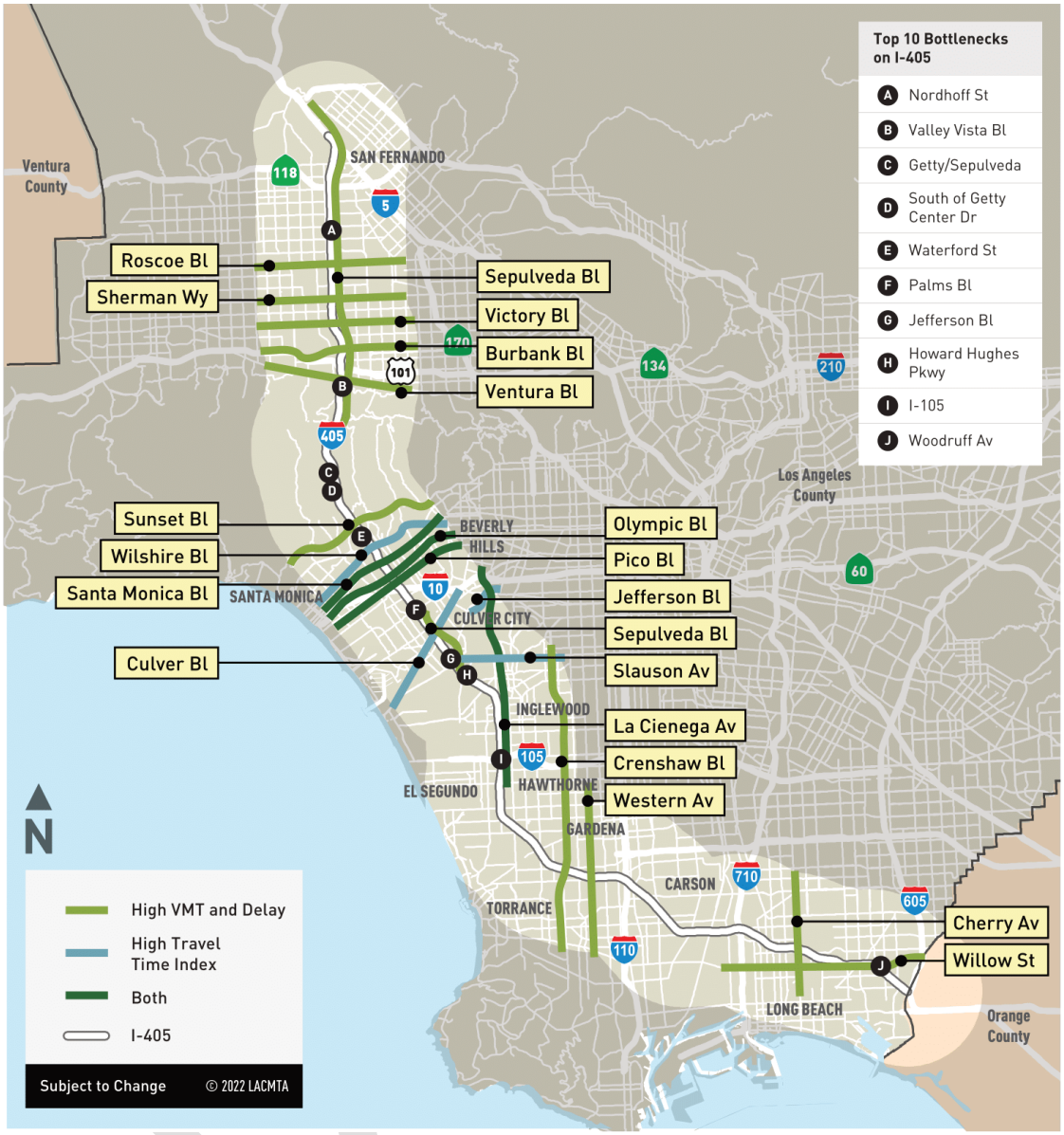


Source: Highway Performance Monitoring System; 2017

The Corridor's arterials carry an even more significant volume of traffic—75 percent of total VMT within the study area.[60] La Cienega Boulevard, Sepulveda Boulevard, Burbank Boulevard, Santa Monica Boulevard and Wilshire Boulevard each carry more than 60,000 daily vehicles. Arterials with the highest travel times, compared to free-flow conditions, are concentrated in the Westside Cities area between SR-90 and Sunset Boulevard, including Jefferson Boulevard, La Cienega Boulevard, Culver Boulevard, Slauson Avenue, Wilshire Boulevard, Santa Monica Boulevard, Olympic Boulevard, and Pico Boulevard (Figure 25). Many of the Corridor's arterials, especially the ones that parallel the freeway, serve as alternative routes when the freeway is heavily congested, yet these routes are also congested. Similarly, traffic jams on the freeway can spill onto on- and off-ramps along these arterials, causing a "ripple effect" of traffic jams impacting retail, commercial and residential areas. This highlights the critical importance of a holistic approach to congestion reduction that considers not just the I-405 freeway but the XC--Corridor's heavily-traveled arterials as well.

60 *Highway Performance Monitoring System; 2017*

Figure 25 Arterial Congestion, Delay, and Travel Time Index



Source: Regional Integrated Transportation Information System (RITIS); 2018

These extreme levels of congestion occur not just during peak travel periods, but around the clock, causing travelers to spend a significant amount of additional time in their cars. It is also linked to a range of negative impacts, including safety hazards, environmental degradation, air pollution, and infrastructure deterioration, all of which place additional burdens on those that live around the Corridor and the many travelers locally, regionally, and from across the state who depend on it.

There are several bottlenecks.

The I-405 freeway has several recurring bottlenecks spread across peak hours. The most severe bottleneck in terms of average delay in vehicle hours occurs in the southbound direction of the freeway at Howard Hughes Parkway. This bottleneck was active for 265 days in 2019 and caused an average delay of 4,939 vehicle hours during the PM peak period. I-405 northbound at

Nordhoff street is also a significant bottleneck, causing 4,077 average hours of delay during the PM peak period.[61] The top ten bottlenecks are shown in Figure 25. **These bottlenecks collectively cause more than 22,500 hours of vehicle delay annually, the equivalent of 2.5 years.[62]**

HOV Lanes are degrading.

HOV lanes exist along the entirety of the I-405 freeway in the study area. In addition to vehicles with two or more occupants, some hybrid and zero-emission vehicles (those with an EV decal), motorcycles, and buses can also use the HOV lanes. Most vehicles using the I-405 HOV lanes are carpools and vanpools with 2+ people (82 percent), with EVs making up about 11 percent, motorcycles and single-occupancy vehicles making up seven percent and buses making up less than one percent.[63]

While these HOV lanes carry about twice the number of passengers per vehicle than general purpose lanes, **the added person-throughput does little to alleviate congestion**. During peak periods, HOVs make up about 23 percent of all vehicles on the freeway and carry about 34 percent of travelers on the freeway.[64] However, as of 2017, all segments of HOV lanes in both directions were classified as "extremely degraded," meaning that peak commute hour speeds regularly dropped below 45 miles per hour, which lessens the incentive for users to shift to carpooling, transit, EVs or other modes that can utilize the HOV lanes.[65]

Transit ridership remains low.

Low levels of transit usage are not unique to the I-405 Corridor. Transit ridership has declined nationally year over year between 2012 and 2018.[66] In recent years, **Metro has seen declines in ridership throughout the system**, including along the lines that serve or connect to the I-405 Corridor. Even before the COVID-19 pandemic, total Metro Rail system ridership declined significantly across the system and on each of the lines serving the study area (Figure 26).[67]

The Metro Bus system experienced similar declines, particularly on the G Line (Orange), which serves the San Fernando Valley from the North Hollywood Red Line station to Chatsworth, and whose ridership has declined by approximately five percent annually between 2015 and 2019.

[61] Caltrans defines a bottleneck as "a persistent and significant drop in speed between two locations on a freeway," specifically where there has been a drop in speed of at least 20 mph between the current detector and the detector immediately downstream. This speed drop must persist for at least five out of any seven contiguous five-minute data points, and the speed at the detector must be below 40 mph. Recurring bottlenecks which cause large amount of delays were identified. The bottlenecks reported include bottleneck locations that were active on at least 50 percent of all days during the year and caused more than 100 vehicle hours of delay (VHD) per day.

[62] Caltrans Performance Measurement System (PeMS); 2019

[63] Caltrans 2018 Managed Lanes Annual Report: District 7 Los Angeles and Ventura Counties; April 2019

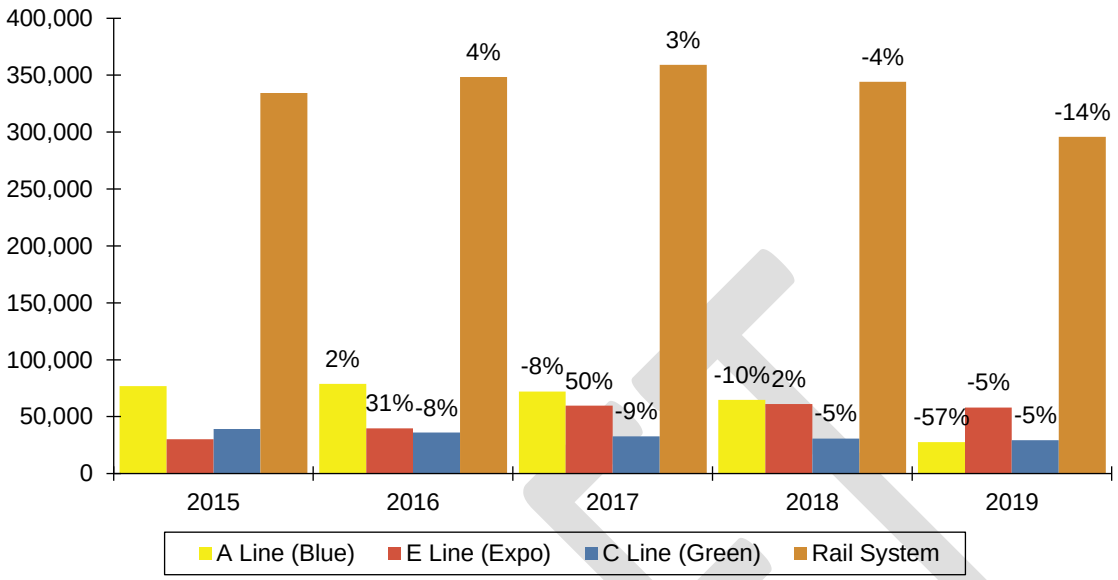
[64] Ibid.

[65] "2017 California High-Occupancy Vehicle Facilities Degradation Report and Action Plan." Caltrans Division of Traffic Operations Office of System Operations; 2018

[66] National Transit Database; 2018

[67]Sharp decline in 2019 ridership is partially due to construction along Metro A Line that disrupted service.

Figure 26 Metro Rail Average Weekday Boardings (2015 – 2019)



Source: Metro

Note: Percentages show change from the previous year. The significant decline in A Line (Blue) ridership was largely due to the line retrofit that occurred during this time period.

Multiple recent efforts have explored why transit ridership has remained low despite the multiple rail and transit services provided in the Corridor. These include Metro's NextGen Transit Strategy, Metro's Understanding How Women Travel report, and the Falling Transit Ridership Report (SCAG/UCLA ITS). These studies point to the following barriers to transit mode shift:

> **Uncompetitive Transit Travel Times**: Increased roadway congestion causes slow speeds, poor reliability and high transit travel times. A typical trip on transit takes more than three times longer than that same trip would take by car.[68] Lack of first/last mile access and long transfer times can also contribute to high transit travel times. Other design features such as bus stop spacing, location and routing can also impact transit speed, reliability and performance.

> **Lack of Viable Alternatives**: Lack of viable transit alternatives can be caused by mismatches in existing transit service and demand (for example, infrequent service during non-commute hours, or overlapping Local, Limited and Rapid services that compete with rather than complement each other).[69] Lack of fare integration, poor connectivity between services, and personal safety and security concerns can also make transit an infeasible option for many.

> **Demographic and Displacement Trends**: Trends including increased immigration, rising car ownership among immigrants and low-income residents, and gentrification of formerly high-transit usage neighborhoods are collectively contributing to falling transit

[68] *Metro NextGen Transit Study*
[69] *Metro NextGen Transit Study and How Women Travel Report*

ridership.[70] Furthermore, gentrification and the rising cost of living are displacing many low-income residents within the study area—many of whom make up Metro's core ridership—to outlying areas with fewer transit services, requiring them to rely on a vehicle to access jobs, goods and services while more affluent residents moving into transit-oriented neighborhoods are using transit services less frequently.

> **Network Gaps and Geographic Constraints**: As noted earlier, there are significant gaps in the bike network that hinder its ability to offer realistic alternatives to driving, and that deter people from using active modes as a first/last mile connection to transit. In addition, some segments of the I-405 Corridor have geographical features (i.e. the Santa Monica Mountains) and land use patterns that make transit and active transportation options unrealistic for many potential users.

There are multiple collision hotspots.

In 2018, there were nearly 2,000 fatal or injury collisions on the I-405 freeway and nearly 10,000 on the arterial network in the three-mile CMCP study area.[71] Around five percent of both the collisions on the I-405 freeway and the arterial network resulted in a fatality or serious injury, and a disproportionate amount involved people biking or walking (the most vulnerable users of the system). Between 2014 and 2018, collisions on the I-405 freeway grew from 1,400 to nearly 2,000—an increase of about 25 percent, or about six percent per year. During this same period, VMT grew at about half that rate—ten percent between 2014 and 2018.[72] This indicates crashes are occurring at a greater rate along the freeway despite sustained efforts at the statewide, regional and local levels to improve safety.

Collisions are both a source and a product of congestion. Crash rates are often correlated with congestion, and typically over half of all congestion is caused by the back-ups resulting from crashes. Specifically, rear-end collisions, which are associated with congestion, are predominant on the I-405 freeway. Other common factors include sideswipe incidents when drivers attempt unsafe lane changes, speeding and disobeying traffic signals and signs. On the I-405 freeway itself, collision hotspots are predominantly located at freeway and arterial interchanges. Hot spots are most concentrated along segments in the Westside Cities area and SFV (Figure 27). Thus, congestion causes certain types of collisions and collisions cause non-recurrent congestion and bottlenecks throughout the system.

Bicycle and pedestrian safety is a critical issue in the Corridor. More than a hundred bicycle and pedestrian fatalities or serious injury collisions occurred directly along the I-405 freeway between 2014 and 2018.[73] Bicycle and pedestrian collisions are most concentrated in portions of Long Beach, Santa Monica, Inglewood and east of the I-405 in the SFV. Safety for people biking and walking was one of the most grave concerns voiced by stakeholders throughout the CMCP development process, with many noting that fast driving speeds, auto-oriented roadways, and a lack of continuous, connected and protected infrastructure are the main reasons that people feel (and are) unsafe when biking and walking in the Corridor.

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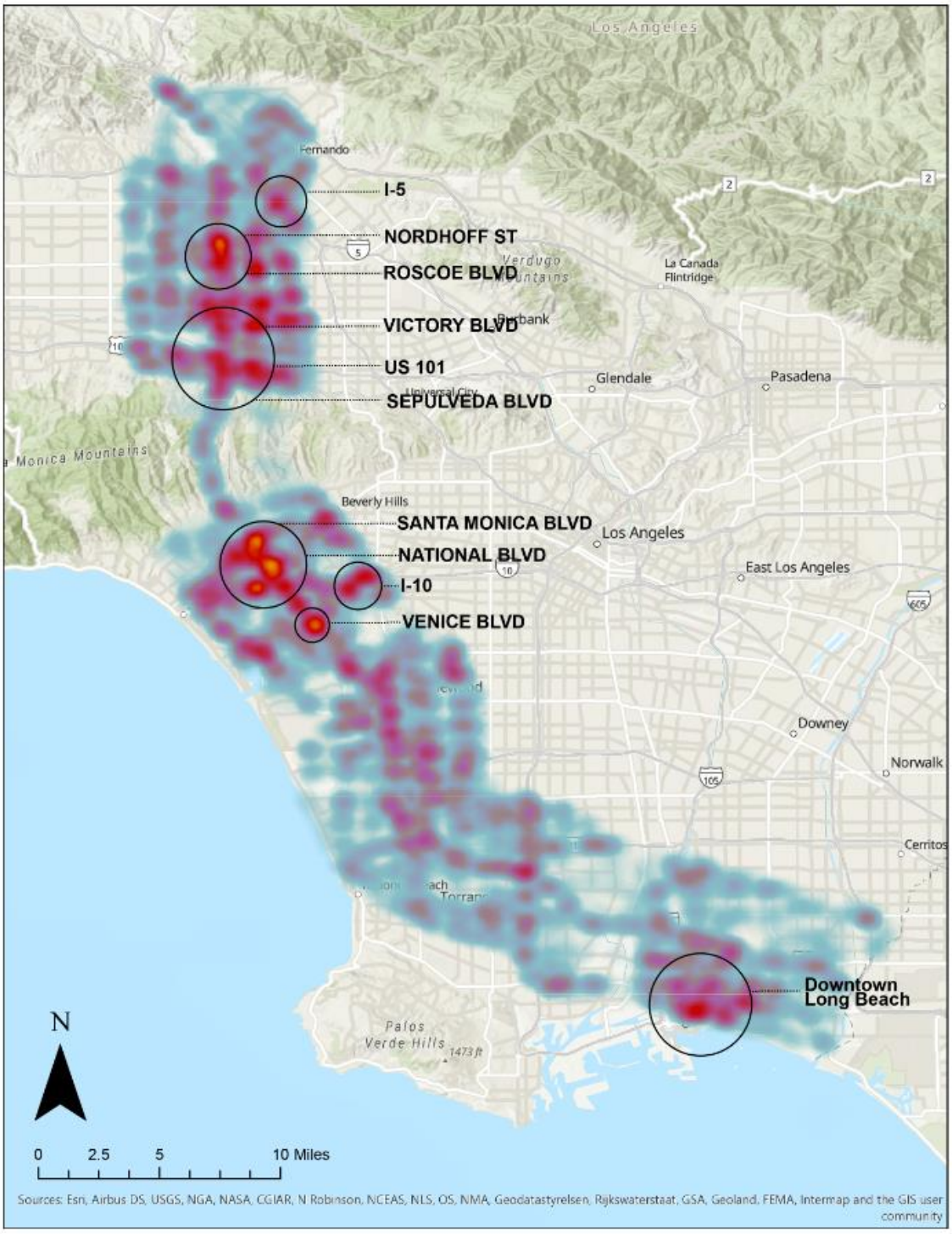
[70] *Falling Transit Ridership: California and Southern California (UCLA ITS/SCAG); 2018*
[71] *Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley*
[72] *Highway Performance Monitoring System; 2017*
[73] *Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley*

Figure 27 Collision Hot Spots



Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley

Air quality and climate change impacts continue to get worse.

High traffic volumes and associated tailpipe emissions, as well as harmful pollutants emitted from industrial facilities, cause **poor air quality conditions along much of the Corridor**. Regional and local transportation infrastructure investments have disproportionally impacted low-income communities and communities of color who bear the greater share of pollution burden and environmental stressors. Poor air quality is associated with heightened rates of certain chronic conditions, including bronchitis, emphysema, and asthma, cardiovascular disease and higher mortality. It particularly affects children, older adults, people active outdoors and outdoor workers. LA County is a nonattainment area for criteria pollutants regulated under the Clean Air Act's National Ambient Air Quality Standards (NAAQS), including the two pollutants (Ozone and PM 2.5) associated with the most adverse health effects.

In addition to these air quality concerns, **the study area is vulnerable to the impacts of climate change, particularly rising temperatures, sea level rise, increased wildfires and more frequent and severe extreme weather events.** In coastal areas, particularly in Santa Monica at the intersection of I-405 and the LA River, the sea level is forecast to rise by more than four meters by 2100.[74] In Long Beach, inundation is expected to reach 0.5 meters.[75] These are areas with a large number of employers and commuters, high volumes of travel and relatively high use of transit, bike and walk modes, all of which would be impacted by this degree of sea level rise.

While **wildfire risk is generally low within the Corridor**, with the exception of the Santa Monica Mountains, smoke from more frequent and severe wildfires north and east of the Corridor are exacerbating air-quality related health concerns and forcing residents to stay indoors.

"Urban heat island" effect is also a major environmental stressor for many communities throughout the Corridor, which refers to heightened temperatures in places that are more paved and have fewer trees and shade structures. Low-income and communities of color are most impacted by the urban heat island effect. In particular, "Valley Heat Inequity" refers to the significantly higher temperatures experienced throughout the SFV – which can surpass 100 degrees Fahrenheit in summer months. This, paired with wildfire smoke and generally more extreme weather, poses a significant barrier to people biking, walking and rolling, and to supporting more people in switching to these modes.

Metro and its partners have many efforts underway to both mitigate and adapt to these growing climate change impacts. These include improving transportation and land use coordination to reduce GHG emissions, decarbonizing mobility options, encouraging trip reduction strategies, expanding system resiliency and ensuring safe emergency response and evacuation routes and protocols.

Infrastructure assets are deteriorating.

Many of the previously discussed factors—high traffic volumes, increased exposure to extreme weather and significant auto-dependence— combine to negatively impact the condition of the study area's infrastructure, particularly its pavement condition. In fact, **only five out of 13 cities in the study area have "good" pavement condition,** according to the Pavement Condition Index (PCI).[76] Between 2016 and 2018, pavement conditions in Carson and Redondo Beach fell from

[74] *U.S. Geological Survey; Coastal Storm Modeling System*
[75] *Ibid.*
[76] *PCI provides an index of pavement distress based on levels of cracking, rutting, potholes, corrugations, and other signs of pavement deterioration.*

"Good" to "At Lower Risk" classification;[77] whereas, Long Beach and Lawndale are both classified as "At Higher Risk."

In general, the I-405 freeway has better pavement quality than the local arterial system. However, segments near the Sepulveda Pass, LAX, South Bay, and Gateway Cities—where traffic volumes tend to be highest—have some of the poorest pavement quality. Throughout the Corridor's arterial network, pavement quality tends to be worse in the Westside Cities areas and on many of the major arterials in the SFV. Pavement quality in the southern part of the Corridor is mostly in "Acceptable" condition. Similar to pavement condition on the freeway, these arterials typically have lower travel volumes and therefore less wear-and-tear.

The continued deterioration of pavement conditions in the study area has signficant implications on congestion (poor pavement condition corresponds to lower speeds), safety (avoiding potholes can induce sudden lane changes), and use of alternative modes, particularly biking (poor condition of on-street/Class 2 bike lanes can inhibit mode shift). Metro, Caltrans and local jursidictions have specific programs in place, such as Caltrans' State Highway Operations Protection Program (SHOPP) to address maintenance and rehabilitation of transportation infrastructure assets within the Corridor.

SPOTLIGHT—Connecting to North Los Angeles County, the Central Valley and the I-5/SR-14 Interchange

The I-5/SR-14 interchange is located along I-5, 3.75 miles north of the terminus of I-405. Known as the Newhall Pass interchange (officially Clarence Wayne Dean Memorial Interchange) or by locals as the "5-14 split", it serves as a major gateway from the LA Basin for people and goods to both central and northern California, as well as to the Santa Clarita and Antelope Valleys. Nearly a third of the trips that travel through the interchange also go through the I-405.[78] Simultaneously, the 5-14 split is a critical goods movement gateway, and handles a large share of truck trips. This interchange is a key component of the only major north-south connection between the LA Basin and North LA County (and areas beyond such as the Central Valley), and as such it is a crucial and potentially vulnerable link in the network. This vital importance was demonstrated by two prior major closures that affected the interchange due to the 1971 Sylmar/San Fernando and 1994 Northridge earthquakes.

[77] *City-reported Pavement Condition Index (PCI); 2018*
[78] *Metro Travel Demand Model*

The North County is projected to experience significant growth in jobs and housing, and the interchange and larger transportation network serving this part of the County will experience greater demand as a result of this growth. Meanwhile, the projected growth in regional goods movement could compound the demand on these facilities. Future improvements will need to expand options and offer high-capacity solutions to manage the movement of more people and goods.

Who Depends on the I-5/SR-14 Interchange?

Roughly 525,000 people reside in the North County area—just over five percent of LA County's population. There are approximately 213,000 residents in Santa Clarita Valley and 312,000 residents in Antelope Valley.[79] Santa Clarita is the third most populous city in LA County after the City of LA and Long Beach, while Lancaster ranks 5th and Palmdale 6th. These cities have a very large population that relies on this vital interchange.

While many North County residents both live and work in the area, a significant number also commute to the SFV, West LA or even areas further south and east. Many of those commuters drive and must travel through the I-5/SR-14 interchange, and roughly a third of

[79] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*

those trips use I-405 to reach their destination. Even those who commute via bus must use the interchange, and many non-commute trips are made by residents of both Valleys to the LA Basin for health care, recreation, and other purposes. Notably, Santa Clarita and Antelope Valley residents tend to have longer commutes both in distance and travel times, with nearly a quarter commuting 60 minutes or more each way compared to only 15 percent of LA County residents with similar commute lengths.[80] Given the long distances travelled, these North County residents rely more heavily on cars for these trips and commute less on other non-auto modes compared to other parts of the County. Auto ownership is high among these communities, even within those designated as EFCs, because despite the high costs associated with private vehicle ownership, cars provide critical access to destinations in LA where other alternatives are currently limited.

Key Mobility Challenges

As the North County becomes a larger and more concentrated population center, so will the importance of the connectivity provided by these freeway facilities and parallel transportation facilities and services. Key mobility challenges in and around the 5-14 split include:

> Significant bottlenecks on I-5 both north and south of the interchange, generally during peak commute periods;

> Southbound travel on I-5 experiences chokepoints in the morning peak period near the interchange at the junction with I-210 (just south of the interchange) and at Weldon Canyon in the evening (just north of the interchange) as people make their way to and from Southern California;

> Limited roadway alternatives put travelers and businesses moving goods along this corridor at heightened risk of consequences caused by earthquakes and other natural disasters;

> Limited transit options connecting North County residents to the rest of LA County.

Infrastructure in Distress

Portions of the interchange collapsed during the 1971 Sylmar/San Fernando earthquake and during the 1994 Northridge earthquake, two sections collapsed, causing the interchange to be impassable until repairs were made. During the 11-month closure, the parallel "Old Road" was used as bypass routes and Metrolink rail ridership increased significantly, from about 1,000 riders per day to over 22,000 riders per day.

Initiatives and Opportunities

Several improvements have been proposed around the I-5/SR-14 interchange that will enhance the movement of people and goods from the North County to the LA Basin. Some of the improvements will enhance operations of the interchange itself, for both autos and trucks, while multimodal improvements will help reduce the reliance on auto travel from the LA Basin to North County, the Central Valley and the rest of the state. For example, Metrolink improvements will enhance accessibility for commuters who currently need to make long commutes via auto, and future California High Speed Rail service would provide an alternative to driving through the interchange and help reduce future congestion as demand for travel between LA and areas to the north increases. The proposed major improvements include:

[80] *US Census Bureau, American Community Survey, 5-year Estimates (2014 – 2019)*

> **I-5 North County Enhancements Projects** will deliver operational and safety enhancements along the I-5 freeway from the SR-14 interchange in the Santa Clarita Valley to just south of Park Road in Castaic. Enhancements include the addition of an HOV lane, a truck lane between SR-14 and Calgrove Boulevard, ITS improvements between the I-405 and I-210 interchanges, and addition of auxiliary ramps. The project, expected to be completed by 2026, will reduce congestion and provide a much faster and safer driving experience in the area for travelers.

> **The Antelope Valley Line Capacity and Service Improvements Program** aims to improve service frequency and reliability along the 76.6 mile-long AVL commuter rail corridor between Lancaster and downtown LA to meet the mobility needs of residents, employees, and visitors throughout the region. The Project will be completed by year 2028.

> **Vista Canyon Metrolink Station and Parking Structure** the new station and 750-space parking structure in the Canyon Country area of Santa Clarita will be completed by 2022.

> **CA High Speed Rail** includes a proposed segment between Palmdale and Burbank that will pass by the I-5/SR-14 interchange.

The impacts are inequitably distributed.

The negative impacts of transportation, including congestion, poor air quality, safety risks and infrastructure degradation fall hardest on low-income communities, communities of color, people with disabilities, and other marginalized groups. These communities also face the greatest barriers to accessing jobs, goods, services, recreation and mobility options within the Corridor and are inordinately impacted by air quality issues stemming from transportation. Within the I-405 Corridor, communities with the highest exposure to environmental burdens (per CalEnviroScreen) are located throughout portions of the SFV, Inglewood, and Long Beach. There is significant overlap between areas that are Metro-defined EFCs, and CalEnviroScreen Disadvantaged Communities (**Error! Reference source not found.**).

Disadvantaged Communities (SB 535)

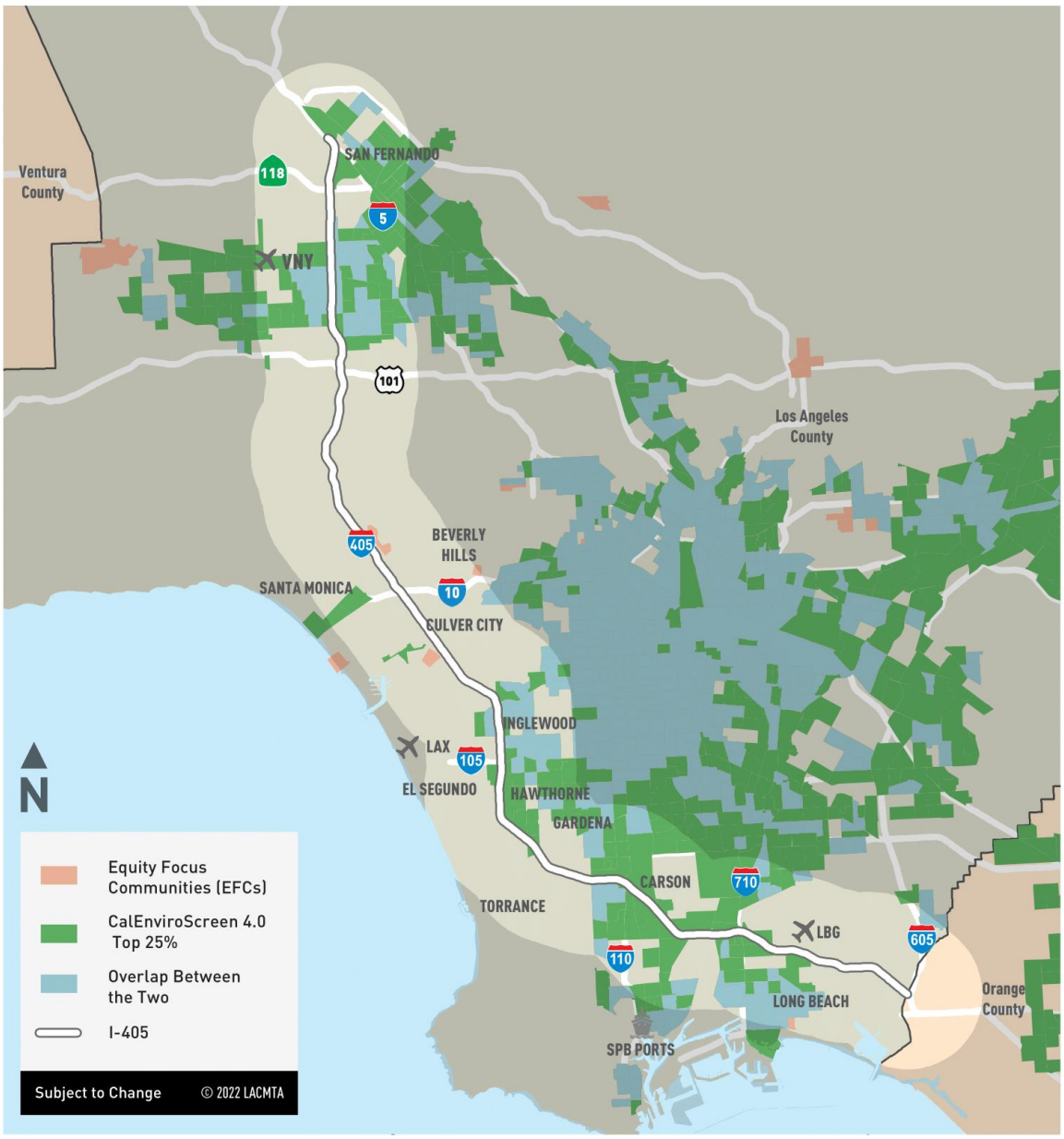
Pursuant to SB 535, the California Environmental Protection Agency (CalEPA) established criteria and a threshold for identifying disadvantaged communities throughout California. Using the California Communities Environmental Health Screening Tool (CalEnviroScreen) geographic, socioeconomic, public health, and environmental hazard factors are measured to consider both the population characteristics and pollution burdens at the census tract level statewide. Those census tracts that comprise the top 25 percent most impacted in the state in terms of these criteria meet the state's Disadvantaged Communities (DAC) definition. Per CalEPA, these communities may include, but are not limited to:

> Areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.

> Areas with concentrations of people that are of low-income, high unemployment, low levels of home ownership, high rent burden, sensitive populations, or low levels of educational attainment.

In particular, communities of color—most of whom are lower-income due to nearly a century of exclusionary planning practices—have not received a fair share of transportation funding, and have not had a seat at the table when it comes to investment decision-making. As discussed, in recognition of the inequities that exist on a countywide level, Metro adopted the Equity Platform and identified EFCs to help direct resources to those with the most *"need",* to correct for past injustices, and to prevent future disparities.

Figure 28 Metro Equity Focus Communities and CalEnviroScreen Communities



Source: Metro EFCs; CalEnviroScreen 4.0

Growing demand will exacerbate these issues.

Without bold and transformative action, these challenges will continue to worsen. Increased VMT, congestion, and delay will force people to spend even more time in their vehicles, taking

away time spent with family and friends, working and recreating and crippling regional economic growth. Poor air quality, rising collisions, and infrastructure asset degradation will continue to impact health and quality of life, and those who already face the greatest burdens will be hit the hardest.

To understand how traffic conditions may worsen if we do nothing, Metro's Travel Demand Model was used to assess future key performance indicators. These include vehicle miles traveled (VMT), vehicle hours traveled (VHT), vehicle hours of delay (VHD) and HOV lane usage. The 2047 LRTP Scenario shown in Figure 29 includes transportation projects defined in Metro's LRTP and SCAG's Regional Transportation Plan (RTP). The 2047 LRTP Scenario is the most aggressive of the four scenarios evaluated during the LRTP development process. It includes the Measure M funded capital projects along with several bold policy initiatives, including a VMT fee, free transit and faster bus speeds. However, even with the number of investments planned in the Corridor, **the performance of the system is expected to degrade**.

Figure 29 Future Performance on the I-405 Corridor

MEASURE	LOCATION	2017	2047 LRTP	TOTAL ADDED	% CHANGE	ANNUAL % CHANGE
Daily Vehicle Miles Traveled (VMT) (Total of AM, PM, Midday, and Overnight for Auto and Truck)	I-405 Study Area	68M	78M	9.8M	14.5%	0.45%
	LA County	235M	281M	46.7M	19.9%	0.61%
Daily VMT Per Capita (Total of AM, PM, Midday, and Overnight for Auto and Truck)	I-405 Study Area	25.58	26.18	0.61	2.4%	0.08%
	LA County	23.66	24.45	0.79	3.3%	0.11%
Daily Vehicle Hours Traveled under Congestion Conditions (VHT) (Total of AM, PM, Midday, and Overnight)	I-405 Study Area	2.5M	3.1M	625K	25.3%	0.76%
	LA County	8M	10.7M	2.6M	32.9%	0.95%
Daily Vehicle Hours of Delay (VHD) (Total of AM, PM, Midday, and Overnight)	I-405 Study Area	732K	1.1M	342K	46.7%	1.28%
HOV Lane Usage (Total of VMT for AM, PM, Midday, and Overnight)	I-405 Study Area	3.9%	4.6%	0.7%	19.9%	0.55%
	LA County	3.3%	3.8%	0.5%	15.2%	0.47%

Source: Metro Travel Demand Model

The number of miles that people are traveling, both on the I-405 Corridor and in LA County, is expected to increase. In 2017 VMT exceeded 68 million miles in the Corridor, and is expected to increase by 14.7 percent to nearly 78 million by 2047.[81] LA County VMT is expected to increase at a slightly faster rate of 0.61 percent per year, due to additional population and job growth occurring outside the study area. VMT growth is particularly pronounced in the SFV, along the I-105, and in areas north of the I-405 near the I-110 (Figure 30). The average person living in the I-405 Corridor drives 25.6 miles per day. By 2047, this will grow to 26.3 miles—an increase of 2.4 percent. This is slightly less than the average daily miles driven across LA County as a whole.

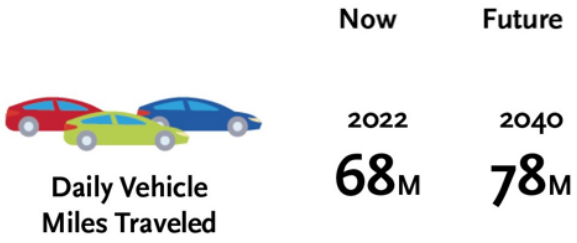
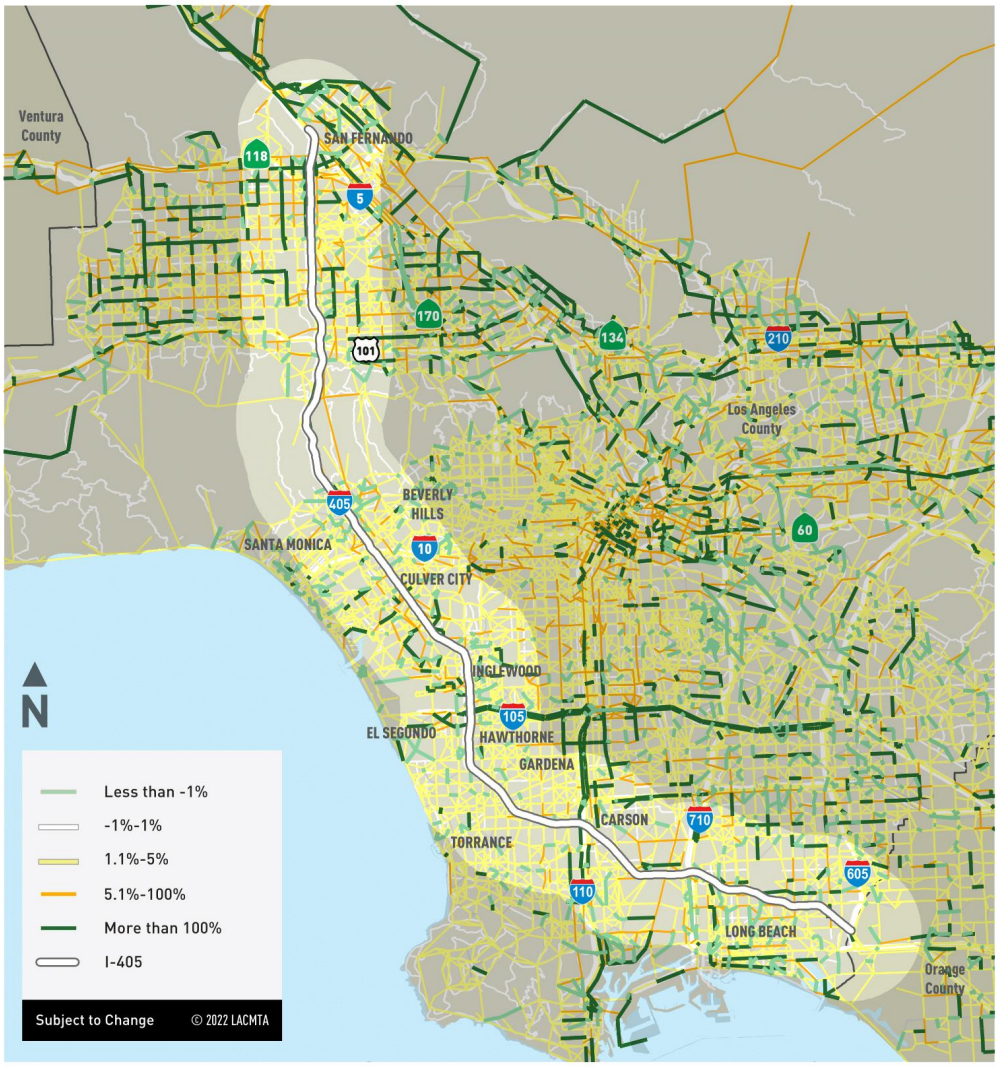


Figure 30 Growth in Vehicle Miles Traveled



Source: Metro Travel Demand Model

[81] *Metro Travel Demand Model*

Congestion will outpace the increase in VMT. In the I-405 Corridor, VHT under congested conditions is expected to grow from nearly 2.5 million hours in 2017 to just over 3 million hours in 2047—an increase of 25 percent. This equates to an annual increase of 0.76 percent per year, compared to a 0.45 percent increase in VMT per year. This is because delay increases exponentially under highly congested conditions, and adding more trips, more VMT and worsening congestion will add even more vehicle and person delay to the Corridor.

Hours of delay are expected to increase. Travelers on the I-405 Corridor experienced more than 730,000 vehicle hours of delay in 2017, with that number increasing to more than one million hours of delay in 2047. The projected increase in delay equates to an increase of more than one percent each year, over the next thirty years.

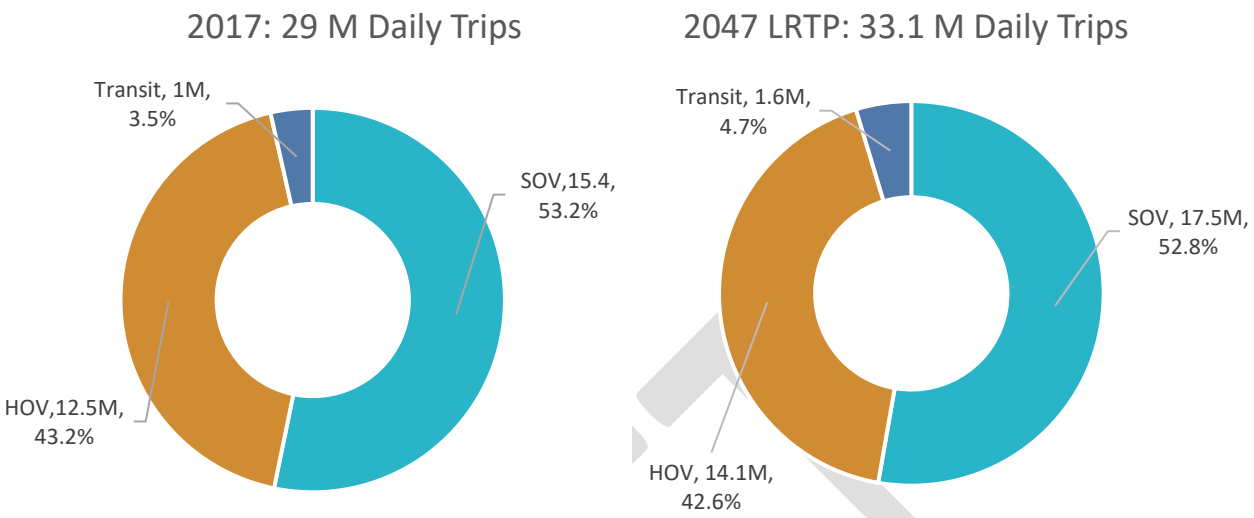
HOV Lane performance will continue to degrade. As discussed, as of 2017 all segments of HOV lanes in both directions on the I-405 were classified as "extremely degraded," which lessens the incentive for users to shift to carpooling, transit or other modes that can utilize the HOV lanes.[82] Preliminary traffic and revenue forecasts for 2035 indicate that degradation levels will worsen if the current HOV 2+ occupancy rate remains. Based on this forecast, a majority of the I-405 Corridor would experience degradation anywhere between 10 to 75 percent of PM peak periods, with areas around the Sepulveda Pass experiencing degradation more than 75 percent of the time.[83] Adding ExpressLanes could be expected to mitigate the overutilization of existing lanes. Without management or further restrictions on usage, performance of the HOV system will continue to degrade.

Mode split will shift minimally. Roughly 95 percent of trips are expected to be made by auto in 2047, with the majority—53 percent—made by single-occupant vehicles (SOV) countywide. More than 15 million trips were made in 2017 by SOV; these are expected to increase to more than 17 million trips in 2047—an increase of 13 percent. Transit mode share is expected to increase by 1.2 percent, from one million trips in 2016 to 1.2 million trips in 2047. HOV trips are anticipated to increase at roughly the same rate as SOV trips—13 percent—but will decrease in mode share by about 0.5 percent (Figure 31). This is because it is assumed that many HOV trips will shift to transit between 2017 and 2047.

[82] *"2017 California High-Occupancy Vehicle Facilities Degradation Report and Action Plan." Caltrans Division of Traffic Operations Office of System Operations. 2018*

[83] *"LA Metro Countywide ExpressLanes Strategic Plan Final Report."; 2017*

Figure 31 Countywide Shift in Mode Split (2017 – 2047)



Source: Metro Travel Demand Model

Note: Estimated transit mode share differs slightly between Metro's Travel Demand Model and the LOCUS Data due to differing methodologies.

We have an opportunity to address these challenges.

Addressing growing congestion and related impacts on safety, climate change, human and environmental health and infrastructure condition while simultaneously addressing disparities in access and social equity is a priority for Metro and its regional and statewide partners. In the coming decade, the I-405 Corridor and the surrounding communities will see a transformed transportation landscape, as major capital projects and large-scale policy initiatives take form. These include more competitive transit and shared mobility options; more connected, and better protected active transportation infrastructure; better management of existing roadways and better integration to serve the diverse travel needs across the Corridor.

Key existing projects

Projects that hold significant potential for improving multimodal mobility across the I-405 Corridor Include:

> **I-405 Tier 1 ExpressLanes.** Metro's 2017 Countywide ExpressLanes Strategic Plan Final Report identified the I-405 between the Orange County line and the US-101 as a Tier 1 ExpressLane project corridor with Measure M funding identified for the US 101 to I-10 segment. The I-405 segment from US-101 to I-5 is a Tier 2 priority expected to be implemented in 15 years. ExpressLanes are expected to have high mobility benefits, and financial benefits that will support local investments in non-auto modes.[84]

> **Sepulveda Transit Corridor Project.** This project will connect the SFV and Westside with a high-capacity, high-speed transit line over the Sepulveda Pass. The project aims to attract

[84] *Caltrans "I-405 In District 7 Multimodal Corridor Plan."; 2020*

a portion of the 400,000 people who travel through this area every day to use transit to commute or reach their destinations along and beyond the Corridor.

- **Metro Rail Projects.** The Crenshaw/LAX Transit Corridor Project, currently under construction, is intended to connect the E Line (Expo) to the C Line (Green) with a station at the LAX APM. The Purple (D Line) Extension along Wilshire Boulevard is also under construction, with Section 1 from Western Avenue to La Cienega Boulevard scheduled to open in 2023. The East San Fernando Valley Transit Corridor Project, scheduled to open in 2027, is a light-rail system that will extend north from the Van Nuys Metro G Line (Orange) station to the Sylmar/San Fernando Metrolink Station.
- **Metro C Line (Green) Extension.** This project, which is one of Metro's four pillar projects, will connect this line to the proposed regional transit center in Torrance.
- **Metro G Line BRT Improvements.** The G Line (Orange) was extended from Canoga Park to Chatsworth in 2012 and is currently undergoing further enhancements to improve operating speeds, capacity and safety by adding grade separations on major streets, closing minor streets and providing better signal priority technology.
- **NextGen Bus Plan.** Metro is redesigning its bus network to be faster, more frequent and reliable, as well as integrated with other LA County transit services. The first significant system update in 25 years, Metro's NextGen Bus Plan aims to reverse the recent declining ridership.
- **LA River Bike Path.** The LA River Bike Path is an eight-mile bicycle and pedestrian path gap closure project between Elysian Valley and Maywood through Downtown LA. Another section in the SFV will connect the SFV to the existing path near Griffith Park. This 13-mile portion will complete a 52-mile continuous active transportation corridor that spans from Long Beach to Warner Center.
- **First/Last Mile.** Metro is expanding first/last mile connectivity by collaborating with local and regional partners to improve access to transit by removing barriers to transit stations or destinations. Many projects have dedicated first/last mile planning ongoing including the G Line (Orange) Sepulveda Station First/Last Mile Plan, the D Line (Purple) First/Last Mile Plan, and the East San Fernando Valley Transit Corridor Project First/Last Mile Plan.
- **LAWA Airfield and Terminal Modernization Project (ATMP).** The ATMP combines airfield, terminal and landside improvements to improve passenger experience, enhance safety and carrier experience, increase business opportunities and improve community experience. It will add a concourse and new terminal to LAX. Landside projects include reconfiguring the central terminal area roadway, the new APM, a pedestrian corridor over Sepulveda Boulevard and redirecting airport traffic from local streets to new roadways.
- **I-405 Operational and Safety Improvements**. In cooperation with Caltrans District 7 and the South Bay Cities COG, Metro has ramp improvements underway between Western Avenue and Crenshaw Boulevard as well as proposed auxiliary lanes in both the northbound and southbound directions of the I-405 from Artesia Boulevard to El Segundo Boulevard, El Segundo Boulevard to Imperial Highway, and the I-110 and Wilmington Avenue. The planned auxiliary lane projects will bring improved peak period travel time reliability, safety, will reduce person hours of travel time, vehicle hours of delay and improve accessibility to major activity centers such as SoFi Stadium, Dignity Health Sports Park and transit terminals in Redondo Beach and Torrance.

Emerging opportunities

At the same time, there are many emerging opportunities related to technology, sustainability, equity and more. These have vast potential to improve the Corridor beyond what is already planned. These types of innovative solutions will play an important role in shaping the I-405 Corridor of tomorrow, and ensuring that people have a menu of options and don't have to default to driving. These core opportunities include:

> **Data and information technology.** As of 2019, 81 percent of Americans own a smartphone, with more than 98 percent of those smartphone owners having access to 4G Long-term Evolution (LTE) service.[85] Mobile devices are becoming increasingly vital to everyday travel needs, providing users with online routing, booking, and payment options and real-time traveler information. Smartphones enable access to as well as the operation of shared mobility services—car-share, bike-share, and scooter-share—that are freeing many from the burden of car dependency. At the same time, these devices collect massive amounts of data, and in turn, that data is transforming how transportation systems and services are planned and delivered.

Case Study: Santa Monica Zero-Emission Delivery Zone

Through this effort, one-square mile in the city's downtown, Main Street and Ocean Park neighborhoods will grant priority curb access for zero emission delivery vehicles in up to 20 loading priority curb areas. The concept was developed by Transportation Electrification Partnership (TEP), a coalition of local government officials, utilities, state regulators, automakers, industry leaders, labor and startups. The TEP is working to accelerate transportation electrification and zero-emissions goods movement in advance of the 2028 Olympic and Paralympic Games.

> **Zero-emission vehicles (ZEVs).** California has mandated that all new vehicle sales be electric by 2035. Growth in full Battery Electric Vehicle sales and Plug-in Hybrid Electric Vehicles sales have risen by approximately 72 percent, on an annual average basis, from 2010 to 2020.[86] Electric truck and transit sales will also increase in the coming years, using both fuel cell and battery technology. As electric vehicles become more commonplace across the LA region, the need for charging infrastructure will also increase. While the positive impact of ZEVs on emissions reduction is clear, the impact on traffic congestion is not. If non-auto mobility options and transportation demand management strategies are not adopted, traffic congestion will continue to rise with or without ZEVs.

> **Sustainable freight technologies.** Automation and electrification of freight vehicles hold promise for reducing the negative impacts of freight, while supporting more safe and efficient movement of goods. While the I-405 Corridor is not a heavy freight corridor, goods movement typically has an outsized impact on emissions, congestion and VMT, and the continued growth in e-commerce (which was amplified during COVID-19) could create additional demands for local deliveries in the study area.

> **Connected and Autonomous Vehicles (CAV).** CAVs could offer important safety and network performance benefits, such as congestion relief, optimization of roadway

[85] *Pew Research Center; Mobile Fact Sheet; 2019; https://www.pewresearch.org/Internet/fact-sheet/mobile/.*
[86] *Zero Emission Vehicle and Infrastructure Statistics; California Energy Commission; https://www.energy.ca.gov/data-reports/energy-insights/zero-emission-vehicle-and-charger-statistics*

capacity, less demand for parking, and improved safety by eliminating human errors in driving. However, they could also make auto travel more convenient, enabling people to live further from their destinations and adding to traffic congestion. State policy guidance has been issued to support development and deployment of shared, electric CAVs that yield these benefits and mitigate the potential negative impacts.

> **Integrated Corridor Management (ICM).** ICM brings together all the local agencies and stakeholders serving a corridor with a goal of minimizing the impact of traffic incidents, making travel safer and more efficient. ICM provides a unified vision for cooperation, innovation and integration to use better technology and strategies that will improve travel throughout the whole Corridor.

The following Section discusses the full suite of projects and efforts currently being planned by Metro and partner agencies, and how those projects and efforts were evaluated.

We evaluated improvements to the I-405 Corridor.

With the help of the I-405 Advisory Committee, local COGs along the Corridor, Caltrans, transit agencies, municipalities, community-based organizations (CBOs),and other Corridor stakeholders, nearly 450 projects were identified that help address the Corridor's most pressing challenges and achieve our collective goals (see "*A Vision for the I-405 Corridor*"). An evaluation framework was developed to help assess projects against a common set of criteria, and identify top-performers that not only achieve multiple CMCP goals but are ready or near ready for implementation. Per Caltrans' CMCP Guidelines, an evaluation framework and project evaluation is a required element of a CMCP. The evaluation process is shown below and each step is described in more detail in the following sections.

Develop vision & goals

"A vision for the I-405 Corridor" summarizes the process and the numerous voices that went into developing the corridor vision and distilling the corridor goals outlined in the plan. The five project goals include improve mobility and accessibility, advance equity, support economic vitality, achieve sustainability and enhance safety. These goals were used to guide the development of a set of performance criteria used to assess potential CMCP projects. Performance criteria (shown below) were informed by the CTC's CMCP Guidelines, the SCCP Program Guidelines (which includes required performance criteria for SCCP applications), Metro's 2020 LRTP, as well as input gathered through Advisory Committee meetings, interviews and focus groups with Corridor stakeholders.

Performance Goals & Criteria

CMCP Goal	Performance Metric	CTC	SCCP	Metro LRTP	Stakeholder Input
Improve mobility & accessibility	Minimizes vehicular miles traveled (VMT)	✓	✓	✓	✓
	Reduces person hours of delay	✓	✓	✓	✓
	Supports transportation-efficient land use principles	✓	✓	✓	✓
	Increases person throughput while reducing VMT	✓	✓	✓	✓
	Reduces travel time delay, and improve reliability	✓	✓	✓	✓
	Encourages use of non-auto modes, particularly for short trips	✓	✓		✓
	Improves arterials and routes paralleling I-405				✓
	Encourages telework and other trip reduction strategies				✓
	Closes critical infrastructure gaps in the corridor and enhances multipmodal connectivity	✓	✓	✓	✓
Advance equity	Expands safe and convenient mobility options for EFC trips		✓	✓	✓
	Improves health and air quality in EFCs and/or CalEnviroScreen Disadvantaged Communities	✓	✓	✓	✓
	Reduces household transportation costs		✓	✓	
Support economic vitality	Creates well-paying jobs and supports ladders of opportunity	✓	✓	✓	✓
	Expands access to jobs and major destinations	✓	✓	✓	✓
	Facilitates deliveries to local residents and businesses				✓
	Provides improvements along key goods movement corridors	✓			
	Integrates elements of sustainable, low-carbon goods movement				✓
	Generates local, regional, and/or statewide economic benefits				✓
Achieve sustainability	Reduces GHG emissions and criteria air pollutants	✓	✓	✓	
	Encourages a shift to low-carbon modes of transportation	✓	✓	✓	✓
	Addresses heat island effect, sea level rise, extreme weather events, and other climate change-related events	✓			✓
	Protects natural habitats and ecosystems				✓
Increase safety	Addresses collision hotpots, particularly for people biking, walking, and rolling	✓	✓	✓	
	Includes safety components such as crosswalks, Leading Pedestrian Intervals (LPIs), refuge islands, lighting, etc.	✓		✓	
	Includes educational elements that encourage safe travel behavior for all users				✓
	Includes basic repairs, maintenance, and upkeep of infrastructure			✓	

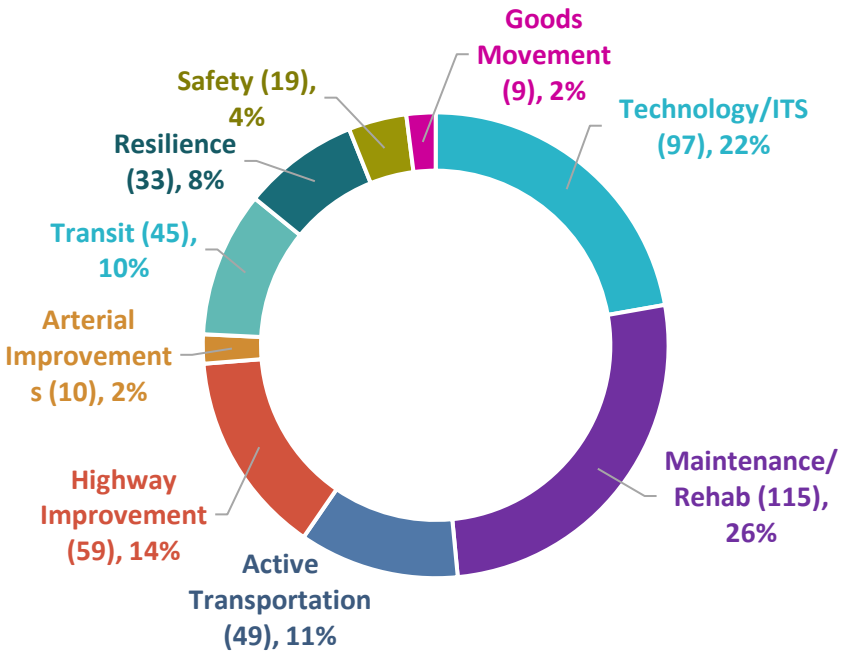
Compile & categorize projects

As mentioned above, nearly 450 projects were evaluated as part of the CMCP development process. These projects were sourced from Metro's 202 LRTP, Metro Measure R and M, Metro's Strategic Project List (SPL), Metro's 2028 Mobility Concept Plan (MCP), SCAG's Regional Transportation Plan and Sustainable Communities Strategies (RTP/SCS), Caltrans Multimodal Operations non-State Highway Operations and Protection Program Transportation Equity Report (MONSTER) and Caltrans' State Highway Operations and Protection Program (SHOPP). These projects were reviewed by the I-405 CMCP Advisory Committee, COGs, Caltrans and multiple

other Corridor stakeholders; who were also solicited to provide input on other strategies, ideas and concepts for improving the I-405 Corridor that may not be captured in existing plans and programs.

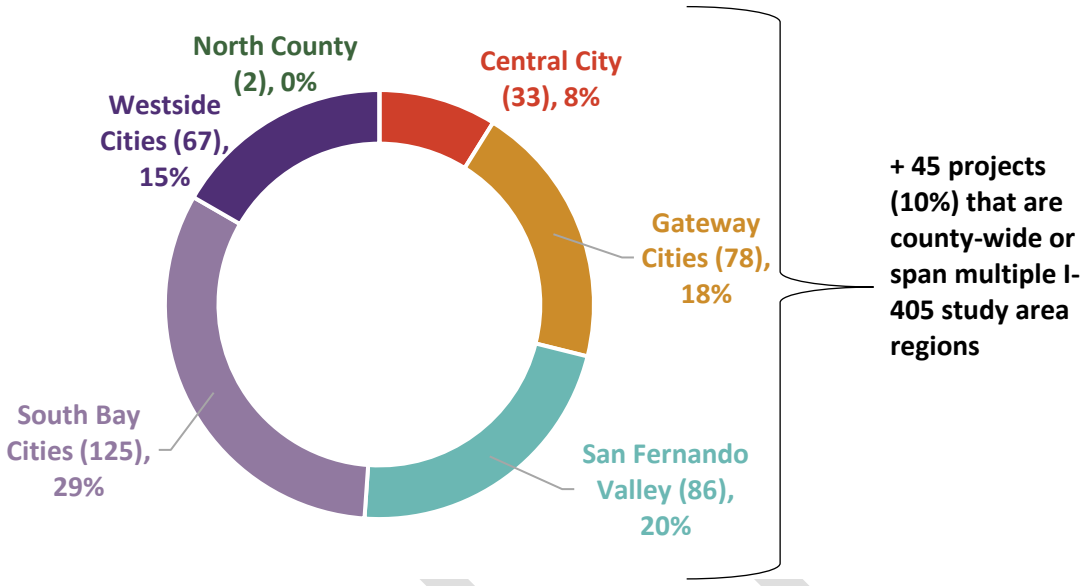
A wide range of project types were evaluated, from highway and arterials improvements, to resiliency projects, to transit, active transportation and goods movement projects (Figure 32). While projects were separated by type to support the evaluation process, the CMCP strategies are multimodal in nature, and span multiple project types to leverage complimentary benefits.

Figure 32 I-405 CMCP Project Types



Projects were relatively evenly distributed across the Corridor, with 45 projects that are countywide or span multiple I-405 study area regions. Figure 33 shows the geographic project distribution. While Central City and North County are not technically within the three-mile study area boundary, select projects in these regions—such as the Antelope Valley Metrolink project—were included since they provide key operational continuities and facilitate travel between the many EFCs and other communities traveling to and from the I-405 Corridor.

Figure 33 I-405 CMCP Projects by Region



Evaluate projects

To evaluate this wide array of projects, two parallel assessments were conducted. The first—a "shovel-worthiness" assessment—focuses on each project's ability to support the goals and performance criteria. The second—a "shovel-readiness" assessment—focuses on how ready projects are for implementation, which is determined by inclusion in regional plans, level of stakeholder support, environmental clearance, timeframe and funding match. These two assessments were combined to group projects into a set of tiers for the purpose of identifying top performers that should be included as core CMCP strategies and that are strong grant application candidates. Each of these processes is discussed below, and more detail is provided in the Evaluation Framework Technical Memo.

Project Evaluation

Shovel-Worthiness + Shovel-Readiness

What is the contribution to our shared goals?	**Is the project ready for implementation?**
Results of the project benefit analysis	*In RTP/SCS?* *Funded/match available?* *Environmentally cleared?* *Stakeholder supported?*

Shovel-Worthiness

The shovel-worthiness assessment was conducted qualitatively, but leveraged quantitative data from existing plans, studies and reports (including the Baseline and Future Conditions Assessments) to determine the level of benefit to each CMCP goal. The figure below shows the rating scale used to conduct the evaluation. This approach ensures that project performance is evaluated holistically, rather than ranking and scoring projects in a way that prioritizes certain goals over others.

Project Rating Scale

Rating	Does the project...	Examples
	***Significantly*** *benefit the goal?*	*A large-scale transit investment would score Significant in Mobility & Accessibility, and a wide-scale transit electrification project would score Significant in Achieve Sustainability*
	***Somewhat*** *benefit the goal?*	*A municipal intersection improvement program or targeted first-last mile project would receive a Somewhat score in Mobility & Accessibility*
	***Minimally*** *benefit the goal?*	*A transit agency on-time performance improvement program would receive a Minimal score for Safety*
	*Have a **neutral** impact?*	*Projects that have no cumulative positive or negative impact on a specific goal. A wide-scale transit electrification project would score Neutral in Safety*
	*Have a **negative** impact or require mitigation?*	*Projects that could negatively impact a goal and would require mitigation. A project that increases truck traffic through an EFC would score Negative for Lead with Equity.*

Shovel-Readiness

The shovel-readiness assessment is a critical step in identifying projects that are ready for implementation in the near-term, and that will be competitive at leveraging funding from state and federal grant programs. However, shovel-readiness is not a determining factor of top-performing projects in and of itself. There may be projects (such as roadway widening) that are ready for implementation, but that are not aligned with CMCP goals. The purpose of this assessment is to distinguish projects that yield significant benefits and are ready for implementation, including projects that hold significant promise but need more time to develop. Projects that are generally considered more shovel-ready include those that:

> Are included in the RTP/SCS;

> Have begun or completed the environmental review process;

> Have an approved Project Report (if it is a Caltrans project);

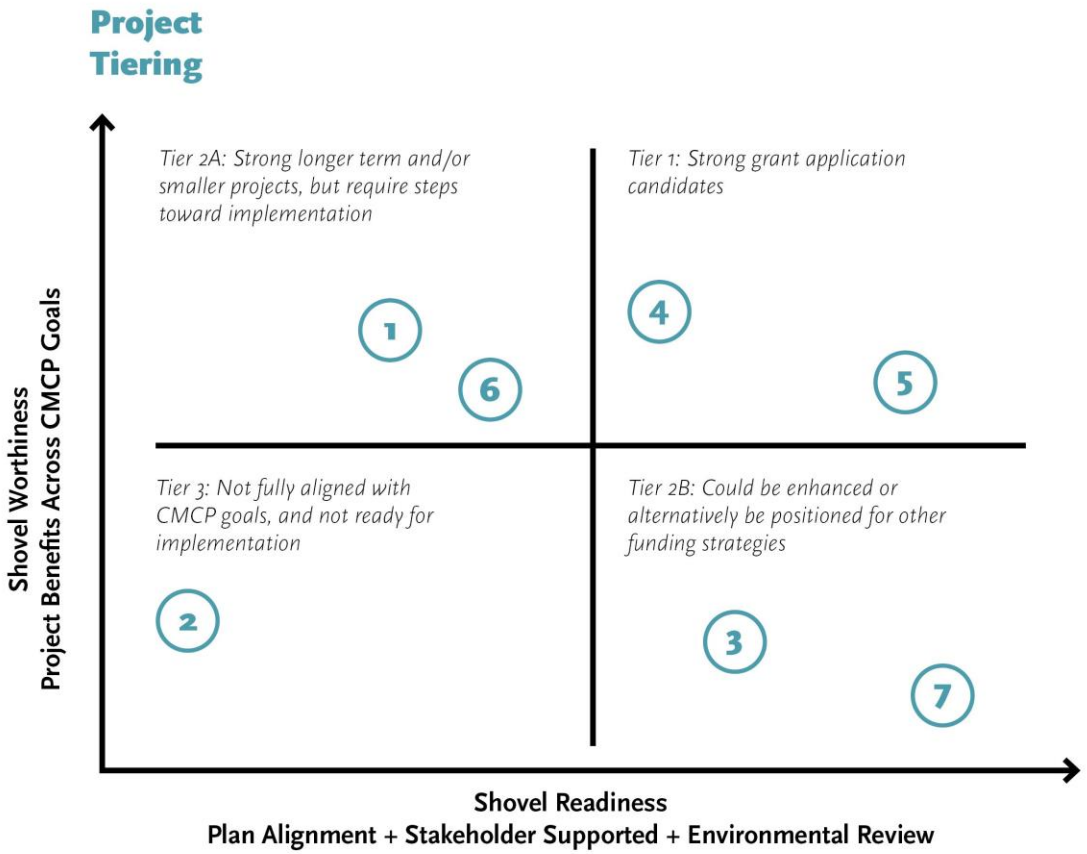
> Are on a short- or mid-time frame (< 15 years to complete);

> Have allocated match funding (this is not a requirement for SCCP and many other grant programs, but is desirable); and/or

> Are capital projects, as SCCP will only fund the construction component of a capital project.

Project Tiering

The outcomes of the shovel-worthiness and shovel-readiness assessment were used to sort projects into a set of four tiers.



> **Tier 1**: These are projects that score highest in both shovel-worthy and shovel-ready evaluations, demonstrating significant benefits across multiple CMCP goals and readiness for implementation. This tier makes up the list of projects that are strong candidates for potential SCCP funding in the near-term, whether pursued by Metro or other agencies.

> **Tier 2A**: These projects have significant benefits, but are not quite ready for implementation. They may require additional match funding, environmental clearance, or further stakeholder review and engagement. It is possible that combining Tier 2A projects to complement each other or packaging them with Tier 1 projects may make them more competitive. Additionally, some of these projects may be good candidates for planning or pre-construction grants. Some of these projects may lack only environmental clearance, so that would be the next step for those projects.

> **Tier 2B:** These consist of projects that might need mitigation or modification to better align with CMCP goals, but are close to implementation. These projects could be those that keenly address a single objective (i.e. safety) but may not sufficiently address the other criteria. In some cases, these projects could include long-standing projects that are no longer as closely aligned with local and regional priorities. Such projects could be considered for other funding opportunities where the criteria is more focused on specific objectives.

> **Tier 3:** These projects have minimal benefits as measured by the CMCP goals, and are not ready for implementation. These projects may not be fully defined or are extremely long-term, and generally do not satisfy the CTC criteria as detailed in the CMCP guidelines.

In addition to identifying top performing projects, the tiering process also helps Metro and our partners identify ways to make existing projects more competitive, whether by combining with complementary projects, adding or removing elements or simply moving through the environmental or stakeholder review process.

Develop improvement strategies

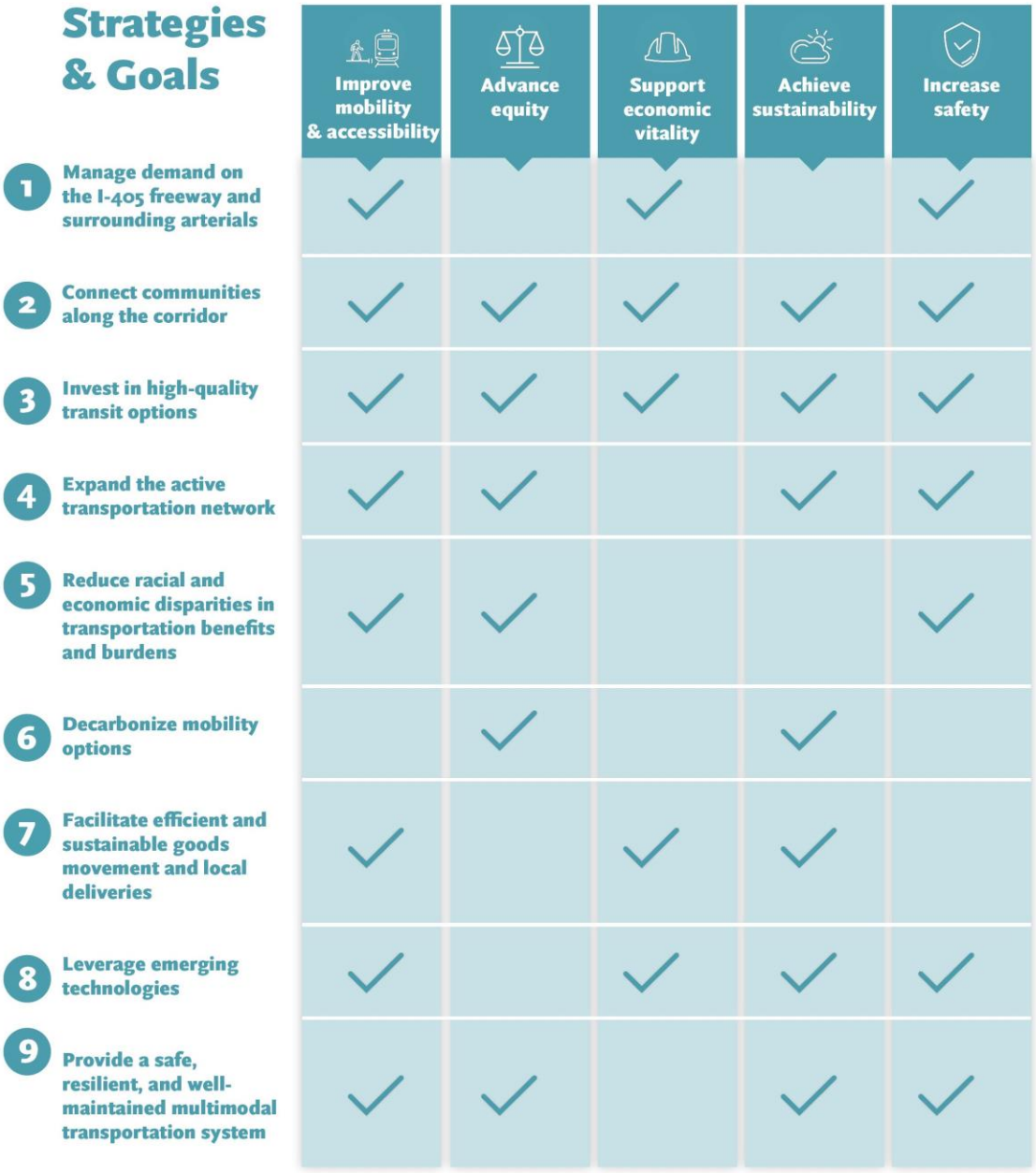
The project tiering step is used to inform the development of CMCP strategies.

What is a strategy? A strategy is a high-level approach to achieving one or more CMCP goals and addressing our most pressing challenges. Each strategy includes near-term, mid-term, and long-term projects and programs, as well as new concepts and initiatives that might not be captured in existing plans and programs. These strategies combine capital projects and bold policy initiatives that work together to address the urgent mobility needs and challenges the Corridor faces while simultaneously providing a path for achieving the CMCP goals. Each strategy is cross-cutting, meaning that it addresses multiple challenges and supports multiple goals.

Collectively, these bold and transformative strategies represent the path to a more accessible, sustainable, safe, equitable, and economically prosperous I-405 Corridor for all.

Our path forward.

The path to actualizing the I-405 Corridor goals includes near-, mid-, and long-term solutions across all modes of transportation, and all geographies across the I-405 Corridor. The figure below summarizes the nine proposed improvement strategies and how they correspond with the goals outlined in the plan. The following sections provide context and specific details on the types of investments and policy actions needed to support each strategy. Projects from the plan's list of evaluated projects have been provided to offer examples of the types of projects that align with the strategy actions put forth.



Manage demand on the I-405 freeway and surrounding arterials.

The I-405 freeway is one of the most congested in the country. Traffic is expected to increase through 2047, significantly impacting people's quality of life and stymieing regional economic growth. It is clear that adding capacity by widening freeways has only led to more traffic and related harmful impacts to neighboring communities. Expanding highways also typically requires demolition of adjacent homes and displacement of those residents—leading to further inequities across the region. Since building more highways is not the solution, **we must manage our existing highway and arterial network within the existing footprint.**

Metro and its partners have many actions underway to manage current and future vehicular demand on the I-405 and surrounding arterials within the existing right-of-way, including I-405 ExpressLanes, auxiliary lane improvements, ramp metering, signal synchronization and other ITS

improvements. These are intended to move more people in fewer vehicles, within the existing freeway footprint. Further, optimizing the existing highway and roadways create opportunities to move the transit services that operate on those facilities more efficiently. This strategy focuses on these improvements, and subsequent strategies focus on transit, active transportation and other non-auto investments that are also critical to managing future demand.

Strategy 1—Manage the I-405 and Corridor arterials		**Timeline**
1.1	Implement technology and ITS solutions such as dynamic corridor ramp metering and arterial traffic signal synchronization projects to improve vehicular flow and throughput within the existing right-of-way. *Projects examples: Inglewood Traffic Signal Synchronization #1619 and I-405/El Segundo Signal Improvements #0620*	Near
1.2	Manage trip making and demand through Transportation Demand Management Strategies and supporting policies around remote work and services. Implement strategies such as carpooling and car-sharing that can move more people in fewer vehicles. Coordinate with local jurisdictions and employers along the Corridor to reduce trip-making through telework, telehealth, and other remote activities, and/or stagger work hours to alleviate peak-hour demand on the transportation system. *Projects examples: Countywide Transportation Demand Management #1249 and Mobility Concept Plan Communications Strategies #2061*	Near
1.3	Construct the I-105 ExpressLanes from I-405 to I-605 to complete an essential extension of the ExpressLanes Network. *Project example: I-105 ExpressLanes #0937*	Near
1.4	Increase HOV lane minimums to at least 3+ to move more people in fewer cars and to better manage the overall throughput of the HOV lanes that will allow commuter buses and other transit services on the Corridor to move more efficiently. *Project example: Countywide HOV Lane Occupancy Conversion #2063*	Near
1.5	Invest in infrastructure that supports mode shift away from personal auto use, through the actions identified in Strategies 3 and 4.	Near
1.6	Study and pilot congestion pricing strategies. *Project example: LAX Congestion Pricing Study #2064*	Mid
1.7	Build out HOV/Transit bypass lanes at intersections and ramps along the entirety of the I-405 freeway. *Project example: HOV/Transit Bypass Lanes #0669*	Mid
1.8	Reinvest HOT/ExpressLane revenues in complementary high quality transit services identified in Strategy 2.	Mid

1.9	Integrate the ExpressLanes and HOV networks through direct connectors between the I-405 and its bisecting freeways to make the ExpressLanes and HOV networks more seamless. *Project examples: I-405/I-105 Interchange #0652, HOV Direct Connector to LAX (#0659) and I-405/I-110 Interchange #0917*	Mid
1.10	Build out I-405 ExpressLanes along the entirety of the Corridor. *Project examples: I-405 ExpressLanes from I-110 to Orange County Line #0638, I-405 ExpressLanes from I-105 to I-110 #0637, I-405 ExpressLanes from I-105 to I-10 #0640 and I-405 ExpressLanes from I-10 to I-101 #0938*	Mid/ Long
1.11	Develop and implement regional means-based congestion pricing strategies such as VMT-based fees, cordon pricing and full freeway tolling.	Long
1.12	Complete the full buildout of the Metro ExpressLane Strategic Plan to have a comprehensive network of dynamically priced toll facilities to optimize travel time and person throughput on the network of freeways in LA County and beyond, tying into the tolled portion of the I-405 in Orange County.	Long

Connect communities along the Corridor.

The I-405 freeway travels through dozens of cities and communities, some of which are bisected by the freeway, and some that are disconnected because of infrastructure gaps and/or geographic barriers. Most notably, the Santa Monica Mountains separate the SV and North County from the rest of the Corridor, and driving over the Sepulveda Pass on I-405 is currently the only viable travel option. As discussed, the Sepulveda Transit Corridor Project—currently in planning stages—will provide a high-capacity, high-quality connection over the pass. At the same time, it will be critical to ensure that existing and future transit systems are well-connected and seamlessly integrated to improve transit speeds, reliability, affordability and customer experience. Connecting the I-405 Corridor to major transit facilities outside the Corridor—in particular, the future High Speed Rail access point at Burbank Station—will also be critical to supporting expanded use of transit within the Corridor.

In addition, stakeholders consistently voiced concerns about limited crossing options and unsafe infrastructure conditions across the I-405 freeway, particularly for those biking, walking or rolling. This strategy focuses on a range of projects that better connect communities along the I-405 Corridor, including regional rail and transit integration, fare integration, mobility hubs, regional active transportation corridors, improved crossings for people biking and walking, coordinated ITS and active travel demand management strategies on key arterials, and more.

Strategy 2—Connect communities		**Timeline**
2.1	Improve multimodal connectivity across the I-405 freeway (protected bicycle facilities, safe pedestrian crossing infrastructure, especially at on- and off-ramps).	Near
2.2	Improve safety and accessibility of existing freeway crossings (through landscaping, lighting, sound attenuation, sidewalk expansion, etc).	Near

2.3	Implement holistic neighborhood connectivity projects and improve multimodal connectivity between neighboring communities in the I-405 study area Corridor. *Project examples: Sepulveda Blvd Class IV Bikeway #1336, Stress Free Connections #1244 and LA Neighborhood Enhanced Network #1299*	Near Mid
2.4	Expand mobility hubs that help people move across the I-405 and between communities. *Project example: Mobility Hub Expansion #1233*	Mid
2.5	Work with the Corridor COGs and cities to implement their active transportation plans and projects as outlined in Strategy 4.	Mid
2.6	Build out first/last mile improvements for stations immediately adjacent to or nearby the freeway. *Project example: First/Last mile improvements for the Westwood and Veterans Association D Line Station #1344*	Mid
2.7	Invest in regional bicycle connectivity projects between communities. *Project example: San Fernando Valley LA River Path #9046*	Mid
2.8	Improve accessibility and connectivity through the Sepulveda Pass for the communities in the North County and SFV and those south of the pass in the Westside Cities and South Bay Cities. *Project example: Sepulveda Transit Corridor Project #0610*	Mid
2.9	Expand local transit connections. *Project examples: Lincoln Blvd. BRT #2053 and Wilshire Blvd. BRT#1330*	Long
2.10	Improve connections between the I-405 Corridor and the North County. *Project example: Metrolink Antelope Valley Line #2029*	Long
2.11	Create new freeway crossings to expand crossing opportunities.	Long

Invest in high-quality transit options.

Investing in high-quality transit will help to improve connectivity throughout the study area by expanding access to and options for reaching the numerous Corridor area destinations. High-quality transit means transit that is frequent, reliable, fast, affordable, and that is safe and pleasant to ride. Expanding service coverage will be just as critical to improving existing routes and services. Metro's NextGen Bus Plan is already making many improvements to bus stop spacing, location and routing to make transit travel more competitive—but to provide people with a true alternative to driving, we must do more.

This strategy focuses on new high-capacity transit connections (such as the North San Fernando Valley BRT and Inglewood Transit Connector), rapid and express bus services, further improvements to local transit, expansion of transit centers and park & rides, and other on-demand and paratransit services. Implementation of ExpressLanes would also benefit transit on the freeway by creating uncongested lanes that would allow transit service on the freeway to be

competitive and in fact operate much faster than driving a single-occupancy vehicle. One of the main impediments to achieving higher transit ridership is travel time, thus combined strategies that not only provide more transit, but also higher quality and efficient transit that will attract many riders, is one of the keys to successfully combining projects into multimodal packages. Delivering on this strategy will provide better service for existing transit users and make new transit trips possible, expanding options for the traveling public and encouraging more people to ride transit.

Strategy 3—Invest in high-quality transit		**Timeline**
3.1	Make improvements to existing rail stations and high-frequency bus stops (e.g. real-time signage, seating, new and improved shelters, etc) to improve the ease and comfort of transit trips. *Project examples: Metro Rail and BRT Station Improvements Project #2068 and Green Line Capital and Operational Improvements #0131*	Near
3.2	Expand microtransit options and on-demand transit improvements to offer flexible transit alternatives that are well suited to the high volume of shorter trips within the Corridor area.	Near
3.3	Continue speed, frequency and reliability upgrades to existing transit services as outlined in the NextGen Bus Plan and 2028 Mobility Concept Plan (MCP). *Project example: 2028 Mobility Concept Plan LRT Speed Improvements (#2066)*	Near
3.4	Improve transit agency coordination across all providers serving the I-405 Corridor.	Near
3.5	Implement priority bus enhancements along the Games Route Network (GRN) in preparation for the 2028 Olympics, particularly those enhancements that will have legacy benefits beyond the Games. *Project example: Game Route Network Bus Priority Enhancements #2051*	Near
3.6	Build out BRT corridor projects in Metro's BRT Vision & Principles Study, especially along heavily-traveled arterials such as Santa Monica Boulevard, Sepulveda Boulevard and others. *Project examples: Atlantic Corridor BRT #2052 and Venice Boulevard BRT #2054*	Mid
3.7	Complete bus lane improvements and dedicated lane infrastructure on core South Bay arterials. *Project examples: Arbor Vitae Bus Lane #2055 and Hawthorne/La Brea bus lane #2056*	Mid
3.8	Invest in Regional Commuter Rail improvements through the range of strategies identified in Metro's LRTP.	Mid
3.9	Complete the build out of the planned rail system expansion to offer a more integrated and connected system across the Corridor and throughout the region.	Long

Expand the active transportation network.

By expanding the active transportation network, people will have more options for using non-motorized modes for local trips within the I-405 Corridor—particularly short trips that are less than five miles, which make up 80 percent of trips within the Corridor. Active transportation includes walking, biking, scooters, skateboarding and other human-powered modes. Investing in active transportation is important not only because it reduces car trips, but because it is healthy, affordable and fun. At the onset of the COVID-19 pandemic, active transportation—both for utilitarian and recreational travel—skyrocketed across LA County and the US. In response, municipalities implemented "slow streets" to provide more space for people using active modes. However, existing active transportation infrastructure within the I-405 Corridor is significantly lacking. Where infrastructure does exist, it is often disconnected and unprotected; for example, bike lanes without a buffer from high-speed vehicular traffic, and bike lanes that end at city boundaries and are not coordinated between jurisdictions or even throughout a subregion. This strategy aims to build on the growing excitement around active transportation and address these core challenges by investing in permanent, protected, safe and continuous active transportation networks across the Corridor.

Strategy 4—Expand the active transportation network		**Timeline**
4.1	Prioritize closing small but critical gaps in the active transportation network.	Near
4.2	Focus improvements in areas where there is high active transportation commuting and limited existing active transportation facilities, such as the SFV and parts of Long Beach. *Project example: Route 1 Class-IV Bike Lane between Long Beach Traffic Circle and the LA City Limit #0948*	Near
4.3	Invest in protected bicycle infrastructure along key corridors (Class I and IV). *Project example: UCLA Ronald Regan/ Santa Monica Hospital Bikeway Connection #1346*	Near
4.4	Invest in bicycle and pedestrian safety improvements at high-crash locations (new and enhanced crossings, Leading Pedestrian Intervals (LPIs), adding buffers to bike lanes, etc).	Near
4.5	Expand safe and secure bike parking and provide self-service bike maintenance facilities.	Near
4.6	Improve ADA accessibility around transit and rail stations. *Project examples: Metro Rail/BRT ADA Tactile Guidance Systems #2069 and Systemwide ADA Accessibility Improvements #2070*	Near
4.7	Build out Mobility Plan 2035 Enhanced Bicycle Network and Enhanced Pedestrian Network. *Project examples: Mobility Plan 2035 Bicycle Enhanced Network #1227 and Mobility Plan 2035 Pedestrian Enhanced Districts #1230*	Mid

4.8	Build out Complete Streets corridors, including the I-710 complete streets improvements and along the corridors of Imperial, Atlantic, Florence, Artesia, and Lakewood/Rosemead.	Mid
4.9	Invest in improvements in the Metro ATSP, Great Streets Initiative, Safe Routes to School, and Vision Zero plans.	Mid
4.10	Expand first/last mile connections. *Project example: J Line Harbor Gateway Transit Center, Mobility Hub and Park and Ride #2050*	Mid
4.11	Work with Gateway Cities implement the Strategic Transportation Plan 50 bike corridors and the Westside Cities' Pedestrian and Bike Network.	Mid
4.12	Complete the LA River Bike Path in the San Fernando Valley Gap Closure Project.	Mid
4.13	Expand the trail network within the Corridor to promote active transportation for health and recreational purposes. *Project example: Open Space Corridor Multiuse Trails Plan #1298*	Mid

Reduce racial and economic disparities in transportation benefits and burdens.

Multiple communities along the I-405 Corridor are highly racially segregated, with significant disparities across income, health, housing, services, education, and access to safe, affordable and reliable mobility. While Metro's Equity Platform serves as an important starting point for directing transportation investments to underserved communities, stakeholders were clear that simply investing in infrastructure in EFCs is not enough. Improvements must target trips that are being taken by people who live in Metro-defined EFCs, such as those serving key job and activity centers (LAX, UCLA, large commercial corridors) in the I-405 Corridor. As noted previously, roughly 40 percent of all trips coming in and out of the Corridor are from EFCs in nearby Central City neighborhoods and Inglewood—directly east of the study area. Projects and programs that improve travel times, convenience and affordability across all modes that serve these trips will be critical to advancing regional equity goals.

Additionally, as advancing equity requires that we not only deliver benefits but also reduce burdens, remediating past harms and promoting environmental justice is an equally important element of this strategy. For example, investing in zero-emissions vehicle technology and other elements of sustainable transportation that improve health and wellbeing, particularly for those who have been most harmed by transportation investments of the past will help further environmental justice.

Strategy 5—Reduce racial and economic disparities in transportation benefits and burdens		**Timeline**
5.1	Increase bus service frequency, speed and reliability along routes serving EFC trips within and to the I-405 Corridor (SFV, Inglewood, Long Beach, and to/from Downtown LA).	Near
5.2	Target active transportation investments and safety improvements in EFCs.	Near

5.3	Direct managed lane/ExpressLane program subsidies to no- and low-income households and individuals within the Corridor.	Near
5.4	Coordinate with local municipalities on anti-displacement measures to pair with transportation investments, especially in areas like Inglewood that are rapidly undergoing gentrification and displacement.	Near
5.5	Integrate environmental justice (health and air quality measures) into all projects along the I-405 Corridor, including the decarbonization actions outlined in Strategy 6.	Mid
5.6	Build out rail and transit projects that improve access within EFCs and for EFC trips (regional rail service and capital improvements). *Project examples: North San Fernando Valley Transit Corridor #0928 and C Line (Green) Extension to Torrance #0608*	Mid
5.7	Implement a fare-free transit program for no- and low-income transit riders.	Mid
5.8	Implement regional active transportation facilities that serve EFCs such as the LA River Bike Path and the South Bay Open Space Corridor Multi-use Trail Plan.	Mid

Decarbonize mobility options.

Investing in sustainable mobility options that are low or no-emissions is essential to reducing GHG emissions and improving air quality along the I-405 Corridor. California has some of the most aggressive targets and supporting legislation to move the state toward a zero-emission future. Decarbonizing the transportation sector means continuing incentives and supportive infrastructure for vehicle electrification; electrifying transit systems; investing in truck, port, and other clean freight solutions; and development of fuel-cell technologies and expansion of electric shared mobility options such as e-bikes and e-scooters. The California Air Resources Board (CARB) 2020 Mobile Source Strategy forecasts that the number of plugs required in LA County would need to increase by more than 40 times by 2030 to support future targets for electric vehicle adoption. While decarbonizing mobility options is essential to meeting our sustainability goals, vehicle electrification alone will not alleviate congestion. This strategy must be paired with demand management solutions that focus on more efficient ways to use our existing roadway space.

Strategy 6—Decarbonize mobility options		**Timeline**
6.1	Invest in EV charging infrastructure for personal and commercial vehicles traveling along the I-405 Corridor. *Project example: Zero Emission Technologies for Bus Vehicles and Electric Charging Infrastructure #1243*	Near
6.2	Expand the BlueLA EV carshare system. *Project example: Regional Carshare Networks Expansion in LA County #1239*	Near

6.3	Develop a plan to ensure charging infrastructure and access to ZEVs is equitably distributed throughout Corridor communities.	Near
6.4	Continue transit fleet electrification (Metro and municipal transit providers) and charging infrastructure/clean energy generation. *Project examples: Gtrans Solar Energy Generation/Bus Fueling Infrastructure Project #2047 and the LA County Transit Fleet Electrification #1260*	Mid
6.5	Coordinate across jurisdictions to provide corridor-wide EV car-sharing options.	Mid
6.6	Establish a VMT mitigation bank/exchange to achieve VMT reductions and reduce transportation associated GHGs.	Mid
6.7	Electrify truck fleets and Port terminal equipment. *Project example: On Dock Railyard Expansion to Accommodate Electric Operated Rail-Mounted Gantry Cranes #1265*	Mid

Facilitate efficient and sustainable goods movement and local deliveries.

As noted, truck movements are expected to continue to increase due expansion of the SPB ports along with the anticipated growth in e-commerce and local deliveries. Without action, increased goods movement will exacerbate congestion and air pollution, with the Corridor's most vulnerable populations facing the greatest burdens. Facilitating sustainable, efficient, and safer goods movement is a critical part of this plan. That will include measures such as focused grade separations over rail, improvements along the I-710 Corridor both north and south of I-405, investing in clean air vehicles and electric trucks, and more efficient curb management to accommodate the increased delivery of goods. Many of the improvements within the I-405 Corridor are located along Metro's Countywide Strategic Truck Arterial Network (CSTAN), and are in alignment with Metro's Goods Movement Strategic Plan, which focuses on five core initiatives including equitable goods movement, expanding clean trucks and urban freight delivery, developing a Southern California Rail Investment Partnership, and building logistics and workforce competency.

Strategy 7— Facilitate sustainable and efficient goods movement		**Timeline**
7.1	Implement applicable goods movement plan programs, policies and projects including the City of LA Mobility Plan 2035, the Metro Countywide Strategic Truck Arterial Network and the Goods Movement Strategic Plan, and freight TDM strategies identified in the MCP. *Projects examples: The Mobility Plan 2035 #1232, Investment in Regional Significant Projects and Programs in the Metro 2021 Goods Movement Strategic Plan #1245, Engagement with Freight Businesses to Plan for the Olympics #2065*	Near
7.2	Develop truck route system plans at the county and local levels to manage impacts of truck movements.	Near
7.3	Promote programs that encourage pick-up centers, bike couriers, and other sustainable alternatives to truck last-mile deliveries.	Near

7.4	Implement grade separations including along the Alameda Corridor, in and hear the Ports of LA and Long Beach and other applicable locations to mitigate truck/auto/pedestrian and bike conflicts. *Project example: Rail/Truck Grade Separation at Alameda Corridor Southern Terminus and Terminal Way #1264*	Mid
7.5	Electrify truck fleets and Port terminal equipment. *Project example: On Dock Railyard Expansion to Accommodate Electric Operated Rail-Mounted Gantry Cranes* #1265	Mid
7.6	Implement curb management strategies to accommodate growing demand for e-commerce and urban freight delivery.	Mid
7.7	On-dock and near-dock railyard improvements to facilitate more efficient movement of cargo containers and reduction of drayage truck trips at both Ports including the Pier B Railyard in POLB. *Project example: Rail Enhancements along the Countywide Strategic Truck Arterial Network #1280*	Long
7.8	I-710 Corridor improvements in and around the I-405 and I-710.	Mid Long

Leverage emerging technologies.

In addition to traditional infrastructure projects, the use of emerging technologies will be increasingly important in the I-405 Corridor. Traditional improvements, such as road repaving, restriping, reconfiguration and rehabilitation will also have elements of technology built into them. In lieu of adding capacity, Caltrans is very interested in implementing technology solutions that use existing roadway space more efficiently, in particular, in the area near LAX and Inglewood. This would include elements such as dynamic ramp meters with real-time traffic assignment based on congestion and bottlenecks, additional changeable message signs and other improvements to help traffic flow during special events in Inglewood and when LAX travel is high.

The I-405 Corridor, like the rest of the transportation system, must begin to prepare for CAV adoption through the planning, design and implementation of supportive infrastructure. This includes improvements to signals and ITS infrastructure, and ICM strategies such as advanced road markings, advanced traffic operations centers, signage readable by vehicles, improved wireless communications systems, road sensors, advanced parking systems, and many other roadway retrofits. While these may not be short-term improvements that will be competitive for funding in the immediate future, they must be planned as more CAV capabilities emerge.

Strategy 8—Leverage emerging technology		**Timeline**
1.1	Upgrade and enhance communication systems along I-405 and connecting freeways and arterial interchanges including ramp system improvements, transportation management systems improvements and information systems such as enhanced dynamic messaging. *Project examples: Route 405: Ramp Metering System (RMS) Upgrades #1119, Route 405: Transportation Management Systems (TMS) Upgrades, #1171, Route 405: Installation of TMS #1173*	Near

1.2	Pilot congestion pricing along I-405 and other connecting freeways.	Mid
1.3	Invest in new and enhanced infrastructure to support all five levels of vehicle automation including enhanced lane markings, machine readable signage, fiber optic connections, sensors, smart traffic control devices, smart parking infrastructure.	Long

Provide a safe, resilient, and well-maintained multimodal transportation system.

Many of the previous strategies will not be possible if we do not maintain our existing multimodal infrastructure assets in a state of good repair. In addition to traditional state of good repair improvements such as re-paving, this means making safety-related improvements for all road users and implementing Vision Zero and Safe Routes to School plans that are focused on the most vulnerable roadway users. Safety is also a critical element of congestion reduction (as 50 percent of freeway non-recurrent congestion is caused by crashes). While many safety projects are not primarily oriented toward congestion reduction, they are important projects that can be combined with others to enhance safety along the Corridor. Safety is critical for quality of life, and this strategy aligns with the U.S. Department of Transportation's National Roadway Safety Strategies (NRSS) to ensuring our approach addresses safety holistically and results in safer people, safer roads, safer vehicles and safer speeds.

This strategy also includes projects that are focused on resilience, such as seismic improvements, stormwater management, wildfire prevention measures, and emergency response and evacuation. These will be essential as we face growing impacts of climate change. A core element of increasing resiliency is increasing the number of multimodal options that people can rely on. It also means investing in a robust goods movement network that keeps goods flowing in and out of the region, especially during unexpected events such as the COVID-19 pandemic.

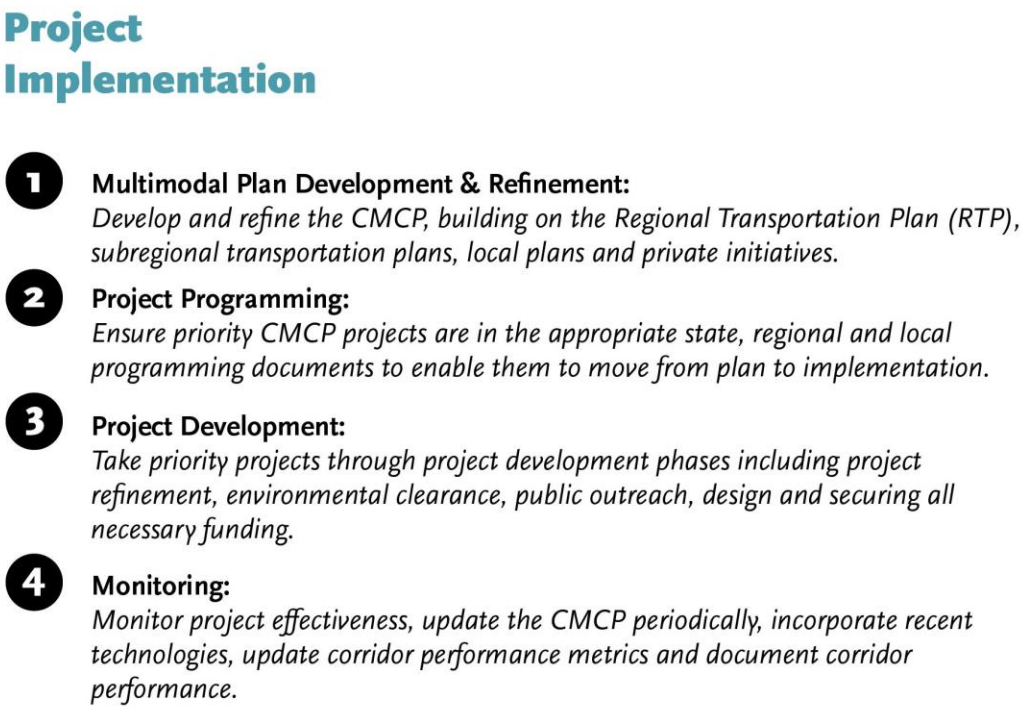
Strategy 9— Provide a safe, resilient, and well-maintained multimodal transportation system		**Timeline**
9.1	Implement state of good repair projects such as repaving, rail and transit infrastructure upgrades, detection repairs, and rehabilitation along the I-405 freeway and corridor arterials consistent with the Caltrans SHOPP. *Project examples: Pavement rehabilitation on the I-405 between Venice Blvd. and I-101 #1155, Repair and Upgrade Pump Stations #0954, Route 107 curb upgrades to meet ADA standards #1046*	Near
9.2	Rehabilitate signage and markings (pavement and otherwise) to improve accessibility and navigation within the Corridor. *Project example: Install pavement delineation and overhead sign guides at Los Alamitos Traffic Circle (SR 1 and Lakewood Blvd.) #0949*	Near
9.3	Develop a corridor-wide plan for "cool-off" centers for people walking, biking, and rolling during extreme heat events.	Mid
9.4	Build out drainage and other stormwater management projects along the Corridor to help cope with extreme weather events.	Mid
9.5	Implement seismic upgrades to prepare the Corridor for potential future earthquakes.	Mid

	Project example: Seismic Retrofit of I-405/710 #1128	
9.6	Larger-scale safety improvements projects (such as countywide Vision Zero efforts and Safe Routes to School projects).	Mid
9.7	Provide additional grade-separated crossings over the I-405 freeway that serve all Corridor users.	Long

How we will implement the plan.

The I-405 CMCP is targeted to recommending a balanced set of improvements across all modes while also addressing environmental, equity and other concerns in the Corridor. Again, we will not be able to build our way out of congestion, but implementing this plan will result in better use of our existing transportation system, and more options to get around the Corridor in a way that is safe, accessible, and convenient. However, to be successful, the best projects must be implemented, and the corridor performance metrics must be monitored on an on-going basis to ensure the plan is achieving the desired goals.

Comprehensive Multimodal Corridor planning is undertaken to help inform the decision-making process and provide communities with an overall vision for the future of the Corridor including guidance and coordination for future improvements necessary to meet plan goals. CMCPs are intended to be planning-level documents and as such they are not intended for programming of improvements nor for detailed project development. The CTC guidelines for developing CMCPs do not specifically lay out the steps to be taken for implementation, but for the I-405, plan implementation will include the steps shown in the figure below. These **include Multimodal Plan Development and Refinement, Project Programming, Project Development and Monitoring and Reporting.** Moving beyond planning and the CMCP process is critical to achieving corridor goals and enhancing multimodal opportunities.



Multimodal Plan Development and Refinement – Transportation system plans such as this plan and other multimodal plans cannot be developed once and then remain static. Corridor needs, conditions, technology and regional priorities continue to evolve after the CMCP is adopted. Per the CMCP guidelines, the plan may be used for more than one SCCP cycle but must be updated every four to five years. When that update occurs, all of the other changes to related state, regional and local plans must also be incorporated into the CMCP assessment.

Refinement to the CMCP will need to be conducted as projects advance in their development, or new transportation needs emerge. While many of the projects described in the CMCP are very well-defined and are well along in both shovel-readiness and shovel-worthiness, others are less defined but still may be important projects for addressing the transportation needs of the Corridor. Those projects will evolve in terms of their readiness and as more detail to those improvements emerge, their performance metrics will change, and they may become more viable candidates for high priority implementation. In addition to updates and refinements to the CMCP, other plans such as the SCAG Regional Transportation Plan, subregional agency plans (San Fernando, West Side Cities, South Bay Cities and Gateway Cities) and local plans of the county and corridor cities continue to change over time. The plans and programs of all of these agencies were central to the development of the CMCP. The future changes and refinements to those plans will affect the Corridor and must be integrated with updates to the CMCP.

Ongoing stakeholder engagement will be required to support transitioning the plan into implementation as well as monitoring and updating the plan accordingly. A key part of the CMCP implementation will be to continue to work closely with all of the Corridor stakeholders, including those who participated in the stakeholder outreach process as well as others. For example, working closely with Corridor jurisdictions to develop and implement comprehensive Active Transportation Plans in each city and the County to provide a seamless network of bicycle facilities that can be used as an alternative to driving for the many short trips in the Corridor. Cities will continue to develop new Active Transportation Plans; transit providers will continue to refine their transit plans and these systems do not end at jurisdictional boundaries. As they change and evolve, so must the CMCP and its associated list of project recommendations and priorities.

Project Programming – As stated, the CMCP describes the Corridor conditions, goals and objectives for improvements and develops recommended future improvements necessary to meet the stated plan goals. Incorporation of a project or set of strategies in the CMCP does not ensure a project or improvement will be ready for implementation. The CMCP by itself is not a programming document. The projects must also be part of other programming at various levels including state, regional, local agencies, or even public-private partnerships which may move the project from planning to implementation. One outcome of the CMCP is a preferred list of transportation projects and programs that perform highest in shovel-readiness and shovel-worthiness. Agencies and jurisdictions can also include projects from this list in their local capital improvement plans or programs. Typically, these are short-range plans (usually four to 10 years) that identify capital projects and allocate capital funds as approved by the jurisdiction's elected officials. These plans and programs are where the projects get promoted for implementation—not through the CMCP alone.

The Statewide Transportation Improvement Program (TIP), is a four-year, multi-year, intermodal program of transportation projects across the state. Local projects on state highways or other projects that require state or federal funding must be included in the state's TIP before receiving

state or federal dollars to fund project phases and construction. Thus, as noted, simply being in the CMCP does not ensure that a project will be ready for implementation. Continued monitoring and coordination with all other stakeholder agency programming documents, such as the TIP, corridor city capital improvement programs (CIP), corridor city General Plans, short- and long-range transit plans, Active Transportation Plans, Metro's LRTP and other relevant programming documents is required to ready projects for implementation. Inclusion in programming documents and the Regional Transportation Plan is an important criteria for many funding programs. While a project may not be captured in an agency programming document now, it may be integrated in the future, and once it does so, it will be eligible and potentially competitive for funding. Continued coordination with all applicable programming processes and documents will be critical for putting these projects on a path to be fully funded and delivered. This can work in both directions, with the CMCP evolving to match changing agency programming documents, as well as agency programs using the CMCP to determine which multimodal projects to include.

Project Development - Project development includes determining the precise location, alignment, and preliminary design of transportation facilities or improvements included in the CMCP and other programming documents as noted in the section above. To be ready for implementation, many of the improvements will require further decision-making, design and refinement. For studying alternatives and determining a project's scope, partner agencies such as Caltrans and Corridor cities conduct a review and approval process that is consistent with their own guidelines. Caltrans has a very detailed and clear project development process that must be followed for any projects on the state highway system and local jurisdictions have their own processes they follow to first define a project concept and advance it for further development. Ultimately, ongoing stakeholder engagement in these processes will inform project scope determinations, and ensure the intended benefits are responsive to the needs of communities they serve. Working through these processes with Corridor stakeholders and project delivery partners will put projects on track for implementation.

Part of the project development process is also securing all of the necessary funding needed for the projects or set of improvements. In addition to SB-1 related grant programs (SCCP and TCEP), funding for transportation improvements is available through a series of other federal, state and local sources. Depending on the source of funding, eligibility for funds varies from project type, scope, benefits and phase. Some funding programs allocate resources through competitive grant processes or other discretionary means, while other funds are distributed by formula to state, regional or local governments. Once the CMCP is adopted, it can serve as the source for guiding the delivery of CMCP projects across a wide range of funding opportunities at all levels and informing prioritization of projects for the most competitive funding opportunities.

Projects that are considered the highest priority for competitive grant funding need to meet a high bar in terms of indicating their merits and deliverability. As the project list included in this CMCP covers a long planning horizon, many of the projects captured are unable to demonstrate readiness, project development milestone achievements, or quantify project benefits in order to compete for competitive grants for the most immediate grant funding cycles. For the projects that are considered the highest priority, descriptions of the project delivery plan will be required, including a description of the known risks that could impact the successful implementation of the project and the response plan of the known risks. The risks considered should include, but not be limited to, risks associated with deliverability and engineering issues, environmental impacts and funding commitments. For high priority projects, project cost

estimates will also be part of project development, which includes the amount and source of all funds committed to the project and the basis for concluding that the funding is expected to be available. Finally, implementation will require that projects move forward into the last step, which is project development and includes final design and approval. This will take different forms depending on the project and sponsor agency, but in all cases it will require preliminary and final design and approval by the lead agencies.

Monitoring and Reporting – An important part of the implementation process is ongoing reporting on Corridor performance to evaluate the effectiveness of recommended projects and strategies over time. Corridor objectives may also be re-assessed and refined by the Corridor team and stakeholders. The Corridor plan may also identify triggers and events that may necessitate the update of the plan and a reassessment of strategies. Examples of conditions that may warrant revisiting the plan include technological disruptions or advancements, major new economic, population or environmental changes in the Corridor, significantly worsening congestion or significant new regional or statewide planning initiatives.

The results of the corridor planning process are revisited over time by monitoring corridor performance indicators and evaluating the effect of implemented projects and strategies on those indicators. The lead agency and Corridor team need to ensure mechanisms are in place for ongoing monitoring and evaluation. The mechanisms should include a plan for monitoring of corridor performance indicators, regular updates of the corridor performance assessment and publication of results. When updating the CMCP's performance assessment results, objectives and other approaches to the plan should be revisited as well to ensure the right issues are still being addressed. The following key tasks are included in the monitoring phase:

- **Develop Corridor Performance Monitoring Plan:** Developing a Corridor Performance Monitoring Plan ensures a process is in place to regularly conduct corridor performance assessments and report on corridor performance indicators.
- **Evaluate Corridor Performance Effectiveness:** Determine the ongoing effectiveness of implemented strategies by regularly updating the corridor performance assessment initially done earlier in the corridor planning process.
- **Assess and Refine Corridor Objectives:** Following the latest results of the corridor performance assessment, the corridor team and agency stakeholder partners should meet to discuss the results and determine if any refinements or adjustments should be made to the corridor objectives, performance assessment or evaluation approach.
- **Publish Corridor Performance Assessment Results:** The results of regular corridor performance assessments should be published to monitor progress over time and help keep corridor partners engaged in the outcome of the corridor planning process.

The development and adoption of the I-405 CMCP is just the starting point—the beginning of a collaborative process where agencies and community-based organizations continue to work together to deliver on this plan. Using this roadmap, Metro and our partners can get to work on these improvements that will not only meet the demands of today and those anticipated in the future, but also solutions that will help us on our path to realizing a more equitable, sustainable, efficient and connected I-405 Corridor.

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