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The 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments

Aviation & Airport Ground Access

TECHNICAL REPORT

DRAFT | NOVEMBER 2, 2023

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INNOVATING FOR A BETTER TOMORROW

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1. EXECUTIVE SUMMARY

The SCAG region is home to eight commercial airports with scheduled passenger service, seven government/military airfields, and over 30 reliever and general aviation airports. Daily, the region's airports provide service to hundreds of thousands of air passengers, and thousands of tons of cargo. Moreover, the airports in the SCAG region employ approximately 60,000 people onsite and generate over 700,000 aviation service jobs. Therefore, thousands of passengers, employees, and goods are traveling the region's roads, highways, and transit systems to get to and from the airports.

As a metropolitan planning organization (MPO), SCAG does not have any regulatory, developmental, operational, or planning authority over the airports. Rather, SCAG is primarily a regional surface transportation planning agency that maintains a list of airport ground access projects and a consultative and collaborative relationship with the airports. Therefore, SCAG is focused on air and passenger cargo activity from the perspective of how traffic coming and going from the airports affects the region's roads, highways, and transit system. One critical aspect of SCAG's role in aviation systems, airport ground access, and transportation planning is preparation of the Aviation and Airport Ground Access Technical Report of the 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal 2024).

In preparing the Aviation and Airport Ground Access Technical Report, SCAG staff gathered data from the airports and multiple other sources, conducted analyses and engaged the Aviation Technical Advisory Committee (ATAC). Based on information and data collected for Connect SoCal 2024, the following key activities and trends related to the SCAG region's airports, and air passenger and cargo demand can be highlighted:

The SCAG region aviation system is one of the largest and most expansive in the nation and the world.

- The six-county SCAG region is home to an expansive multiple airport system that includes: eight commercial airports with scheduled passenger service, Hollywood Burbank (BUR), Imperial County (IPL), Long Beach (LGB), Los Angeles International (LAX), Palm Springs International (PSP), Ontario International (ONT), Santa Ana (SNA), and San Bernardino International (SBD); seven government/military airfields; and over 30 reliever and general aviation airports.
- Over 80 passenger airlines offer scheduled service from at least one of the SCAG region's eight commercial service airports to over 200 destinations, including service to almost 50 counties and over 40 states in the United States.
- The SCAG region airports house over 30 air carriers who provide cargo service to over 100 destinations.

A historically active region in terms of air passenger and cargo demand, the SCAG region was impacted by the COVID-19 pandemic.

- In 2022, approximately 91.5 million annual passengers (MAP) traveled to and from the SCAG region's airports.
- In 2019, one (LAX) of the airports in the SCAG region was ranked by the Federal Aviation Administration in the top five nationally, two (LAX, ONT) in the top 10, four (LAX, ONT, SBD, RIV) within the top 100, and LGB at 105, for landed cargo weights.

- In 2022, over 3.68 million tons of air cargo were transported to and from the SCAG region's airports.
- Personal private vehicles and transportation network companies comprised approximately 70 percent of the SCAG region's airport pickups and drop-offs.
- Approximately one percent of airport passengers used public transit.
- Despite 9/11 and the Great Recession, air passenger and cargo demand in the SCAG region saw steady growth from 2000 to 2019.
- General aviation operations trended steadily down from 2000 to 2008 and remained relatively flat from 2009 onward.
- Despite increases in air passenger and cargo activity in the region, aircraft operations have declined steadily. Overall, aircraft operations in the region decreased by an annual rate of 1.36 percent, or 26 percent total, from 2000 to 2022.
- The difference between air passenger and cargo activity versus aircraft operations can be explained by the utilization of larger and newer model aircraft, planes with smaller seats and more rows, and airlines running at higher load factors.
- Despite being the second most active region for air passenger activity behind New York/New Jersey prior to the pandemic in 2019, the SCAG region fell behind New York/New Jersey, Atlanta, and Chicago in 2020 and 2021.
- Although already ahead of the Atlanta, Bay Area (San Francisco), Chicago, District of Columbia, and New York/New Jersey metropolitan regions, the COVID-19 pandemic resulted in the SCAG region surging further past the other metropolitan regions in terms of air cargo demand.
- Air passenger demand in the SCAG region was practically nonexistent in the early months of the COVID-19 pandemic and lockdown. During March and April 2020, air passenger activity in the region was almost 100 percent below the activity of the corresponding months in 2019 Throughout 2020, air passenger activity in the SCAG region was slow to recover, trending below 2019 levels by over 60 percent.
- Domestic air passenger demand recovered faster than international air passenger demand. After falling by almost 100 percent (versus the same month in 2019) in the early months of the COVID-19 pandemic, domestic air travel was almost within 20 percent of 2019 levels by July 2021. Whereas international travel was still below 2019 levels by approximately 60 percent at that same time. As of December 2022, both domestic and international travel in the SCAG region was near 20 percent of 2019 levels.
- Starting in spring of 2021, air passenger activity began to rapidly increase. By fall of 2022, air passenger demand in the SCAG region was within 10 percent of 2019 levels.
- Airfare in the SCAG region have remained relatively flat both before and after height of the COVID-19 pandemic. From 2019 until 2022, airfares in the region remained at an average of $334.87. In contrast, the average inflation adjusted airfare for the United States was $355.68 for that same period.
- Unlike passenger activity, air cargo demand surged during the COVID-19 pandemic, and from 2020 to 2022, air cargo activity in the region has not experienced significant drops.
- As early as May 2020, air cargo activity levels in the SCAG region were ahead of the corresponding months in 2019. In February 2021 and February 2022, air cargo activity in the region was almost 30 percent greater than in 2019.
- Over 700,000 jobs are generated by airport services in the SCAG region, with over 10 percent directly located on-site.

- The SCAG Region Airport Forecast Total for the Connect SoCal 2020 forecast year (2045) was 197.14 MAP, whereas the SCAG Region Airport Forecast Total for the Connect SoCal 2024 forecast year (2050) is 182.44 MAP.
- The 2021 FAA Terminal Area Forecast (TAF) estimated a higher air passenger demand (210.64 MAP) for the 2050 horizon year than the SCAG region commercial airports forecasted (182.44 MAP) for 2050. Applying the FAA 2021 TAF estimated growth rate (1.93) for the commercial service airports in the region, compounded, to the 2019 SCAG region base year total for commercial airport passengers (116.53 MAP) until the 2050 horizon year will calculate 210.64 MAP (I.e., the FAA 2021 TAF forecast for the SCAG region commercial service airports in 2050). The FAA TAF (210.64 MAP) is an estimate of air passenger demand based on historical passenger trends and forecasts for the economy and airfare. In contrast, the SCAG region airport passenger forecasts provided to SCAG by the airports (total 182.44 MAP) reflect airport planning and operations, which include capacity constraints and airline agreements.
- Demand for air passenger travel will likely exceed supply/capacity in the SCAG region before 2050. The FAA TAF estimate of 210.64 MAP for 2050 reflects anticipated air passenger demand overall, regardless of available service levels. Whereas the total for the passenger forecasts provided by the airports for 2050 of 182.44 MAP reflects airport planning and operations (I.e., the services that the airports can provide and project providing). Thus, the discrepancy between the FAA TAF and the SCAG region total airport forecasts for 2050 reflect a higher demand for air passenger travel than what the airports can supply.

2. REGULATORY FRAMEWORK

2.1 MPO PRIMARY ROLE IN AVIATION SYSTEMS PLANNING IS AIRPORT GROUND ACCESS AND SURFACE TRANSPORTATION.

As an MPO, SCAG is primarily a regional surface transportation planning agency. Therefore, SCAG is focused on air passenger and cargo activity from the perspective of how traffic coming and going from the airports affects the region's roads, highways, freeways and transit systems, and how to improve ground transportation access to the airport. The airports are significant surface trip generators in the region and must be planned for within the regional transportation system.

Some MPOs in California, including SCAG, are statutorily required to address airport ground access improvements in their regional transportation plans (RTPs). More specifically, California State Law (Cal. Govt. Code Section 65081.1) requires that regions that contain a primary air carrier airport (i.e., at least 10,000 annual scheduled passenger boardings) include an airport ground access improvement program within the MPO RTP. The SCAG region contains seven airports that exceed the minimum threshold for primary carrier status. Normally, MPOs address surface transportation planning to the airports by highlighting ongoing and proposed airport ground access projects in their RTPs, and by maintaining an updated list of ongoing and proposed transportation projects, including airport ground access projects, in their RTP project list. Some MPOs, including SCAG, have dedicated aviation and airport ground access technical reports or appendices.

Beyond the ground access improvement program/list of airport ground access improvement projects, there is some flexibility in what can be included as part of the aviation element of an MPO RTP. The aviation element of Connect SoCal 2024, which features an aviation technical report, normally includes:

- Descriptions of the major commercial service airports in the region.
- Air passenger and cargo activity data and forecasts (from the perspective of the impact of air passenger and cargo traffic on the surface transportation system).
- Discussion of the economic benefits of the region's airports.
- A List of airport ground access improvement projects.

By facilitating airport ground access planning, Connect SoCal 2024 supports SCAG's collaborative role in aviation systems planning. SCAG's role in regional aviation systems planning is more of a collaborative and consultative one, as opposed to a regulatory or authoritative one. United States laws encourages MPOs to coordinate with other transportation planning agencies, including airports.

2.2 AIRPORTS AND THE FEDERAL AVIATION ADMINISTRATION (FAA)

As defined by law, an airport is any area of land or water used or intended for landing or takeoff of aircraft. Currently, in the United States, there are approximately 14,400 private-use (i.e., closed to the public) and 5,000 public-use (i.e., open to the public) airports, heliports, and seaplane bases. Of the 5,000 public-use airports, approximately 3,300 are included in the National Plan of Integrated Airport Systems (NPIAS). More specifically, airports can be broken down into three categories: commercial service, reliever and general aviation. Commercial service airports are publicly owned airports with at least 2,500 annual enplanements and scheduled air carrier service. A subcategory within commercial service airports are primary airports, which are commercial service airports with more than 10,000 annual enplanements. Reliever airports are airports designated by the Secretary of Transportation to relieve congestion at commercial service airports when needed (e.g., emergencies, rerouting from commercial service airports), and to provide more general aviation access to the overall community. Finally, general aviation airports are public-use airports that do not have scheduled service or have scheduled service with less than 2,500 passenger boardings each year[1]. General aviation airports have less capacity than reliever airports, and thus cannot provide relief for commercial service airports. The NPIAS contains all commercial service airports, all reliever airports, and select public-owned general aviation airports. Within the SCAG region, there are eight commercial service airports, 15 reliever airports, and 20 general aviation airports. Airports are generally owned by city or county governments and operated by airport boards, airport commissions, city councils, or county board of supervisors. The planning and operation of airports falls under the purview of the airports and the FAA.

The FAA oversees airport and aviation systems planning in the United States. The FAA's focus in airport and airspace planning is safety, and it establishes airport and airfield design standards. Any airports receiving or seeking to receive federal funds must have an FAA-approved airport layout plan (ALP).[2] For the most part, the FAA's focus in airport planning occurs "inside the fence," or on the terminal and airside (e.g., runways, tarmacs, hangars), and in the National Airspace System (NAS). However, FAA and airport planning also includes landside (e.g., transit stops, curbside drop-off and pickup, access roads), which impact the local and regional surface transportation system. The MPO's role in aviation systems planning is airport ground access and surface transportation planning to and from the airports. Therefore, a significant component of the MPO's role, including SCAG's, in airport ground access planning is to facilitate collaboration between the airports and the various surface transportation agencies, including local departments of transportation (DOTs), county transportation commissions (CTCs), and transit operators.

2.3 MPOS PROVIDE A COLLABORATIVE PLANNING, AND NOT REGULATORY, ROLE WITH AIRPORTS

MPOs have no regulatory, planning or operational authority over the airports. Development authority rests with the airports (i.e., airport sponsors retain authority over planning and development decisions) and the FAA. The FAA makes airport funding decisions based on national priorities. Moreover, airports are not required to incorporate MPO planning recommendations into their capital plans, and FAA funding decisions are not tied to MPO recommendations. Although 49 U.S.C. Section 47106(a)(1) gives the FAA/Secretary of Transportation the option of approving project applications for FAA Airport Improvement Program (AIP) funds based on an application's consistency with plans prepared by state authorized public agencies, including MPO RTPs, the decision to apply those recommendations is ultimately at the FAA's discretion. Hence, the aviation systems and airport ground access planning conducted by MPOs is not designed to guide, but rather complement, the planning efforts of the FAA, states and individual airports[3].

MPOs, including SCAG, play an instrumental role in facilitating collaborative planning between the airports and other transportation agencies, including state DOTs and county transportation authorities (CTAs) and CTCs. Communication, coordination and collaboration among agencies is a critical element of transportation planning. Federal law (23 U.S.C. Section134(g)(3)(A), Metropolitan Transportation Planning) encourages MPOs to consult with officials responsible for other types of planning activities that are affected by transportation in the area, including airport operations. Additionally, the FAA also encourages MPOs to work with the airports by assisting airport planners involving ground access to and from the airports. U.S. DOT FAA Advisory Circular 150/5070-6B provides guidance to airports on how to prepare airport master plans, including working with MPOs. More specifically, FAA Advisory Circular 150/5070-6B, 810, b, recommends that airports seek "assistance" from MPOs in major urban areas. The FAA identifies that one of the key activities and responsibilities for airports regarding the implementation of the airport plans includes agency coordination activities[4]. MPOs play a critical role in bridging the gap between "outside the fence" surface transportation planning and "inside the fence." And while not mandated, interagency coordination is highly encouraged by the FAA and a critical aspect of the Aviation Element of SCAG's RTP/SCS. However, it is important to restate that the recommended coordination does not equate to any planning or operational authority on the part of the MPOs over the airports. Rather, the MPOs play a facilitative and collaborative planning role by working with the airports on regional surface transportation planning and analysis.

2.4 OVERVIEW OF AIRPORT GROUND ACCESS, AVIATION SYSTEMS, AIRPORT LANDSIDE, AIRPORT TERMINAL, AIRPORT AIRSIDE, AND AIRSPACE PLANNING

2.4.1 AIRPORT GROUND ACCESS AND SURFACE TRANSPORTATION PLANNING: LOCAL DOTS, CTCS/CTAS, MPOS, STATE DOTS, FHWA, FTA.

Local and state DOTs, CTCs/CTAs, MPOs, and the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) work collaboratively to plan, construct and maintain, our surface transportation system, including ground access to and from the airports. Please see Mobility Planning Technical Report for more information on the federal, state, regional, county and local surface transportation planning processes. However, surface transportation planning in and around airports has always posed a unique challenge compared to traditional transit and highway planning, including

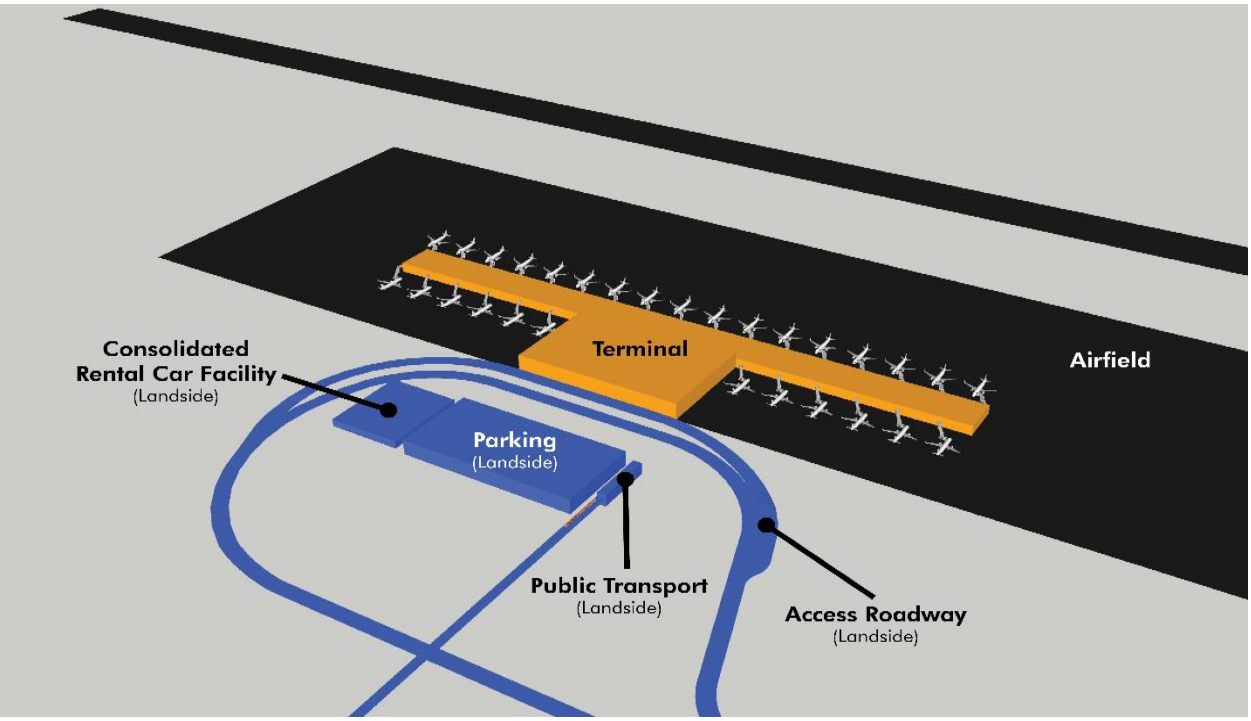
planning for transit and passenger rail stations. Due to jurisdictional issues that occur between on-airport property versus off-airport property matters, airport ground access planning requires additional collaboration and coordination across agencies.

Although a critical component to the nation's multimodal transportation system, airports historically have had limited direct involvement in the surface transportation planning process. They have traditionally focused on planning and operations on airport property. This centers on working with the FAA and have left surface transportation planning to local transportation agencies and CTCs/CTAs (Airport Cooperative Research Program Project 03-43: Integrating Airport Ground Access and Metropolitan Surface Transportation Planning Efforts, 2019)). However, although terminal, runway, tarmac, hangar and airspace matters are not directly linked to the surface transportation system, and thus out of the jurisdiction of surface transportation agencies, airport access roads, parking and curbside drop off and pickup, do have a direct impact on public roads, highways and freeways.

2.4.2 AIRPORT LANDSIDE (E.G., AIRPORT ACCESS ROADS, AIRPORT PARKING, CENTRAL TERMINAL AREAS CURBSIDE DROP-OFF AND PICKUP) PLANNING: AIRPORTS AND FAA, AND LIMITED MPO FOR PROJECTS THAT CONNECT TO PUBLIC ROADS.

Airport landside planning, versus terminal, airspace and airside planning, overlaps with airport ground access and surface transportation planning. Airspace is the portion of the atmosphere controlled by a country above its territory. The FAA oversees the National Airspace System (NAS), which is out of the jurisdiction of MPOs and local transportation agencies. Moreover, the airside area of airports is also outside of the jurisdiction of local transportation agencies and MPOs. The airside of an airport is used by aircraft for loading and unloading, storage and takeoffs and landings. Runways, tarmacs and hangars are part of the airside of an airport. Moving from the airside, airport terminals are where passengers board and disembark from aircraft and transfer to the airport landside and eventually surface transportation. Airport terminals do not handle aircraft and are thus often considered separate from airside planning but are also outside of the jurisdiction of MPOs. Surface transportation planning and airport planning start to overlap on the landside. The airport landside is commonly defined as those parts of the airport that do not handle aircraft[5]. As such, landside planning includes ground access facilities and infrastructure. Airport landside planning traditionally refers to the curbside, parking, central terminal roadways and airport ground transport system, which often connect to and impact public roads, highways and transit systems. Thus, landside planning often overlaps with the airport ground access and surface transportation planning conducted by the MPOs, CTCs, local DOTs, state DOTs, FHWA, and FTA.

Figure 1. Airport Airfield (Airside), Terminal, and Landside



Source: Jean-Christophe Dick, Aviation Specialist Principal, Environmental Science Associates (ESA). Terminal Planning Part I.

2.4.3 AIRPORT TERMINAL (E.G., TERMINALS, CUSTOMS, GATES) AND AIRSIDE (E.G., RUNWAYS, TARMACS) PLANNING: AIRPORTS AND FAA

Airport terminal and airside planning lies completely "inside the fence" of airport property and is thus outside of the jurisdiction of surface transportation agencies, including MPOs. Rather, terminal and airside planning (e.g., runways, tarmacs, hangars) is within the jurisdiction of the FAA, the airports and other partner agencies, including airport land use commissions. Critical components to airport terminal and airside planning are the FAA Airport Improvement Program (AIP) and Passenger Facility Charges (PFC). Funded by the Airports and Airways Trust Fund, the FAA AIP provides grants for the planning and development of public-use airports that are included in the NPIAS[6]. The PFC Program allows for the collection of fees up to $4.50 for every eligible passenger at commercial airports controlled by public agencies. PFCs are capped at $4.50 per flight segment with a maximum of two PFCs charged on a one-way trip or four PFCs on a round trip, for a maximum of $18 total, and are included with the price of the ticket. Airports use PFC fees to fund FAA-approved projects that enhance safety, security or capacity, reduce noise or increase air carrier competition[7]. The FAA AIP and PFC programs are critical for airport terminal and airside planning.

Whereas airport ground access and surface transportation projects, including some airport landside projects, are eligible for federal, state and local surface transportation funds, on-property terminal and airside projects do not receive FHWA or FTA funds. For instance, the intermodal transportation facilities, Los Angeles Metro stops, airport access roads and other surface transportation-oriented elements of the LAX Landside Access Modernization Program (LAMP) and Airfield Terminal Modernization Project (ATMP)

are included in the SCAG Project List Technical Report, but the terminal and airfield components of the ATMP are not. MPOs, including SCAG, do not play a role in AIP grant funding decisions or the PFC[8]. The role of MPOs is to facilitate airport ground access and landside (i.e., freeways, highways, roads) planning. However, transportation agencies and commissions, and MPOs, have no role in terminal, airside and airspace planning. Although surface transportation agencies do not have jurisdiction with on-property airport planning, local and state governments do provide input and oversight through county sponsored airport land use commissions.

2.4.4 LAND USE SURROUNDING AIRPORTS PLANNING: COUNTY AIRPORT LAND USE COMMISSIONS

Although airport terminal and airside planning falls under the jurisdiction of the airports and the FAA, airports must be mindful of the impacts of airport land use decisions and operations beyond the tarmacs, runways and terminals. California law requires that every county with an airport in its jurisdiction have an Airport Land Use Commission (ALUC). ALUCs protect public health, safety and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses (California Public Utilities Code Division 9, Part I, Chapter 4, Article 3.5, Sections 21670 – 21679.5). More specifically, ALUCs: assist local agencies in ensuring compatible land uses near all new airports; coordinate state, regional and local planning; prepare and adopt airport land use compatibility plans; and review the plans, regulations and other actions of local agencies and airport operators. ALUCs do not have jurisdiction over the operations of any airport[9]. One of the main mechanisms used by the ALUC is the Airport Land Use Compatibility Plan (ALUCP), which promotes and ensures compatibility between each airport in the county and surrounding land uses[10]. The ALUCP has a twenty-year planning horizon and should be updated every five to ten years to maintain consistency with general plans, specific plans, and airport master plans. Finally, as county-level agencies in the State of California, the ALUCs coordinate with the Caltrans Division of Aeronautics and the California Aviation System Plan (CASP).

2.4.5 AVIATION SYSTEM: STATE OF CALIFORNIA CALTRANS CASP AND AIRPORT SYSTEM PLANNING

In addition to working with the FAA and ALUCs, airport system planning in the State of California also includes the CASP, which is developed by the Caltrans, Division of Aeronautics. Caltrans' mission is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. Within Caltrans, the Division of Aeronautics focuses specifically on California's aviation transportation system. One of its duties is developing and updating the CASP. Introduced in 1989 when codified in California Public Utilities Code Section 21702, the purpose of the CASP is to better align aviation planning in California with the FAA and the NPIAS, and Caltrans's overall mission to positively demonstrate that aviation is an integral part of California's multimodal transportation system[11]. However, unlike the FAA, which has a regulatory and funding role with the airports, or the California Air Resources Board, which has an oversight role with the airports, the Caltrans Division of Aeronautics does not provide a regulatory or oversight role with the airports. Rather, it provides planning guidance and occasional funding to the airports.

2.4.6 AIRSPACE REGULATION: FAA, ICAO, EPA, CARB, SOUTHCOAST AQMD

THE FAA: AIR NAVIGATION AND AIR SAFETY

The FAA is the lead agency for airspace regulation, including overseeing aircraft air navigation, air safety and aircraft standards and certification. Created by the Federal Aviation Act of 1958, the FAA is responsible for the safety of civil aviation within the United States (U.S.). The FAA became part of the U.S. DOT in 1967 when it adopted its current name. Some of the FAA's major duties include regulating civil aviation to promote safety; encouraging and developing civil aeronautics, including new aviation technology; developing and operating a system of air traffic control and navigation; researching and developing the NAS and civil aeronautics; developing and carrying out programs to control aircraft noise and other environmental effects of civil aviation; and regulating U.S. commercial space transportation[12]. As part of the civil aviation and air safety role, the FAA oversees aircraft design standards, certification and recertification, based on various factors, including safety and environmental standards[13]. Safety and environmental standards have been a constant for FAA airspace and aviation systems planning, while other areas have changed and evolved over time.

The FAA's role no longer includes commercial and market regulation. Although aircraft flight paths and procedures fall within the FAA's authority as part of air traffic control and safety regulation, airline flight routes (i.e., airline airport origins and destinations) do not fall under the FAA. Following the Airline Deregulation Act of 1978, which removed certain aspects of federal control over the airlines, such as fares, routes and market entry of new airlines, the FAA lost any authority over determining where airlines flew from (origin) and flew to (destination). Ultimately, since 1978, the airlines have made their flight route and airport service determinations based on market factors[14]. Therefore, post-deregulations, the FAA's primary regulatory functions focus on aviation and aircraft safety, and environmental monitoring and regulation. As part of the safety and environmental regulatory functions, the FAA syncs its air safety and environmental efforts with the International Civil Aviation Organization (ICAO) internationally, and other federal agencies, such as the U.S. Environmental Protection Agency, domestically.

THE FAA: MONITORING AIRCRAFT NOISE

As part of its role to address the environmental effects of civil aviation, the FAA monitors aircraft noise. In 1976, the U.S. Secretary of Transportation and the Administrator of the FAA issued the Aviation Noise Abatement Policy (ANAP). The ANAP was the first comprehensive aviation noise abatement policy in the U.S. In defining the "aircraft noise problem," ANAP characterized aircraft noise exposure to a Day-Night Average Sound Level (DNL) of 65 to 75 weight decibels (dBA) in residential areas as "significant", and a DNL of 75 dBA or more as "severe". Furthermore, ANAP established that noise created by aircraft can negatively impact the quality of life for people that reside within a 65-community noise equivalency level (CNEL). A CNEL is a measure for the sound exposure a community experiences in an estimated 24-hour period. Thus, experiencing 65 or more dbA, or decibels A, for over 24-hours would exceed the ANAP standard. The ANAP thresholds were based on case studies of previous community responses to aircraft noise.

Following the ANAP of 1976, the Aviation Safety and Noise Abatement Act of 1979 (ASNA) was enacted in February 1980. The purpose of ANAP was to encourage airport operators to prepare and carry out noise compatibility programs. ASNA required the FAA to promulgate regulations to meet the following three key requirements:

- Establish a single, uniform, repeatable system for considering aviation noise around airport communities.
- Establish a single system for determining noise exposure from aircraft, which accounts for noise intensity, duration of exposure, frequency of operations, and time of occurrence.
- Identify land uses which are normally compatible with various exposures of individuals to noise.

To implement the requirements established under ASNA, the FAA then published, "14 Code of Federal Regulations (CFR) Part 150", which defines land use compatibility guidelines for aviation noise exposure. The CFR Part 150 guidelines consider land use compatibility for different uses over a range of DNL noise exposure levels, including the adoption of DNL 65 dBA as the limit for residential land use compatibility. As stated in the 1981 Federal Register Notice announcing CFR Part 150, the FAA's goal is "reducing substantially the number and extent of noise sensitive areas in the vicinity of airports that are subject to significant noise exposure."[15] Decades later, the enactment and implementation of ANAP and ANSA appear to have had positive results.

Due in part to the enactment and implementation of ANAP and ANSA, which have led to more stringent requirements and standards, aviation noise impacts have been mitigated by the efforts of the FAA. Since the mid-1970s, the number of people exposed to significant aviation noise exposure in the U.S. has declined from approximately seven million to just over 400,000 today. At the same time, the number of enplanements (each enplanement equals one person flying on a single commercial flight) has increased from approximately 200 million in 1975 to over 850 million today. In 1975, one person on the ground experienced significant noise exposure for every 30 enplanements, compared to today where more than 2100 enplanements are flown for every person on the ground experiencing significant noise exposure[16]. According to the FAA, the single-most influential factor in the decrease in exposure to aviation noise was the transition to quieter aircraft. Following the framework established by 14 CFR Part 36, the FAA has adopted increasingly stringent noise certification standards for new aircraft.

In summary, the areas around the airports experiencing significant sounds levels have been reduced through the following: the FAA noise certification standards; the development of new technology by aircraft and engine manufacturers; investments by U.S. airlines in newer, quieter aircraft; and mandates by the FAA and the U.S. Congress to retire older, noisier aircraft. Today's civilian aircraft are quieter than at any time in the history of powered flight, and the FAA, aircraft manufacturers and airlines, continue to work to reduce aircraft noise at the source. Moreover, today's aircraft are larger, have more passenger capacity, and are operating at higher load factors. Therefore, in addition to planes being quieter, they are also absorbing much of the increased passenger demand, resulting in decreasing and flattening aircraft operations. However, concerned communities and individuals should monitor aviation noise levels and impacts, including viewing the noise contour maps and visiting the noise abatement websites of the airports within their vicinity. The impacts of noise may vary from the community to the individual level. It is the goal of the FAA and the airports to mitigate those impacts across the board.

Per the Vision 100-Century of Aviation Reauthorization Act (Public Law 108-176), the airports are required to produce airport-level noise contour maps and make them available to the public[17]. Please use the following resources below for more information on aviation noise impacts, including some of the airport-specific noise management programs and contour maps:

- FAA: Airport Noise and Land Use Information, including Noise Exposure Maps (NEMs)
- FAA: Aircraft Noise Issues

- BUR: Noise Monitoring
- SNA: Access and Noise
- LGB: Noise Abatement website
- LAX: Noise Management
- ONT: Noise Management

THE FAA, CARB, AND SOUTH COAST AQMD: MONITORING AIRPORT AND AIRCRAFT EMISSIONS

Within the SCAG region, airport and aircraft emissions are addressed by the International Civil Aviation Organization (ICAO), Environmental Protection Agency (EPA), FAA, California Air Resources Board (CARB), and the South Coast Air Quality Management District (AQMD). On-site airport and aircraft emissions are outside of the jurisdiction of MPOs, including SCAG. Airport specific emissions, excluding surface transportation traffic coming and going from the airports, occur "on airport property, and aircraft emissions occur on the airside (e.g., runways, tarmacs) of airports and in airspace. Therefore, airport and aircraft emissions fall under the purview of a mix of federal, state, regional, and international agencies. ICAO is a specialized agency of the United Nations that sets international standards, including emissions, for jet engines. On the federal level, the EPA sets domestic air quality and emissions standards, and then the FAA enforces emissions standards for aircraft operating within the NAS.

The FAA addresses aircraft emissions primarily by establishing aircraft design and operating standards, which are then factored into aircraft manufacturer and operator certifications and recertifications. All passenger and cargo aircraft must be certified before manufacturing and flying, and recertified every three years of operating, by the FAA based on airworthiness (i.e., safety) and other standards, including environmental standards, such as emissions and noise (FAA Aircraft Certification, 2022). If an aircraft no longer adheres to safety and environmental standards, it will not be recertified. In addition to aircraft certification, the FAA addresses airport emissions by providing funding and grants to airports to develop sustainability plans[18]. The FAA generally does not monitor or enforce aircraft and airport emissions as they occur.

In California, CARB and the South Coast AQMD monitor airport and aircraft emissions. CARB focuses on reducing emissions from airport ground support equipment and on-site (airport transit vehicles. CARB works closely with local agencies and airport operators to develop innovative actions to further reduce pollution in and around airports. Furthermore, CARB works with federal and international agencies, such as the EPA and ICAO, on tighter aircraft standards for smog-causing pollution and greenhouse gases[19]. In addition to CARB, within Southern California, the South Coast AQMD is the air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino, counties. The area within the South Coast AQMD's jurisdiction of 10,743 square miles is home to over 16.8 million people–about half the population of the state of California. As expected, there is some overlap between CARB and the South Coast AQMD. Both CARB and the South Coast AQMD regulate and enforce air pollution regulations, including holding the right to conduct inspections of air pollution sources and the right to issue violations that can lead to penalties. An air pollution source can be a specific piece of equipment, a business, a government agency, or any other entity that creates air pollution. While there is some overlap, CARB is primarily responsible for the enforcement of trucks, buses, and other mobile sources statewide, and the South Coast AQMD is primarily responsible for the enforcement of facilities (i.e., stationary sources) within the South Coast Basin[20]. However, despite this regulatory authority, South

Coast AQMD and CARB generally take a collaborative approach with the airports and do not have authority over the airlines.

In order to address and mitigate airport emissions, the South Coast AQMD works with the airports on air quality improvement plans and memoranda of understanding (MOU). One of South Coast AQMD's primary tasks is developing an Air Quality Management Plan (AQMP) for the South Coast Basin. The AQMP is a regional blueprint for achieving air quality standards. To support the development of mobile source strategies for the AQMP, South Coast AQMD, working in conjunction with CARB, has established Mobile Source Working Groups, which are open to all interested parties[21]. Included in the South Coast AQMD Mobile Source Working Groups are groups for airports and aircraft. The South Coast AQMD works with the airports to develop MOUs, by which the airports identify different ways to reduce on-site emissions. The South Coast AQMD and airport MOUs include airport ground support equipment and on-site airport transit, but not off-property airport ground access and transit (e.g., public roads, passenger and transit lines and stops). Moreover, the South Coast AQMD and airport MOU do not include aircraft. While CARB and the South Coast AQMD monitor aircraft emissions and maintain an aircraft emissions inventory, CARB and AQMD have no regulatory authority over aircraft and the airlines. As discussed earlier, regulating aircraft emissions falls under the purview of ICAO, EPA, and the FAA, who develop emissions, and aircraft design and operating certification, standards.

2.5 MISCELLANEOUS: ESSENTIAL AIR SERVICES AND ADVANCED AIR MOBILITY

2.5.1 ESSENTIAL AIR SERVICES ENSURES THAT CERTAIN COMMUNITIES HAVE AIR SERVICE

The Essential Air Services (EAS) program is administered by the Department of Transportation (DOT) and ensures that eligible smaller communities have access to the National Plan of Integrated Airport Systems (NPIAS). Within the SCAG region, IPL is part of the EAS program. The DOT currently subsidizes commuter and certificated air carriers to serve approximately 60 communities in Alaska and 115 communities in the lower 48 contiguous states that otherwise would not receive any scheduled air service.

For over forty years, smaller communities, such as the cities of Imperial and El Centro, have maintained critical air service due to the EAS program. As a result of the Airline Deregulation Act (ADA) of 1978, certain communities were faced with the prospect of not having access to air travel and the NPIAS. The ADA gave air carriers almost total freedom to determine which markets to serve domestically and what fares to charge for that service. In response, the EAS program was put into place to guarantee that small communities, which were served by certificated air carriers before airline deregulation, maintained a minimal level of scheduled air service. Through the EAS program, the United States DOT is mandated to provide eligible communities with access to the NPIAS.

Under the EAS program, the DOT determines the minimum level of service required at each eligible community by specifying a hub through which the community is linked to the national network, a minimum number of round trips and available seats that must be provided to that hub, certain characteristics of the aircraft to be used, and the maximum permissible number of intermediate stops to the hub. Access to the NPIAS for eligible EAS communities is generally accomplished by subsidizing two round trips a day on 30- to 50-seat aircraft, or additional trip frequencies on aircraft with nine or fewer seats, usually to a large- or medium-hub airport. The subsidy amount is calculated based on airport

activity from two years prior (e.g., 2020 subsidy based on 2018 airport activity)[22]. As anticipated, the DOT made exceptions for EAS eligibility and subsidy decisions due to the lower air passenger traffic caused by COVID-19.

2.5.2 ADVANCED AIR MOBILITY PLANNING WILL INVOLVE FAA, CALTRANS, MPOS, COUNTIES, AND CITIES

The FAA and NASA are currently working on establishing the regulatory and operational framework for Advanced Air Mobility (AAM). As envisioned by NASA and the FAA, the goal of the AAM program is to develop an air transportation system that safely moves people and cargo in local, regional and interregional settings. A key aspect of AAM is that it will employ different types of short-range aircraft technologies, including, but not exclusively, electric vertical take-off and landing (EVTOL) aircraft, and autonomous aircraft/uncrewed aircraft systems (i.e., drones). Moreover, it is envisioned that AAM will be incorporated into the existing multimodal infrastructure, including surface transportation. Therefore, as an aerial mode of transportation focusing on local and regional trips, integrating into a complex multimodal transportation system, and featuring new technology and infrastructure, AAM poses several unique challenges not experienced by other modes of travel. In the initial planning phases, the regulatory and operational framework for AAM will build off existing federal processes for aircraft and airspace, but the planning and operations of AAM will ultimately expand to involve state, regional, county and local agencies.

As an aerial mode of travel, AAM operations and aircraft will be subject to the same regulatory standards under the FAA as other traditional passenger and cargo aircraft. The FAA establishes air navigation and safety rules for all aircraft in the NAS. Furthermore, the FAA oversees the air traffic control of aircraft at major commercial service airports. Air navigation rules are developed in concert with the ICAO. A wrinkle as far as AAM is concerned is the potential for autonomous (i.e., pilotless) drone flights. Currently, there are strict federal restrictions and requirements for the operating of pilotless aircraft, particularly drone aircraft over 55 pounds in weight, which will inform AAM regulation. Furthermore, in addition to federal rules and regulations, state and local governments are increasingly enacting additional requirements for drone operations. In contrast to federal drone laws, which are focused primarily on safety, state and local drone ordinances are focused more on privacy concerns, and specific restrictions for where and when drones can operate. Federal drone laws and requirements address safety primarily through aircraft certifications and registrations.

The FAA exclusively handles the registration and certification of drones and drone operators. While smaller drone flight operations above people and automobiles, and flying at night, can now be accomplished via an FAA Part 107 certification, large drone aircraft weighing 55 pounds or greater cannot be operated under Part 107 certifications or as recreational unmanned aircraft. To fly a drone over 55 pounds, operators must receive airworthiness certification (Federal Register, 2020), or apply for a Special Airworthiness Certificate or a Section 44807 exemption (Pilot Institute, 2022). However, what makes AAM unique from the majority of current drone usage, which is focused primarily on recreation, filming, and surveillance, is the transportation of people and cargo. Considering AAM operations will involve the transport of passengers and/or cargo, it is safe to conclude that AAM drone aircraft will, at least initially, be subject to the same federal requirements as all drones over 55 pounds. However, not all AAM aircraft will be drones. Moreover, the FAA and NASA envision that the initial AAM flights will be piloted and not autonomous. Nevertheless, whether piloted or without a flight crew, AAM aircraft will be required to meet the same federal safety standards as traditional aircraft.

A significant aspect of FAA's role in airspace regulation centers on the certification and recertification of air passenger and cargo aircraft, and operators. All passenger and cargo aircraft, including AAM aircraft, must be certified before flying, and recertified every three years, by the FAA based on airworthiness (i.e., safety) and other standards, including environmental standards, such as emissions and noise (FAA Aircraft Certification, 2022). If an aircraft no longer adheres to safety and environmental standards, it will not be recertified. FAA aircraft certifications are focused on design (i.e., type) standards, the ability of an organization to produce the design approved aircraft and airworthiness. Finally, in addition to aircraft certification, all commercial aircraft operators, including airlines and drone companies, must be certified by and registered with the FAA. Given that AAM aircraft will fly in the NAS, as with traditional commercial and general aviation, the aerial aspects (e.g., air navigation, aircraft and operator certification) of AAM will be regulated by the FAA and other partner international and federal agencies involved in airspace monitoring and regulation. However, what makes AAM unique from traditional forms of aviation is how much more it is anticipated to integrate with other modes of travel, including surface transportation, and how the majority of AAM flights will be centered on local and regional trips.

Given that AAM will operate in the NAS but integrate with local, county, regional and state, intermodal transportation infrastructure and utilities, the question remains as to who (e.g., level of government, agencies) will oversee the planning, construction, maintenance, operation and regulation, of the AAM system. Although the initial operational and regulatory framework for AAM is currently being established by NASA and the FAA based on existing processes for aircraft and airspace, ultimately, the states, regions, counties and municipalities, will increasingly play a greater role. NASA envisions that, similar to airports, AAM operating environments will be governed on the local level (NASA AAM ConOps, 2021). However, the decision-making behind the location, construction and maintenance, of vertiports and vertipads will become a local matter. As a point of comparison, airports are generally owned, operated and maintained, by cities and counties. Usually, the city or county will appoint board members or commissioners to a governing body or airport authority. In some cases, the city council or county board of supervisors will directly oversee the airports (e.g., SNA and the Orange County Board of Supervisors, PSP and the Palm Springs City Council). Whether it is by city councils, county boards of supervisors, or some other type of governing board or commission, AAM infrastructure planning, operations and maintenance, will likely be administered by a similar body. Similar to how airports navigate federal airspace, and state, county and local, regulations, AAM vertiports and vertipads will be subject to many of the same standards.

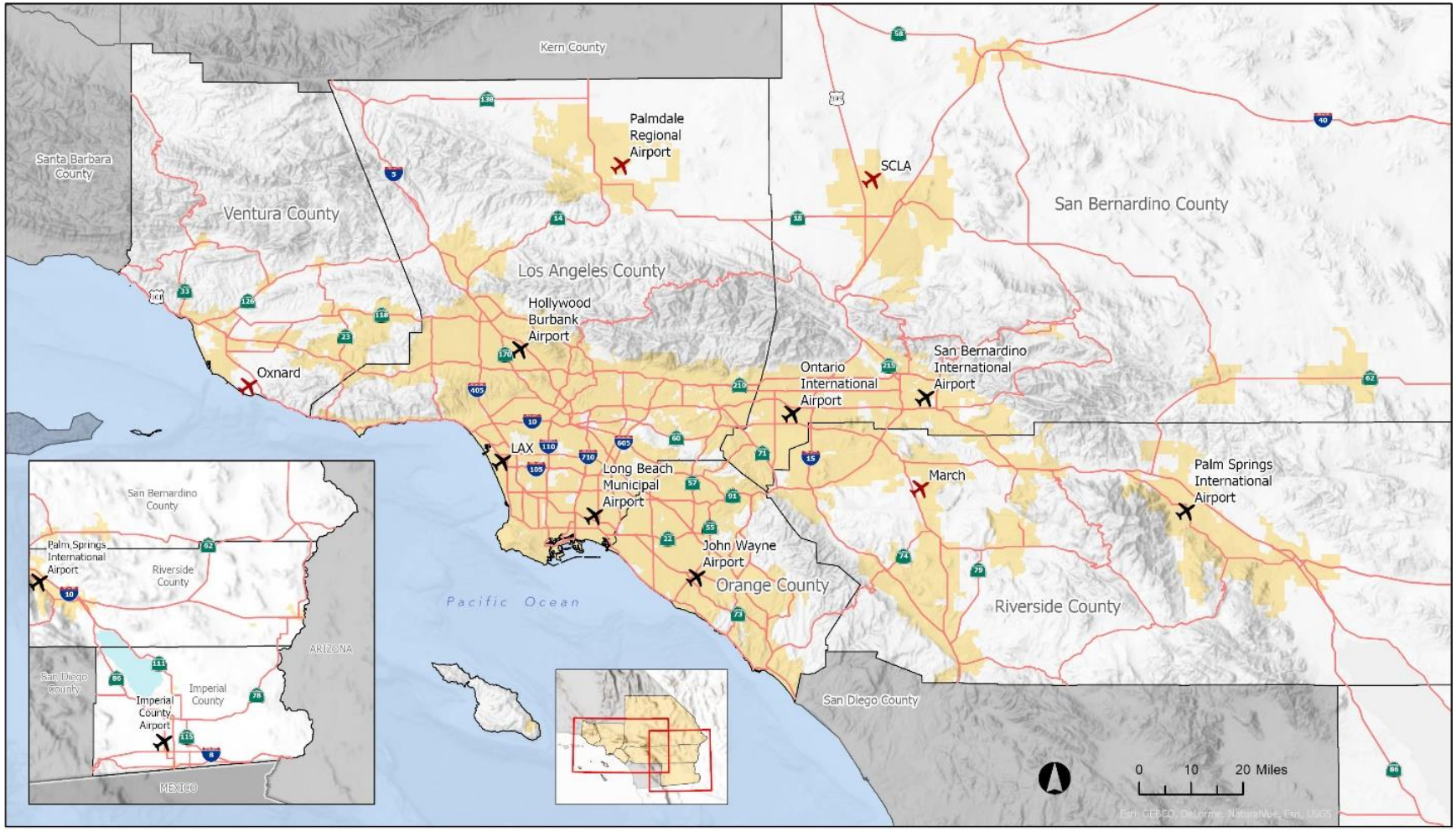
In addition to the already discussed federal airspace standards, AAM will also be subject to the same local land use requirements as airports. Although airport terminal and airside planning falls under the jurisdiction of the airports and the FAA, airports must also be mindful of the impacts of airport land use decisions and operations beyond the onsite and on-property tarmacs, runways and terminals. Specifically in California, state law requires that every county with an airport in its jurisdiction have an Airport Land Use Commission (ALUC). The ALUC must then develop a plan for promoting and ensuring compatibility between each airport in the county and surrounding land uses (Los Angeles County Department of Regional Planning, 2022). Therefore, AAM vertipads and vertiports located at airports will likely fall under the jurisdiction of airports, the FAA and the county-level ALUCs. However, many vertiports and vertipads will not be located on airport property, but rather on top of buildings, and at passenger rail, transit and other intermodal transportation facilities. AAM infrastructure located off airport property will not be exempt from local land use standards. Whether it is the expansion of the responsibilities of the ALUCs, or the creation of similar agencies for vertipads and vertiports, AAM will be accountable to local land use regulations. Furthermore, off air property AAM infrastructure will be subject to other federal, state and local standards and requirements.

Considering that many of the AAM vertiports will be located on buildings and mobility/transit hubs, and thus not under the jurisdictions of ALUCs, airports, and the FAA, significant segments of AAM infrastructure will be subject to other local and county land use and building standards and regulations, and local, county, and state utilities. Although the FAA has developed standards and guidelines for vertiport design, construction, and maintenance, AAM infrastructure located outside of airports must be mindful of factors in addition to FAA design standards. As a point of comparison, heliport construction falls under local zoning and building standards. Although AAM vertipads and vertiports are not compatible with existing helipads, they will still be subject to the same, or similar, building and safety codes. Furthermore, the electricity demands for AAM vertipads and vertiports, including charging stations, will impact the local and state electrical grid. Given the federal regulations for air safety and vertiport design, and the impacts on local infrastructure, buildings, and power supplies, by necessity, AAM will bring multiple levels of government into the picture.

The regulatory, operational and funding framework for AAM will be cross-jurisdictional, interagency and cross-sectoral. Assuming the governance and operations of AAM infrastructure construction, operations, and maintenance falls onto municipalities or counties in a fashion similar to airport authorities, the cities and counties will have decision-making authority over the locations of vertiports and charging stations, as well responsibility for the construction and maintenance of AAM vertipads and vertiports. However, the airspace regulation, including air safety and aircraft certification, will fall under the jurisdiction of the FAA. Furthermore, there is still the larger question of who (e.g., level of government, sector) will fund the bulk of AAM infrastructure and operations. Initially, the federal government has taken the lead in funding AAM technology and infrastructure. On June 14, 2022, the United States House of Representatives passed the Advanced Aviation Infrastructure Modernization (AAIM) Act. When/if the AAIM passes the Senate and becomes law, it will provide $25 million in grants for the planning and building of AAM infrastructure (Hubbard, 2022). Additionally, the Infrastructure Investment and Jobs Act includes funds for electric vehicle charging and new technology. Beyond federal funds, various states, municipalities and private companies have begun to invest in AAM technology and infrastructure. The primary interest in AAM is being driven by private investors and the private sector. Therefore, the regulation, planning, funding and operations, of AAM has and will continue to cross levels of government, jurisdictions and the public and private sectors. Given the wide range of considerations and impacts of AAM, cross-jurisdictional, interagency and cross-sectoral, coordination and communication will be critical.

MPOs, including SCAG, can be uniquely positioned to assist with the collaboration required of AAM planning by promoting discussions and information sharing across jurisdictions, agencies and sectors. As surface transportation planning agencies, the primary role of MPOs in airport and aviation systems planning is to support airport ground access planning by facilitating interagency collaboration between airports and local, county, state and federal surface transportation agencies. Although not regulatory agencies or focused on operations, MPOs can play a critical role in terms of data analyses, information sharing, communication and coordination. The facilitative and collaborative planning role of MPOs in airport ground access planning can be adapted and expanded to support the cross-jurisdictional, interagency and cross-sectoral partnerships necessary for AAM planning.

Map 1. Map of SCAG region commercial service and select reliever airports.



Source: SCAG 2022

3. EXISTING CONDITIONS

The six-county SCAG region is home to an expansive multiple airport system that includes eight commercial airports with scheduled passenger service, seven government/military airfields, and over 30 reliever and general aviation airports. All of these airports play a critical role in the movement of people and goods throughout the region. The eight commercial service airports in the region with scheduled service are: Hollywood-Burbank (BUR), Imperial County (IPL), Long Beach (LGB), Los Angeles International (LAX), Ontario International (ONT), Palm Springs International (PSP), San Bernardino International (SBD), and Santa Ana/John Wayne (SNA). Sixteen of the airports in the region are designated by the FAA as reliever airports, which means that they could provide congestion and emergency relief for any of the commercial service airports in the region. Furthermore, of the reliever and general aviation airports, several have the capacity to include scheduled commercial air service in the future. Of note, until recently, SBD was a reliever airport, which began offering scheduled commercial service passenger flights in August 2022.

3.1 COMMERCIAL SERVICE AIRPORTS IN THE SCAG REGION

3.1.1 HOLLYWOOD BURBANK AIRPORT (BUR)

Located in the San Fernando Valley northwest of downtown Burbank in Los Angeles County, BUR is publicly owned and operated by the Burbank-Glendale-Pasadena Airport Authority. The Burbank-Glendale-Pasadena Airport Authority is controlled by the governments of the Cities of Burbank, Glendale and Pasadena. While "Hollywood Burbank" has been the branding name since 2016, "Bob Hope" has been the legal name of the airport since 2003. The building and facilities date back to 1930. Rather than use jet bridges, passengers board commercial airlines at BUR via portable boarding steps on the tarmac.

New Airport Terminal: BUR is currently in the project planning process for a new, relocated, terminal. Although modernization is one factor, the primary reason for the new terminal is safety. The current terminal building is located too close to the runways and thus not in compliance with FAA standards. Although the new terminal building will enable faster processing in and out of the airport, it will increase capacity.

BUR Ground Transportation: BUR has extensive infrastructure and facilities dedicated to transit and rail passengers coming to and from the airport. In addition to housing rental cars, the ground level of the Regional Intermodal Transportation Center (RITC), which opened in June of 2014, serves as a transit hub for bus riders. Metro Bus and Burbank Bus have stops in the turn-around area on the ground level of the RITC. Currently, BUR is the only airport in the SCAG region with a direct rail connection to Downtown Los Angeles. Additionally, Amtrak and Metrolink passengers stopping at the Burbank Airport-South Train Station can access the RITC via the Empire Avenue street-crossing that leads straight to elevator and escalator access to an elevated walkway. Metrolink also stops at the Burbank Airport-North Station located on San Fernando Road and Hollywood Way. The Burbank-Glendale-Pasadena Airport Authority provides complimentary shuttle service between the Burbank Airport-North Station and the Airport terminal.

BUR Major Carriers and Destinations: Advanced Air, Alaska, American, American Eagle, Avelo, Delta, Delta Connection, JetBlue, JSX, Southwest, Spirit, United and United Express fly out of BUR. Southwest

Airlines has the most flights out of BUR, mainly serving cities in the western United States. Popular destinations out of BUR include San Francisco, Seattle, Las Vegas, Oakland, Phoenix and Denver.

AirNet Express, Ameriflight, FedEx and UPS Airlines are the cargo carriers that fly out of BUR.

BUR Operational Breakdown (2022 Data):

Aircraft operations: average 386/day

- 42 percent commercial
- 20 percent transient general aviation
- 20 percent local general aviation
- 17 percent air taxi
- <1 percent military

Source: AirNav website.

In recent years, passenger traffic at BUR had significantly declined from 6.0 million passengers in 2007 to 3.9 million passengers in 2014. However, just prior to the COVID-19 pandemic, BUR saw a 53 percent increase from 3.9 million annual passengers (MAP) in 2015 to 5.98 MAP in 2019. Furthermore, despite decreasing by 67 percent from 2019 to 1.995 MAP in 2020 during the COVID-19 pandemic, BUR recovered quickly getting back up to 5.899 MAP in 2022.

3.1.2 IMPERIAL COUNTY AIRPORT (IPL)

IPL is located in the City of Imperial in Imperial County, California, approximately twelve miles north of the California-Mexico border. Also known as "Boley Field," IPL provides limited scheduled air service and serves the general aviation needs of the surrounding communities.

Essential Air Service (EAS) Airport: IPL is currently part of the EAS program through the United States Department of Transportation, which provides the residents of Imperial County a connection to the national aviation system (NAS). The federally sponsored EAS program subsidizes air service to eligible small community airports.

IPL Carrier and Destinations: IPL is served by Southern Airways (formerly known as "Mokulele Airlines"). Currently, Southern Airways flies to two destinations out of IPL, LAX and Phoenix International Airport (PHX).

Ameriflight and FedEx Feeder are the cargo carriers flying out of IPL.

IPL Operational Breakdown (2021 Data):

Aircraft operations: average 123/week

- 57 percent military
- 17 percent local general aviation

- 13 percent commercial
- 8 percent transient general aviation
- 5 percent air taxi

Source: AirNav website.

IPL passenger traffic peaked in 2001, with approximately 30,000 annual passengers, before gradually decreasing following the events of 9/11. Traffic began rebounding in 2007 reaching 29,000 passengers before declining again after the global financial crisis. Prior to the COVID-19 pandemic, IPL was averaging approximately 10,000 passengers a year.

3.1.3 LONG BEACH AIRPORT (LGB)

LGB is located northeast of the City of Long Beach in Los Angeles County. The arrival of low-cost carrier JetBlue in 2001 led to a rapid increase in air traffic, and solidified LGB's position as an alternative to LAX for flights to the East Coast. Although JetBlue ceased operating out of LGB in October 2020, the gap in service was filled by other carriers, including Southwest Airlines. LGB remains one of the major commercial service airports in the County of Los Angeles and the SCAG region.

LGB Facility Improvements: Located in the heart of the South Bay of Los Angeles County, LGB is currently engaged in upgrading facilities, including terminals and airport ground access. Built in 1941, the LGB Terminal is a Cultural Historic Landmark. However, due to its age, the LGB terminal, along with other airport facilities and infrastructure, have needed upgrades. In response to these airport needs, LGB has invested in numerous facility improvements. In the fall of 2017, as part of the Phase I—Terminal Improvement Program, a new concourse was opened, which includes an updated security screening area and boarding lounge. Currently, as part of the Phase II—Terminal Improvement Program, a ground transportation center, which will serve as an intermodal transportation facility for buses, taxis, and shuttles, is being constructed. Finally, to better address traffic flow in and around the airport, LGB is currently undergoing different terminal roadway improvements, as well as constructing a new parking facility.

LGB Major Carriers and Destinations: Currently, American Eagle, Delta Connection, Hawaiian, Southwest Airlines, and United Express fly out of LGB. Popular destinations out of LGB include Chicago—Midway, Dallas—Love, Honolulu, Salt Lake City, and San Francisco.

FedEx Express and UPS Airlines are the cargo carriers out of LGB.

LGB Operational Breakdown (2020 Data):

Aircraft operations: average 768/day

- 55 percent local general aviation
- 33 percent transient general aviation
- 9 percent commercial
- 2 percent air taxi
- <1 percent military

Source: AirNav website.

Although passenger traffic levels have been relatively stable at LGB, air cargo activity has been trending downward over the past 20 years. Passenger activity at LGB was at approximately 3 million annual passengers (MAP) per year from 2010 until 2019. In 2018, passenger traffic hit 3.9 MAP. Although passenger activity dipped to 1.04 MAP in 2020 due to the COVID-19 pandemic, as of 2022, LGB passenger activity was back to 3.24 MAP. As for cargo, from 2010 to 2019, LGB averaged approximately 24,000 tons of air cargo movement a year. However, in the early 2000s, from 2000 to 2005, LGB averaged approximately 55,000 tons of cargo per year. Finally, the COVID-19 pandemic impacted LGB cargo, with air cargo activity going down to 15,712 tons in 2020 and remaining at 14,384 tons as of 2022.

3.1.4 LOS ANGELES INTERNATIONAL AIRPORT (LAX)

Located 18 miles southwest of Downtown Los Angeles, LAX is the primary airport serving the SCAG region. LAX is publicly owned and operated by the Los Angeles World Airports (LAWA), formerly the Department of Airports, an agency of the City of Los Angeles, and governed by the LAWA Board of Commissioners. As the largest airport in the SCAG region, LAX plays a critical role in the movement of people and cargo throughout the region.

LAX Passenger and Cargo Activity: As one of the largest airports in the world, LAX plays a critical role for domestic and international travelers, and air cargo, in the SCAG region. LAX is a hub for the major U.S. legacy carriers,[23] American, Delta and United Airlines. In addition to being a major domestic hub, LAX is also a key international gateway, with flights to six continents. In 2022, LAX ranked as the sixth busiest airport in the world for passenger traffic, just behind Atlanta, Dallas/Fort Worth, Denver, Chicago O'Hare and Dubai (CNN, 2023). However, when one factors out connecting flights, LAX is the busiest origin and destination (O&D) airport in the United States. Approximately 88 percent of travelers at LAX are O&D, and 22 percent are connecting passengers. LAX is also a major cargo airport, ranking 10th in the world and fourth in the U.S. in air cargo tonnage processed (LAWA/LAX website). Most of the daily passenger flights that fly through LAX carry at least some cargo, and there are also approximately 28 dedicated cargo airlines operating out of LAX. Therefore, due to the passenger and cargo activity at LAX, it is critical to plan for the auto, transit and truck traffic coming to and from the airport.

LAX Ground Access Improvements: To accommodate current and forecasted passenger traffic to and from the airport, LAX is undergoing a major renovation known as the Landside Access Modernization Program (LAMP). The LAMP will include an elevated Automated People Mover (APM); two Intermodal Transportation Facilities (ITF) with parking areas allowing for drop-offs and pickups from personal vehicles, buses, shuttles, taxis and ride-sharing services; a Consolidated Rental Car Facility (CONRAC), which will consolidate the rental car agencies near the airport at one location; and a comprehensive series of roadway improvements to alleviate traffic congestion in and around airport facilities.

In addition to the LAMP, LAX is constantly undertaking safety and modernization improvements. For instance, the Airfield and Terminal Modernization Project (ATMP) is designed to reduce levels of risk while maintaining/enhancing airfield operational efficiency. The ATMP will include a reconfiguration of the North Airfield, a new concourse, a new terminal (Terminal 9), and LAX road reconfiguration to provide direct access to the new terminal, as well as improve traffic flow in and around LAX. Finally, LAWA is in the early stages of the LAX Cargo Modernization Program. The LAX Cargo Modernization Program will include airport cargo ground access improvements.

LAX Major Carriers and Destinations: The major domestic carriers at LAX include American, Delta, Southwest and United airlines. Major international carriers at LAX include Avianca, Japan Airlines, LATAM, Singapore Airlines and Volaris.

FedEx flies the most cargo in and out of LAX. Other major cargo carriers out of LAX include UPS, Cargolux Airlines, DHL Airways and EVA Airways.

LAX Operational Breakdown (2022 Data):

Aircraft operations: average 1,548/day

- 92 percent commercial
- 5 percent air taxi
- 3 percent transient general aviation
- <1 percent military

Source: AirNav website.

Prior to the COVID-19 pandemic, air passenger and cargo demand increased steadily at LAX. Following a decline in passenger travel following 9/11, and then another dip in passenger travel in 2008 due to the housing recession of 2007, passenger traffic at LAX has increased at a steady rate from 59 million annual passengers (MAP) in 2010 to 88.07 MAP in 2019, a 49 percent increase. After hitting 28.8 MAP in 2020 due to the COVID-19 pandemic, LAX was back to 65.9 MAP in 2022. Approximately 69 percent of the air passenger travel in the region is accommodated by LAX. Cargo at LAX has increased steadily from 1.9 million tons in 2010 to 2.75 million tons in 2022. Unlike air passenger activity, the COVID-19 pandemic did not have a negative effect on air cargo demand at LAX.

3.1.5 ONTARIO INTERNATIONAL AIRPORT (ONT)

ONT is located in the City of Ontario in San Bernardino County. Originally known as the "Ontario Municipal Airport," in 1946 the airport was renamed "Ontario International Airport". In 1967, The Cities of Ontario and Los Angeles entered into a joint-powers agreement, making ONT part of the Los Angeles regional airports system. The new larger ONT airport terminal was opened in 1998. In 2015, LAWA agreed to terms and conditions for the transfer of the airport to a new airport sponsor, the Ontario International Airport Authority (OIAA). ONT is accessible via Interstates 10 (San Bernardino) and 15 (Ontario), the State Route 60 (Pomona) Freeway, and the Metrolink Ontario-East and Rancho Cucamonga stations.

ONT and Metrolink Transit Connection: Currently, ONT, the San Bernardino County Transportation Authority and Omnitrans, the public transit agency serving the San Bernardino Valley, are collaborating to develop a transit tunnel that will connect the Metrolink commuter rail system to ONT. Operated and maintained by Omnitrans, the Tunnel to Ontario Airport Project will feature a bi-directional system where passengers traveling to and from ONT will be transported in autonomous, zero-emission vehicles on an "on-demand" basis between the Cucamonga Metrolink Station and ONT terminals.

ONT Major Carriers and Destinations: Southwest maintains the largest market share at ONT. The air service pattern out of ONT is mostly focused on cities in the western United States as well as the main

hubs of the legacy airlines. Other airlines flying out of ONT include Alaska, United, China and American Airlines, with American Airlines accommodating the most passengers after Southwest.

ONT is a major cargo hub for UPS, facilitated by its geographic position, long runways, and relatively limited noise restrictions allowing for 24/7 operations. Furthermore, FedEx opened a new facility at ONT in November 2020. Along with UPS and FedEx, other cargo carriers at ONT include Amazon Air, Ameriflight and Kalitta Air.

ONT Operational Breakdown (2023 data):

Aircraft operations: average 282/day

- 71 percent commercial
- 12 percent air taxi
- 8 percent transient general aviation
- 8 percent local general aviation
- <1 percent military

Source: AirNav Website

Following the Great Recession, ONT experienced a steady increase in air passenger and cargo activity. From 2010 to 2019, ONT averaged approximately 4.5 million annual passengers (MAP) a year. In the early 2000s, passenger activity at ONT went over seven MAP. However, following the global financial crisis, passenger demand at ONT dropped sharply from 7.2 MAP in 2007 to just under four MAP in 2013. Eventually, passenger traffic at ONT recovered from the Great Recession, although not to its early 2000 levels. In recent years, passenger traffic at ONT reached as high as 5.6 MAP in 2019 just prior to the COVID-19 pandemic. Despite falling to 2.5 MAP in 2020, ONT has rebounded to 5.7 MAP in 2022. Similarly, air cargo activity at ONT has increased steadily following the Great Recession, from 391,060 tons in 2009 to 781,993 tons in 2019. Interestingly, the COVID-19 pandemic led to a spike in cargo activity of 924,160 tons in 2020. The spike in cargo activity was a noticeable trend within the SCAG region and the United States. Please see "Impact of COVID-19 on air passenger and cargo activity in the SCAG" in the "Historic Air Passenger and Cargo Trends in the SCAG region" section. As of 2022, ONT moved 851,889 tons of cargo.

3.1.6 PALM SPRINGS INTERNATIONAL AIRPORT (PSP)

PSP is located in the desert resort city of Palm Springs in the Coachella Valley in Riverside County. PSP has two runways and operates year-round, with most flights occurring in the fall, winter and spring.

PSP is generally quieter during the warmer summer months, with peak travel occurring during the winter. Due in part to its location close to the resorts of Palm Springs, PSP mainly caters to seasonal leisure travelers visiting the area during the fall and winter. Passenger travel to the airport in recent years (2010 to 2019) has averaged 1.9 million annual passengers (MAP) per year, hitting 2.6 MAP in 2019. Air cargo is not a major factor at PSP.

PSP Major Carriers and Destinations: The main United States carriers, such as United, Alaska, Southwest and American Airlines all operate at PSP. Some carriers only provide service during the peak season. The

two most active carriers out of PSP are SkyWest and Southwest Airlines. Air Canada, Allegiant, Avelo, Delta, Flair, JetBlue, Sun Country and WestJet also fly out of PSP. Popular destinations include Seattle, San Francisco, and Phoenix.

Ameriflight is the only cargo carrier to fly out of Palm Springs. Ameriflight provides cargo service to and from Ontario, California.

PSP Operational Breakdown (2022 data):

Aircraft operations: average 169/day

- 48 percent commercial
- 28 percent transient general aviation
- 18 percent air taxi
- 5 percent local general aviation
- 2 percent military

Source: AirNav Website

Air passenger demand at PSP has been increasing steadily over the past twenty years. Except for a few setbacks following the events of 9/11 as well as the Great Recession, passenger traffic at the airport has increased steadily throughout the 2000s. Furthermore, despite a significant decrease of 54 percent from 2.7 MAP in 2019 to 1.25 MAP in 2020 due to the COVID-19 pandemic, PSP recovered quickly. In 2021, PSP accommodated 2.1 MAP, which was a 68 percent increase from the previous year. As of 2022, PSP was at 2.98 MAP, the highest passenger demand for PSP in the 21st century.

3.1.7 JOHN WAYNE/ORANGE COUNTY AIRPORT (SNA)

Owned and operated by the County of Orange, SNA is located adjacent to the I-405 and State Route 73 near the cities of Santa Ana, Irvine, Newport Beach and Costa Mesa. However, due to the airport not being located in an incorporated city, the actual mailing address for SNA is in Santa Ana, California, which is the headquarters for the Orange County Department of Public Works. Originally named the Orange County Airport, the Orange County Board of Supervisors renamed the airport the "John Wayne Airport" in 1979 to honor the late actor who had lived in Newport Beach nearby and had passed on that same year.

SNA Self-Supporting: SNA operates as an "enterprise fund" and is completely self-supporting. Although SNA pays taxes into the general fund, SNA receives no general fund/tax revenues. The annual budget is proposed and considered part of Orange County's regular budget cycle. Federal law mandates that airport revenues can be used only for airport purposes.

SNA Service Partners: Orange County Fire Authority (Aircraft Rescue and Firefighting), Orange County Sheriff's Department (Airport Police Services), Federal Aviation Administration (FAA), Transportation Security Administration (TSA) and U.S. Customs and Border Protection (CBP).

SNA Service Providers: Airlines (commercial and commuter), terminal concessions (food and beverage, news and gift, specialty), ground transportation (rental car, taxi, transportation network companies,

shuttle, valet, parking), fixed based operators (FBOs), hangar operations, and aircraft support (fueling, maintenance, catering, etc.).

SNA Major Carriers and Destinations: In 2022, Southwest was the most active carrier operating at the airport, followed by American, United, Delta and Alaska Airlines. The air service pattern is mostly focused on cities in western United States as well as the main hubs of the legacy airlines. Popular destinations out of SNA include Las Vegas, Denver and Phoenix.

FedEx Express and UPS are the two cargo carriers that fly out of SNA. Late-night curfews severely impact when cargo flights can fly in and out of SNA.

SNA Operational Breakdown (2022 data):

Aircraft operations: average 834/day

- 33 percent commercial
- 32 percent local general aviation
- 26 percent transient general aviation
- 9 percent air taxi
- <1 percent military

Source: AirNav Website

SNA is designed to accommodate scheduled commercial service as well as general aviation passenger activity. The airport is 503 acres with 20 gates for commercial airlines and two commuter terminals. Furthermore, SNA has two runways, one for commercial aviation (5,700 feet) and one for general aviation (2,887 feet). General aviation often matches, and in some years outnumbers, commercial operations at SNA. As a result, there are several facilities at SNA that serve general aviation and corporate aviation.

Despite major shocks and downturns, air passenger demand at SNA has been steady over the past two decades. SNA is the second busiest airport in the SCAG region. From 2010 to 2019, it averaged 9.7 MAP per year. Furthermore, passenger traffic at the airport has been more resilient to exogenous shocks than the other airports in the area. Air travel demand at SNA recovered relatively quickly after 9/11 and the Great Recession. Although passenger demand decreased 64 percent from 10.66 MAP in 2019 to 3.8 MAP in 2020, as of 2022, SNA was at 11.4 MAP.

3.1.8 SAN BERNARDINO INTERNATIONAL AIRPORT (SBD)

Formerly known as the Norton Air Force Base, SBD is located two miles southeast of downtown San Bernardino and six miles northwest of downtown Redlands in San Bernardino, California. Norton Air Force Base closed in 1989.

SBD Passenger Terminals: SBD has two passenger terminals. One terminal is for domestic travel and the other is for international travel. In August 2022, Breeze Airways became the first commercial airline to operate scheduled passenger flights out of SBD. Currently, there are no flights out of the SBD international terminal.

SBD Major Carriers and Destinations: Currently, SBD has one major passenger carrier, Breeze Airways. On August 2022, Breeze Airways began scheduled commercial passenger flights from SBD to Las Vegas, Provo, and San Francisco.

ABX Air, Amazon Air, FedEx Express and UPS Airlines are the cargo carriers flying out of SBD. The Amazon Air Regional Hub started operations at SBD in April 2021. Popular cargo destinations out of SBD include Allentown, Honolulu and Minneapolis.

SBD Operational Breakdown (2021 data):

Aircraft operations: average 134/day

- 38 percent local general aviation
- 34 percent transient general aviation
- 17 percent air taxi
- 11 percent commercial
- <1 percent military

Source: AirNav Website

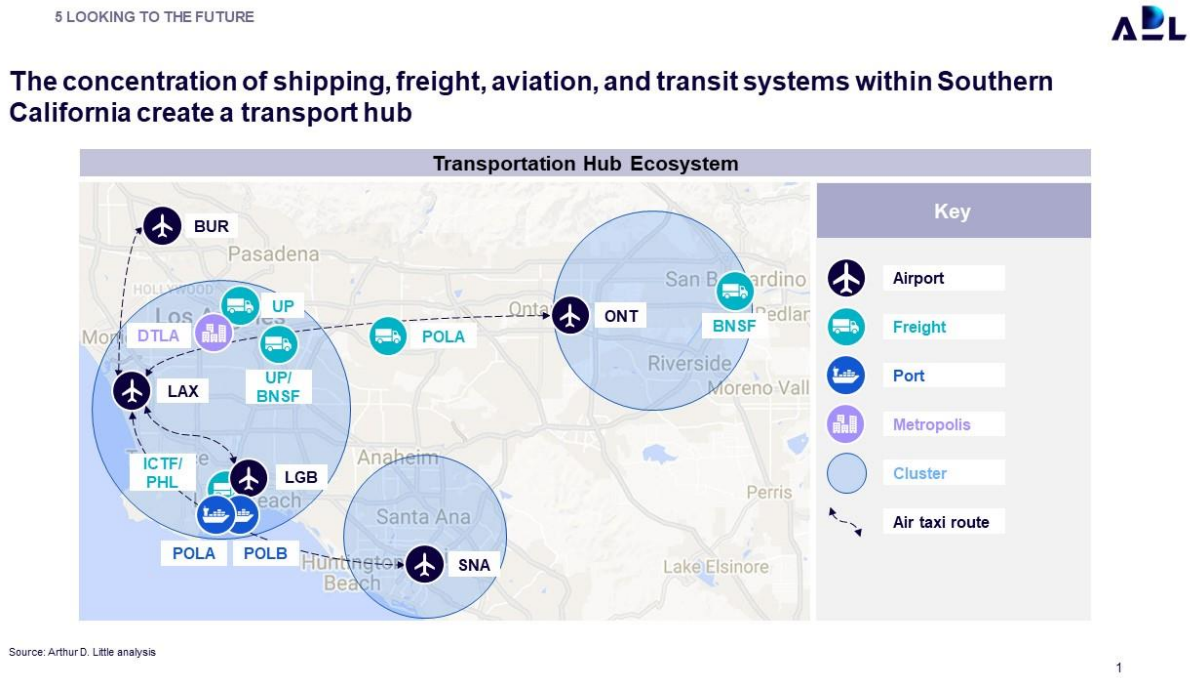
Although SBD only moved approximately 3,466 air passengers in 2019, that number will increase significantly with the recently added scheduled commercial passenger flights by Breeze Airway. In addition to the domestic and international terminals, which can accommodate scheduled commercial passenger services, SBD also has the fixed-base operator Luxivair executive terminal for corporate and general aviation customers.

3.2 SCAG REGION AIR PASSENGER AND CARGO (OVERVIEW)

The SCAG region is a transportation hub of transit, freight and shipping, in which the airports play a critical role.

The SCAG region continues to be one of the most diverse aviation systems in the world. In 2022, over 80 passenger airlines offered scheduled service from at least one of the region's eight commercial service airports to over 200 destinations, including service to almost 50 counties and over 40 states in the United States. On average, in 2022, the airports in the region supported approximately 3,800 aircraft operations, and over 260,000 arriving and departing passengers per day. Furthermore, in 2022, over 16.8 million of the 91.5 MAP were international travelers. Most of the air passengers in the region are traveling domestically for personal reasons or leisure/pleasure, in contrast to international and business travel.

Figure 2. Southern California Multimodal Transportation Hub



Source: Alex, Pishcalnikov, Arthur D. Little and SoCal Gas (March 22, 2022)

Table 1. Commercial Passenger air carriers (and destinations) operating in the SCAG region

Airlines	Destinations
Advanced Air	Merced, Mammoth Lakes
Aer Lingus	Dublin
Aeroflot	Moscow–Sheremetyevo (Suspended)
Aeroméxico	Guadalajara, México City
Aeroméxico Connect	Monterrey
Air Canada	Calgary, Montréal–Trudeau, Toronto–Pearson, Vancouver
Air Canada Rouge	Toronto–Pearson
Air China	Beijing–Capital, Shenzhen
Air France	Papeete, Paris–Charles de Gaulle
Air New Zealand	Auckland
Air Premia	Seoul–Incheon
Air Tahiti Nui	Papeete, Paris–Charles de Gaulle
Air Transat	Montréal–Trudeau (Seasonal)

Airlines	Destinations
Alaska Airlines	Anchorage, Belize City, Boise, Bozeman, Cancún, Dallas–Love, Eugene, Everett, Fort Lauderdale, Fort Myers, Fresno, Glacier Park/Kalispell, Guadalajara, Honolulu, Ixtapa/Zihuatanejo, Jackson Hole, Kahului, Las Vegas, Liberia (CR), Loreto, Manzanillo, Mazatlán, Medford, Missoula, Newark, Portland (OR), Puerto Vallarta, Redmond/Bend, Reno/Tahoe, San Francisco, San Jose (CA), San José de Costa Rica–Juan Santamaría, San José del Cabo, Santa Rosa, Seattle/Tacoma, Spokane, Tampa, Washington–Dulles, Washington–National
All Nippon Airways	Tokyo–Haneda, Tokyo–Narita
Allegiant Air	Austin, Bellingham, Boise, Cincinnati, Des Moines, Eugene, Las Vegas, Medford, Memphis, Minneapolis/St. Paul, Missoula, Phoenix/Mesa, Provo, Reno/Tahoe, Springfield/Branson, Spokane, Tulsa, Billings, Bozeman, Cedar Rapids/Iowa City, Des Moines, Fargo, Fayetteville/Bentonville, Glacier Park/Kalispell, Grand Junction, Grand Rapids, Idaho Falls, Jackson Hole, Little Rock, McAllen, Missoula, Montrose, Oklahoma City, Omaha, Rapid City, Sioux Falls, Tri-Cities (WA), Wichita
American Airlines	Atlanta, Austin, Boston, Cancún, Charlotte, Chicago–O'Hare, Dallas/Fort Worth, Eagle/Vail, Fort Lauderdale, Honolulu, Houston–Intercontinental, Indianapolis, Kahului, Kailua-Kona, Las Vegas, Lihue, London–Heathrow, Mexico City, Miami, Nashville, New York–JFK, Orlando, Philadelphia, Phoenix–Sky Harbor, Puerto Vallarta, Raleigh/Durham, St. Louis, San Antonio, San Francisco, San José del Cabo, Sydney, Tampa, Tokyo–Haneda, Vancouver, Washington–National
American Eagle	Albuquerque, Aspen, Austin, Bozeman, Denver, El Paso, Durango (CO), Eagle/Vail, Fayetteville/Bentonville, Glacier Park/Kalispell, Grand Junction, Houston–Intercontinental, Jackson Hole, Mazatlán, Missoula, Oklahoma City, Omaha, Phoenix–Sky Harbor, Portland (OR), Puerto Vallarta, Sacramento, Salt Lake City, San Antonio, San Francisco, San Jose (CA), Seattle/Tacoma, Tucson, Tulsa, Vancouver
Asiana Airlines	Seoul–Incheon
Austrian Airlines	Seasonal: Vienna
Avelo Airlines	Boise, Brownsville (begins May 17, 2023),[50] Colorado Springs (begins May 3, 2023),[50] Eugene, Eureka, Medford, Redding, Redmond/Bend, Santa Rosa, Tri-Cities (WA)
Avianca	Bogotá
Avianca Costa Rica	San José de Costa Rica–Juan Santamaria
Avianca El Salvador	Guatemala City, San Salvador
Breeze Airways	Cincinnati, Columbus-Glenn, Jacksonville (FL), Las Vegas, New Orleans, Norfolk, Orlando, Pittsburgh, Providence, Provo, Raleigh/Durham, Richmond, San Francisco, White Plains
British Airways	London–Heathrow
Cathay Pacific	Hong Kong
Cayman Airways	Grand Cayman
China Airlines	Taipei–Taoyuan
China Southern Airlines	Guangzhou
Copa Airlines	Panama City-Tocumen

Airlines	Destinations
Delta Air Lines	Atlanta, Auckland, Austin, Boston, Cancún, Cincinnati, Dallas/Fort Worth, Dallas–Love, Denver, Detroit, Fort Lauderdale, Guatemala City, Honolulu, Houston–Intercontinental, Indianapolis, Kahului, Kailua-Kona, Kansas City, Las Vegas, Lihue, London–Heathrow, Memphis, Mexico City, Miami, Minneapolis/St. Paul, Nashville, New Orleans, New York–JFK, Oakland, Orlando, Papeete, Paris–Charles de Gaulle, Portland (OR), Puerto Vallarta, Raleigh/Durham, Sacramento, Salt Lake City, San Antonio, San Francisco, San José de Costa Rica–Juan Santamaría, San José del Cabo, San Salvador, Seattle/Tacoma, Sydney, Tampa, Tokyo–Haneda, Washington–National
Delta Connection	Albuquerque, Boise, Bozeman, Denver, Oakland, Phoenix–Sky Harbor, Reno/Tahoe, Sacramento, Salt Lake City, San Diego, San Jose (CA), Spokane, Tucson Seasonal: Aspen, Jackson Hole
El Al	Tel Aviv
Emirates	Dubai–International
EVA Air	Taipei–Taoyuan
Fiji Airways	Nadi
Finnair	Helsinki
Flair Airlines	Edmonton, Toronto-Pearson, Vancouver
French Bee	Paris--Orly
Frontier Airlines	Atlanta, Chicago–Midway, Dallas/Fort Worth, Denver, Las Vegas, Orlando, Phoenix-Sky Harbor, San Francisco
Hawaiian Airlines	Honolulu, Kahului, Kailua-Kona, Lihue
Iberia	Madrid
Japan Airlines	Osaka–Kansai, Tokyo-Haneda, Tokyo–Narita
JetBlue	Boston, Bozeman, Buffalo, Cancún, Charleston (SC), Fort Lauderdale, Hartford, Las Vegas, Liberia (CR), Miami, Newark, Montrose, New York–JFK, Orlando, Puerto Vallarta, Reno/Tahoe, Salt Lake City, San Francisco, San José del Cabo, Seattle/Tacoma
Jet Suite X (JSX)	Cabo San Lucas, Concord (CA), Dallas-Love, Denver/Boulder, Las Vegas, Monterey, Oakland, Phoenix-Sky Harbor, Reno/Tahoe, Rifle
KLM	Amsterdam
Korean Air	Seoul–Incheon
LATAM Brasil	São Paulo–Guarulhos
LATAM Chile	Lima, Santiago de Chile
LATAM Perú	Lima
Level	Barcelona
LOT Polish Airlines	Warsaw–Chopin
Lufthansa	Frankfurt, Munich
Lynx Air	Calgary
Norse Atlantic Airways	Berlin, Oslo
Philippine Airlines	Manila
Qantas	Brisbane, Melbourne, Sydney

Airlines	Destinations
Qatar Airways	Doha
Saudia	Jeddah
Scandinavian Airlines	Copenhagen
Sichuan Airlines	Chengdu–Tianfu
Singapore Airlines	Singapore, Tokyo–Narita
Southern Airways Express (formerly Mokulele Airlines)	Imperial/El Centro, Los Angeles, Phoenix-Sky Harbor
Southwest Airlines	Albuquerque, Atlanta, Austin, Baltimore, Boise, Chicago–Midway, Colorado Springs, Dallas–Love, Denver, El Paso, Eugene, Honolulu, Houston–Hobby, Kahului, Kailua-Kona, Kansas City, Las Vegas, Lihue, Nashville, New Orleans, Oakland, Orlando, Phoenix–Sky Harbor, Portland (OR), Puerto Vallarta, Reno/Tahoe, Sacramento, Salt Lake City, San Francisco, San Jose, Salt Lake City, San Antonio, San Francisco, San Jose (CA), San José del Cabo (PR), St. Louis, Tucson
Spirit Airlines	Atlanta, Austin, Baltimore, Charlotte (begins May 5,2023), Chicago–O'Hare, Cleveland, Columbus–Glenn, Dallas/Fort Worth, Denver, Detroit, Fort Lauderdale, Houston–Intercontinental, Kansas City, Las Vegas, Louisville, Memphis, Minneapolis/St. Paul, Nashville, Newark, New Orleans, Oakland, Philadelphia, Atlanta, Austin, Baltimore, Charlotte (begins May 5,2023), Chicago–O'Hare, Cleveland, Columbus–Glenn, Dallas/Fort Worth, Detroit, Fort Lauderdale, Houston–Intercontinental, Kansas City, Las Vegas, Louisville, Memphis, Minneapolis/St. Paul, Nashville, Newark, New Orleans, Oakland, Philadelphia, Pittsburgh, Puerto Vallarta, St. Louis, Salt Lake City, San José del Cabo
Sun Country Airlines	Dallas/Fort Worth, Minneapolis/St. Paul Seasonal: Las Vegas, Nashville
Swiss International Air Lines	Zürich
Turkish Airlines	Istanbul
United Airlines	Austin, Baltimore, Boston, Cancún, Chicago–O'Hare, Cleveland, Cozumel, Denver, Guatemala City, Honolulu, Houston–Intercontinental, Kahului, Kailua-Kona, Las Vegas, Lihue, London–Heathrow, Melbourne, Newark, Orlando, Phoenix–Sky Harbor, Puerto Vallarta, San Francisco, San José de Costa Rica–Juan Santamaría, San José del Cabo, San Salvador, Seattle/Tacoma, Shanghai–Pudong, Sydney, Tampa, Tokyo–Haneda (resumes March 25, 2023),[118] Tokyo–Narita, Vancouver, Washington–Dulles Seasonal: Belize City, Fort Myers, Jackson Hole, Liberia (CR)
United Express	Austin, Boise, Bozeman, Chicago-O'Hare, Denver, Eureka, Fresno, Houston-Intercontinental, Ixtapa/Zihuatanejo, Las Vegas, Los Angeles, Manzanillo, Monterey, Palm Springs, Phoenix–Sky Harbor, Prescott, Redding, Redmond/Bend, Reno/Tahoe, Sacramento, Salt Lake City, San Diego, San Francisco, San Luis Obispo, Santa Barbara, Seattle/Tacoma, Vancouver Seasonal: Aspen, Bishop, Eagle/Vail, Glacier Park/Kalispell, Hayden/Steamboat Springs, Jackson Hole, Missoula, Montrose, Rapid City, Sun Valley
Virgin Atlantic	London–Heathrow

Airlines	Destinations
VivaAerobus	Guadalajara, México City Seasonal: Monterrey
Volaris	Aguascalientes, Durango (MX), Guadalajara, León/Del Bajío, México City, Morelia, Oaxaca, Uruapan, Zacatecas
Volaris Costa Rica	Guatemala City, San José de Costa Rica--Juan Santamaria
Volaris El Salvador	San Salvador
WestJet	Calgary, Edmonton, Toronto–Pearson, Vancouver, Winnipeg
XiamenAir	Xiamen
Zipair Tokyo	Tokyo-Narita

In addition to passenger service, the airports in the SCAG region are also critical for the movement of goods within, to, and from the SCAG region. The term "air cargo" can be broken down into three different categories: freight, express, and mail.

Figure 3. Air Cargo Categories

Source: Gregg Gildemann, Boeing.

The SCAG region serves air cargo in multiple ways. In 2019, one of the airports in the region was ranked in the top five (LAX) nationally, two in the top 10 (LAX, ONT), four (LAX, ONT, SBD, RIV) within the top 100, and LGB at 105, for landed cargo weights. The SCAG region airports house over 30 air carriers who provide cargo service to over 100 destinations. Although FedEx and the United Parcel Service (UPS) continue to dominate the domestic market, there is a growing number of cargo carriers entering the market, particularly international carriers. Most of the international freight is carried in the cargo holds of passenger aircraft.

Table 2. Cargo air carriers (and destinations) operating in the SCAG region

Airlines	Destinations
ABX Air	Allentown, Denver
AeroLogic	Frankfurt
AeroUnion	Guadalajara, León/El Bajío, México City, Monterrey
AirBridgeCargo Airlines	Amsterdam, Anchorage, Hong Kong, Shanghai–Pudong
Air China Cargo	Beijing–Capital, Quito, Shanghai–Pudong
AirNet Express	Columbus–Rickenbacker
Aloha Air Cargo	Honolulu
Alpine Air Express	Oxnard
Amazon Air	Allentown, Atlanta, Austin, Baltimore, Charlotte, Chicago/Rockford, Cincinnati, Dallas/Fort Worth, Denver, Fort Worth/Alliance, Hartford, Honolulu, Houston-Intercontinental, Kansas City, Lakeland (FL), Lihue, Miami, Minneapolis/St. Paul, New York-JFK, Portland (OR), Seattle/Tacoma, Spokane, St. Louis, Tampa, Wilmington (OH)
Ameriflight	Bakersfield, Blythe, Burbank, El Centro, Fresno, Lancaster, Mojave, Ontario International Airport, Oxnard, Palm Springs, Reno, San Diego, San Luis Obispo, Santa Barbara, Santa María, Tijuana, Visalia
Amerijet International	Miami, Philadelphia, San Juan
ANA Cargo	Tokyo-Narita
Asiana Cargo	Anchorage, San Francisco, Seoul–Incheon
Asia Pacific Airlines	Greensboro, Portland (OR), Seattle–Boeing,
Atlas Air	Anchorage, Chicago–O'Hare, Chongqing, Dallas/Fort Worth, Hong Kong, New York–JFK, Seoul–Incheon, Shanghai–Pudong
Cargolux	Anchorage, Calgary, Glasgow–Prestwick, Hong Kong, Indianapolis, Luxembourg, Mexico City, Milan–Malpensa, Seattle/Tacoma, Singapore
Cathay Cargo	Anchorage, Dallas/Fort Worth, Hong Kong, Mexico City, Portland (OR)
China Airlines Cargo	Anchorage, Osaka, San Francisco, Taipei–Taoyuan
China Cargo Airlines	Santiago, de Chile, Shanghai–Pudong, Tianjin, Zhengzhou
China Southern Cargo	Guangzhou, Hefei, Shanghai–Pudong, Tianjin, Zhengzhou
DHL Aviation	Anchorage, Calgary, Cincinnati, East Midlands, Guadalajara, Hong Kong, Honolulu, Huatulco, Leipzig/Halle, Mexico City, Phoenix–Sky Harbor, Portland (OR), San Francisco, San Jose (CA), San José (CR), Seattle/Tacoma, Seoul–Incheon, Tokyo–Narita, Tucson, Vancouver
Emirates SkyCargo	Copenhagen, Frankfurt, Dubai–Al Maktoum, Mexico City, Zaragoza
EVA Air Cargo	Taipei–Taoyuan
FedEx Express	Auckland, Bangalore, Boston, Burbank, Chicago–O'Hare, Colorado Springs, Dallas/Fort Worth, Edmonton, Fort Worth/Alliance, Fresno, Hartford, Honolulu, Indianapolis, Los Angeles, Memphis, Miami, Minneapolis/St. Paul, Nashville, Newark, Oakland, Ontario, Orange County, Phoenix–Sky Harbor, Portland (OR), Reno/Tahoe, Sacramento, Salt Lake City, San Diego, Seattle/Tacoma, Sydney, Tulsa, Wichita

Airlines	Destinations
FedEx Feeder	Bakersfield, Bishop, El Centro, Inyokern, Ontario, Palmdale, San Diego, San Luis Obispo, Santa Barbara, Santa María
Kalitta Air	Anchorage, Cincinnati, Honolulu, Newburgh, Orlando, Philadelphia, Seattle/Tacoma, Sacramento-Mather, Sydney, Vancouver
Korean Air Cargo	Anchorage, Chicago-O'Hare, Doha, Lima, San Francisco, Seoul–Incheon, Tokyo–Narita
Lufthansa Cargo	Frankfurt
MasAir	Guadalajara, Miami, Mérida, México City, Quito
National Airlines (N8)	Anchorage, Nagoya–Centrair, Shanghai–Pudong
Nippon Cargo Airlines	San Francisco, Tokyo–Narita
Qantas Freight	Auckland, Chicago-O'Hare, Chongqing, Honolulu, Melbourne, Sydney
Qatar Airways Cargo	Chicago-O'Hare, Doha, Liege, Luxembourg, Mexico City, Ostend/Bruges
SF Airlines	Anchorage, Hangzhou
Singapore Airlines Cargo	Amsterdam, Anchorage, Brussels, Chicago-O'Hare, Hong Kong,
Southern Air	Anchorage, Hong Kong, Sao Paulo-Guarulhos, Seoul-Incheon
Sky Lease Cargo	Miami, Tokyo–Narita
UPS Airlines	Albuquerque, Anchorage, Billings, Boise, Chicago-O'Hare, Chicago/Rockford, Columbia (SC), Dallas/Fort Worth, Denver, Des Moines, El Paso, Fargo, Fresno, Hartford, Hong Kong, Honolulu, Houston–Intercontinental, Kahului, Kailua–Kona, Lansing, Long Beach, Los Angeles, Louisville, Manchester (NH), Miami, Minneapolis/St. Paul, New York–JFK, Newark, Oakland, Omaha, Ontario, Orange County, Orlando, Philadelphia, Phoenix–Sky Harbor, Portland (OR), Providence, Raleigh/Durham, Reno/Tahoe, Sacramento–Mather, Salt Lake City, San Bernardino, San Diego, Seattle–Boeing, Sioux Falls, Spokane, Tokyo–Narita
Western Global Airlines	Anchorage, Hong Kong

It should be noted that despite the relative low weight/tonnage of goods being moved by air cargo versus maritime, truck, and rail, the financial value of goods moved via aircraft is high. Thus, air cargo is used for higher value goods movement.

Figure 4. Air Cargo Tonnage versus Trade Value

Source: Gregg Gildemann, Boeing

The airports in the SCAG region support hundreds of air carriers who are responsible for the movement of approximately 100 million people, and over three million tons of goods to hundreds of destinations across the country and the world. As a critical part of the network to move people and goods, as well as generators of employment directly and indirectly related to the airports, the regional aviation system has a significant impact on the economic health of the region. Moreover, it is important to note that it is not just the commercial service airports that play a critical role in the movement of passengers and cargo in the SCAG region.

3.3 GENERAL AVIATION AND OTHER PUBLIC USE AIRPORTS IN THE SCAG REGION (OVERVIEW)

The SCAG region aviation and airport system includes thousands of general aviation pilots and flights. General aviation flights are operated out of the eight commercial service, and over 40 reliever, general aviation and other public use airports in the SCAG region. While the commercial, reliever and general aviation airports are recognized as part of the NPIAS) airports, the other public use airports operate independent of the NPIAS. Of note, Catalina Airport (KAVX) is a popular public-use, non-NPIAS, airport, as it provides an alternative to boat and ferry service to the island. The importance of the reliever, general aviation and other public use airports is especially important when considering non-scheduled passenger movement throughout the region.

Although not a scheduled passenger service as is the case with commercial air carrier flights, general aviation and on-call air taxi flights play a critical role in moving people throughout the SCAG region and are thus a significant contributor to the region's economy. Several airports in the SCAG region, including a few of the larger commercial airports, such as SNA, and some of the reliever airports, including Chino and

Camarillo airports, serve a high volume of general aviation operations. The number of passengers traveling in the SCAG region via general aviation flights is substantial. Therefore, the pending closures of several general aviation and reliever airports in the SCAG region, such as Santa Monica Airport, and potential closures of others, such as Whiteman Airport, could have a significant impact on the region.

Table 3. General Aviation and Reliever Airports in the SCAG region

City Served	FAA	Airport Name	County	GA or Reliever
Apple Valley	APV	Apple Valley Airport	San Bernardino	General Aviation
Banning	BNG	Banning Municipal Airport	Riverside	General Aviation
Big Bear City	L35	Big Bear City Airport	San Bernardino	General Aviation
Blythe	BLH	Blythe Airport	Riverside	General Aviation
Brawley	BWC	Brawley Municipal Airport	Imperial	General Aviation
Calexico	CXL	Calexico International Airport	Imperial	General Aviation
Camarillo	CMA	Camarillo Airport	Ventura	Reliever
Chemehuevi Valley	49X	Chemehuevi Valley Airport	San Bernardino	General Aviation
Chino	CNO	Chino Airport	San Bernardino	Reliever
Compton	CPM	Compton/Woodley Airport	Los Angeles	Reliever
Corona	AJO	Corona Municipal Airport	Riverside	General Aviation
Daggett	DAG	Barstow-Daggett Airport	San Bernardino	General Aviation
El Monte	EMT	El Monte Airport (San Gabriel Valley Airport)	Los Angeles	Reliever
Fullerton	FUL	Fullerton Municipal Airport	Orange	Reliever
Hawthorne	HHR	Hawthorne Municipal Airport (Jack Northrop Field)	Los Angeles	Reliever
Hemet	HMT	Hemet-Ryan Airport	Riverside	General Aviation
Imperial / El Centro	IPL	Imperial County Airport (Boley Field)	Imperial	General Aviation
La Verne	POC	Brackett Field	Los Angeles	Reliever
Lancaster	WJF	General William J. Fox Airfield	Los Angeles	General Aviation
Los Angeles	WHP	Whiteman Airport	Los Angeles	Reliever
Murrieta / Temecula	F70	French Valley Airport	Riverside	General Aviation
Needles	EED	Needles Airport	San Bernardino	General Aviation
Oxnard	OXR	Oxnard Airport	Ventura	General Aviation
Palm Springs / Thermal	TRM	Jacqueline Cochran Regional Airport	Riverside	General Aviation
Palmdale	PMD	Palmdale Regional Airport / USAF Plant 42	Los Angeles	General Aviation
Redlands	REI	Redlands Municipal Airport	San Bernardino	General Aviation
Riverside	RAL	Riverside Municipal Airport	Riverside	Reliever
Riverside	RIV	March Air Reserve Base	Riverside	Reliever
San Bernardino	SBD	San Bernardino International Airport	San Bernardino	Reliever

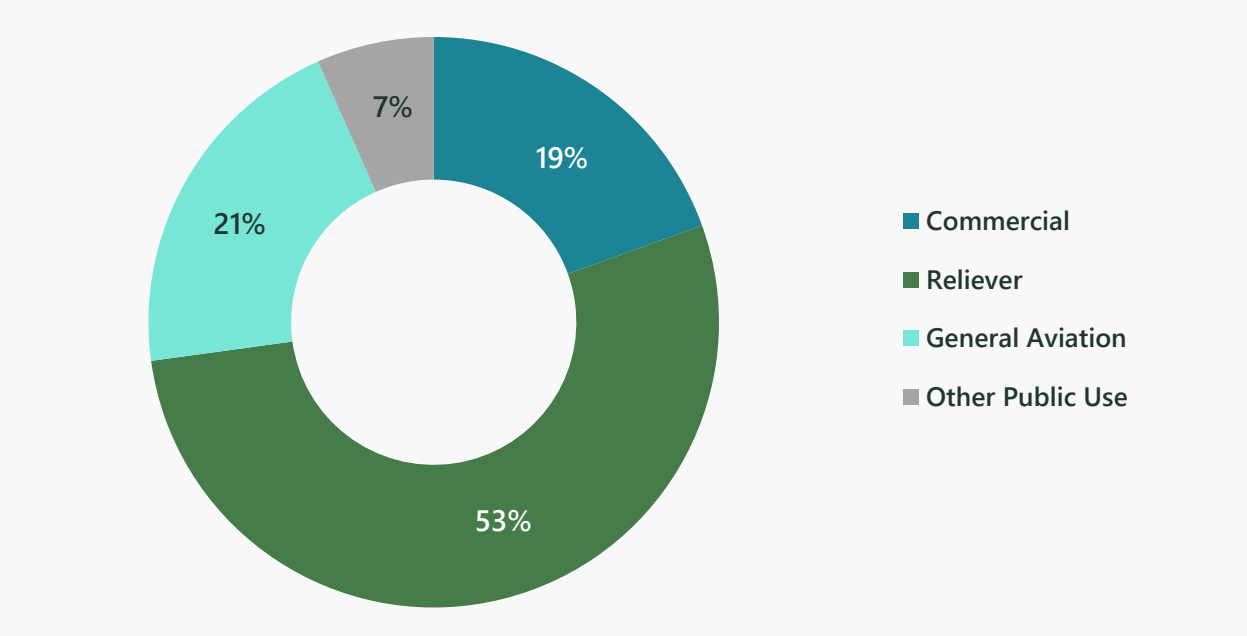
City Served	FAA	Airport Name	County	GA or Reliever
Santa Monica	SMO	Santa Monica Municipal Airport	Los Angeles	Reliever
Torrance	TOA	Zamperini Field	Los Angeles	Reliever
Twentynine Palms	TNP	Twentynine Palms Airport	San Bernardino	General Aviation
Upland	CCB	Cable Airport	San Bernardino	Reliever
Van Nuys	VNY	Van Nuys Airport	Los Angeles	Reliever
Victorville	VCV	Southern California Logistics Airport	San Bernardino	Reliever

Table 4. Other public-use airports in the SCAG region

City Served	FAA	Airport Name	County
Agua Dulce	L70	Agua Dulce Airpark (Agua Dulce Airport)	Los Angeles
Avalon	AVX	Catalina Airport	Los Angeles
Baker	0O2	Baker Airport	San Bernardino
Calipatria	CLR	Cliff Hatfield Memorial Airport	Imperial
Chiriaco Summit	L77	Chiriaco Summit Airport	Riverside
Hesperia	L26	Hesperia Airport	San Bernardino
Palm Springs	UDD	Bermuda Dunes Airport	Riverside
Perris	L65	Perris Valley Airport	Riverside
Riverside / Rubidoux	RIR	Flabob Airport	Riverside
Salton City	SAS	Salton Sea Airport	Imperial
Santa Paula	SZP	Santa Paula Airport	Ventura
Yucca Valley	L22	Yucca Valley Airport	San Bernardino

To highlight the importance of the non-commercial service airports in the region, it is important to note that the largest percentage (53 percent) of general aviation flew out of the reliever airports. Furthermore, the number of general aviation pilots using non-FPIAS public-use airports was significant at 6.65 percent.

Figure 5. Distribution of general aviation flights/operations by airport type (i.e., commercial service, reliever, general aviation, and other public use)



Sources: Airport Activity Reports, FAA TAF, FAA Operations Network (OPSNET), and AirNav website.

3.4 SURFACE TRANSPORTATION TO AND FROM THE AIRPORTS

As an MPO, SCAG's jurisdiction and focus when it comes to the airports and aviation systems planning is how passenger and cargo activity at the airports impacts the surface transportation system. Airports are significant trip generators in any region, and especially the SCAG region. What is of particular concern is the dominance of private vehicles, which include personal drop-offs and pickups and transportation network companies (TNC), traveling to and from the airports in the region.

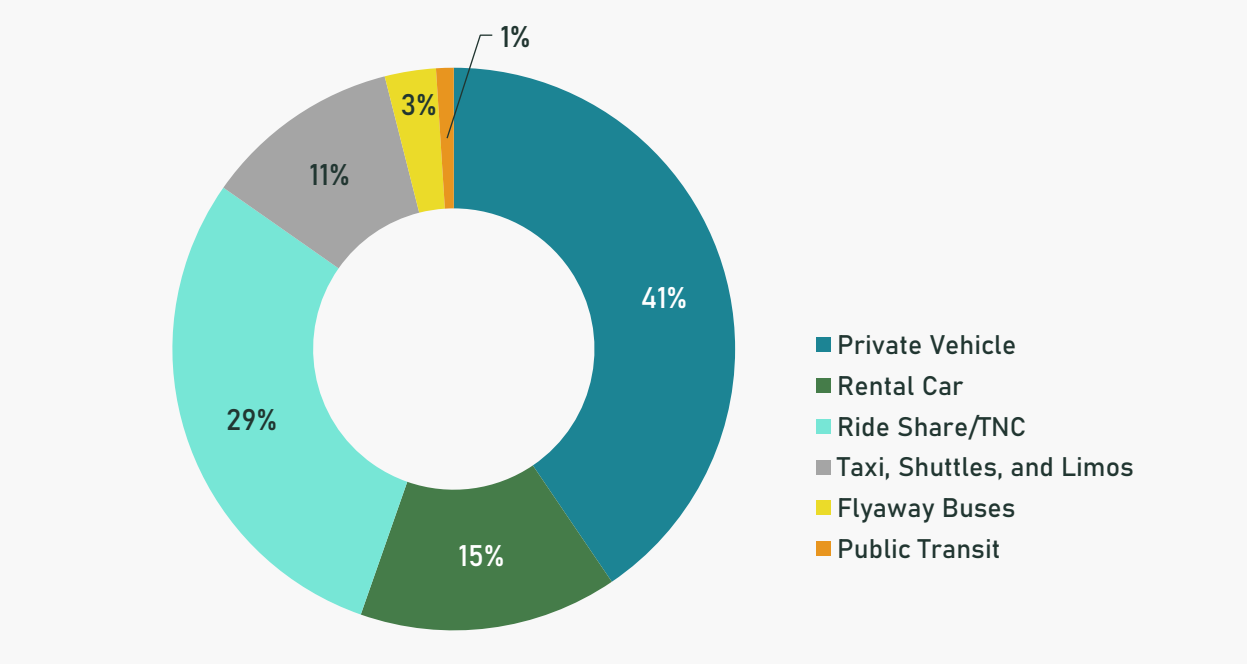
3.4.1 BREAKDOWN OF AIRPORT SURFACE TRANSPORTATION MODE CHOICE

Relatively few air passengers used public transit to travel to and from the airports in the SCAG region. According to passenger surveys conducted by LAWA and SNA, in 2019, most passengers arrived to and departed from the airports via personal private vehicle. The passenger surveys found that personal private vehicles, by drop-off/pickup and by travelers driving themselves, comprised approximately 40 percent of the ground trips to and from the airports. In contrast, the airport passenger surveys found that transit was the least preferred mode of travel to and from the region's airports at approximately one percent. In 2022, there were on average over 260,000 passengers a day taking trips to and from the airports in the SCAG region. Therefore, approximately 100,000 passengers per day arrived and departed from the region's airports via their personal private vehicles, while less than 3,000 used public transit. The congestion caused by these private vehicles is becoming increasingly apparent at most of the commercial service airports in the SCAG region and the nation. Furthermore, the issue of private vehicle congestion has been made worse with the growing popularity of TNCs (- e.g., Uber, Lyft).

A change in ground transportation to and from the airports is the proliferation of TNCs. In recent years, the advent of TNCs has had a significant impact on the surface transportation traffic at the region's

airports. Based on the airport passenger surveys, private vehicles and TNCs (i.e., drivers also in private vehicles but transporting other passengers) combined comprised most of the passenger pickups and drop-offs to the region's airports at approximately 70 percent. Based on data provided by the airports, in 2022, there were approximately 15 million TNC drop-offs and pickups combined at the region's airports. That number has most likely increased in 2022 and will likely increase going forward. The growth in TNC-based travel is in part substituting for the number of personal vehicle usage, and the reduced taxi and paid shuttle drop-offs and pickups. However, the significant use of TNCs is doing little to mitigate or reduce congestion in and around the SCAG region airports, but rather, has made congestion worse.

Figure 6. Estimated Airport Ground Trips by Mode (Percentage breakdown by mode)

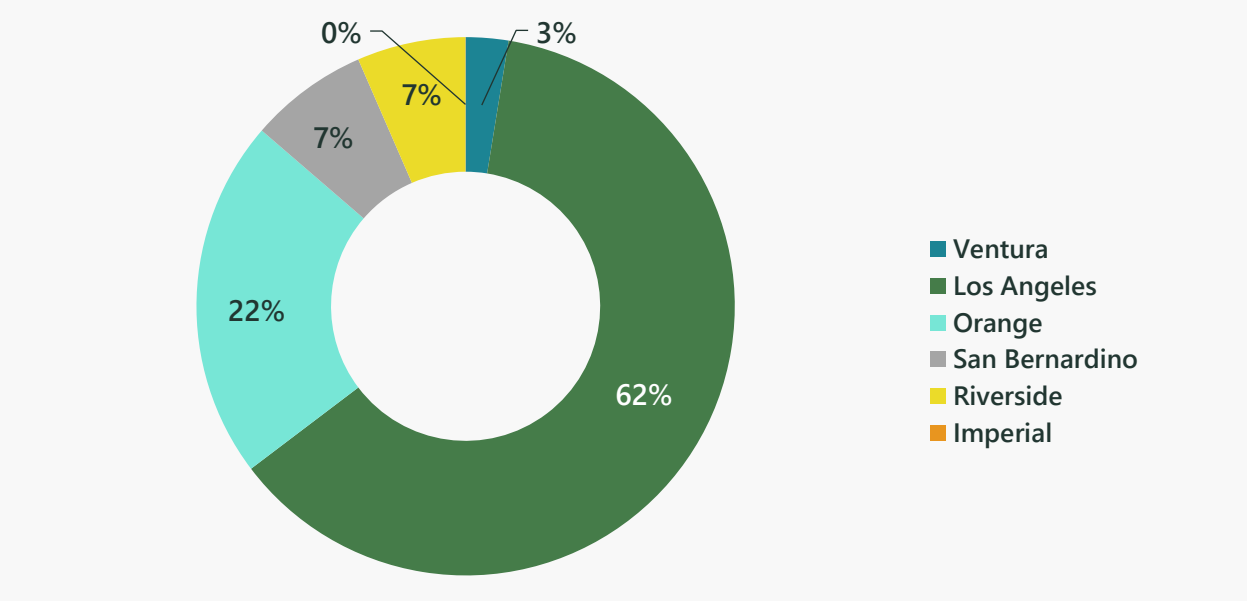


Sources: SNA 2022 Passenger Survey and LAX 2019 Passenger Survey.

3.4.2 PASSENGERS BY AIRPORT AND TRIP ORIGIN

According to an analysis conducted by AECOM, an estimated 62 percent of airport passengers in the region were coming from Los Angeles County, followed by Orange County. As the county with the highest population in the region, identifying that most air passengers were coming from Los Angeles County was expected. However, Los Angeles County comprises approximately 54 percent of the total SCAG region population. Thus, there was a higher percentage of estimated air passengers from Los Angeles County than the actual population in the region. In addition to the larger overall population, the higher share of passengers coming from Los Angeles County is also likely due to demographic characteristics (e.g., income, education), which has resulted in higher demand. The higher demand for air travel is supported by the fact that there are three airports providing commercial air service within Los Angeles County: LAX, LGB, and BUR. Similarly, Orange County's proportional demand for air travel exceeded its overall population. As the second most populous county in the region, with approximately 17 percent of the total population, an estimated 21.6 percent of the air passengers were coming from Orange County. Finally, in addition to county of origin, it must also be noted that air passengers do not necessarily use the airports in closest proximity for various reasons.

Figure 7. Estimated Trip Origin by Air Travelers in the SCAG region.

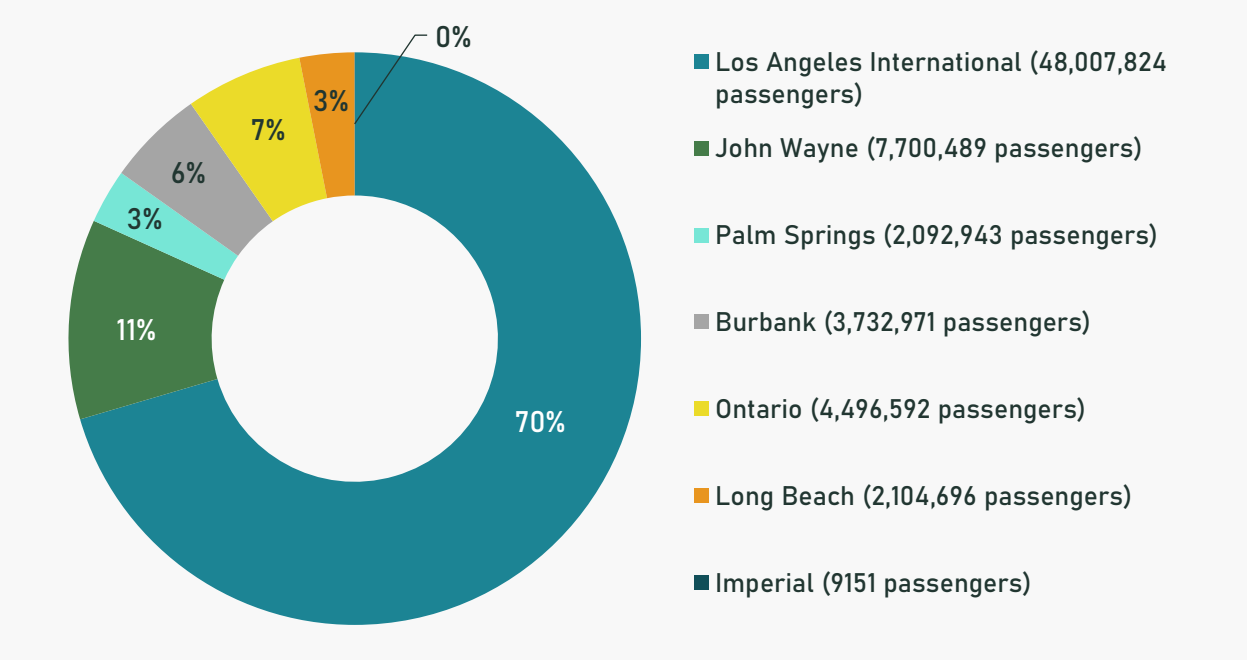


Source: AECOM (2015)

Air passengers do not always use the airports within closest proximity or their respective county. According to 2021 commercial passenger airport activity data, 70 percent of air passengers in the region flew into or out of LAX. Despite an estimated 22 percent of the air passengers in the SCAG region coming from Orange County, SNA only served 11 percent of the air passengers in the region. Similarly, despite an estimated 14 percent of the air passengers in the region coming from Riverside and San Bernardino Counties, ONT only provided 7 percent of the air service in the region. From these figures, one can reasonably conclude that air passengers are venturing out of their counties and catchment areas (i.e., geographic area from which passengers are drawn to the air services of an airport) to other airports.

The primary factors for airport choice, besides proximity, include the number of airlines and flight options, the number of direct flights and the price of airfare. According to a case study of the Los Angeles basin conducted in the Airport Cooperative Research Program (ACRP) report, "Understanding Airline and Passenger Choice in Multi-Airport Regions" (ACRP, 2013), LAX offers the most nonstop flight and airline options. Consequently, following the Airline Deregulation Act of 1978, airlines, and subsequently air passengers, increasingly have made their airport choices based on market factors.

Figure 8. Distribution of Passengers Across Airport (2021) (Percentage Breakdown by Airport)



Source: Airport Activity Reports and Bureau of Transportation Statistics T-100 Market Database

3.4.3 ESTIMATED AUTO AND TRUCK TRIPS

As a result of the airport passenger and cargo activity, there is a high degree of auto and freight truck traffic coming to and going from airports in the SCAG region. Based on airport passenger and cargo data for the Connect SoCal 2024 base year (2019), the SCAG modeling program has estimated average daily auto and truck trips. The table below highlights estimated average daily auto and truck trips at six select commercial service airports in the SCAG region for illustrative purposes. Please note that the estimated daily auto and truck trips are approximations and may have since been adjusted from what is listed below due to recalibrations in the SCAG transportation models.

Table 5. 2019 Estimated Daily Auto and Truck Trips to Airports

	2019	
	Auto	Truck
Burbank Airport	13,881	348
Los Angeles International Airport	139,812	3,980
Long Beach Airport	7,446	393
John Wayne Airport	23,731	239
Palm Springs International Airport	5,816	681
Ontario International Airport	12,533	2,413

3.5 HISTORIC AIR PASSENGER AND CARGO TRENDS IN THE SCAG REGION

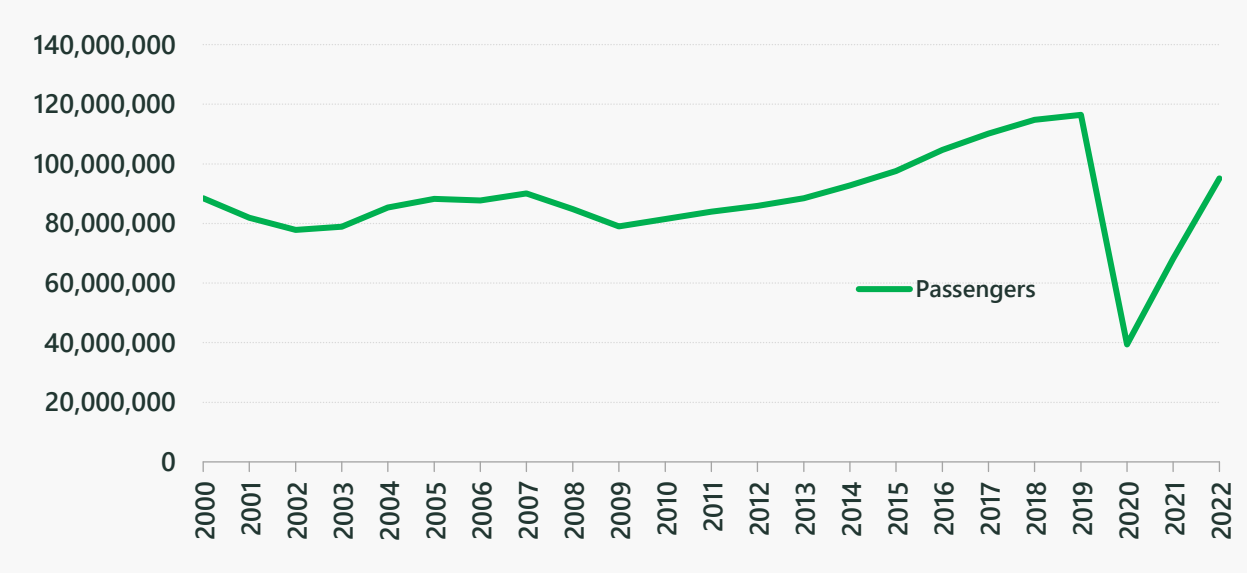
Despite downturns and recessions, air passenger and cargo activity in the region has grown steadily over the years. Most recently, following a significant downturn of almost 100 percent (versus pre COVID-19 2019 levels) in passenger demand during March and April 2020, the earliest months of the COVID-19 pandemic, air passenger activity in the region has slowly recovered. Similarly, air cargo activity in the SCAG region has grown steadily over the past two decades. However, unlike passenger demand, cargo activity in the region increased during the COVID-19 pandemic. In both 2021 and 2022, almost four million tons of air cargo were flown to and from the SCAG region's airports. Whereas, in 2019, just prior to the COVID-19 pandemic, the SCAG region moved 3.19 tons of cargo.

Prior to the COVID-19 pandemic, air passenger and cargo traffic in the region increased at a steady rate over the past two decades. Despite slow periods following 9/11 and the Great Recession, air passenger and cargo demand always recovered within a few years. Moreover, from 2013 to 2019, air passenger and cargo traffic in the SCAG region increased at dramatic rates. Most interestingly, despite a historic decrease of air passenger traffic by almost 100 percent in 2020 at the onset of the pandemic, air cargo activity in the SCAG region increased at the onset of COVID-19.

3.5.1 HISTORIC AIR PASSENGER TRENDS (2000 TO 2022)

Despite some downturns, air passenger traffic in the region has increased at a steady rate over the past two decades, with a particularly vigorous growth rate in recent years up until the COVID-19 pandemic. While the air passenger growth from 88.5 million annual passengers (MAP) in 2000 to 110.17 MAP in 2017 appears relatively modest at 1.3 percent annual growth, the overall growth during this seventeen-year period reflects downturns that occurred following 9/11 and the Great Recession. After starting off the century at 88.5 MAP, air passenger travel experienced a decline following 9/11 going from 81.9 MAP in 2001 to 77.9 MAP in 2002. Air travel increased again until the Great Recession in 2006, which saw air travel demand go down as low as 79.1 MAP in 2009. However, following the dips in 2002 and 2009, air travel in the region has grown at a steady rate, with a noticeable increase following 2012. Post-Great Recession, the increase in air passenger traffic had been robust until the COVID-19 pandemic. The region saw an increase from 85.8 MAP in 2012 to 110.17 MAP in 2017, an increase of 28 percent or 5.12 percent per year growth, making the SCAG region one of the fastest growing for passenger traffic when compared to other metropolitan regions, such as New York/New Jersey and Washington DC. Overall, the SCAG region has been one of the most active in terms of air passenger traffic, as well as annual air passenger demand growth. After hitting a historic low in passenger demand of 39.4 MAP in 2020 due to the COVID-19 pandemic, the SCAG region recovered dramatically by 2020 at 95.15 MAP.

Figure 9. Historic Passenger Demand in SCAG region (2000 to 2022)



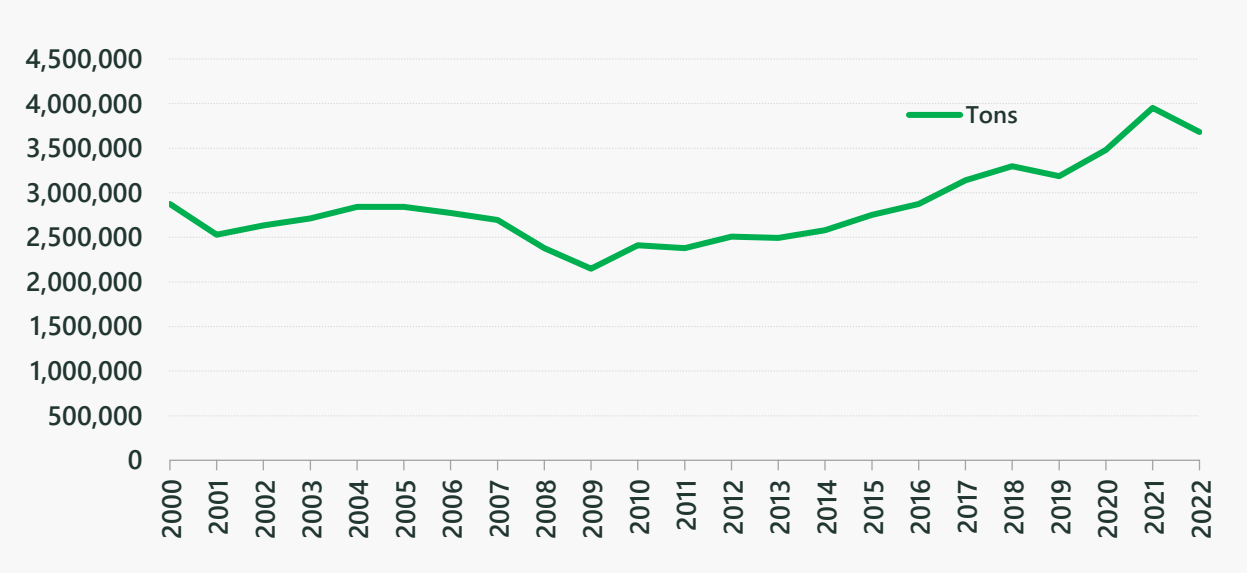
Source: Airport Activity Reports

3.5.2 HISTORIC AIR CARGO TRENDS (2000 TO 2022)

Although the air cargo activity in the region is currently operating at high levels, in terms of tonnage moved, as is the case with air passenger travel, air cargo demand has been sensitive to changes in the economy. Due to significant downturns in the air cargo industry caused by 9/11 and the Great Recession, the overall growth in regional air cargo traffic had been relatively flat until 2020. From 2000 to 2017, air cargo grew marginally at 0.52 percent annual growth, going from 2.87 million tons of cargo in 2000 to 3.19 million tons in 2019. However, what appears to be a flat growth rate is a byproduct of the dips caused by 9/11 and the Great Recession. When broken down into smaller time periods, the growth in air cargo demand in the SCAG region becomes more dramatic. Following 2010, air cargo experienced a boom, with air cargo demand hitting especially robust growth from 2012 onwards.

In recent years, air cargo activity in the SCAG region has experienced a dramatic upsurge, including during the COVID-19 Pandemic. From 2012 to 2017, air cargo activity grew at an annual rate of 4.6 percent. The growth over the last decade is due in great part to a relatively healthy post-Great Recession economy. However, what was particularly surprising was the growth during the pandemic. From 2017 to 2021, air cargo grew at an annual rate of 5.9 percent, with air cargo activity in the SCAG region coming down from 3.95 million tons in 2021 to over 3.7million tons in 2022.

Figure 10. Historic Air Cargo Demand in the SCAG region (in tons) (2000 to 2022)

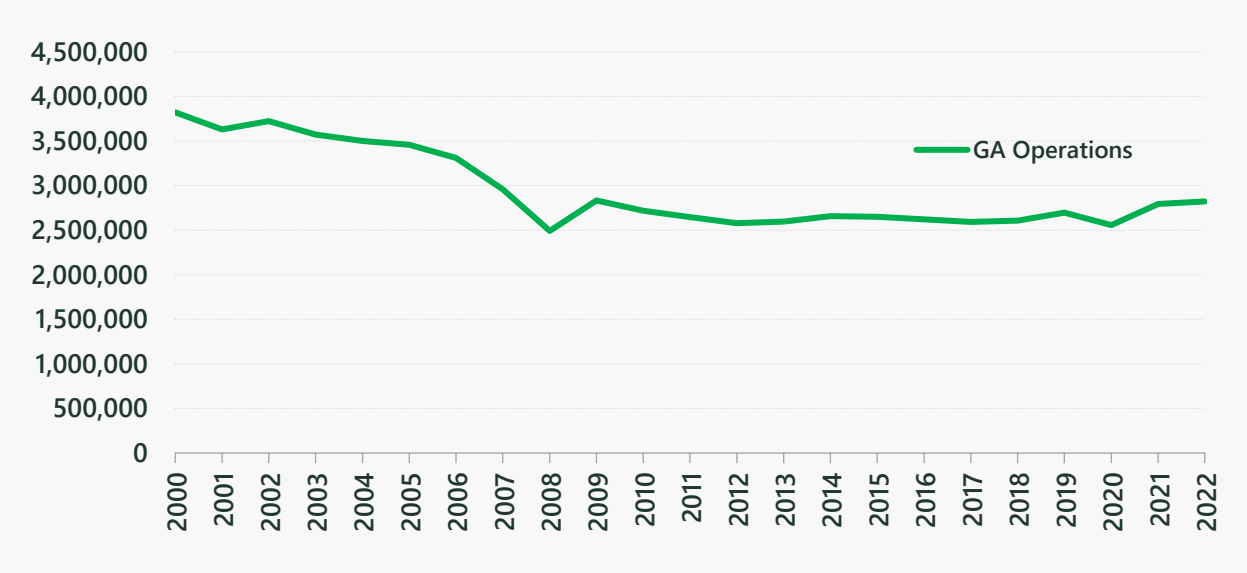


Source: Airport Activity Reports

3.5.3 GENERAL AVIATION TRENDS: GENERAL AVIATION HAS BEEN TRENDING DOWN (HISTORICALLY)

Despite high activity at some airports, general aviation operations in the region experienced a steady decline overall from 2000 to 2022. Unlike commercial air passenger travel, which saw a steady increase, general aviation declined significantly from 2000 to 2019. In 2022, there were approximately 2.9 million local and itinerant general aviation operations in the SCAG region airports, a 24.5 percent reduction from the 3.8 million general aviation operations in 2000. General aviation operations declined at an annual rate of 1.47 percent from 2000 to 2019. It should be noted that the decline in general aviation activity was an average across all airports in the SCAG region, and that some airports experienced an increase in general aviation activity. Moreover, despite the overall decline from 2000 to 2022, general aviation in the region did experience a slight uptick from 2012 to 2019 at an annual growth rate of 1.62 percent.

Figure 11. General Aviation Operations in the SCAG region (2000 to 2022)



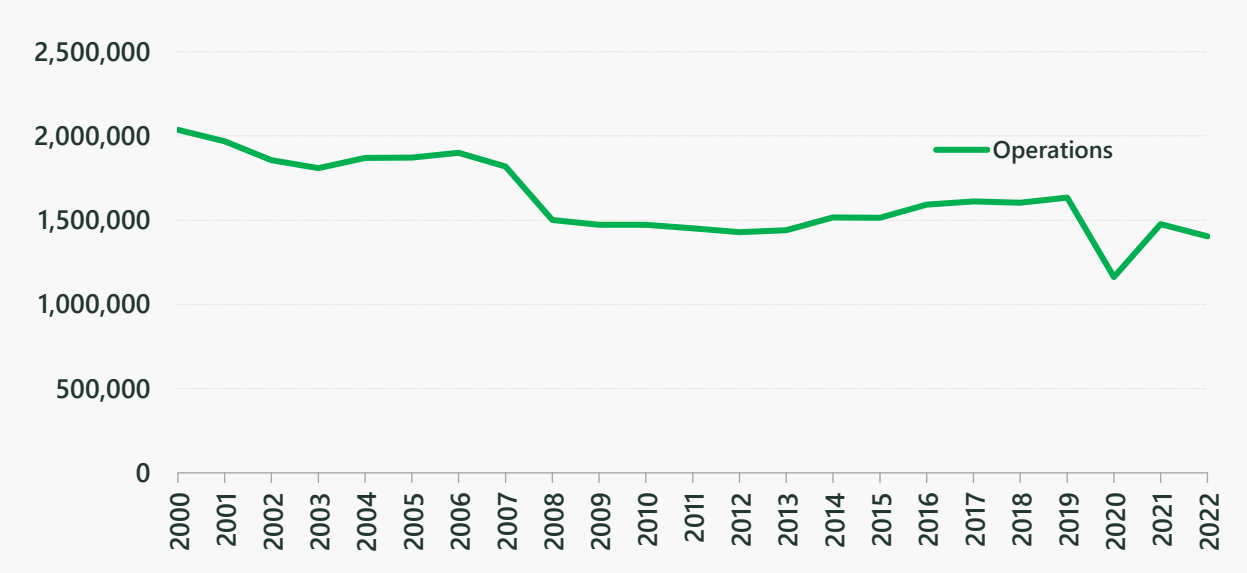
Sources: Airport Activity Reports, FAA TAF, FAA Operations Network (OPSNET), and AirNav website.

3.5.4 TOTAL AIRCRAFT OPERATIONS: AIRCRAFT OPERATIONS DO NOT CORRELATE WITH PASSENGER NUMBERS, DUE TO VARIOUS FACTORS (E.G., LARGER PLANES, LARGER LOAD FACTORS).

Growth in passenger and cargo demand has not resulted in increased aircraft operations in the SCAG region. Air passenger activity in the SCAG region has increased steadily from 2000 to 2019 and significantly from 2012 to 2017, then decreased dramatically from 2019 to 2020 with another increase from 2020 to 2022. Following a dip in 2009, air cargo activity in the region has increased steadily until 2022 at a rate of 4.23 percent. However, in contrast to air passenger and cargo demand, aircraft operations decreased overall from 2000 to 2022. The SCAG region commercial, reliever and general aviation airports declined from 5.1 million operations in 2000 to 3.8 million operations in 2022. Overall, aircraft operations in the region decreased by an annual rate of 1.36 percent, or 26 percent total, from 2000 to 2022. Therefore, as evidenced by the data, increased passenger and cargo activity does not result in aircraft operations.

Aircraft operations did not grow as dramatically as the number of air passengers or cargo activity due to various factors. Much of the difference between air passenger and cargo activity versus aircraft operations can be explained by the larger newer model aircraft (e.g., Airbus A380, Boeing 747-8), planes with smaller seats and more rows, and airlines running at higher load factors (e.g., over 90 percent versus 70 percent) than in the past. At the peak of the COVID-19 pandemic, some air carriers used passenger cabin space for air cargo (i.e., mail, freight, and express). Therefore, by accommodating more passengers and cargo per flight, aircraft operations have decreased despite increased demand.

Figure 12. Historic Aircraft Operations in the SCAG region (2000 to 2022)



Sources: Airport Activity Reports, FAA TAF, FAA Operations Network (OPSNET), and AirNav website.

3.5.5 SCAG REGION VERSUS OTHER REGIONS

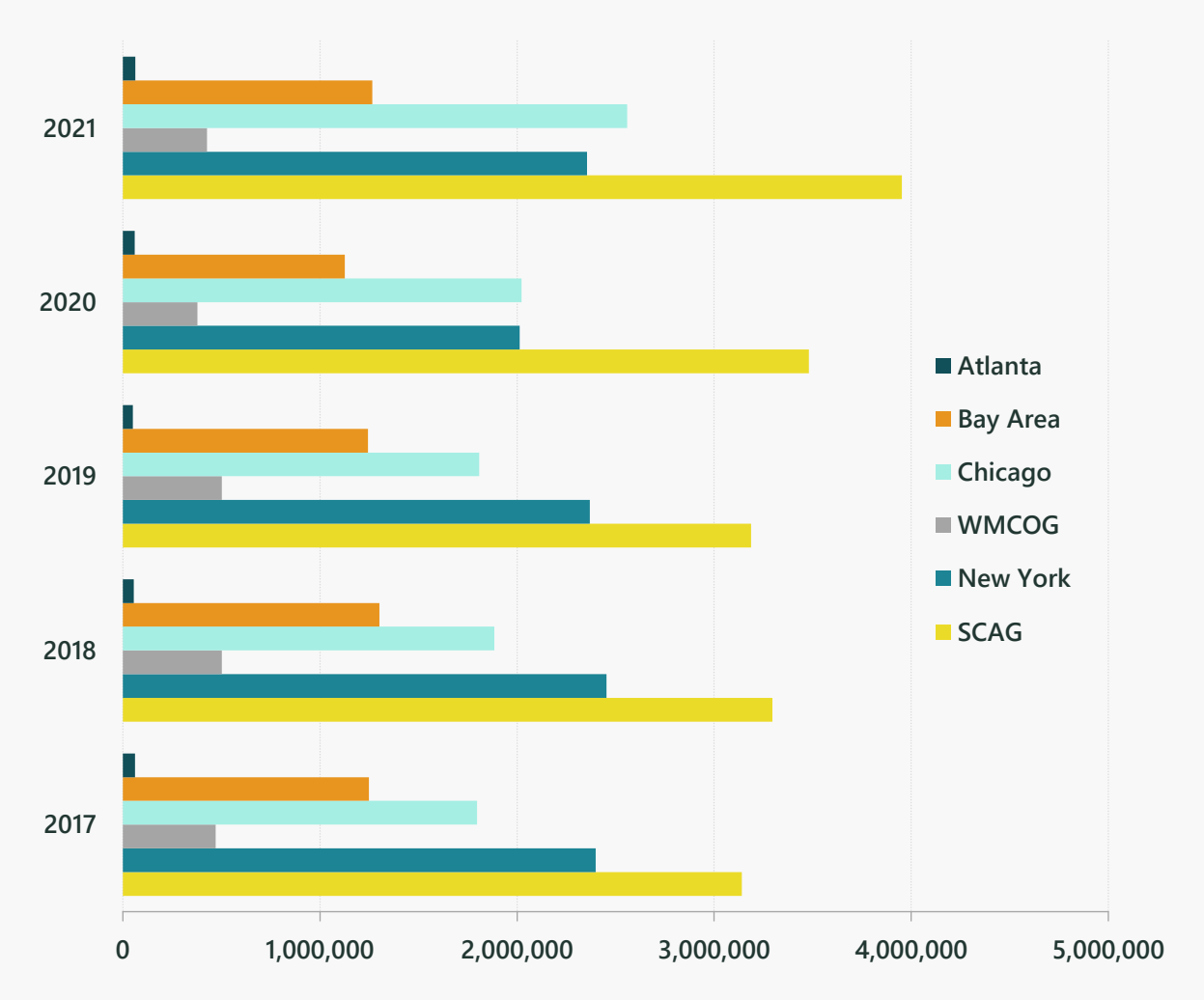
Prior to the onset of the COVID-19 pandemic, the six-county SCAG region was one of the most active and fastest growing regions for air passenger and cargo demand in the United States. In 2019, at 116.45 MAP, the SCAG region was second only to the New York/New Jersey region for air passenger traffic, which saw activity of 138.27 MAP. Moreover, the growth rate of 4.65 percent for passenger demand in the SCAG region from 2014 to 2019 was second only to the Bay Area at 5.50 percent for the same period. As for air cargo, at 3.19 tons, the SCAG region was ahead of the New York/New Jersey, Atlanta, Bay Area, Washington DC, and Chicago, metropolitan regions in 2019. In general, the pre-COVID high level air passenger and cargo activity and growth observed in the SCAG region was a trend that occurred throughout the United States. Similarly, the regions were all impacted by the COVID-19 pandemic.

Figure 13. Air Passengers SCAG versus other major metropolitan regions (2017 to 2021)

Sources: Airport Activity Reports.

In comparison to other metropolitan regions, the COVID-19 pandemic had a particularly negative impact on air passenger demand but a positive impact on air cargo demand in the SCAG region. Despite being the second most active region for air passenger activity behind New York/New Jersey prior to the pandemic in 2019, the SCAG region fell behind New York/New Jersey, Atlanta, and Chicago in 2020 and 2021. However, the COVID-19 pandemic resulted in the SCAG region surging further past the other metropolitan regions in terms of air cargo activity. Amid historic levels of air passenger and cargo activity in the region, the United States, and globally, the COVID-19 pandemic impacted passenger and cargo demand in expected and unexpected ways.

Figure 14. Air Cargo SCAG versus other major metropolitan regions (Tons) (2017 to 2021).

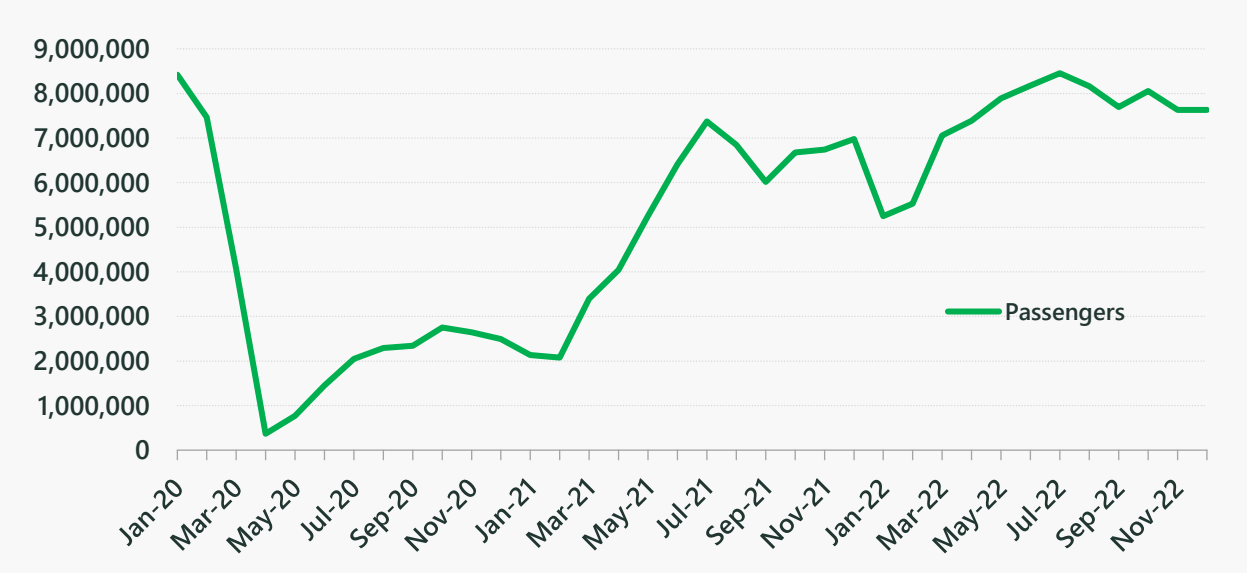


Sources: Airport Activity Reports.

3.5.6 IMPACT OF COVID-19 ON AIR PASSENGER AND CARGO ACTIVITY IN THE SCAG REGION

Although the COVID-19 pandemic significantly reduced air passenger activity in the SCAG region, surprisingly, air cargo activity increased during that period. Air passenger demand in the region hit a historic depression during the first months of 2020. Early 2020 was when both the COVID-19 pandemic began to surge and nations abroad, the United States, and states, counties and cities, domestically, began enacting travel restrictions.

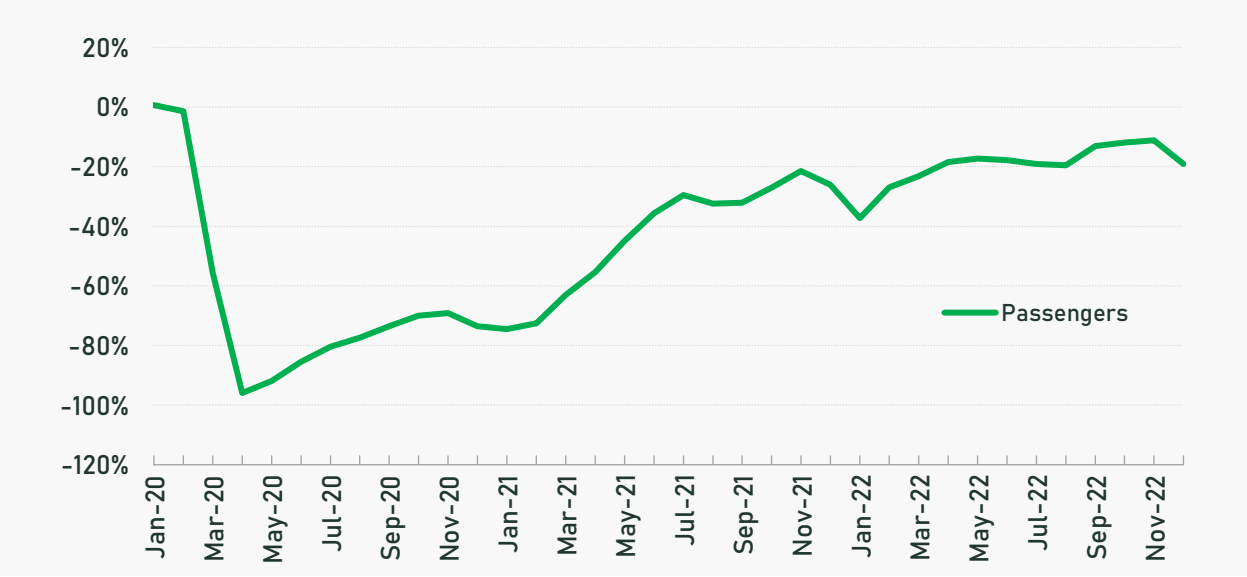
Figure 15. Monthly Air Passengers in SCAG region (January 2020 to December 2022)



Sources: Airport Activity Reports.

After a historic drop, passenger demand in the SCAG region began a slow but steady recovery. The post COVID-19 recovery pattern has been referred to as the "Nike Swoosh" by some economists due to the resemblance graphs of economic activity have with the Nike logo. By observing percentage comparisons with 2019, one can better understand the impact of the COVID-19 pandemic on the air travel industry. The initial dip in air passenger demand in the SCAG region hit almost 100 percent below the activity of the corresponding months in 2019. Throughout 2020, air passenger activity in the SCAG region was below 2019 levels by over 60 percent. However, starting in spring of 2021, air passenger activity began to rapidly increase. By fall 2022, air passenger demand in the SCAG region was within 10 percent of 2019 levels.

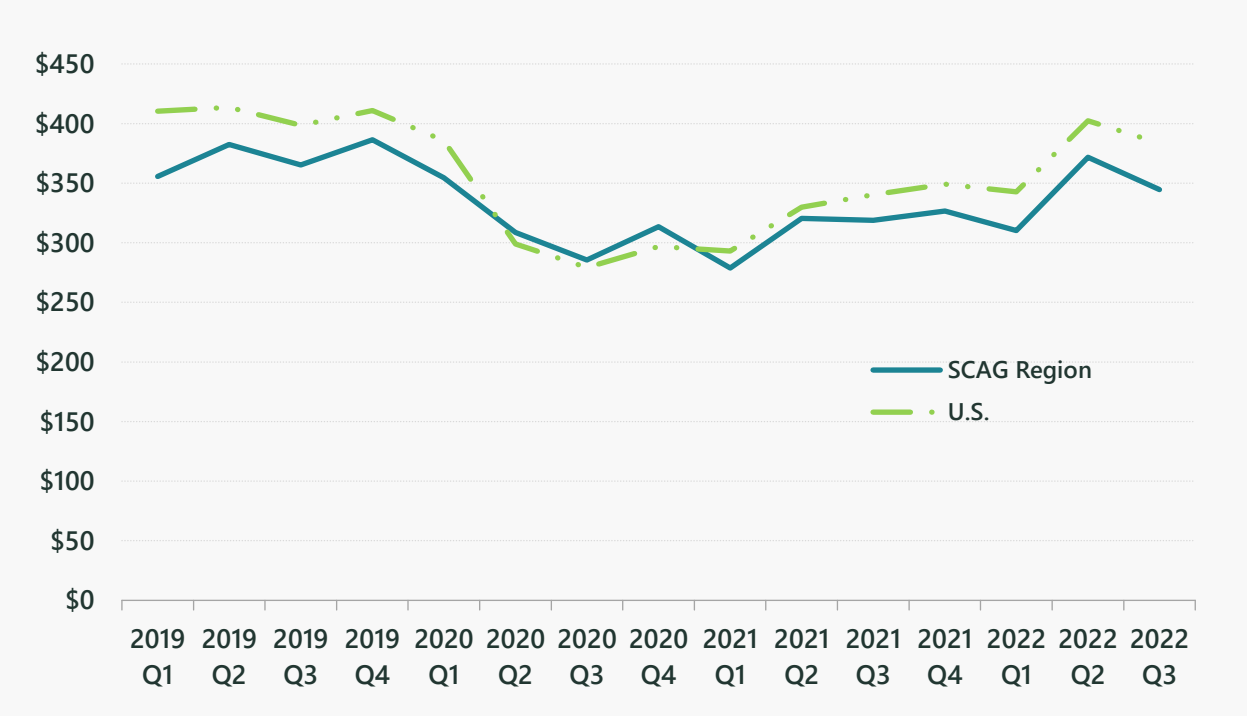
Figure 16. Monthly percent Change Air Passengers in SCAG region vs Same Month in 2019 (January 2020 to December 2022)



Sources: Airport Activity Reports.

Interestingly, airfares in the SCAG region have remained relatively flat before and after the COVID-19 pandemic. From 2019 until 2022, airfares in the region remained at an average of $334.87. Of note, the average inflation adjusted airfare in the region never exceeded $400 during this time. In contrast, the average inflation adjusted airfare for the United States was $355.68 for that same period.

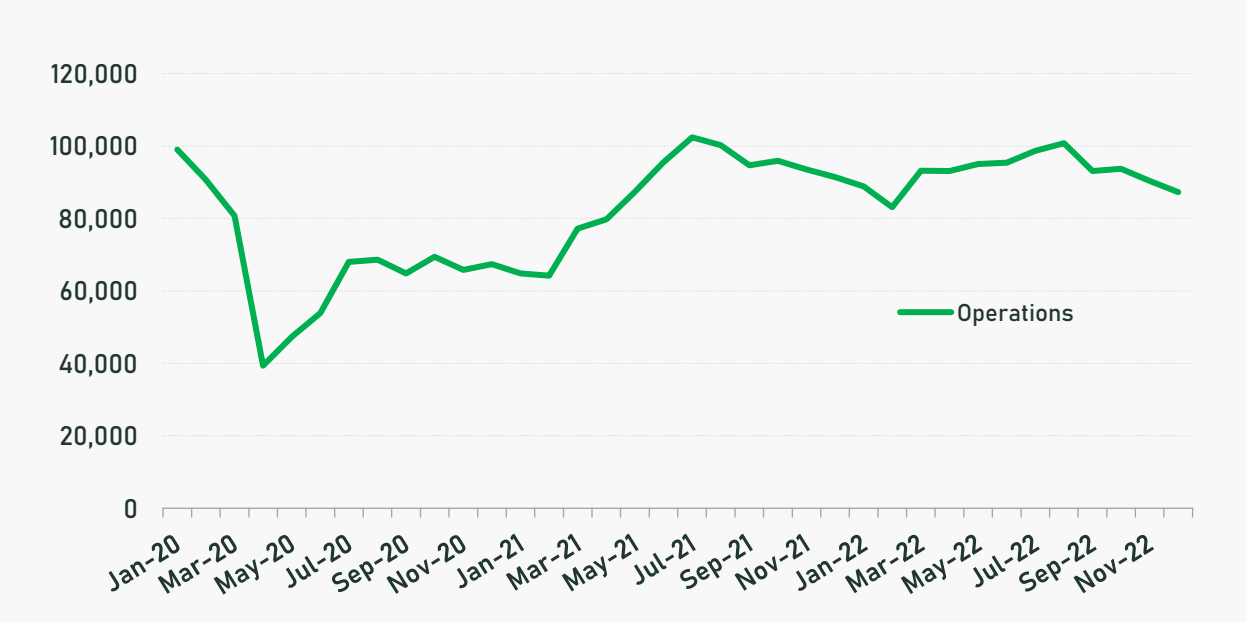
Figure 17. Average (Inflation Adjusted) Airfare in the SCAG region versus the United States by quarter (2019 to 2022) (Note: the numbers are adjusted to 2022 dollars)



Source: Bureau of Transportation Statistics, Average Domestic Airfares

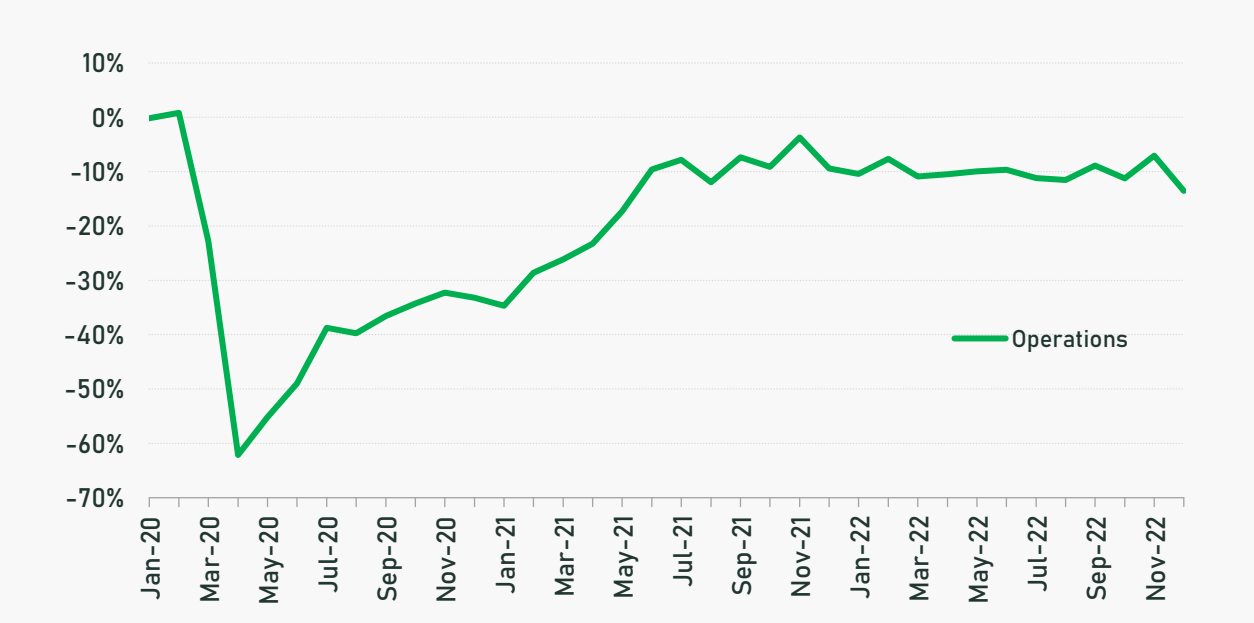
The volatility observed with air passenger demand did not occur with aircraft operations in the region. Aircraft operations do not generally correlate with air passenger and cargo activity. Due to plane sizes (e.g., larger planes), the number of seats in planes, and load factors (i.e., passenger occupancy of a plane), aircraft operations will often remain flatter than passenger and cargo demand. During times of surging passenger and cargo activity, airlines will operate larger planes, add seats, and fly at higher load factors/occupancy. Conversely, during recessions, airlines will utilize smaller planes with fewer seats, and operate at lower load factors/occupancy. Of note, during the height of the COVID-19 pandemic, some airlines used passenger cabins for air mail and express.

Figure 18. Monthly Aircraft Operations in SCAG region (2020 to 2022)



Sources: Airport Activity Reports.

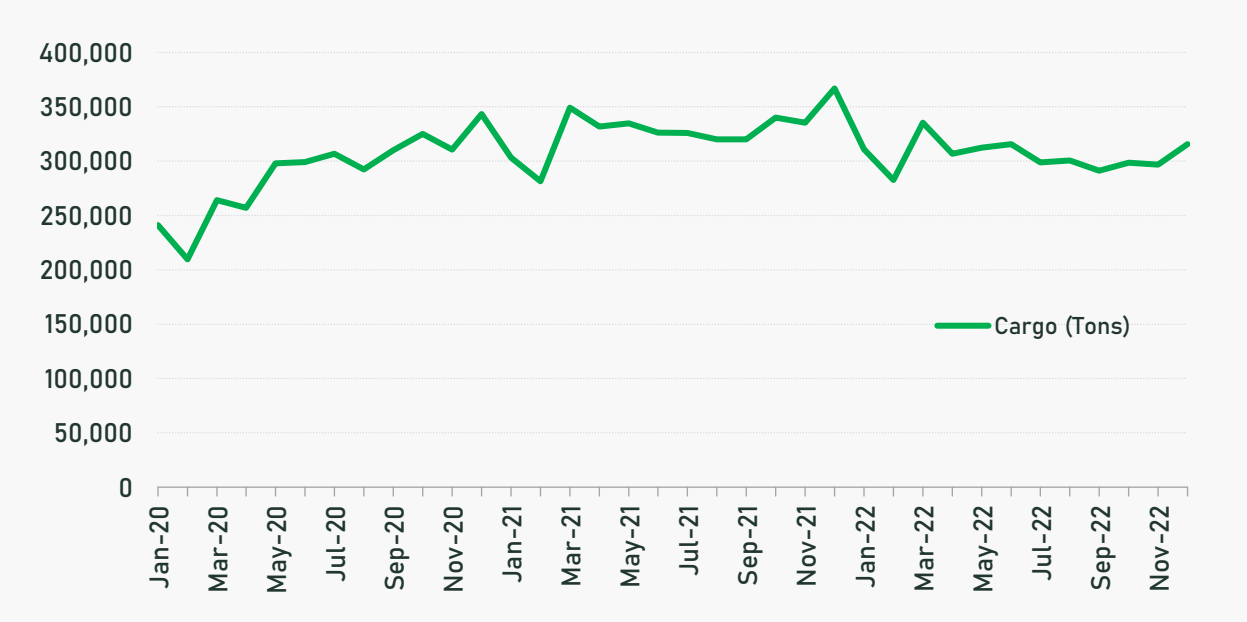
Figure 19. Monthly percent Change Aircraft Operations in SCAG region vs Same Month 2019 (Jan 2020 to Dec 2022)



Sources: Airport Activity Reports.

Unlike passenger activity, air cargo demand surged during the COVID-19 pandemic. Throughout 2020 to 2022, air cargo activity in the region has not experienced significant drops.

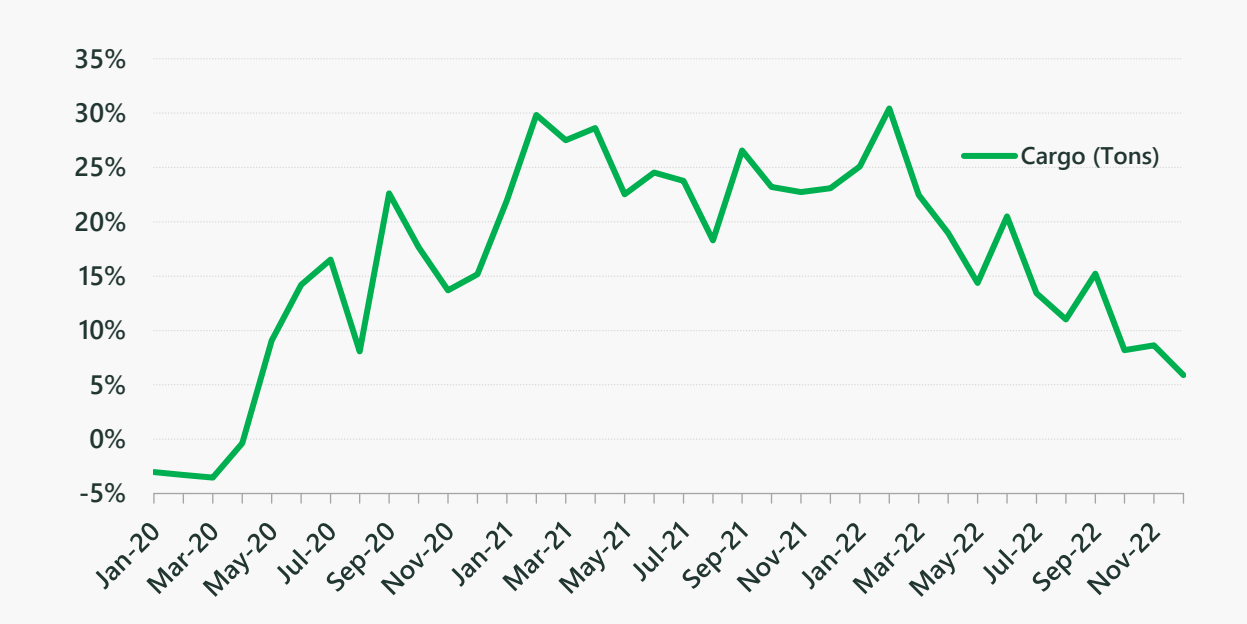
Figure 20. Monthly Air Cargo in SCAG region (2020 to 2022)



Sources: Airport Activity Reports.

By observing air cargo activity in comparison to corresponding months in 2019, the surge of air cargo demand during the COVID-19 pandemic becomes evident. As early as May 2020, air cargo activity levels were ahead of the corresponding months in 2019. In February 2021 and February 2022, air cargo activity in the region was almost 30 percent greater than in 2019. The increase in air cargo in the SCAG region and the Nation was likely buttressed by the surge in e-commerce during the pandemic. According to the 2020 Annual Retail Trade Survey (ARTS) release, e-commerce sales increased by $244.2 billion or 43 percent in 2020, the first year of the pandemic, rising from $571.2 billion in 2019 to $815.4 billion in 2020.

Figure 21. Monthly percent Change Air Cargo in SCAG region vs Same Month 2019 (Jan 2020 to Dec 2022)



Sources: Airport Activity Reports.

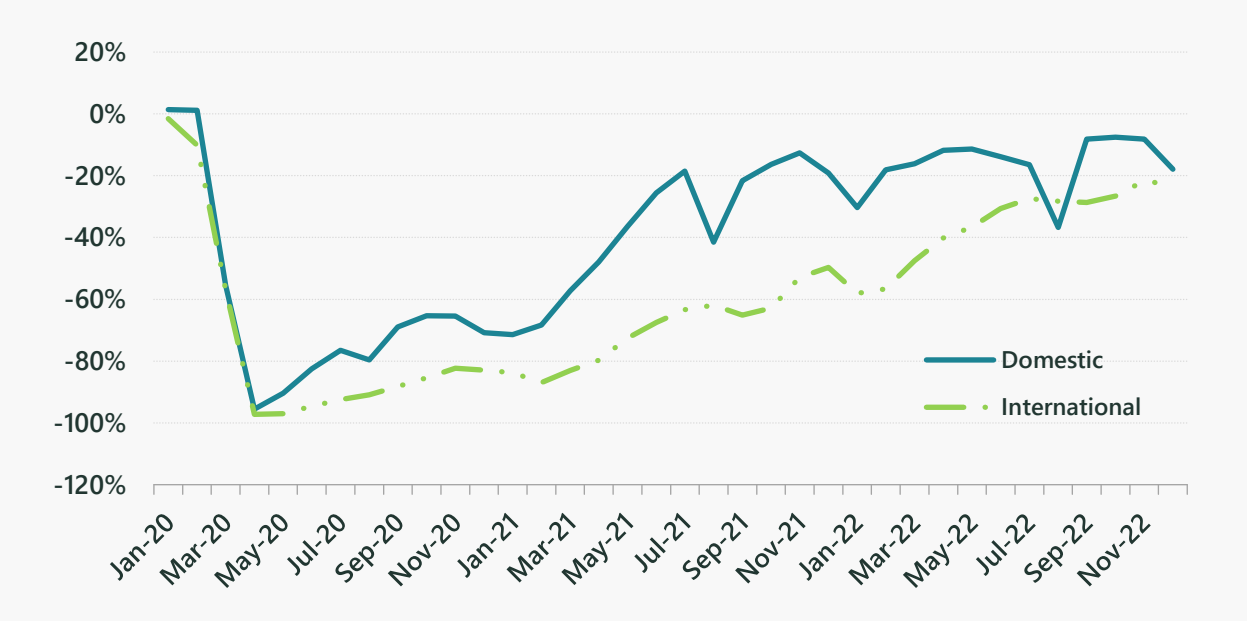
Domestic air travel recovered faster than international travel. After dropping by almost 100 percent (versus the same month in 2019) in the early months of the COVID-19 pandemic and travel restrictions, domestic travel in the region was within less than 13 percent of 2019 levels by November 2021. International travel was below 19 percent of 2019 levels in November 2021. However, entering 2022, international travel began to approach 2019 levels as well. The FAA and IATA both estimate that air travel should return to 2019 levels by 2024/2025, though potential surges in COVID-19 and travel restrictions will impact the recovery of the aviation industry. Finally, similar to the manner in which domestic travel has recovered faster than international travel, leisure and "visiting friends and relatives" (VFR) travel has recovered faster than business travel.

The recovery time for business travel is much more uncertain than international travel. Initially, due to concerns with health and travel bans, companies went to virtual meetings instead of in-person meetings. According to Business Travel News Europe, most employers have become accustomed to holding small, short meetings over Zoom or Microsoft Teams. As a result, business travel suffered. However, opinions differed on whether virtual meetings would work for larger events, such as tradeshows, conferences and annual meetings. Regardless, employers noticed the cost savings of virtual versus live events, and employees concerned about their carbon footprint viewed virtual meetings as the preferred alternative. Going forward, employers will likely go with a combination of virtual and in-person meetings.

Despite some analysts predicting that the industry would never recover to pre-pandemic levels, business travel did recover more strongly in 2022 than was predicted during the depths of the COVID-19 recession. In a survey of corporate travel managers conducted by the Global Business Travel Association in September 2022, it was estimated that domestic business travel was back up to 63 percent of pre-pandemic levels, and international business travel was at 50 percent of those levels. The recovery in business travel was due in part to companies realizing that in-person meetings served a purpose. The recovery in business travel was once again slowed down in early 2023 due to uncertainty surrounding the

economy[24]. As a critical component to the regional economy, the well-being of the airports and the aviation industry will be an area to monitor in the coming months and years.

Figure 22. Domestic versus International Travel Monthly Percent Change in SCAG region vs 2019 (2020 to 2022).



Sources: Airport Activity Reports.

3.6 ECONOMIC BENEFITS OF AIRPORTS IN THE SCAG REGION

Airports bring numerous economic benefits to the SCAG region. Airports play an integral role in the movement of people, goods and services throughout the region, nation and world. Airport services also generate economic benefits for the residents and the regions where they operate. Airports contribute to job creation, goods movement, facilitation of visitor spending, tax revenues and other indirect and multiplier benefits. As is the case throughout the nation and world, the airports in the SCAG region provide multiple economic benefits.

They are also job creators. Over 700,000 jobs are generated by airport services in the SCAG region, with over 10 percent of the jobs directly located on-site. Airport services create direct, indirect and induced employment. As noted by the Airport Cooperative Research Program study, Measuring and Understanding the Relationship Between Air Service and Regional Economic Development (2022), the economic impacts of airports go reach outside airport property and impact the local and regional economy. The California Airport Council's Economic Impact Study of California Airports (2017) suggests that on-site jobs at a commercial airport have a multiplier effect that creates three or more off-site jobs. Examples of direct employment include personnel hired by the airport administration and by the airlines, concessionaries and other related companies in the ongoing operations of the airport, such as ticket agents, maintenance workers and freight handlers. Indirect employment includes supplier industries that support airport operation, such as office product suppliers. Induced employment is created by the spending of earnings by direct and indirect employees. However, employment is just one of the benefits associated with airports.

In addition to the economic impact generated by the medium to large hub commercial service airports, it is important to note the positive impact that the general aviation and reliever airports have on the regional economy. According to the 2014 National Association of State Aviation Officials (NASAO) report, The Impact of General Aviation on State and Local Economies, nationwide, the general aviation industry supports approximately $150 billion annually in economic activity, and more than 1.2 million jobs. There are approximately 40 general aviation, reliever, and other public use, airports in the SCAG region. In addition to serving as employers in their respective communities, the general aviation and reliever airports also facilitate the movement of air cargo in the region. In the case of March Inland Port Airport, and SBD, which was a reliever airport until introducing scheduled commercial passenger service in 2022, the amount of cargo landed at the two reliever airports ranked in the top 100 nationwide. Therefore, any discussion of the economic impacts and importance of the airports in the SCAG region must include the reliever, general aviation and public service airports in addition to the commercial service airports.

In addition to those associated with passenger and goods movement, and job creation, there are other economic benefits associated with the SCAG region airports. Airport operations and capital improvement programs also generate tax revenue, which are invested back into the region to support further economic activity, improve living standards and alleviate poverty. According to analyses conducted by InterVistas, the Los Angeles County Economic Development Corporation, Oxford Economics and Unison Consulting, more than $10 billion was generated from local, state, and federal taxes through airport operations and capital improvement programs annually. Furthermore, in addition to tax revenue, there are benefits associated with the tourists who travel to the SCAG region through the airports. As the SCAG region serves as a top tourist destination with its culturally rich areas, multiple theme parks and coastal beaches, it is no surprise that it attracts domestic and international visitors who contribute to the regional economy through spending. Spending by visitors who arrive via commercial airports in the SCAG region totaled more than $10 billion a year. Visitor spending supports multiple industries, including retail trade, entertainment, accommodation and food services. Please see the Travel and Tourism Technical Report for more information on the impact of tourism in the SCAG region. The economic output associated with the SCAG region airports is significant. When it comes to the total value of all goods and services produced, commercial airports in the SCAG region generate more than $140 billion annually in economic output, demonstrating how air transport is a major contributor to SCAG region and global economic prosperity.

As part of the network to move people and goods, as well as employment generators, the regional system of airports has a significant impact on the economic health of the region, particularly with the most economically vulnerable segments of the population. The airports in the SCAG region annually support hundreds of air carriers who are responsible for the movement of over a 90 million people, and over three million tons of goods to hundreds of destinations across the country and the world. Critical to the movement of people and goods are the over 70,000 employees onsite at the airports throughout the SCAG region, including the reliever and general aviation airports. Of note, some airports are employers in working class/vulnerable communities based on their locations (e.g., LAX location in proximity to South LA, LGB located near Long Beach and Wilmington).

3.7 AIRPORT ENVIRONMENTAL AND EQUITY INITIATIVES

Airports can positively and negatively impact the well-being of neighboring communities. From small to large regions, airports play a critical role in the economic health and mobility of neighborhoods and communities, including as employers in a region. Of note, airport service sector jobs (e.g., ground crew, ticketing, food and beverage) are historically large-scale employers for immigrant and communities of

color. Moreover, the airports in the SCAG region employ a diverse workforce in the areas of airport planning and operations with people of color and women represented in leadership and management positions. For instance, in 2023, Atif Elkadi an Arab American male was the chief executive officer for ONT, Harry Barrett an African American male was the executive director for PSP, and Cynthia Guidry an African American female was the Director for LGB. Finally, in addition to being employers, airports also support neighboring businesses, many of which are owned and operated by women, people of color and immigrants. The importance of airport diversity, equity, and inclusion practices for employees and prospective employees cannot be overstated. Airports play a significant role in the economic well-being of many. However, the relationship between the airports and their surrounding communities is complicated.

While the economic and mobility benefits are significant, the social and environmental impacts are also notable. Of particular concern from the MPO perspective is the impact airport passenger auto and truck trips have on neighboring communities, and lower income and communities of color in general. The traditional emphasis on traveling to and from the airports in private vehicles limits access for many. Transit and passenger rail travel options at the airports continue to be an area of need. Furthermore, private auto trips to the airports will continue to increase until other alternatives are developed. Historically, lower income communities, immigrants, and people of color, disproportionately bear the negative impacts (e.g., noise, emissions, congestion) of surface transportation. Problems associated with vehicular noise include stress related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption and lost productivity[25]. Health impacts associated with vehicle emissions include skin and eye irritation and allergies, respiratory problems, inflamed lungs, chest pains, difficulty breathing and circulatory problems[26]. Regarding airport ground access auto and truck trips, the SCAG region GHG targets and SCAG's strategies to reduce vehicle miles traveled (VMT) address some of the concerns. Ultimately, it is under the airports and regulatory agencies' authority to address equity, environmental and accessibility concerns. Many of the airports and regulatory agencies in the SCAG region have airport and aviation environmental, diversity, equity, and inclusion, and accessibility programs and initiatives.

While MPOs do not have planning, operational, or regulatory authority over the airports, particularly regarding terminal and airside (i.e., "inside the fence") matters, and cannot mandate or guide airport environmental and equity initiatives, MPOs nevertheless play a key role in collaborative planning and information sharing highlighting and coordinating existing environmental, diversity, equity, inclusion and accessibility programs and initiatives implemented by the FAA, South Coast AQMD, and the airports in the SCAG region.

3.7.1 ENVIRONMENTAL INITIATIVES

Below are some of the federal, state and airport initiatives and programs addressing the environmental impacts of airports and aircraft in the SCAG region.

- FAA Office of Noise: The FAA's mission is to ensure the safe and efficient use of our nation's airspace. As part of this effort, the FAA engages in research and community engagement activities focused on aircraft noise. At each of the FAA's nine regional offices throughout the U.S., including the FAA Western-Pacific Region, the FAA has an ombudsman to address public inquiries related to aviation noise, pollution and safety. The FAA's Aviation Noise Ombudsman serves as a liaison with the public on issues regarding aircraft noise.

- South Coast AQMD and airport MOUs: The airports in the South Coast Basin, including LAX, SNA, BUR, ONT and LGB work with the South Coast AQMD to develop memoranda of understanding (MOU) to develop plans that will reduce airport emissions.
- Los Angeles County Aviation Division Sustainability Plan: Every four years, the County of Los Angeles publishes an Aviation Division Sustainability Plan for the five county-owned airports (Brackett Field, Compton/Woodley, San Gabriel Valley, General Will J. Fox and Whiteman). The first Aviation Division Sustainability Plan was published in 2016 and the most recent update was published in 2020. Public Works defines aviation sustainability as the balance of Economic Viability, Operational Efficiency, Natural Resource Conservation, and Social Responsibility, or "EONS." The 2016 Plan established a clear direction for the county-owned airports, identifying focus areas, general goals and strategy recommendations for the next five years. It is also established guidance for integrating sustainability into development and improvements projects whereas the 2020 update was to assess progress and further elevate sustainability across the system of county-owned airports.
- BUR Sustainability Initiatives: BUR has initiated several sustainability initiatives, including the Clean Air Program, which installed battery chargers for electric ground service equipment, CNG-powered parking shuttles and waste disposal improvements, recycling up to two-thirds of BUR's waste stream and using recycled water throughout the airport.
- LAX Sustainability Action Plan: LAWA employs a Sustainability Action Plan and adopted two Sustainable Design and Construction Policies in 2017.
- LGB Green Programs: LGB and its tenants are committed to operating in an environmentally responsible manner by minimizing LGB's impact on the environment and surrounding community with methods that are socially responsible, scientifically based and economically sound. As part of the effort to promote environmental responsibility, LGB has initiated the following Green Programs: emissions reduction, green building practices and waste reduction, storm water pollution prevention and water quality and energy efficiency.
- ONT Recycling Construction Materials: ONT is recycling construction materials to reduce its carbon footprint. In addition to recycling old materials and using state-of-the-art technology, ONT is developing a formal sustainability plan.
- SNA Environmental Sustainability Program: SNA implements initiatives that address operational needs and environmental regulations in accordance with environmental policy. SNA's environmental sustainability program is organized around the following focus areas: air quality and climate (e.g., climate action plan, South Coast AQMD MOU)), recycling and waste minimization (e.g., waste management plan, tenant waste management guidance), natural resource conservation, energy efficiency, water conservation and noise abatement.

3.7.2 DIVERSITY, EQUITY, AND INCLUSION INITIATIVES

Below are some of the airport and infrastructure focused diversity, equity and inclusion (DEI) and community engagement programs in the SCAG region:

- LAX Human Capital and Equity Office: On March 2022, LAWA appointed Mr. Louis Gutierrez to serve as the Chief Human Capital and Equity Office. In addition to the Human Capital and Equity Office, LAWA also employs several airport Business Inclusivity Programs, including the Minority,

Women and Other Business Enterprises (MBE/WBE) and the Airport Concessions Disadvantaged Business Enterprise (ACDBE) programs.

- LAX Community Relations: LAX Community Relations supports the people and neighborhoods surrounding LAX. The community engagement includes over 8.000 students, 90 schools and over 31,000 stakeholders.
- LGB Disadvantaged Business Opportunities (DBE): All LGB contracts and concession agreements incorporate policies, procedures and clauses regarding specific Minority/Women Business Enterprise (M/WBE), Small Business Enterprise (SBE), Disadvantaged Business Enterprise (DBE), and Airport Concessionaire DBE (ACDBE) requirements. It is the policy of LGB to ensure that DBEs have an equal opportunity to receive and participate in DOT-assisted contracts.
- ONT Disadvantaged Business Enterprise (DBE) Program: The ONT Airport Authority established a DBE program, subject to DOT regulations, in 2022.
- PSP Disadvantaged Business Enterprise (DBE) Program and Airport Concession Disadvantaged Business Enterprise (ACDBE) Program: To engage with businesses of all sizes and ownerships, PSP employs DBE and ACDBE programs.
- SNA Airport Concessions Disadvantaged Business Enterprise (ACDBE) and Disadvantaged Business Enterprise (DBE) Programs: In 2022, SNA began implementing ACDBE and DBE programs.
- Equity in Infrastructure Project (EIP): The EIP exists to improve public contracting practices by creating more opportunities for Historically Underutilized Businesses (HUBs) to build generational wealth and reduce the racial wealth gap by creating more prime, joint venture and equity contracting opportunities for these firms. The Port of Long Beach was one of the first projects of interest for the EIP in the SCAG region.

3.7.3 AIRPORT ACCESSIBILITY

Below are some of the offices, programs, and policies focused are ensuring access the airports in the SCAG region:

- LAWA Americans with Disabilities Act (ADA) Office: The LAWA ADA Office works closely with the airport tenant community to ensure compliance with the Air Carrier Access Act (ACAA) and assists travelers and tenants in resolving disputes regarding the ADA. It also works closely with the airport community to address ways of improving service and communications with the special needs community.
- SNA Helping Hands Program: SNA understands traveling through an airport can be a challenging experience for individuals with disabilities. To ease some of the stress associated with airport travel, the SNA Helping Hands team is available free of charge from 6:00am until 11:00pm to assist individuals with disabilities.
- ADA accessible ground transportation, parking, curbside and check-in facilities: The airports in the SCAG region are designed to assist individuals with disabilities.

3.8 SECURITY: AIRPORT PASSENGER AND CARGO GROUND ACCESS SECURITY INITIATIVES

3.8.1 OVERVIEW OF SCAG REGION AIRPORT SECURITY INITIATIVES AND PROGRAMS

Although MPOs do not have oversight regarding airport security, due to the critical role that airports play in the SCAG region 's multimodal transportation system, the security initiatives and programs carried out by our airports is of significant interest to the entire region. MPOs do not have jurisdiction or planning, operational or regulator authority over the airports, particularly regarding terminal and airside matters or airspace, which is under the regulatory authority of the FAA. However, airports are significant trip generators and impact the surface transportation system of regions, particularly larger regions such as ours. Airports are ports of entry for people and goods traveling to and from the region. MPOs, including SCAG, play a critical collaborative and facilitative role between the airports and other transportation agencies (e.g., FHWA, FTA, Caltrans, county transportation commissions). Accordingly, the security efforts and initiatives of the airports in the region are of particular interest to SCAG.

Given the region's busy airports and significant number of passengers and employees, there are several initiatives in place to enhance airport security in the region. One of the most crucial is the deployment of advanced technologies to improve the screening process for passengers and cargo. The Transportation Security Administration (TSA) has installed advanced imaging technology scanners, automated screening lanes and computed tomography scanners. These technologies provide faster and more accurate screenings of passengers and their belongings and reduce the time required for the screening process and enhanced security.

Regional airports have also implemented several physical security measures to secure their premises and prevent unauthorized access. For example, airports have installed perimeter fencing, CCTV cameras and access control systems to restrict access to sensitive areas. Law enforcement personnel, both uniformed and plainclothes, are also present to deter potential threats and respond quickly to any security incidents. Another safety initiative is cybersecurity. Airports rely heavily on technology to manage various operations, such as passenger processing, baggage handling and air traffic control. As a result, airports have implemented robust cybersecurity measures to protect against threats such as hacking, malware and ransomware attacks which can cause severe disruption to airport operations and compromise airport security. Airports also prioritize safety training for their employees. Training programs cover a wide range of topics, such as emergency response procedures, recognizing and reporting suspicious behavior and dealing with unruly passengers. By providing comprehensive safety training, airports can ensure that their employees are equipped with the knowledge and skills required to handle various security situations effectively. Finally, regional airports prioritize collaboration between various stakeholders involved in airport operations. For example, airports work closely with airlines, ground handling companies, law enforcement agencies and other stakeholders to ensure that everyone is aware of their security responsibilities and adhere to established security protocols.

Ensuring the safety and security of aviation cargo is also important. There are several safety initiatives in place to enhance aviation cargo security in the region. The TSA has implemented the Air Cargo Advanced Screening (ACAS) program to screen all inbound and outbound air cargo. The program uses advanced data analytics and targeting to identify high-risk cargo, which is then subjected to additional screening. Additionally, the TSA uses canine teams to detect explosives and other dangerous substances in air cargo. Access to cargo facilities is restricted to authorized personnel only, and the facilities are equipped with surveillance cameras and access control systems. Cargo facilities also have implemented strict procedures

for handling and storing cargo to prevent theft, damage or tampering. For example, airports have training programs for cargo handlers and other personnel involved in cargo operations that cover topics such as recognizing suspicious behavior, handling hazardous material and responding to security incidents. By providing comprehensive training, cargo handlers are better equipped to detect and respond to security threats.

Finally, Southern California airports also prioritize collaboration between various stakeholders involved in cargo operations. For example, airports work closely with airlines, freight forwarders and shippers to ensure that all parties are aware of their security responsibilities and adhere to established security protocols.

Security at regional airports is a multi-layered approach that includes screening technologies, cargo facility security, personnel training, and collaboration between stakeholders. By implementing these safety initiatives, airports can continue to enhance aviation cargo security and ensure the safety of all cargo and personnel involved in cargo operations.

3.8.2 SECURITY DETAILS AT THE SCAG REGION AIRPORTS

In addition to the federally sponsored TSA security officers and programs, each of the SCAG region's commercial service has its own security details. Generally, airport security is addressed by the local municipal police departments in which the airports are located.

- BUR Police Department: The Burbank-Glendale-Pasadena Airport Authority, Police Department, oversees security at BUR.

- IPL, Imperial Police Department: The City of Imperial Police Department oversees security at IPL.

- LGB: The Long Beach Police Department Airport Security Detail is responsible for the safety and security of all those traveling through LGB. In addition to securing airport ground airside ground (i.e., terminal, airfield), the Long Beach Airport Security Detail also maintains the integrity of the perimeter of LGB and service all airport tenants. Security Detail officers patrol 1,166 acres of airfield and adjacent property that surrounds the airport and investigate all criminal activity at LGB to ensure the safety of the traveling public.

- LAX: LAX Security is a division of the Los Angeles Airport Police. Along with the sworn officer component, LAX Security is dedicated exclusively to 24-hour airport activities. Over the last 45 years, particularly since 9/11, LAX Security has rapidly grown. With LAX's forthcoming modernization, the high demand for security measures remains top priority at LAWA where LAX security currently serves LAX and Van Nuys Airport.

- ONT: The City of Ontario Police Department oversees security at ONT.

- PSP: The Palm Springs Police Department is responsible for security and all matters pertaining to law enforcement, as mandated by TSA rules and regulations. Palm Springs police officers are assigned to patrol the airport exclusively. Their primary roles are to respond to security screening alerts, traffic collisions and traffic control; conduct security patrols; investigate crimes which occur

on airport property and manage the airport's lost and found. Known as the Airport Bureau of the Palm Springs Police Department, the PSP Airport Bureau assists the FBI, Secret Service, Capitol Police, various state and federal police agencies and foreign governments with dignitary details/protection and other security events. The PSP Airport Bureau is primarily responsible for the Screening/Checkpoint area where passengers and their property are checked for any weapons, explosives or any item that is suspicious. However, the actual searching of passengers is conducted by the personnel of the TSA, federal government employees under the umbrella of the Office of Homeland Security. When any suspicious item or passenger is identified, officers are alerted and take appropriate action. Additionally, Palm Springs Airport Bureau officers patrol the airport terminal, loading ramps, waiting areas, airport perimeter, parking facilities and all airport property. The Airport Bureau takes a proactive approach to preventing and suppressing criminal activity and works in partnership with the aviation community to enhance public safety.

- SNA: The Orange County Sheriff's Department, John Wayne Airport Police Services, oversees security at SNA. Unlike other airports that are governed by appointed boards and commissions, the Orange County Board of Supervisors govern SNA. The Orange County Sheriff's Department provides a multidisciplinary policing strategy for SNA that includes security enhancements, proactive explosive and narcotics searches, dignitary protection and high-visibility patrols.

- SBD: SBD has an in-house Airport Security Coordinator and Security Officers. In addition to the onsite SBD Security Coordinator and Security Officers, and the TSA, the City of San Bernardino Police Department provides additional security.

3.9 RESILIENCE OF SCAG REGION AIRPORTS AND AVIATION SYSTEM

Climate change threatens airport operations and resilience. Whether due to tidal flooding, extreme weather events, rising sea levels or severe storms, airport operators must consider climate risks and prioritize resilience. To ensure that airports have the guidance and assistance they need, the FAA and the Department of Transportation's (DOT) Volpe Center have initiated a project to identify best practices, solutions, priorities and opportunities related to climate resilience. The FAA and Volpe guidance will help airports prepare for the long-term impacts of climate change. Resilience guidance and preparation will be particularly important for regions with multiple airports. The safety, security and resilience of the airports is critical to the well-being of not only the communities neighboring the airports, but the entire regions served by the airport systems. In addition to preparing for climate change and resilience from an airport operations perspective, the commercial service, reliever, and general aviation airports that comprise the SCAG region aviation system collectively play a critical role in the overall health of the region.

The SCAG region's airports and aviation system's ability to respond and adapt during times of crises (e.g., economic, security) and emergencies is a critical element of MPO airport ground and surface transportation planning. As previously noted, the commercial service, reliever and general aviation airports play an especially important role in the economic, social and cultural stability of the SCAG region. The airports are the gateways for people and cargo traveling to and from our region. Regional airports also function as a means of connectivity for residents. Particularly important is the ability of the SCAG regional aviation system to respond to, recover from and assist during times of crises and emergency. While SCAG, as an MPO, does not have regulatory, planning or operational oversight of the airports in the region, as part of the collaborative planning and information sharing role that MPOs play in aviation

systems planning, it is important to highlight the critical function that the airports serve regarding connectivity, interconnectivity, mobility, economic stability and emergency operations in the region. Furthermore, SCAG will continue working with the airports, the FAA, Caltrans Division of Aeronautics, county transportation commissions and local departments of transportation, to build strong partnerships that will support building resilience in the regional aviation and airport surface transportation system through research, information sharing and interagency collaboration.

3.9.1 FAA GUIDE FOR IMPROVING AIRPORT RESILIENCE TO CLIMATE CHANGE AND SEVERE WEATHER

The FAA and the Volpe Center are working to develop climate change and resilience guidance for airports. Climate change and resilience preparation are relatively new in aviation systems and airport planning. The National Plan of Integrated Airport Systems (NPIAS) airports need comprehensive infrastructure plans and guidance from the FAA Office of Airports to address climate risks. Existing aviation systems and airport practices do not adequately account for and prioritize resilience, which is crucial to maintaining community access to safe and efficient air transportation for passengers and cargo. To address the need for climate change and resilience guidance, the FAA and the Volpe Center initiated a project in September 2021, which is expected to continue through 2026[27]. The project will use data analysis and research to identify best practices and solutions, and uncover priorities and opportunities related to climate change adaptation.

The federal airport climate change and resilience initiative will assist FAA and airport operators to better incorporate resilience analysis and prioritization into project planning and funding for all airports. Guidance and funding will not be exclusive to the commercial service airports but will also include reliever and general aviation airports that are part of the NPIAS. Reliever and general aviation airports are critical to the adaptability and resilience of the overall aviation system.

3.9.2 RELIEVER AND GENERAL AVIATION AIRPORTS

Although the SCAG region commercial service airports are noted internationally for passenger and goods movement, the region's reliever and general aviation airports are equally as critical to the region's overall aviation system. These airports are critical to preserving and maintaining public access to the NAS and air travel. General aviation airports are often used by on-call air taxi services, corporate jets, emergency services and recreational flyers, which offer alternatives to less accessible or more congested commercial service airports. By extension, a "reliever airport" is a general aviation airport designated by the Secretary of Transportation to relieve congestion at a commercial service airport and to provide more general aviation access to the overall community. Airlines are routinely rerouted from commercial service to reliever airports, which have the physical and infrastructure capacity to service commercial flights. General aviation and reliever airports play a crucial role in ensuring that passengers and cargo have additional options in terms of air travel, which is especially important when in response to air traffic congestion, a security incident or a natural disaster or weather event.

3.9.3 THE SCAG REGION AIRPORTS' ROLE IN CONNECTIVITY AND EMERGENCY RESPONSE.

The SCAG region airports are vital to intraregional connectivity and emergency response. In a region as large as the SCAG region, the airports and aviation system provide connectivity to not only travelers from

outside of the region and beyond, but also within the region. For instance, passengers in more remote communities can access the medium and larger hub commercial airports in the region by boarding a flight at a general aviation or reliever airport. In some cases, smaller airports qualify for the federal EAS program, which guarantees scheduled commercial passenger service. IPL is currently the sole EAS airport in the SCAG region. Therefore, maintaining reliever and general aviation airports in communities is critical for overall mobility. Moreover, the connectivity provided to rural and remote communities by general aviation and reliever airports is especially important during times of emergency.

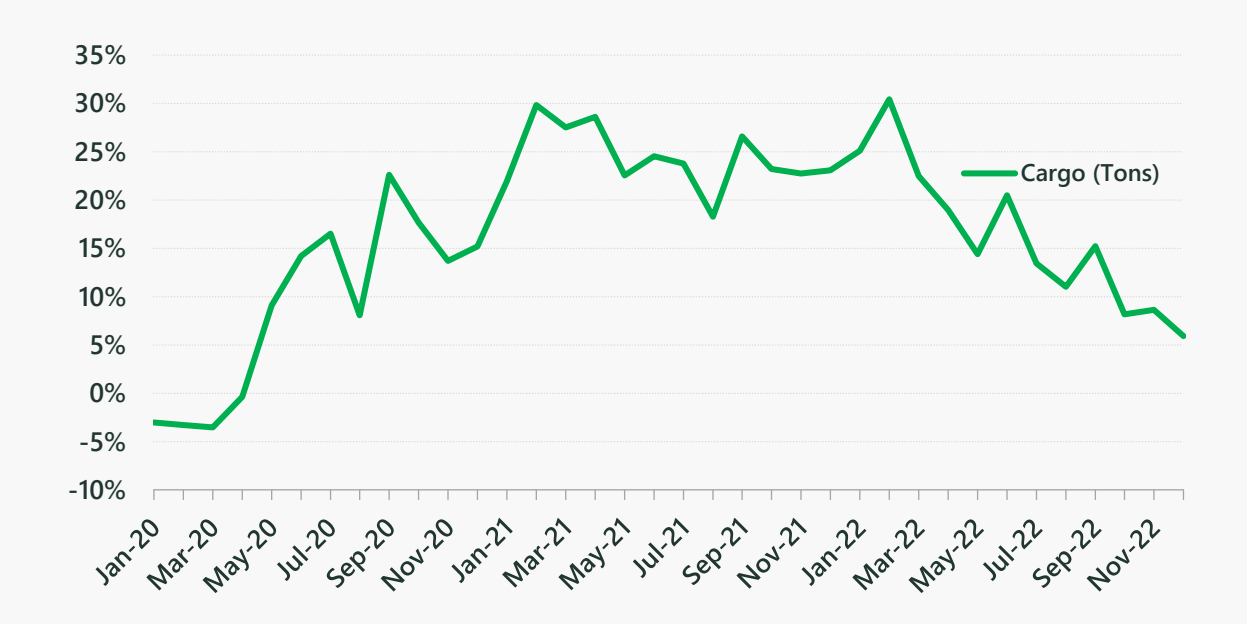
Airports play an often-underappreciated critical role during times of emergency and crises. As noted in the 2014 NASAO report, The Impact of General Aviation on State and Local Economies, for some rural and remote communities, general aviation and reliever airports act as a lifeline to products, supplies and services. Those in need of emergency response and services can be transported to appropriate communities and destinations via emergency aircraft, and general aviation and reliever airports. For instance, general aviation airports might be the only remaining point of access for a mountain community during a forest fire.

Ground access to and from communities can become restricted during various states of emergency. When freeways, highways, roads, passenger rail, and transit are incapacitated, airfields may be the only point of access. However, the relationship with the smaller general aviation and reliever airports can go the other way. Reliever airports are critical when the larger to medium commercial service airports are unavailable due to emergency, whether that is a security incident (e.g., terrorist attack, hostage situation) or natural disaster (e.g., fire, flood). The SCAG region 's airports offer options, adaptability, and flexibility, including during times of crises.

3.9.4 SCAG REGION AIRPORTS DURING ECONOMIC CRISES

The ability of a region's airports to pivot during times of economic crisis (e.g., greater emphasis on cargo over passenger, domestic over international travel) is critical for the region's economic viability. Of note, the commercial service, relief, and general aviation airports adjusted during the COVID-19 pandemic to ensure the continued flow of goods movement during times of crises (e.g., port shipping crisis, road closures to small communities). Additionally, the airlines adapted by increasing air cargo flights and adding mail, freight and express to passenger cabins. As a result, air cargo activity increased during the COVID-19 pandemic in comparison to before the onset of the pandemic, travel restrictions and the subsequent impacts on passenger travel.

Figure 23. Monthly percent Change Air Cargo in SCAG region vs Same Month 2019 (Jan 2020 to Dec 2022)



Sources: Airport Activity Reports.

4. ANALYTICAL APPROACH

The SCAG Aviation and Airport Ground Access Program utilized a variety of data sources and employed a variety of analytical techniques to prepare the aviation element of Connect SoCal 2024. Data and information were gathered from the airports, airport websites, airport activity reports, government websites, academic reports and other publicly available databases and information sources and reviewed and employed various analytical methods. In addition to the publicly accessible sources, our airport, aviation and transportation partners played a critical role in this effort. The airports and stakeholders have been instrumental in providing data, input and feedback for the development of Connect SoCal.

4.1 DATA SOURCES

Below are some of the data sources and databases used for the Connect SoCal 2024, Aviation and Airport Ground Technical Report.

- Airport passenger, cargo, and operations data provided by the airports: SCAG staff worked closely with our airport partners to obtain the most credible and valid data and information. Data and information provided by the airports included airport project information and forecasts.
- Airport activity reports (published online): Most of the commercial service airports in the region publish monthly airport activity reports, which include airport passenger and cargo data.
- Airport websites (air carriers, destinations): The public websites for the commercial service airports provide general airport information, including air carriers, schedules, and destinations.

- Airport passenger surveys (e.g., LAX, SNA): Some of the airports in the SCAG region conduct passenger surveys, which include questions concerning ground trip mode and origin. LAX and SNA publish passenger surveys biennially.
- FAA databases: The FAA provides methodologically sound and vetted data and information to the public, including the Terminal Area Forecast (forecasts for air passenger and operations), Operations Network (airport operation data), and Aerospace Forecast (industry, including air cargo).
- Bureau of Transportation Statistics (BTS): As part of the U.S. DOT, the BTS is a source of statistics on commercial aviation, multimodal freight activity and transportation economics. Of particular interest to the Aviation and Airport Ground Access Technical Report, the BTS T-100 database includes passenger and cargo information provided by all air carriers, and BTS also tracks airfare by airport.
- Caltrans Division of Aeronautics Data: The Caltrans Division of Aeronautics publishes airport activity reports (e.g., air passenger and cargo data by county) and has provided the SCAG Aviation and Airport Ground Access Program data upon request.
- NPIAS database: The FAA publishes an updated list of airports included in the national airport system every two years.
- Government demographic and economic databases: In addition to the FAA and airport websites, other government data sources of interest include the U.S. Bureau of Economic Analysis, California Employment Development Department, FHWA, FTA, transportation agencies and the ICAO.
- Academic databases and reports: Reports and data from academic institutions have been instrumental sources of information for the technical report and other analyses. Some of the academic data sources include the Transportation Resource Board (TRB) and the University of California Institute of Transportation Studies.
- Private organizations and companies: Private organizations, associations, nonprofits, and companies are another source of data and information. Of note, the IATA and the Eno Center for Transportation maintain data and publish reports on aviation, airport, and surface transportation.

In addition to websites, reports and databases, a critical data source has been the aviation stakeholders in the region. From the airports providing data on airport passenger, cargo and operations data, to aviation stakeholders providing expertise at the ATAC meetings, our partnerships withing the regional aviation systems and airport ground access planning community have been instrumental in our analytical and planning efforts.

4.2 SCAG AVIATION TECHNICAL ADVISORY COMMITTEE (ATAC)

As part of the data collection and preparation of Connect SoCal 2024, SCAG Aviation and Airport Ground Access staff met regularly with ATAC which is a group of aviation and transportation planners and experts who provide technical and subject matter expertise on matters related to aviation systems and airport ground access planning. ATAC meetings occur on a quarterly basis and will continue meeting quarterly following the completion of the Connect SoCal 2024 update. In addition to the ATAC meetings, SCAG Aviation and Airport Ground Access Program staff have been meeting and corresponding directly with the airports and other transportation planning partners and will continue meeting with our stakeholders following the completion of Connect SoCal 2024.

4.3 AIRPORT DEMAND FORECASTS

To effectively plan for the SCAG Region's surface transportation system, the base (2019) and forecast (2050) years passenger and cargo data is collected for the commercial service—and select reliever—airports in the region, converted to estimated daily auto, transit and truck trips, and then inputted into the various regional surface transportation forecast models in Connect SoCal 2024. SCAG Modeling staff converted the air passenger and cargo (tons) data into estimated average daily auto, transit and truck trips. The airport-level passenger and cargo activity data were obtained from the airports, airport activity reports and other data sources (e.g., FAA, BTS), and the airport passenger and cargo forecast data were provided directly to SCAG by the commercial service and select major reliever airports in the SCAG region. SCAG Aviation and Airport Ground Access staff met and corresponded with the eight commercial service and select four reliever airports throughout calendar year 2022 and 2023. Forecasts play a critical role in regional surface transportation planning.

Based on regional surface transportation forecasts, the region's airport operators and transportation agencies will be able to better plan for ground transportation access to and from the airports. For instance, LAWA is currently constructing an automated people mover (APM) and Intermodal Transportation Facility (ITF) to help mitigate forecasted surface transportation congestion coming at LAX. ONT is working with SBCTA to develop a transit connection from the Ontario-East Metrolink Station to the Airport. Airport passenger and cargo forecasting and planning provide a critical tool in assisting the airport and transportation agencies in developing projects and programs to address the future demands put on the ground transportation system by air passenger and cargo demand.

4.3.1 KEY POINTS ABOUT THE AIRPORT DEMAND FORECASTS AND CONNECT SOCAL 2024

- The 2019 (Base Year) and 2050 (Horizon Year) is for the entire Connect SoCal 2024. Due to the COVID-19 pandemic, the base year for all forecast models (e.g., activity-based model, trip model, socio-economic) in Connect SoCal 2024 is 2019 (versus 2020). However, the SCAG models have accounted for pandemic. The horizon year of 2050 is a five-year shift from the previous plan (Connect SoCal 2020 horizon year was 2045).
- Individual airport horizon year passenger forecast data was provided to SCAG by the airports.
- Airport passenger and cargo forecasts were inputted into SCAG region surface transportation forecasts (e.g., activity-based, heavy-duty truck, greenhouse gas).
- Eight commercial service airports and four select reliever airports provided the passenger and cargo forecasts to SCAG. Like the local data exchange process for the SED model, the most accurate data comes from implementers (e.g., airports, cities).
- The forecast numbers are not arbitrary, but based on airport-level analyses, planning, and operations.
- Individual airport forecasts are reflective of internally produced forecasts, consultant produced forecasts and airport planning and operations (e.g., capacity) (e.g., Long Beach slot restrictions, aircraft noise, number of passengers impacting aircraft noise, legal and physical capacity).
- Airports used consultants, conducted analyses internally based numbers on operations (e.g., constraints), and/or used FAA TAF and Aerospace Forecast.

- Some airports currently do not have scheduled passenger flights but have in the past and may in the future. For instance, SBD recently added scheduled passenger flights. The forecast numbers for smaller airports reflect the potential for commercial service flights in the future.
- The airports understand airport planning and operations best.
- The airport passenger and cargo forecasts provided to SCAG are not audited or reviewed by SCAG, beyond the conversion to auto, transit, and truck trips for modeling purposes as MPOs do not have regulatory, planning, or operational authority over airports.

Table 6. SCAG Region 2050 Airport Forecasts (In Millions of Annual Passengers) (Unless noted Otherwise)

Airport	2019 (Base Year) Activity Data	2050 (Horizon Year) Forecast Data
Hollywood Burbank (BUR)	5.98	8.8
Imperial (IPL)	10,756 (not in MAP)	0.2
Long Beach (LGB)	3.58	5.5
Los Angeles (LAX)	88.1	130.4
Ontario (ONT)	5.58	14.5
Oxnard (OXR)	46 (not in MAP)	0.3
Palmdale (PMD)	0.0	1.82
Palm Springs (PSP)	2.56	5.7
March Inland (RIV)	54,066 (not in MAP)	0.61
San Bernardino (SBD)	3,466 (not in MAP)	1.81
John Wayne/Santa Ana (SNA)	10.66	12.5
Southern California Logistics (VCV)	41 (not in MAP)	0.3
Total	**116.53**	**182.44**

Source: Airport Activity Reports and 2050 forecasts developed by the airports.

Some airport forecasts decreased, while others increased, and some forecasted no change from Connect SoCal 2020 to Connect SoCal 2024. In discussions with the airports, some indicated that the COVID-19 pandemic impacted their long-range planning and forecasts. Other airports indicated that despite the pandemic, the airports still forecasted growth from 2045 to 2050. Finally, some airports indicated that they will be at or near their physical capacity constraints and/or operational levels before 2045, and thus the forecast numbers did not change from 2045 to 2050. It should be noted that rooting the passenger forecasts in airport operations, planning and analyses will result in a greater degree of sensitivity and adaptability, which ensures a higher degree of credibility, validity and accuracy. The data and information provided by the airports to SCAG staff was critical for the analysis and development of the Aviation and Airport Ground Access Technical Report.

4.3.2 OVERVIEW OF THE SCAG REGION AIRPORT FORECASTS

Due in part to the impacts of physical capacity and operational constraints at some of the airports and the COVID-19 pandemic on the region, the overall airport passenger forecasts for Connect SoCal 2024 were down from Connect SoCal 2020. The total SCAG region airport passenger forecast for the horizon year

(2050) for Connect SoCal 2024 is 182.44 MAP. In contrast, the total SCAG region airport forecast for the horizon year (2045) of Connect SoCal 2020 was 197.14 MAP. As another point of comparison, if one were to apply the estimated growth rate from the FAA 2021 Terminal Area Forecast (TAF) of 1.93 percent for the SCAG region to the base year (2019) total of 116.53 MAP and compounded out to 2050, the total airport forecast for the SCAG region would be 210.64 MAP in 2050. Therefore, the total airport forecast for Connect SoCal 2024 is not only lower than Connect SoCal 2020 but also a forecast based on an FAA TAF estimated growth rate. Therefore, the FAA TAF estimate (i.e., academic estimate of forecasted demand) for the region being greater than the total of the airport developed forecasts (i.e., airport forecasts grounded in operations, including capacity constraints) could be interpreted as the demand for air travel (i.e., FAA TAF) exceeding the physical capacity (e.g., airport capacity, surface transportation to and from the system) and supply. However, it is important to note that the overall airport forecast for Connect SoCal 2024 breaks down differently by airport due to various reasons.

In observing the passenger forecasts prepared by the airports for the Connect SoCal 2024 update, the following trends were particularly notable:

- The SCAG Region Total Airport Forecast for Connect SoCal 2020 was 197.14 MAP (2045) versus 182.44 MAP (2050) for Connect SoCal 2024.
- Some airports forecasted decreases, others forecasted increases, and some forecasted no change, from 2045 (Connect SoCal 2020 horizon year) to 2050 (Connect SoCal 2024 horizon year).
- Applying the FAA 2021 TAF growth rate (1.93 percent) compounded to the 2019 base year total (116.53 MAP), the forecast for 2050 would be 210.64 MAP, which is greater than the182.4 MAP total for 2050 of the forecasts provided by the airports. While the FAA TAF is an abstract unconstrainted estimate of air passenger demand based on historic passenger activity, and economic and airfare forecasts, the forecasts provided to SCAG by the airports are derived based on operations and long-range planning. Thus, the overall demand for air passenger travel (FAA TAF) in the region is greater than the supply/capacity that the airports anticipate supporting in 2050.
- Based on the discrepancy in forecasted demand for air passenger travel (I.e., FAA TAF) (210.64 MAP) versus airport operations and long-range planning (I.e., forecasts developed by airports) (182.44 MAP), demand for air travel will likely exceed supply/capacity before 2050.

Disclaimer: As with historical and current air passenger and cargo activity, forecasted passenger demand does not translate directly to aircraft operations. One should not interpret the air passenger and cargo demand forecasts in terms of aircraft operations and must be mindful of the context of evolving aircraft and airline practices. Furthermore, due to all airport passenger and cargo forecast data being provided to SCAG by the airports, SCAG makes no representation of the accuracy of any of the airport forecast data it relied on. SCAG is not suggesting, recommending, evaluating, assessing or directing airport planning and operations, including forecasting and analyses, as SCAG does not have any policy, planning, operations or regulatory authority over the airports or airlines. Rather, the purpose of the passenger and cargo forecast is to anticipate and assist planning for future activity in the region's surface transportation system. The data and information provided by our airport partners has been instrumental to our regional airport ground access and surface transportation planning. [28]

4.4 ESTIMATING BASE AND HORIZON YEAR AUTO AND TRUCK TRIPS (SCAG MODELING)

The forecasted increase of air passenger travel to and from the airports will result in increased pressure on the region's surface transportation system. More specifically, given the expectation that most air passengers will continue to arrive and depart from the region's airports via private vehicles, the SCAG modeling program has projected that the number of auto trips to the airports will increase in 2050. As was the case with air passenger traffic, it is anticipated that the increased air cargo demand will result in increased truck trips to the region's airports. Below is a table of estimated daily auto and truck trips for the base year (2019) and horizon year (2050) for six select commercial airports in the SCAG region, for illustrative purposes. Please note that the estimated daily auto and truck trips are approximations and may have since been adjusted from what is listed below due to recalibrations in the SCAG transportation models.

Table 7. 2019 (Base Year) and 2050 (Horizon Year) Estimated Daily Auto and Truck Trips

	2019		2050	
	Auto	Truck	Auto	Truck
Burbank Airport	13,881	348	18,174	627
Los Angeles International Airport	139,812	3,980	173,036	7,164
Long Beach Airport	7,446	393	10,856	354
John Wayne Airport	23,731	239	25,416	229
Palm Springs International Airport	5,816	681	12,830	1,226
Ontario International Airport	12,533	2,413	40,820	6,600

5. PLAN SUMMARY

5.1 SUMMARY OF TECHNICAL REPORT

The Aviation and Airport Ground Access Technical Report is broken down into the following sections:

1. The Executive Summary: The executive summary includes highlights of the SCAG region aviation system and historic aviation systems and airport trends.
2. Regulatory Framework: The section clarifies the California MPO's role in aviation systems and airport ground access planning, including the roles of and collaboration with our partner agencies (e.g., FAA, airports, county transportation commissions).
3. Existing Conditions: The section provides a comprehensive overview of the SCAG region aviation system (e.g., commercial service airports, passenger and cargo air carriers); an analysis and discussion of surface transportation to and from the region's airports; historical air passenger and cargo trends, and regional comparisons, including the impacts of COVID-19 on air passenger and cargo demand; the economic benefits of the airports in the SCAG region; highlights of key SCAG region airport environmental and equity initiatives; airport security programs and details; and a discussion of the resilience of the SCAG region aviation and airport system.
4. Analytical Approach: The section discusses data sources (e.g., airport activity reports, FAA TAF, BTS), the Connect SoCal 2024 base year (2019) and horizon year (2050), the method and process of

obtaining airport passenger and cargo forecasts prepared for and provided by the commercial service and select reliever and general aviation airports, the estimated auto and truck trips developed by the SCAG Modeling Team based on airport passenger and cargo data, and the information and support provided by the Aviation Technical Advisory Committee.

5.2 STRATEGIES (COLLABORATIVE AND DISCURSIVE PLANNING)

SCAG has developed broader agency Implementation Strategies for Connect SoCal 2024, including, transit and multimodal integration, equitable engagement, goods movement and tourism, which emphasize partnerships, fostering engagement opportunities, inclusion of cultural and racial/ethnic groups, supporting and complementing the efforts of implementation agencies, and interagency coordination. The strategies for aviation systems and airport ground access planning in the SCAG region build off the Connect SoCal 2024 Implementation Strategies by focusing on interagency and cross-jurisdictional collaboration, research, analyses and information sharing.

5.2.1 COLLABORATION TO ENCOURAGE TRANSIT ORIENTED AND ALTERNATIVE AIRPORT GROUND ACCESS

One of the key strategies for Connect SoCal 2024 implementation will be to encourage more transit and other non-private automobile ground access development by facilitating collaboration between transportation agencies (e.g., FHWA, FTA, FAA, CTCs, local transportation agencies, etc.). Interagency communication and information sharing will be instrumental in establishing the importance of reducing private vehicle usage at the airports. Automobile congestion at and around the airports is a shared concern of the airports and transportation agencies. For that reason, it is important that the negatives of excessive private vehicle travel to and from the airports in the SCAG region is a shared concern for all aviation systems, surface transportation and airport planners.

A critical component to encouraging more transit-oriented development (TOD) is highlighting the excessive use and negative impacts of private vehicle travel to and from the airports. An overwhelming majority of passengers (70 percent) arrive and depart from the airports via private vehicle, whether that is personal automobiles or TNCs. In contrast, approximately one percent of airport passengers arrived by public transit. To compel airport and transportation planners towards more transit-oriented airport ground access projects, it is first important to demonstrate that transit is a feasible and preferred option for airport trips in comparison to private vehicles. Critical to this aspect of collaboration will be research projects and analyses that demonstrate the importance of transit and alternative airport ground access projects. The collaboration, research and information sharing with our airport and transportation partners on transit oriented and alternatives to private auto development will emphasize the importance of equity, access and resilience in airport ground access and surface transportation planning.

5.2.2 TRANSIT FOCUSED AIRPORT GROUND ACCESS RESEARCH, ANALYSES, AND INFORMATION SHARING

Another strategy for the implementation of Connect SoCal 2024 will be research and analysis that will highlight the importance and benefits of transit-oriented airport ground access projects. This strategy will include white papers, reports and studies that illustrate the advantages of transit and other non-auto alternative options for airport ground access and identify strategies that encourage passengers to explore non-private automobile transportation to and from the airports. Quantitative and qualitative research,

data and studies can illustrate the benefits of and identify strategies to induce transit and other non-auto airport ground access.

5.2.3. BRAINSTORMING TO IDENTIFY NEW ALTERNATIVES TO PRIVATE AUTO AIRPORT GROUND ACCESS

Part of the ongoing collaboration that will be part of the implementation of Connect SoCal 2024 will include engaging stakeholders and partners through the ATAC and membership in committees and working groups (e.g., TRB, Caltrans California Aviation Systems Plan) to explore and identify new and creative options for multimodal airport ground access. Whether it is AAM, Connected Autonomous Vehicles (CAV), or some other new technology, collaboration, discourse and information sharing will be instrumental in fostering new ideas and creativity.

6. IMPLEMENTATION (PLAN IMPLEMENTATION)

The broader agency Implementation Strategies for Connect SoCal 2024, include, transit and multimodal integration, equitable engagement, goods movement and tourism. The Connect SoCal 2024 Aviation and Airport Ground Access program implementation plan will build off these strategies.

6.1 PLAN IMPLEMENTATION SUMMARY

Connect SoCal 2024 Aviation and Airport Ground Access program implementation will be focused on: 1) updating and amending airport ground access projects on the Federal Transportation Improvement Program and Connect SoCal project lists; 2) conducting research and analysis on critical and emerging issues in airport ground access and aviation systems planning; and 3) exploring new opportunities via stakeholder engagement and outreach through membership on committees and working groups, including the ATAC.

6.1.1 UPDATING AND AMENDING AIRPORT GROUND ACCESS PROJECTS

Despite flattening aircraft operations and the declining popularity of general aviation, air passenger and cargo demand is forecasted to grow, which will impact the SCAG region's surface transportation system. Given the forecasted growth in passenger and cargo/freight traffic to and from the region's airports, it is of utmost importance that the airports and transportation agencies work together to address critical ground access. Airports in the SCAG region have developed or are in the process of planning for transit and ground access improvements to facilitate easier access to the region's airports.

As air passenger and cargo demand are forecasted to increase, so is the traffic to and from the SCAG region's airports. In 2022, over 260,000 passengers traveled to and from the SCAG region's airports a day. It is estimated that by 2050, approximately 500,000 passengers will be traveling to and from the SCAG region's airports daily. In 2022, over 10,000 tons of air cargo a day were moved in and out of the region's airports. By 2050, trucks will be moving approximately 30,000 tons of cargo/freight per day to and from the region's airports. Between 2024 and 2050, Los Angeles will host the 2028 Olympics, and billions of tourists will come to Southern California to visit Disneyland, Universal Studios, the beaches, the mountains, deserts and the numerous other sights and attractions of the region. Many of the people visiting California will be arriving via air and then traveling across the region on our roads, highways, and

transit systems. In addition to air passenger traveler and cargo traffic, approximately 70,000 plus employees will also access from the region's airports via the surface transportation system meaning that proper ground transportation planning will be critical to move people and goods throughout the region.

Currently, LAWA is completing LAMP and is in the initial stages of planning and environmental work for the Airfield and Terminal Modernization Project (ATMP). Both the LAMP and ATMP address ground access and airport modernization at LAX. The LAMP project will include the APM, two ITFs, a CONRAC, and a series of comprehensive roadway improvements designed to alleviate traffic congestion in and around the airport. The ATMP project will include airfield safety and efficiency improvements, terminal improvements and new arrival and departure roadways that will improve access to and from the Central Terminal Area (CTA). Once completed, the LAMP and ATMP should alleviate some of the congestion in and around the airports.

In addition to the those currently underway at LAX, other airports in the region have either completed or are in the process of developing ground access improvement projects. The BUR New Terminal Project will include transit/bus stops, which will help facilitate easier traffic flow into and out of the airport. The plan is to include shuttle service to and from the north and south Metrolink train stations, and the RITC, directly to the new terminal facility. Designed specifically to address ground access issues to BUR, the RITC, which was completed in 2014, is a three-level structure housing a consolidated car rental facility and customer service building, and a ground-level bus station. The RITC will be connected to the new terminal via an airport shuttle service. In addition to the RITC, BUR is currently the only airport with direct rail access to Los Angeles via Metrolink and Amtrak. The Burbank Airport-South Station, currently located next to the RITC and current terminal building, is a stop for the Metrolink Ventura County Line and the Amtrak Pacific Surfliner. Located to the north, the Burbank Airport-North Station is a stop for the Metrolink Antelope Valley Line. Finally, in addition to the recently completed rail and transit projects, and the new terminal project, the California High Speed Rail Project includes proposed stations near BUR.

ONT and the San Bernardino County Transportation Authority (SBCTA) are developing a transit connection to the Metrolink Rancho Cucamonga Station. The proposed ONT and Metrolink connection will be a transit tunnel. In addition to the Metrolink transit connection to ONT, there is also discussion of extending the proposed Redlands Passenger Rail project west to ONT.

The following table highlights some of the ground access projects in or around some of the region's busiest airports. Please see the Projects List Technical Report of Connect SoCal 2024 for a complete list of updated and ongoing surface transportation projects in the region, including project details (e.g., lead agency, cost, completion year).

Table 8. Airport Ground Access Projects from Main Project List

Airport	RTP ID	Description	Completion Year
LAX	1160025	Gateway LAXPress Employee Transport: Mobility hubs at regional transit centers (includes parking, transit connector service within key area employee residential areas in LA county.	2035
LAX	1160026	Gateway LAXPress Employee IT Platform: Develop web-based/ app-based platform that includes reserve-a-seat, mobility service options for gateway to LA BID/LAX employees to access gateway LAXPress services	2035
LAX	1160027	Gateway LAXPress Employee Transport: Partnership with metro for capital cost of existing/new transit vehicles for employee transit (no operating cost)	2035
LAX	1160031	East Intermodal Transportation Facility: A facility providing remote passenger pick up and drop off areas, public parking, and other connections to public transit, including the Metro Crenshaw/LAX light rail, and other commercial vehicles.	2022
LAX	1122003	Consolidated Rental Car Facility (CONRAC): A consolidated rental car facility to provide a centralized location for rental car operations at LAX. This facility would include a customer service facility, ready/return garage, rental car storage, quick turnaround area, and maintenance support.	2023
LAX	1122001	"Landside Automated People Mover (APM) System: A fixed guideway-based transportation system that moves passengers to and from the Central Terminal Area (CTA) to the landside access facilities (CONRAC and ITFS) and other mass transportation facilities in an above-grade configuration. A total of six stations would be located along the alignment; passenger walkways and vertical circulation cores would connect the APM stations with the airport terminals and landside access facilities. The APM system would also include a maintenance facility and several electrical substations to provide power to the system. Construction of the APM guideway and stations would require the demolition/relocation of several enabling projects."	2023
BUR	1200T004	Replacement Passenger Terminal (RPT) and Associated Support Facilities (Aircraft Aprons/Ramps, Primary and Secondary Roads, Auto Parking, Replacement Airline Cargo Building, Replacement GSE Maintenance and Replacement ARFF building. Also includes is the demolition of the Existing Terminal Building and Elevated Parking Structure, and the construction of taxiways to replace existing non-standard taxi lanes. The airport will provide shuttle services to the North Station (Antelope Valley Line) and the Regional Intermodal Transportation Center which includes the rental car facility and access to the Empire Station (Ventura Line and Amtrak). The replacement terminal will also provide access to City bus services.	2024

Airport	RTP ID	Description	Completion Year
BUR	1120004	Metro Red Line Extension: Metro Red Line Station North Hollywood to Burbank Bob Hope Airport	2045
BUR	1OM0702	Burbank Airport, to mitigate the impacts of the I-5 North Construction, provide shuttle services to the Redline Station on weekends and outside Burbank Bus operating hours.	2019
ONT	4160049	Ontario International Airport (ONT) Loop - Zero-emission, rubber tire, direct transit connection between the Rancho Cucamonga Metrolink Station and ONT.	2027

Table 9. Non-Project List Airport Projects

Airport	Project Name	Brief Description	Completion Year
LGB	Phase I	The Phase I – Terminal Area Improvement Program, which included $100 million in various priority projects was completed in 2012, culminating with the award-winning, LEED Silver certified passenger concourse featuring modern design, local eateries and an innovative indoor-outdoor design with a spacious post-security garden. Phase I also included construction of Parking Structure B.	2012
LGB	Phase II	Long Beach Airport's Phase II - Terminal Area Improvements were divided into six priority areas: 1) Ticketing Lobby; 2) Checked Baggage Inspection System (CBIS); 3) Baggage Claim Area Improvements; 4) Terminal Renovation Improvements; 5) Rental Car Customer Service Improvements; and 6) Meet and Greet Plaza Future improvements will include: 1) Rental car ready-return-lot; 2) Ground transportation center; and 3) Terminal roadway improvements	2024
LAX	The New Tom Bradley International Terminal	This project will provide greater capacity to the existing Tom Bradley International Terminal with new gates to comfortably accommodate passenger loads for the larger new generation aircraft and a great hall for premier dining and retail shopping. It is considered to be the largest public works project in the history of the City of Los Angeles, and it will create 4,000 construction related jobs over the course of the four-year project schedule.	2015
ONT	Diane Feinstein International Terminal	New international terminal and federal inspection station (FIS).	TBD

In addition to ground access projects included on the Connect SoCal 2024 Project List (see Project List Technical Report), the airports in the SCAG region have also invested in other projects to improve the quality of services, including accessibility. Table 9 highlights some of the recently completed and proposed projects occurring at some of the commercial service airports in the region.

6.1.2 RESEARCH ON CRITICAL AND EMERGING ISSUES IN AIRPORT GROUND ACCESS AND AVIATION SYSTEMS PLANNING

A critical element to regional aviation systems and airport ground access planning is the latest data, information and research on the ongoing and emerging issues and concerns faced by the airports and the surface transportation system. Of note, the congestion caused by excessive private vehicle usage to travel to and from the region's airports is a problem that does not appear to be going away anytime soon. Research on the negative impacts of private vehicle usage, the potential for transit and other non-automobile focused development at airports and strategies to encourage transit usage to airports, are all potential areas of research related to Connect SoCal 2024 implementation and regional aviation systems and airport ground access planning. Part of this research would include the exploration of new multimodal options to the airports, including AAM, CAV and other emerging technologies.

6.1.3 EXPLORING NEW OPPORTUNITIES AND PARTNERSHIPS

A significant part of Connect SoCal implementation is the exploration of new opportunities in regional airport ground access planning and the development of new partnerships through engagement and outreach. Much of this is accomplished through memberships on committees and working groups, including federal, state, county and local government working groups. In the recent past, Connect SoCal implementation was complemented by membership on the Caltrans Division of Aeronautics, California Aviation System Plan Steering Committee. Similarly, industry association and academic committees also provide opportunities for information sharing and future collaboration. For instance, as part of the TRB Aviation Systems Planning Committee, the SCAG Aviation and Airport Ground Access Program has been able to establish partnerships with airport and aviation government officials and industry professionals, which have proven to be a resource for information sharing. Finally, the ATAC has continued to be a space that encourages collaboration between airports, transportation planners, and academics, which is fertile ground for new partnerships.

6.2 NEXT STEPS

The "next steps" to aviation systems and airport ground access planning in the SCAG region build off the Connect SoCal 2024 Implementation Strategies discussed earlier.

6.2.1 MEETINGS, TELECONFERENCES, AND ONGOING CORRESPONDENCE, WITH AIRPORTS, COUNTY TRANSPORTATION COMMISSIONS AND OTHER STAKEHOLDERS REGARDING AIRPORT GROUND ACCESS

SCAG will continue to engage our airport and transportation planning partners through meetings, teleconferences, correspondence and working groups and technical advisory committees. Collaboration and communication among regional airport and transportation stakeholders was a critical element in developing Connect SoCal 2024 and will continue to be a critical strategy for regional aviation and surface

transportation planning in coming years. While it is the expectation that the dialogue and collaboration between the region's transportation agencies and airports will be self-initiated, the SCAG understands and embraces that these types of working relationships are more likely to occur when encouraged by a third party, in this case SCAG. SCAG will continue to facilitate working relationships and discourse among aviation and transportation planning agencies and officials in the region.

SCAG will continue to reach out to and correspond with the airports and transportation agencies in the region. As an MPO, SCAG is encouraged by federal statute to consult and collaborate with transportation stakeholders, including airport officials. To encourage effective planning for the coming growth in air passenger and cargo demand in the region, SCAG has provided and will continue to provide a critical collaborative planning function. Whether it is through ATAC, attendance at conferences and working group meetings and meeting with airports and government agencies, SCAG will continue to play a critical role in building bridges and partnerships across the region.

6.2.2 BEGIN RESEARCH AND ANALYSES, PUBLISH REPORTS AND ENGAGE INFORMATION SHARING

The next step for Connect SoCal 2024 implementation will be to conduct research on emerging issues in aviation systems and airport ground access projects, apply for grants and explore opportunities in aviation and airport research, publish data and information (e.g., SCAG website, reports, white papers) and facilitate data sharing between our partners on critical and emerging issues in airport ground access, intermodal transportation and aviation systems planning, through ongoing communication and collaboration, including organizing, programing, and convening meetings. Rigorous data collection, research and analysis is critical for effective regional planning, including planning for ground access to and from the region's airports. The ongoing development of the SCAG region's surface transportation system, especially as it relates to the airports in the face of growing air passenger and cargo demand, will require that all key partners maintain and have access to quality data on aviation passenger and cargo trends.

Although Connect SoCal 2024 will continue to play a key role in developing the regional transportation system to accommodate the growing air passenger and cargo demand, additional research and analysis is needed. While much of the research and analysis in aviation systems and airport ground access planning will continue to be provided by the aviation and transportation stakeholders in the region in the form of data, activity reports, passenger surveys, other agency-initiated reports, studies and working groups, there is work that can accompany their efforts.

To complement the work being done by our transportation, aviation, and airport partners, and the data and analyses conducted for Connect SoCal, SCAG will begin designing and initiating studies. Some of these studies may include air passenger surveys, airport passenger choice and new technology (e.g., AAM). The goal is to develop research that will help inform airport and transportation planners in the region. To ensure that there is no unnecessary overlap and that the research represents the interests and goals of aviation stakeholders, SCAG will continue a discursive and collaborative planning approach with its partners. The data collection and analyses for Connect SoCal, and the other aviation systems and airport planning research projects, will be an open, transparent and collaborative process. SCAG's efforts will be to continue to facilitate effective research, analysis and planning through information sharing and open communication.

6.2.3 ENGAGE TRANSPORTATION AND AVIATION PARTNERS, RESEARCH OPPORTUNITIES AND APPLY TO GRANTS AND PROGRAMS

The next steps for the implementation of Connect SoCal 2024 will include communication and collaboration with transportation and aviation planners and experts, exploring new opportunities for planning, research, analysis and applying to grants and programs related to aviation systems and airport planning and research. Developing studies and research projects will be a critical next step for Connect SoCal 2024 implementation. Along with the ATAC, working groups and steering committees, there are also opportunities to participate at conferences and panels, including TRB research panels. Of note, conferences such as the National Aviation Systems Planning Symposium can be both networking and educational opportunities. Furthermore, one effective way to conduct research on opportunities in aviation systems and airport systems planning is through direct communication. Finally, a critical element to applying for grants and programs is to engage the agencies and organizations sponsoring the opportunities. For instance, application for Caltrans grants is strengthened by working with the offices and teams administering the grants. As part of Connect SoCal implementation, engagement and collaboration will be the next step of exploring new opportunities and partnerships.

7. ENDNOTES

[1] Federal Aviation Administration. 2022. Airport Categories.
[2] Meyer, M.D., Mosbah, S.M., Wolinetz, L.D., 2021. Integrating Airport Ground Access and Metropolitan Surface Transportation Planning Efforts. Airport Cooperative Research Program.
[3] U.S. Government Accountability Office. 2009. National Airport System: Regional Airport Planning Could Help Address Congestion if Plans Were Integrated with FAA and Airport Decision Making. GAO-10-120.
[4] FAA DOT AC 150/5070-6B, 1104, a, p.94. KEY ACTIVITIES AND RESPONSIBILITIES
[5] Gosling, Geoffrey. (1988). "Introduction." TRB 1199: Airport Landside Planning Techniques. Transportation Research Board. P.1
[6] Federal Aviation Administration. (2022). Overview: What is AIP & What is Eligible?
[7] Federal Aviation Administration (FAA). (2022). Passenger Facility Charge (PFC) Program.
[8] U.S. Government Accountability Office. 2009. National Airport System: Regional Airport Planning Could Help Address Congestion if Plans Were Integrated with FAA and Airport Decision Making. GAO-10-120.
[9] Caltrans. (2022). California Airport Land Use Planning
[10] Los Angeles County, Department of Regional Planning. (2022). Airport Land Use Commission (ALUC).
[11] Caltrans (2022). California Aviation System Plan.
[12] Federal Aviation Administration. 2022. What We Do.
[13] Federal Aviation Administration. 2022. Aircraft Certification.
[14] U.S. Centennial of Flight Commission. 2022. Deregulation and Its Consequences.
[15] SANDAG. 2050 RTP/SCS Final Environmental Impact Report (EIR). Section 4.12 Noise and Vibration.
[16] Federal Aviation Administration (FAA). History of Noise.
[17] Federal Aviation Administration (FAA): Airport Noise and Land Use Information.
[18] Federal Aviation Administration (FAA): Airport Sustainability.
[19] California Air Resources Board (CARB). (2022). Aircraft and Airports.
[20] AQMD. (2022). AQMD Enforcement Plan, Chapter 4.
[21] AQMD. (2022). 2022 AQMP Mobile Source Working Groups.
[22] Hester, Timothy. Community Planner for the Federal Aviation Administration, Los Angeles Airports District Office. (Thursday, July 30, 2020). Phone Interview.
[23] Legacy carrier means an airline that typically offers scheduled flights to major domestic and international routes (directly or through membership in an alliance) and serves numerous smaller cities, operates mainly through a "hub-and-spoke" network route system and has higher cost structures than low-cost carriers due to higher labor costs, flight crew and aircraft scheduling inefficiencies, concentration of operations in higher cost airports and multiple classes of services (Law Insider, 2023).
[24] Levere, Jane L. "Business Travel's Rebound Is Being Hit by a Slowing Economy," The New York Times. November 27, 2022.
[25] Environmental Protection Agency (EPA). (2022). Clean Air Act Title IV-Noise Pollution.
[26] Sciencing. (2018). Effects of Car Pollutants on the Environment.
[27] Federal Aviation Administration (FAA), Airport Resiliency.
[28] Special thanks: In closing , the SCAG Aviation and Airport Ground Access Program would like to recognize our airport partners who assisted us with preparation of the Connect SoCal 2024 Aviation and Airport Ground Access Technical Report: (Hollywood Burbank Airport) Patrick Lammerding, Aaron Galinis, and Pamela Marcello; (Imperial County Airport) Jenell Guerrero, John Gay, and Marlynn Lopez; (John Wayne Airport) Lea Choum, Julie Fitch, Nikolas Gaskins, Betty Siercke, and Melinda McCoy; (Long Beach Airport) Ron Reeves and Ryan McMullan; (Los Angeles International Airport) Terri Mestas, Robert Falcon,

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