Appendix BB:

Regional Aviation Strategic Plan and San Diego Airport Multimodal Accessibility Plan

Final

December 2021

Appendix BB: Regional Aviation Strategic Plan and San Diego Airport Multimodal Accessibility Plan

Airports link local, regional, statewide, national, and global economic activities and are essential components of comprehensive transportation systems. In 2007, the California State Legislature enacted Senate Bill 10 (Kehoe, 2007) with the intent of promoting long-range planning for airports in local general plans, advancing regional transportation strategies, exploring mechanisms for regional cooperation, and ensuring consistency between the planning documents prepared by the San Diego County Regional Airport Authority (SDCRAA) and the San Diego Association of Governments (SANDAG).
This legislation set the framework for the development of the Regional Aviation Strategic Plan (RASP) and the San Diego Airport Multimodal Accessibility Plan (AMAP). The SDCRAA prepared the RASP in 2011 and produced a RASP Implementation Report in 2021. The RASP Implementation Report provides an update and status of the factors evaluated in the RASP, including changes in the aviation industry since the RASP was developed and progress in implementing the scenarios originally identified in the RASP. SANDAG prepared the initial AMAP in 2012. The AMAP focuses on ground access to the regional airports. The routes included in the 2012 AMAP continue to be identified in San Diego Forward: The 2021 Regional Plan. SANDAG is working on a plan to provide direct public transportation from a proposed Central Mobility Hub to the San Diego International Airport.

Attachments

Attachment 1: 2012 San Diego Airport Multimodal Accessibility Plan

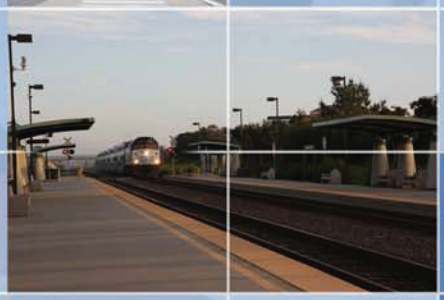
Attachment 2: Regional Aviation Strategic Plan Implementation Report

Appendix BB Attachment 1:

2012 San Diego Airport Multimodal Accessibility Plan

FINAL

San Diego Airport Multimodal Accessibility Plan



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Acronyms

ADT	Average Daily Traffic
Airport Authority	San Diego County Regional Airport Authority
AMAP	Airport Multimodal Accessibility Plan
BRT	Bus Rapid Transit
CHSRA	California High-Speed Rail Authority
Caltrans	California Department of Transportation
CBF	Cross Border Facility
CBT	Cross-Border Terminal
CONRAC	Consolidated Rental Car Facility
CPUC	California Public Utilities Commission
ETC	Escondido Transit Center
FAA	Federal Aviation Administration
FTA	Federal Transit Administration
HOV	High-Occupancy Vehicle
HSR	California High-Speed Rail
HST	High-Speed Train
HUD	U.S. Department of Housing and Urban Development
I	Interstate
ITC	Intermodal Transportation Center
LRT	Light Rail Transit
LAX	Los Angeles International Airport
LOS	Level of Service
MCRD	Marine Corps Recruit Depot
MOU	Memorandum of Understanding
MTS	San Diego Metropolitan Transit System
NCTD	North County Transit District
NPIAS	National Plan of Integrated Airport Systems
P3s	Public/Private Partnerships
POE	Port of Entry
RASP	Regional Aviation Strategic Plan
RTP	Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SANDAG	San Diego Association of Governments
SB	Senate Bill
SDIA	San Diego International Airport
SOCAL ICG	Southern California High-Speed Rail Inland Corridor Group

SR	State Route
SWG	Stakeholder Working Group
TGR	Trip Generation Rate
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
TIJ	Tijuana Rodriguez International Airport
U.S.	United States
USDOT	United States Department of Transportation

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Executive Summary

Introduction

Airports help to link local, regional, statewide, national, and global economic activities and are essential features of comprehensive local transportation systems, including streets, highways, rail transit, transit over water (e.g. cargo ships), and mass transit. Because of the significant regional consequences of airport development and operations, it is important that the future development of major airport facilities in San Diego County be addressed in the context of a regional decision making process that has regional representation.

In enacting Senate Bill 10 (SB 10) in 2007 (California Legislature, 2007), the intent of the Legislature was to:

1. Promote long-range planning for airports in local general plans
2. Advance regional transportation strategies
3. Explore mechanisms for regional cooperation
4. Ensure consistency between the planning documents prepared or approved by the San Diego County Regional Airport Authority (Airport Authority) and the San Diego Association of Governments (SANDAG).

These goals are accomplished by the main planning provisions of SB 10, which are the development of a Regional Aviation Strategic Plan (RASP) and an Airport Multimodal Accessibility Plan (AMAP). The Airport Authority, as lead for the RASP, analyzed scenarios to improve the performance of the regional airport system. SANDAG is the lead for the AMAP, which develops a multimodal strategy to improve surface transportation access to these airports. The overarching goal of the RASP and AMAP is to maximize the efficiency and effectiveness of existing and planned aviation facilities by using all modal infrastructures.

Currently, ground access to the region's airports is primarily roadway- and automobile-focused. As a result, aviation demand puts pressures on already crowded freeways and roadways, further limiting their ability to efficiently serve the region. The AMAP develops ground access improvement alternatives at San Diego regional airports as identified in the RASP. These alternatives include roadway and highway modifications, reconfiguration of existing and development of new transit services and facilities, and new express bus service for direct connections to San Diego International Airport (SDIA), McClellan-Palomar Airport, and the future Cross Border Facility (CBF). The AMAP incorporates the advanced planning for the Airport Intermodal Transportation Center (ITC) at SDIA and future high-speed train (HST) service at both the ITC and the CBF.

Background

San Diego County, with more than 3 million residents, is the second most populous county in California and accounts for 8 percent of the state's population. In the Tijuana, Baja California region, there are over 1.6 million residents (INEGI 2010). Each year, more than 11.5 million air passengers within San Diego County primarily use one of three airports certified for commercial airline service (Airport Authority, 2011) –SDIA with 9.2 million enplanements, Tijuana Rodriguez International Airport (TIJ) with 2.3 million enplanements, or McClellan-Palomar Airport with 47,000 enplanements. The San Diego County public-use airport system includes a total of 12 airports in San Diego County and TIJ in Tijuana, Mexico (Figure ES.1). TIJ was included in the RASP because it serves passengers from the entire Southern California region. The AMAP also includes TIJ with regards to the proposed Cross-Border Facility (CBF)/Cross Border Terminal (CBT) on the U.S. side that would facilitate processing of U.S. passengers utilizing TIJ.

One requirement of SB 10 of 2007 was a memorandum of understanding (MOU) between the Airport Authority and SANDAG to work cooperatively on multimodal airport planning in the region and specifically on the RASP and AMAP. Through this MOU, approved in June 2009 by both agencies, SANDAG outlined the major components of the AMAP:

1. The identification of multimodal transportation investments that will improve surface transportation access to the airports in San Diego County, other counties, and Mexico if appropriate
2. A program of investments and the anticipated schedule for the development of the projects that comprise the program
3. A financial element that estimates for the period of the plan the amount of funding that can be expected, the likely revenue sources from which the funding will be derived, and the program of investments supported by the expected revenue.

The AMAP furthers the utility and successful implementation of the RASP objectives through the identification of multimodal transportation investments that will improve surface transportation access to the airports in San Diego County and to other counties, if appropriate.

Stakeholder and Public Outreach

The AMAP stakeholder working group (SWG) was established to provide input on the development of the proposed ground access transportation improvements. The SWG met over a 15-month period, between March 2010 and June 2011, reviewing RASP modeling results and the development of the proposed surface transportation improvements at each regional airport evaluated in the RASP study.

During this planning process, joint presentations were held on various dates by SANDAG and the Airport Authority to their respective boards. The SWG included the following agencies:

- SANDAG
- Airport Authority
- California Department of Transportation (Caltrans)
- San Diego Metropolitan Transit System (MTS)
- North County Transit District (NCTD)

The proposed ground access alternatives were discussed with the SWG at monthly coordination meetings. Additional meetings were held with various local agencies including the County of San Diego, City of San Diego, City of Carlsbad, City of El Cajon, Otay-Tijuana Venture LLC, MTS and NCTD.

Staff participated in Open Houses organized by the Airport Authority in September 2010 and January 2011 to both present the draft findings from both the RASP and AMAP and staff informational booths on both plans.

The SANDAG Board of Directors released the draft plan for a 60-day public comment period on June 24, 2011. The draft report was also made available on the SANDAG website during this time. Several presentations were made during this time including to SANDAG's Regional Planning Technical Working Group and Cities/County Transportation Advisory Committee, Regional Chamber of Commerce Transportation Committee, and County of San Diego, Airports staff.

2050 Regional Transportation Plan

The 2050 Regional Transportation Plan (RTP) is the long-range transportation blueprint for major transportation modes in the San Diego region. Since SANDAG updates the RTP every four years, the schedule for the RASP and AMAP were driven by the schedule for developing and finalizing the current RTP, the 2050 RTP. The 2050 RTP was finalized by the SANDAG Board of Directors in October 2011 and major findings from both the RASP and the draft AMAP report were included.

Summary of Findings

The ground access improvements included in the AMAP were developed in conjunction with the findings identified in the RASP. The RASP included a strategic assessment of the San Diego County Airport System, which identified the regional airports that could be considered for service role changes to optimize the region's aviation infrastructure. These regional airports were then evaluated in the AMAP for ground access improvements.

Following the completion of the RASP Strategic Assessment, airports that were determined to have physical, operational, environmental, or other significant constraints that hindered their ability to meet the long-term needs of the region were dropped from further study in the RASP and the AMAP. Those airports included the following:

- Oceanside
- Fallbrook
- Borrego Valley
- Ocotillo
- Agua Caliente
- Jacumba

Both the RASP and AMAP continued further evaluation of the following airports:

- McClellan-Palomar
- Gillespie Field
- Brown Field
- SDIA
- TIJ
- Montgomery Field
- Ramona

As the RASP progressed, Montgomery Field and the Ramona Airport were not included in the family of scenarios which were identified to optimize the regional airport system. These two airports were eventually discovered to be among those that had physical, operational, environmental or other constraints. Scenarios for Brown Field were found to be infeasible because of a number of factors, including terrain and airspace complications, reluctance of passenger airlines to "split operations" with SDIA, distance from demand base, and lack of facilities for air cargo carriers.

Based on these findings, the AMAP then evaluated potential ground access improvements at the airports found to be candidates for future expansion. During the AMAP planning process, interim findings from the RASP such as aviation modeling results, were shared with the SWG to assess and refine the initial ground access improvements. The major findings of the RASP and AMAP are summarized below for both short-term (2020) and long-term (2035) time frames.

SDIA Short-term (2020)

The RASP results indicated that the full north side build-out of the SDIA would have no effect on projected enplanements relative to the baseline scenario because it would not provide airfield capacity improvements.

However, there are other reasons for full build-out of the north side terminal complex as well as construction of the Phase 1 Airport ITC, including regional intermodal transportation connections, alternatives to driving alone to the airport, and congestion relief. The advanced planning and preliminary design for the Airport ITC is currently under way and will include connections from the north side airport development to trolley, commuter rail, and local and regional buses. Connections from the north side improvements, including the Airport ITC, would be via shuttle bus on a dedicated on-airport Terminal Link Roadway around the east end of the runway. Sassafras Street would provide access into the north side airport facilities, with existing access routes from the airport. These ITC ground access improvements are included in the AMAP and are also consistent with *Destination Lindbergh* (Airport Authority, 2009), which provides the long-range strategy to optimize the efficiency of SDIA's facilities and functions.

The AMAP also includes three potential express bus service routes to SDIA. These services may provide connections to Inland North County, McClellan-Palomar Airport, and the CBF.

SDIA Mid-to-Long-term (2035)

The AMAP study calls for the full build-out of the Airport ITC which builds upon the Phase 1 scenario, and will include a high-speed train station and direct connector ramps from Interstate 5 (I-5). A potential people mover would replace the shuttle bus connection between the north and south sides of the airport. In the long-term, all passenger access and processing could occur on the north side of the airport property, and direct ground access from North Harbor Drive would cease.

The RASP evaluated two HST alignments and both would offer passengers a ground transportation alternative to air-travel between cities and airports within California. The study found that diverting a portion of intrastate commercial passenger operations from Northern California to HST, would delay SDIA capacity constraints (expected to occur between 2020 and 2025) by approximately 5 years. This would alleviate the region's aviation capacity and accommodate suppressed demand. It should be noted that the true long-term impact of HSTs on the region could not be precisely determined because results were evaluated for only 3 years, with effects being observed only between 2027 (when the California High-Speed Rail Authority [CHSRA] expects to be running service to San Diego) and 2030.

Based on the degree of uncertainty surrounding the timing of HST, as well as the time and cost of accessing and using the service, the best estimate is that between 8 percent and 25 percent of the region's aviation demand to northern California would be diverted to rail (Airport Authority, 2011).

The eventual diversion will depend on the schedule of operations, average train speeds, and fares, as well as the degree of integration with SDIA and the surface transportation connections.

Cross Border Facility Short-term (2020)

The CBF is a privately-funded venture by the Otay-Tijuana Venture, LLC that will provide a pedestrian bridge for ticketed passengers to cross the U.S.-Mexico border to the TIJ terminal.

The RASP forecasts a 30 percent increase in the number of passengers using TIJ with the introduction of the CBF, but the CBF would only marginally alleviate the short-term capacity constraint at the SDIA. This is because U.S. travel from Tijuana, notwithstanding any form of a cross border terminal, is international travel, requiring customs clearance for Mexico-departing and U.S.-arriving passengers. The RASP also found that the CBF would attract more passengers from the Los Angeles region than from San Diego County. This is primarily attributable to the larger service area of the Los Angeles region and capacity constraints at Los Angeles region airports. In addition, the use of TIJ by San Diego County residents and visitors is expected to increase over the RASP study period with or without the introduction of the CBF given its proximity and the capacity constraints at SDIA.

The AMAP reviewed a number of ground access improvements to the CBF during the short-term phase. These include future local bus routes between Otay Mesa Port of Entry (POE) and the CBF, additional arterial widening projects consistent with the draft Otay Mesa Community Plan update under development by the City of San Diego planning staff, and additional improvements to the interchange between State Route 905 (SR 905) and Britannia Boulevard. The additional demand generated by the CBF would require roadway improvements in the vicinity of the proposed facility to accommodate increased ADT on surrounding arterials. All of the roadway improvements included in the AMAP provide better access to and from the CBF by allowing the arterials and ramps to operate at an acceptable LOS D or better.

Express bus service (or "FlyAway" service that provides a one seat ride directly to the terminal) from the Airport ITC, North County Inland, and the H Street trolley station located in the City of Chula Vista also are possible.

Cross Border Facility/Cross Border Terminal Mid-to-Long-term (2035)

The RASP also evaluated increasing the use of TIJ for commercial passenger activity by offering a new passenger Cross Border Terminal (CBT) on the U.S. side of the border to facilitate processing of U.S. passengers utilizing TIJ. The CBT would function as a full-service terminal, allowing passengers to purchase tickets and check-in luggage for TIJ-originating flights on the U.S. side of the border.

The future CBF would provide access to flights and increased international destinations not offered at SDIA. The RASP includes an evaluation of the CBF as a future CBT, but for purposes of the proposed ground access improvements, the AMAP evaluates this as one facility.

The AMAP incorporates the recommendations included in the SANDAG feasibility study which evaluated the feasibility of extending current and future rail services to the CBF/CBT. For the long-term build-out of the facility, the state's future HST system would be extended to the CBF/CBT. The SANDAG feasibility study identified the I-5 corridor as potentially feasible to extend the HST system from its terminus in downtown San Diego or the Airport ITC, to the CBF/CBT and the Otay Mesa POE (SANDAG, 2010a). This extension is included in the 2050 RTP Unconstrained Network (SANDAG, 2011).

McClellan-Palomar Airport

The RASP evaluated enhanced commercial passenger service at McClellan-Palomar Airport driven by either capacity constraints at SDIA or facility improvements at McClellan-Palomar Airport. Increased commercial passenger service at McClellan-Palomar Airport would not alleviate capacity constraints at SDIA primarily because the additional demand that can be accommodated at McClellan-Palomar Airport only would account for 5 percent of SDIA's total traffic and because the number of destinations offered at McClellan-Palomar Airport is limited. The RASP also evaluated the use of McClellan-Palomar Airport for high-end/corporate general aviation and estimated that this would delay the capacity constraint at SDIA by approximately 2 years.

The AMAP ground access improvement alternatives included additional lanes on Palomar Airport Road, widening of arterial streets, and an additional entrance to the McClellan-Palomar Airport for better transit and vehicular access directly to the terminal. Proposals to be carried forward include the arterial roadway and transit improvements including express bus service to and from SDIA via the I-5 corridor. NCTD Route 445 would be modified to provide direct service to the airport terminal and would provide connectivity to COASTER service at the Carlsbad Poinsettia Station.

Gillespie Field

The RASP evaluated maximizing the use of Gillespie Field for both high-end/corporate and recreational general aviation by providing the necessary facilities and amenities in order to shift aviation activity from SDIA to Gillespie Field. The RASP estimated that redistributing general aviation operations per the assumptions under this scenario would delay the capacity constraint at SDIA by approximately 2 years.

General aviation is traditionally a difficult market for transit to serve in an efficient and cost effective manner. That said, to provide better connectivity to Gillespie Field, AMAP improvements include the completion of the Bradley Avenue/SR 67 interchange to facilitate better access to the airport and enhanced transit connections at the Gillespie Field trolley station. Additional coordination and input with the City of El Cajon, County of San Diego, and MTS will be required to refine these concepts

Summary of Cost Estimates

Following development of the ground access improvements, preliminary, planning-level capital and operational cost estimates were developed for the roadway and transit improvements for the airports carried forward as part of the AMAP and RASP study process. Total planning level capital costs by airport include the following as shown in Table ES-1

Table ES-1 Summary of Preliminary Costs

Airport	Constrained Cost	Unconstrained Cost	Notes
SDIA	$1.6 billion	-	Does not include HST and I-5 Direct Connectors
CBF/CBT	17.3 million	$3.6 billion	Unconstrained cost includes future HST/Commuter Rail Extension
McClellan-Palomar Airport	$19.5 million	-	-
Gillespie Field	$30.2 million	$0.8 million	Constrained cost includes Bradley Avenue/SR 67 interchange improvement

The AMAP also identified five different express bus service routes with a total capital cost of $25.5 million and annual operating costs of $33.5 million.

A more detailed description of the capital and operational cost estimates for the ground access improvements identified in the AMAP is included in Chapter 4 of this report.

Implementation Strategies

Completion of the RASP and AMAP has showcased the benefits of collaboration between SANDAG, the Airport Authority, and regional stakeholders. Aviation planning and airport ground access have been incorporated into the 2050 RTP at a level above and beyond previous plans. Further collaboration is warranted both in terms of future updates to the RASP and RTP, but also to identify

the necessary steps toward successful implementation of the ground access improvements identified in the AMAP.

Additional steps following completion of the AMAP include continued collaboration with staff from the Cities of San Diego, Carlsbad, and El Cajon, as well as the airport owners to assess the feasibility of incorporating ground access improvements in local plans, airport layout and master plans, and coordination with other planning efforts. Any AMAP recommendations on airport property would be subject to federal approval processes.

Implementation of the AMAP findings will be dependent on funding and policy changes which are needed to further the goals of SB 10. The reauthorization of the surface transportation program, SAFETEA-LU (Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users), has been deferred until at least April 2012 and there is little agreement on how to raise federal funds to address the current funding shortfall in the Highway Trust Fund. Compounding this problem is the current economic condition and its impact on state funding for transportation. It is unlikely that any additional state funds will be accessible until the national, state, regional and local economies improve. As a result, there appear to be few federal or state funding options to implement the proposed ground access improvements in the short term.

That said, several strategies could be explored for funding opportunities with the goal of leveraging local funding with state, federal and private dollars. These sources are listed below and discussed in detail in Chapter 5.

Federal Sources

- Potential Intermodal Airport Funding Pilot Program
- Federal Livability Initiative
- Transportation Investment Generating Economic Recovery
- FTA Funds
- Complete Streets
- Environmental and Natural Resources Grants
- TIFIA Loan

State Sources

- Intermodal Connectivity Funding
- High Speed Rail Funding
- CPUC Grade Separation Funding
- CTC Prop. 1B Grade Crossing Funds

- Caltrans Transportation Planning Grant Program

Local and Regional Sources

- Restructured Local Bus Service to Serve Airport

Private Sources

- Private Shuttles to Airports
- Joint Development around stations
- Establishment of Assessment Districts
- Public/Private Partnerships

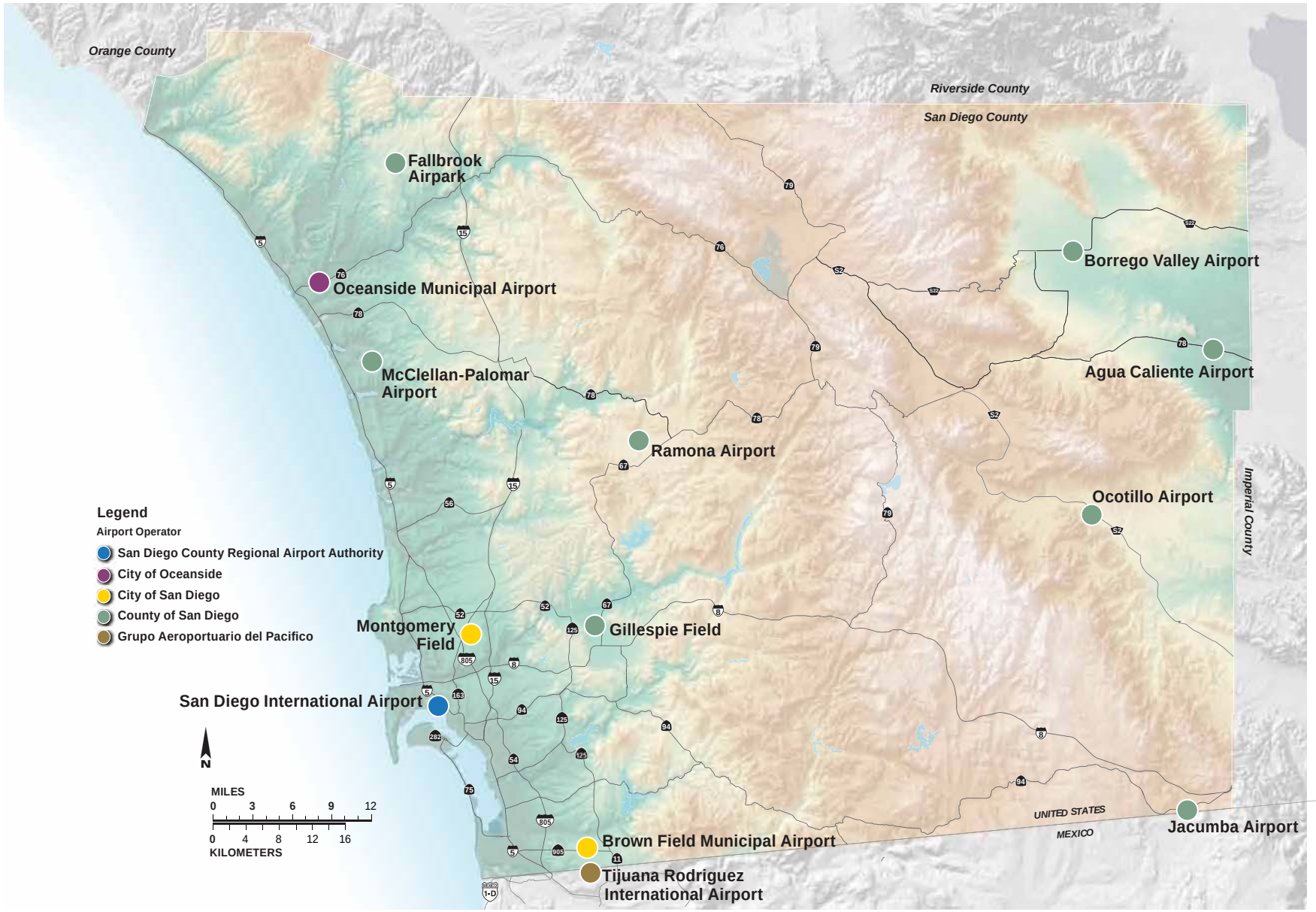

FIGURE ES.1
San Diego Region Airports
Airport Multimodal Accessibility Plan

Source: SANDAG 2011

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1 Purpose and Need

San Diego County, with more than 3 million residents, is the second most populous county in California and accounts for 8 percent of the state's population. In the Tijuana, Baja California region there are over 1.6 million residents. Each year, more than 11.5 million air passengers use one of three airports certified for commercial airline service (Airport Authority, 2011) – San Diego International Airport (SDIA) with 9.2 million enplanements, Tijuana Rodriguez International Airport (TIJ) with 2.3 million enplanements, or McClellan-Palomar Airport with 47,000 enplanements.

In addition, ten airports provide general aviation and air cargo services, and together, make up the region's public-use airport system (Figure 1.1).

Currently, ground access to the region's airports is primarily roadway- and automobile-focused. Public transportation options are limited. Because of the focus on roadway infrastructure, aviation demand puts pressures on already crowded freeways and roadways, further limiting their ability to efficiently serve the region. For example, the level of service (LOS) along major arterials serving SDIA is at LOS D or higher during certain times of the year when air travel is at its peak. Offering additional choices to airline passengers can potentially alleviate some of this congestion. For example, the Airport ITC could increase the mode share for transit to SDIA from the current 1 percent to up to 13 percent at full build out.

The Airport Multimodal Accessibility Plan (AMAP) develops ground access improvement alternatives at San Diego regional airports as identified in the Regional Aviation Strategic Plan (RASP). These alternatives include roadway and highway modifications, reconfiguration of existing and development of new transit services and facilities, and new express bus service for direct connections to SDIA, McClellan-Palomar Airport, and the future Cross Border Facility (CBF) from the region's major travel corridors. The AMAP also incorporates the advanced planning for the Airport Intermodal Transportation Center (ITC) at SDIA and future high-speed train (HST) service at both the ITC and the CBF.

One requirement of Senate Bill 10 (SB 10) of 2007 was a memorandum of understanding (MOU) between the San Diego County Regional Airport Authority (Airport Authority) and the San Diego Association of Governments (SANDAG) to work cooperatively on multimodal airport planning in the region and specifically on the RASP and AMAP. Through this MOU, approved in June 2009 by both agencies, SANDAG outlined the major components of the AMAP:

1. The identification of multimodal transportation investments that will improve surface transportation access to the airports in San Diego County, other counties, and Mexico if appropriate
2. A program of investments and the anticipated schedule for the development of the projects that comprise the program
3. A financial element that estimates for the period of the plan the amount of funding that can be expected, the likely revenue sources from which the funding will be derived, and the program of investments supported by the expected revenue

The AMAP furthers the utility and successful implementation of the RASP objectives through the identification of multimodal transportation investments that will improve surface transportation access to the airports in San Diego County and to other counties, if appropriate.

1.1 Relationship to Regional Aviation Strategic Plan

As a result, the AMAP is part of a two-pronged process completed by SANDAG and the Airport Authority. The Airport Authority is the lead for the RASP, which identified workable strategies to improve the performance of the regional airport system. SANDAG is the lead for the AMAP, which develops a multimodal strategy to improve surface transportation to airports. The development of the RASP and AMAP will be a coordinated process between the Airport Authority and SANDAG (Figure 1.2).

1.2 Relationship to 2050 Regional Transportation Plan

The Regional Transportation Plan (RTP) is the long-range blueprint for major transportation modes in the San Diego region and is the first step in designing, securing funding, and ultimately building transportation projects. SANDAG is required by federal law to update the RTP every 4 years. The current plan, the 2050 RTP, was adopted by the SANDAG Board of Directors in October 2011. The 2050 RTP looked at the region between now and 2050 and phases transportation improvements by 2018, 2020, 2030, 2035, 2040, and 2050. The major findings from the RASP and AMAP, as required by SB 10 and the interagency MOU, were included in the final 2050 RTP.

While the 2050 RTP outlines phases to 2050, the AMAP follows the timeline of the RASP in addressing improvements through 2035. Because aviation facilities and technologies are difficult to plan for beyond 25 years, the RASP forecasts and airport improvements extend to 2035. While SANDAG consulted the draft 2050 transit and roadway networks for potential inclusion in this plan, ground access findings in this report are discussed for 2020 and 2035.

According to analyses by the Airport Authority, capacity constraints are likely at SDIA beyond 2030. This will result in the inability of the region to accommodate all demand, potential service disruptions and higher air fares. Although new aircraft will be deployed in the future (with designs like the Boeing 787 Dreamliner) that may have greater range for nonstop flights to international destinations from SDIA, no aircraft technologies now under development will increase the daily operation capacity of SDIA.

The RASP identified a series of measures that could accommodate additional demand up to 2030; several of these options, including high-speed rail, could also accommodate additional demand in the 2030 to 2050 timeframe. High speed rail is predicted to accommodate additional passenger demand for intrastate and intercity travel to Northern California. Airport Authority analyses noted that even including all these options, however, the region will likely face an inability to meet all commercial passenger demand within this timeframe.

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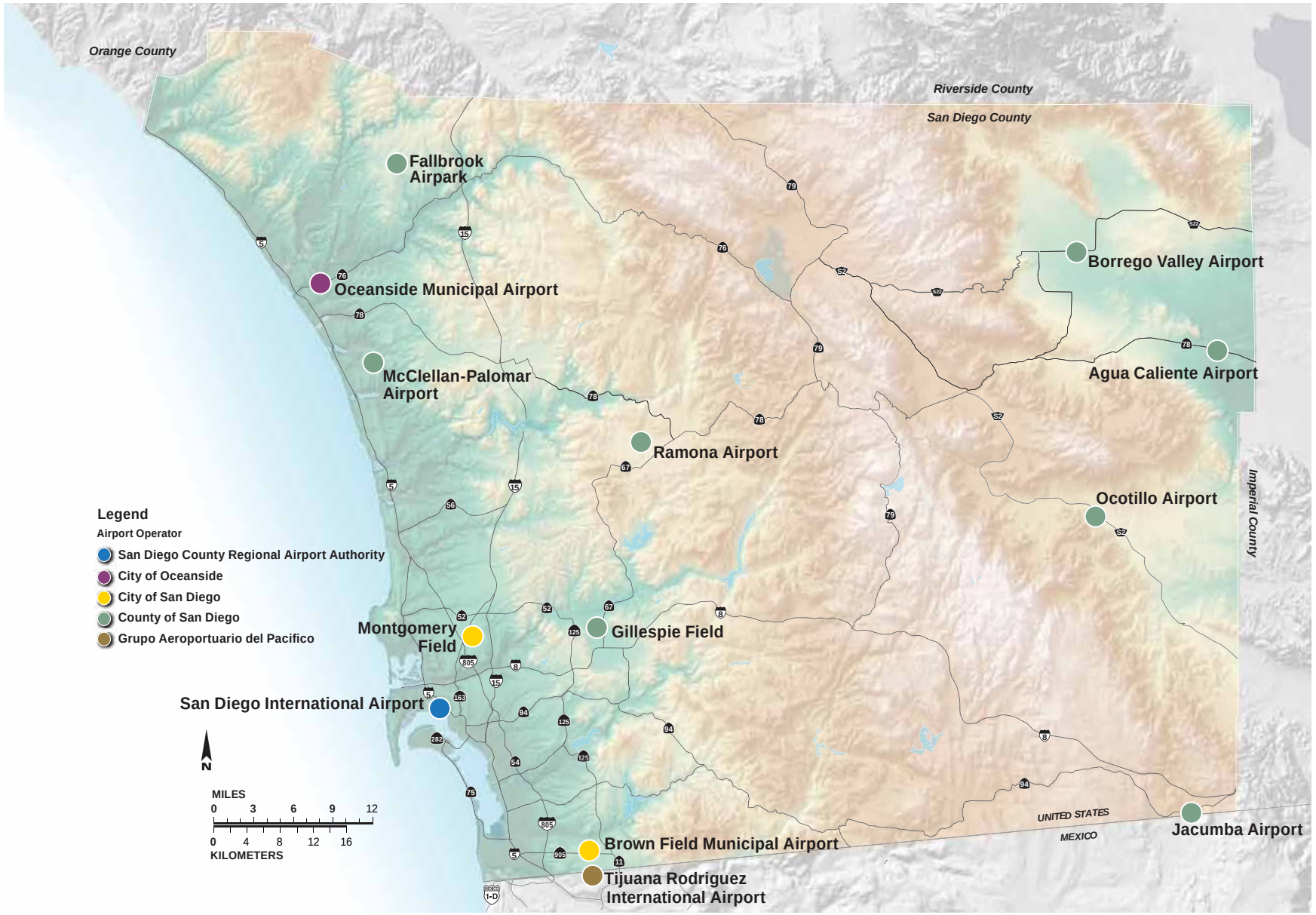

FIGURE 1.1
San Diego Region Airports
Airport Multimodal Accessibility Plan

Source: SANDAG 2011

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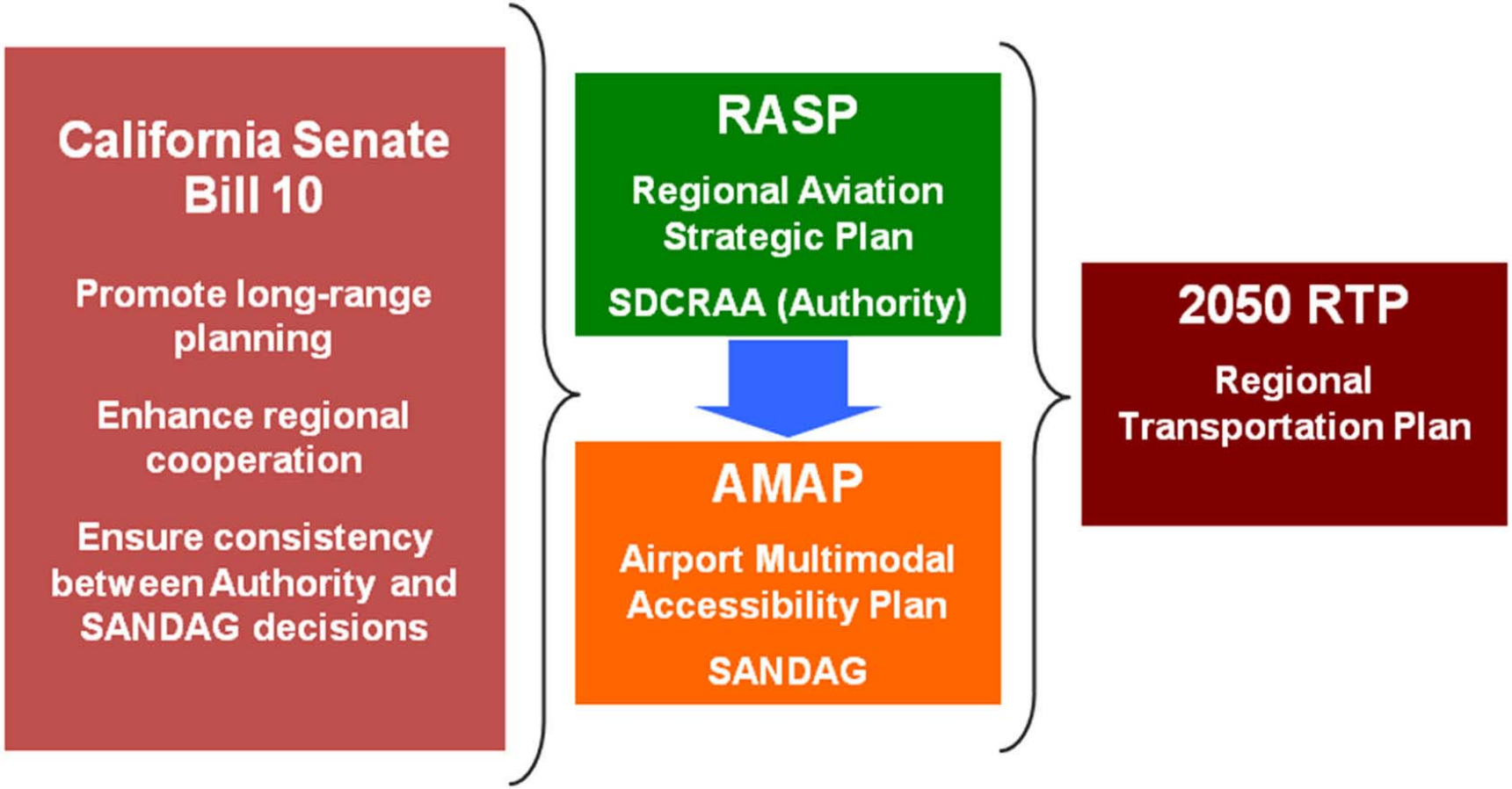

FIGURE 1.2
Coordinated RASP and AMAP Development Process
Airport Multimodal Accessibility Plan

Source: Airport Authority 2011

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2 AMAP Study Process and Approach

The purpose of this plan was to develop ground access transportation improvements at specific airports in the San Diego region, based on the RASP analysis and findings. Ground access alternatives were developed to coincide with the various scenarios developed as part of the RASP study. The AMAP ground transportation improvements included roadway and highway modifications, reconfiguration of existing and planned transit facilities, new express bus service and modifications to existing or proposed local bus service.

The AMAP study process, in addition to being completed in conjunction with the RASP, included a review of both air and landside planning studies and efforts.

2.1 Planning Studies Reviewed and Considered

The development of proposed ground access improvements for the AMAP included a review of existing planning documents related to airport improvements, as well as other local planned transportation modes, to gain an understanding of future airport, transportation and land-use improvements. Relevant plans are described below, along with important elements of the plans that were used to develop the ground access alternatives evaluated in this study.

2.1.1 Destination Lindbergh

The goal of *Destination Lindbergh* (Airport Authority, 2009) was to provide a fundamental, long-range strategy to optimize the efficiency of SDIA's facilities and functions. The plan envisions the ultimate build-out configuration of SDIA, evaluates and plans to minimize airport-related traffic impacts to adjacent communities, and improves intermodal access to SDIA.

Design features described in the study were included as potential ground access improvements as part of the AMAP study. These include HST terminus and new Interstate 5 (I-5) direct connectors, and the Airport ITC located north of the existing airport between Pacific Highway and I-5. The ITC was studied in the *SANDAG Airport Intermodal Transit Center (ITC) – Phase I Final Report* (SANDAG, 2010b), which is described below.

2.1.2 SANDAG Airport Intermodal Transit Center (ITC) – Phase I Final Report

The purpose of the *SANDAG Airport Intermodal Transit Center (ITC) – Phase I Final Report* (SANDAG, 2010b) was to verify the feasibility of and refine the concepts proposed by *Destination*

Lindbergh (Airport Authority, 2009) for the ITC facility. Phased alternatives were developed as part of the study that connects the ITC facility to existing and planned airport facilities. Plans for a trolley, bus, commuter rail and HST connection with SDIA were included as ground access improvements in the AMAP.

2.1.3 2050 Regional Transportation Plan

The *2050 Regional Transportation Plan* (SANDAG, 2011), contains an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system in the region through the year 2050. Ground access improvements proposed in the AMAP study were designed to be consistent with planned 2050 highway and transit networks. For example, interchange improvements programmed in the 2050 RTP were considered as potential ground access routes. Both the RASP and draft AMAP were completed ahead of schedule in order for major findings to be incorporated into the final 2050 RTP.

2.1.4 Airport Planning Documents

The following airport planning documents were reviewed for planned land use and future improvements to airport facilities:

- The San Diego International Airport Master Plan (Airport Authority, 2008a)
- Cross Border Terminal Presidential Permit and associated technical reports (Otay-Tijuana Venture, L.L.C., 2009)
- Brown Field Municipal Airport Master Plan Update (Brown Field, 2010)
- Gillespie Field Land Use Compatibility Plan (Gillespie Field, 1974)
- McClellan-Palomar Airport Land Use Compatibility Plan (McClellan-Palomar Airport, 2010)
- San Diego International Airport – Airport Transit Plan (Airport Authority, 2008b)

Improvements proposed for the AMAP study were developed to be consistent with elements of these airport planning documents.

2.1.5 Community Planning Documents

The following community general plans were reviewed for existing and planned land use, and planned transportation circulation elements:

- City of Carlsbad General Plan (City of Carlsbad, 2004)
- City of El Cajon General Plan (City of El Cajon, 2001)
- Downtown Community Plan (Centre City Development Corporation, 2006)

- Midway/Pacific Highway Corridor Community Plan (City of San Diego, 1991)
- Otay Mesa Community Plan (City of San Diego, 2010)

Ground access improvements proposed in the AMAP study were developed to be consistent with elements of these community and general plans.

2.1.6 San Diego High-Speed Train Feasibility Studies

SANDAG conducted the *San Diego High-Speed Train Feasibility Studies* (SANDAG, January 2010) to examine the feasibility of extending the HST from a proposed terminus in downtown San Diego or Airport ITC to the United States (U.S.)-Mexico border with direct access to TIJ. In addition, the *San Diego High-Speed Train Feasibility Studies* also evaluated the development of a high-speed commuter rail service that would extend from southwest Riverside County to the U.S.-Mexico international border along the Los Angeles to San Diego via the Inland Empire HST corridor. SANDAG and the California High-Speed Rail Authority (CHSRA) are currently coordinating efforts to assess the feasibility of operating commuter rail service alongside the HST system.

The AMAP assumes an HST/commuter rail station as part of the proposed ground access improvements at the CBF.

2.1.7 Preliminary Alternatives Analysis Report: Los Angeles to San Diego via the Inland Empire Section (CHSRA)

SANDAG is working closely with the CHSRA, the state agency responsible for planning, designing, building, and operating a statewide HST system connecting major metropolitan areas including San Diego. San Diego is connected to this system through the Los Angeles to San Diego via the Inland Empire HST section, which is currently in the Alternatives Analysis phase of the project level environmental document. This work is guided by the Southern California High-Speed Rail Inland Corridor Group (SOCAL ICG), of which SANDAG is a member.

The southern portion of the Los Angeles to San Diego via the Inland Empire HST section will provide connections at the future Airport ITC and Ontario International Airport and is included in AMAP.

2.2 Public and Stakeholder Outreach

The AMAP stakeholder working group (SWG) was established to provide input on the development of the proposed ground transportation improvements. The SWG met over a 15-month period from

March 2010 to June 2011 reviewing RASP modeling results and the development of the proposed ground transportation improvements at each aviation facility and included the following agencies:

- SANDAG
- Airport Authority
- California Department of Transportation (Caltrans)
- San Diego Metropolitan Transit System (MTS)
- North County Transit District (NCTD)

2.2.1 Progress Updates and Presentations

Progress updates and presentations were given to the respective boards and stakeholders by SANDAG and the Airport Authority (Table 2.1).

Staff participated in Open Houses organized by the Airport Authority in September 2010 and January 2011 to both present the draft findings from both the RASP and AMAP and staff informational booths on both plans.

2.2.2 Public Comment Period

The SANDAG Board of Directors released the draft AMAP report for a 60-day public comment period on June 24, 2011. The intention was to provide an opportunity to the public and stakeholders for comment in time to make changes to the final 2050 RTP. In addition, a number of stakeholder comments were received and addressed in the revised draft document. The draft report was provided on the SANDAG webpage along with other information on AMAP and a link to the RASP final report. Public comments received during the comment period are included in Appendix A.

Table 2.1 Summary of Stakeholder Meetings

Date	Meeting Participants	Purpose
March 19, 2010	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to SANDAG Transportation Committee
April 26, 2010	• SANDAG • Airport Authority • MTS • NCTD • Caltrans District 11	– Brainstorming potential ground access improvements
June 8, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Project Initiation – Overview of ongoing RASP and 2030 RTP planning efforts as basis for AMAP study
August 18, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Overview of AMAP, RASP, and Draft 2050 RTP studies. Review of preliminary ground access improvements
September 8, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Overview of AMAP, RASP, and Draft 2050 RTP studies. Review of recommended ground access improvements
October 21, 2010	• SANDAG • City of San Diego Planning Department	– AMAP overview and discussion of potential ground access improvements within Otay Mesa Community Planning area
October 28, 2010	• SANDAG • City of Carlsbad Transportation Department	– AMAP overview and discussion of potential ground access improvements within McClellan-Palomar Airport and local roadways
November 30, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Overview of RASP modeling results and Draft 2050 RTP scenarios. AMAP overview of ground access improvements
January 5, 2011	• SANDAG • Airport Authority • Otay-Tijuana Venture LLC (CBF)	– AMAP and CBF overview and discuss potential ground access improvements in Cross Border Terminal (CBT) project area
January 11, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to Airport Authority RASP Board Committee
January 21, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to SANDAG Transportation Committee
February 16, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to City of San Diego Rules Committee
March 2, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to County of San Diego Board of Supervisors
April 13, 2011	• Transit/Roadway Committee (Airport Authority)	– Review draft AMAP improvements

Table 2.1 Summary of Stakeholder Meetings

Date	Meeting Participants	Purpose
June 17, 2011	• SANDAG Transportation Committee	– Review draft AMAP plan and recommend public release to the Board of Directors
June 24, 2011	• SANDAG Board of Directors	– Release the draft AMAP report for a 60-day public comment period.
July 11, 2011	• SANDAG Cities/County Transportation Advisory Committee	– Overview of the draft plan, request for comments.
August 11, 2011	• SANDAG Regional Planning Technical Working Group	– Overview of the draft plan, request for comments.
August 23, 2011	• Regional Chamber of Commerce Transportation Committee	– Overview of the draft plan, request for comments.
December 19, 2011	• County Airports staff	– Overview of the specific recommendations at McClellan-Palomar Airport
January 19, 2012	• Palomar Advisory Committee	– Overview of the specific recommendations at McClellan-Palomar Airport
January 30, 2012	• County Airports staff	– Overview of the specific recommendations at Gillespie Field
March 16, 2012	• SANDAG Transportation Committee	– Overview of specific recommendations, recommend approval to Board
March 23, 2012	• SANDAG Board of Directors	– Overview; consideration of final approval

2.2.2 Public Workshops

Joint public workshops on the preliminary findings of the RASP and AMAP studies were presented to the public at four public workshops held on the following dates:

- September 14, 2010, at SDIA
- September 16, 2010, at McClellan-Palomar Airport
- September 22, 2010, at Gillespie Field
- September 30, 2010, at South County Economic Development Council

A final joint public workshop was held on January 26, 2011, to present the final results of the RASP study as well as to provide an update on the AMAP study. Information regarding these public workshops is included in Appendix A.

2.3 Development of Ground Access Improvements

The airport improvements discussed as part of the RASP study were used to develop the ground access improvements proposed by the AMAP. Increased enplanements and operations from the RASP were used to generate future airport-demand based traffic volumes for key roadways providing access to regional airports. These traffic volumes were compared to expected baseline traffic volumes along the same key roadways to develop the proposed ground access improvements necessary to accommodate the forecasted airport-related traffic volumes. The proposed ground access improvements would provide multimodal access to the various airports. Ground access concepts were presented to the AMAP stakeholder working group as they were developed. Based on stakeholder input, these concepts were further defined throughout the study process. Lastly, the proposed transit improvements were modeled by SANDAG to evaluate their ridership potential and benefits associated with the proposed ground access improvements (Appendix B).

Freeway, arterial and transit improvements were proposed at airports or related airport facilities based on the increase in enplanement numbers and operations at the airports listed in the RASP study, which included:

- SDIA
- TIJ
- McClellan-Palomar Airport
- Gillespie Field

Roadway improvements were developed by converting the airport operation or enplanement numbers to estimated Average Daily Traffic (ADT) volumes to measure the expected increase in traffic for each potential airport ground access scenario. A trip generation rate (TGR) of 2.001 was used to calculate the ADT. The arterial roadway lane requirements were proposed to operate at LOS D or better, based on the City of San Diego Traffic Impact Study Manual (City of San Diego, 1998), which is also applicable to other jurisdictions such as the City of Carlsbad and the City of El Cajon.

Transit improvements were developed by initially reviewing the existing 2030 RTP and the Draft 2050 RTP, and community and general plans for the airports and areas surrounding the airports. The initial improvements were then presented to and discussed with SANDAG, MTS, NCTD, and City of San Diego and City of Carlsbad staff.

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3 Airport Authority Regional Aviation Strategic Plan

The RASP for San Diego County was prepared by the Airport Authority to assess the long-range capabilities of all public-use airports in San Diego County with the goal of improving the overall performance of the regional airport system. The RASP study was defined to identify the airport infrastructure needed to meet future aviation demand in the San Diego region.

3.1 Airports within and Near the Study Area

This section provides information on existing airport facilities within San Diego County and TIJ to the south, as well as airports to the north in the greater Los Angeles area.

3.1.1 Greater San Diego Regional Airport System (including Tijuana)

The San Diego County public-use airport system includes a total of 12 airports in San Diego County and TIJ in Tijuana, Mexico. Of the 13 regional airports, three provide commercial air service: SDIA, McClellan-Palomar Airport, and TIJ. These three commercial airports are part of the broader airport system that combines with 10 other city or county airports. In addition to commercial air service, SDIA, McClellan-Palomar Airport, and TIJ accommodate general aviation and corporate services. Airports designated as Federal Aviation Administration (FAA) Relievers, which accommodate general aviation and corporate services, include Brown Field Municipal Airport, Gillespie Field, Montgomery Field, and Ramona Airport. The remaining six county airports accommodate general aviation only (Oceanside Municipal Airport, Fallbrook Airpark, Borrego Valley Airport) or are not designated in FAA's National Plan of Integrated Airport Systems (NPIAS) (Ocotillo Airport, Agua Caliente Airport, Jacumba Airport).

3.1.2 Airports outside the San Diego Region

A number of airports are located outside of San Diego County and region, most notably are those to the north: Los Angeles International Airport (LAX), Ontario International Airport, John Wayne Airport, Long Beach Airport, and Bob Hope Burbank Airport. All five airports provide domestic commercial airline service, with international destinations being provided by LAX and Ontario International Airport. In addition, Palmdale Municipal Airport and Van Nuys Municipal Airport provide limited commercial airline service, while Hawthorn Municipal Airport, Santa Monica Municipal Airport, and Torrance Municipal Airport serve commuter and general aviation aircraft.

3.2 Strategic Assessment

A strategic assessment of the San Diego County Airport System was conducted to identify airports that could be considered for service role changes to optimize the region's aviation infrastructure. Each regional airport was assessed for current or existing strengths and weaknesses, as well as its potential to accommodate future aviation demand. Items assessed included but were not limited to location, proximity to demand base, airport and land side infrastructure, physical and built environment constraints, available land, proximity to existing and planned mass transportation facilities, existing airspace constraints, and community acceptance.

Based on the results of the strategic assessment, each regional airport was grouped into one of three categories that defined its ability to accommodate future service role changes to accommodate future demand and support the optimization of the regional airport system:

Airports That *Should* Be Considered For Additional Uses/Opportunities – Defined as airports that are in proximity to the demand base, possess adequate or potentially adequate facilities, and have sufficient land area or infrastructure for development opportunities.

- McClellan-Palomar
- Gillespie Field
- Brown Field

Airports That *May Be* Considered For Additional Uses/Opportunities – Defined as airports that possess the same characteristics as the group above, but that also have significant physical or environmental barriers to future development, thereby prohibiting their potential use.

- SDIA
- TIJ
- Montgomery Field
- Ramona

Airports That *Should Not Be* Considered For Additional Uses/Opportunities – Defined as airports that are too far from the demand base, lack sufficient infrastructure or facilities, include community opposition, and/or lack available land for development.

- Oceanside
- Fallbrook
- Borrego Valley
- Ocotillo
- Agua Caliente
- Jacumba

Following the completion of the RASP Strategic Assessment, airports that were determined to have physical, operational, environmental, or other significant constraints that hindered their ability to meet the long-term needs of the region were dropped from further study in the RASP and the AMAP. Both the RASP and AMAP continued further evaluation of the following airports:

- McClellan-Palomar
- Gillespie Field
- Brown Field
- SDIA
- TIJ
- Montgomery Field
- Ramona

Ground access improvements were developed early in the RASP and AMAP process for Montgomery Field, Brown Field, and Ramona Airport. As the RASP progressed, Montgomery Field and Ramona Airport were not included in the family of scenarios which were identified to optimize the regional airport system. These two airports were among those that had physical, operational, environmental or other constraints that hindered their ability to meet the long-term needs of the region. As a result, the ground access improvements to these airports were dropped from further study. Similarly, ground access improvements for Brown Field were developed, but as the RASP progressed it was found that all airport-related scenarios for Brown Field were fatally flawed because of a number of factors, including terrain and airspace complications, reluctance of passenger airlines to "split operations" with SDIA, distance from demand base, and lack of facilities for air cargo carriers. Appendix C contains additional information on the early ground access concepts developed for Montgomery Field, Ramona Airport, and Brown Field.

3.3 Alternative RASP Scenarios

After an extensive process of considering reasonable measures that could be taken to optimize the San Diego County Airport System, five families of improvements were identified for analysis. Each family is oriented toward optimizing a certain market or user type associated with the San Diego County Airport System and each includes individual alternatives resulting in a set of 15 scenarios developed for detailed evaluation. A discussion of the five families of improvements is provided below.

1. Commercial Passenger Optimization: Scenarios addressed capacity limitations at SDIA by developing future facilities, enhancing/introducing airline service at other regional airports, reserving capacity for airline passenger operations, and adjusting the size of aircraft serving the airport.

- Scenario 1A – Full Build-Out of the Airport ITC and North Side Terminal at SDIA
- Scenario 1B – Preserve SDIA's Airfield Capacity for Commercial Passenger Service
- Scenario 1C – Enhance Commercial Passenger Service at McClellan-Palomar
- Scenario 1D – Introduce Commercial Passenger Service at Brown Field Municipal Airport
- Scenario 1E/F – Up-Gauge SDIA's Aircraft Fleet Mix

2. Enhanced Utilization of Tijuana: Scenarios focus on improving access to TIJ to facilitate the accommodation of future regional passenger demand through improvements to the existing San Ysidro and Otay Mesa border crossings, construction of the proposed CBF on the U.S. side with direct pedestrian access to TIJ, and construction of the Cross Border Terminal (CBT) on the U.S. side where complete passenger processing services would be available for TIJ passengers.

- Scenario 2A – Facilitate Border Crossings
- Scenario 2B – Aviation Passenger CBF
- Scenario 2C – CBT

3. California High-Speed Train (HST): Alternatives analyzed the potential for HST service to offer passengers an alternative ground transportation solution to cities and airports within California.

- Scenario 3A – HST station at Santa Fe Depot, ground access connections to the Airport ITC
- Scenario 3B – HST station at the Airport ITC

4. General Aviation Optimization: Scenarios addressed enhanced services at other airports to accommodate high end general aviation aircraft (typically corporate users) to provide an attractive alternative to using SDIA.

- Scenario 4A – Enhance McClellan-Palomar Airport for High-End/Corporate General Aviation Services
- Scenario 4B – Enhance Brown Field Municipal Airport for High-End/Corporate General Aviation Services
- Scenario 4C – Enhance Gillespie Field for Mixed-Use General Aviation

5. Air Cargo Optimization: Alternative locations for air cargo could remove air cargo flights from SDIA, preserving airfield capacity for commercial passenger airlines.

- Scenario 5A – Maximize use of Brown Field Municipal Airport for air cargo activities

2030 Baseline Scenario: The RASP study developed a number of scenarios to evaluate in terms of demand and cost. A 2030 baseline scenario was developed against which all other alternatives were

compared. The Baseline Scenario does not include major new facilities not currently planned, policy options not currently in place, or artificial constraints on demand.

3.4 Summary of RASP Findings by Airport

The discussion below provides an overview of the RASP findings for airports that were found to be candidates for enhanced aviation services and analysis of the HST alternatives.

3.4.1 San Diego International Airport

RASP results indicate that the full build-out of the north side terminal at SDIA would have no effect on projected enplanements relative to the baseline scenario because it would not provide airfield capacity improvements. However, there are other reasons for full build-out of the north side terminal as well as construction of the opening day Airport ITC (2015), including regional intermodal transportation connections, alternatives to driving alone to the airport, and congestion relief.

3.4.2 Cross Border Facility/Cross Border Terminal

The RASP projected a 30 percent increase in the number of passengers using TIJ with the introduction of the CBF, but the CBF would provide only a marginal alleviation of the projected mid-term capacity constraints. This is because U.S. travel from Tijuana, notwithstanding any form of CBF, is international travel requiring customs clearance for Mexico-departing and U.S.-arriving passengers. The RASP also evaluated increasing the use of TIJ for commercial passenger activity by offering a new passenger CBT on the U.S. side of the border to facilitate processing of U.S. passengers utilizing TIJ. The study found that the CBT was also projected to only marginally increase the number of passengers using TIJ.

3.4.3 McClellan-Palomar Airport

The RASP evaluated enhanced commercial passenger service at McClellan-Palomar Airport driven by either capacity constraints at SDIA or facility improvements at McClellan-Palomar Airport. Increased commercial passenger service at McClellan-Palomar Airport would not alleviate capacity constraints at SDIA primarily because the additional demand that can be accommodated at McClellan-Palomar Airport accounts for only five percent of SDIA's total traffic, and because the number of destinations offered at McClellan-Palomar Airport is limited. The RASP also evaluated the use of McClellan-Palomar Airport for high-end/corporate general aviation and estimated that this would delay the capacity constraint at SDIA by approximately two years.

3.4.4 Gillespie Field

The RASP evaluated maximizing the use of Gillespie Field for both high-end/corporate and recreational general aviation by providing the necessary facilities and amenities in order to shift aviation activity from SDIA to Gillespie Field. The increase in theoretical capacity results in an increase in projected passenger enplanements over the baseline scenario between 2020 and 2028. The study estimated that redistributing general aviation operations per the assumptions under this scenario would delay the capacity constraint at SDIA by approximately two years.

3.4.5 High Speed Train

The RASP evaluated two HST alignments which would offer passengers an alternative ground transportation solution to cities and airports within California. The study found that diverting a portion of aviation operations to HST, per the assumptions in both alignments, would delay SDIA capacity constraints by approximately five years. It should be noted that the true long-term impact of HSTs on the region could not be precisely determined as results were evaluated for only three years, with effects being observed only between 2027 (when the HST is expects to be running service to San Diego) and 2030.

Additional details on the RASP alternatives and findings are included in the *Regional Aviation Strategic Plan* (Airport Authority, 2011) at www.sdrasp.com.

4 Multimodal Ground Access Improvements

The following discussion includes an overview of the existing facilities and operations at SDIA, TIJ, McClellan-Palomar Airport and Gillespie Field (Figure 4.1), as well as a discussion of existing land use, existing and future ground access conditions, alternatives considered, and associated analysis, and finally the recommended ground access improvements.

The RASP process defined SDIA and TIJ as airports that are in proximity to the demand base, possess adequate or potentially adequate facilities, but that have significant physical or environmental barriers to future development. McClellan-Palomar Airport and Gillespie Field were defined as airports that possess the same characteristics as SDIA and TIJ, but that have sufficient land area or infrastructure for development opportunities. The above noted RASP designations helped guide the alternatives considered and recommended as part of the AMAP.

All federally obligated airports such as those commercial and general aviation facilities in the San Diego region are required to keep up to date Airport Layout Plans, which show the airport boundaries, location and type of existing and proposed airport facilities and structures, and the location of existing and proposed non-aviation facilities. These plans and updates are subject to FAA approval as a requirement to receive federal aviation funds. Any AMAP ground access recommendations on airport property would be subject to this process and will be advanced by working with stakeholders including the Airport Authority, County of San Diego, City of San Diego, other airport owners, and the FAA.

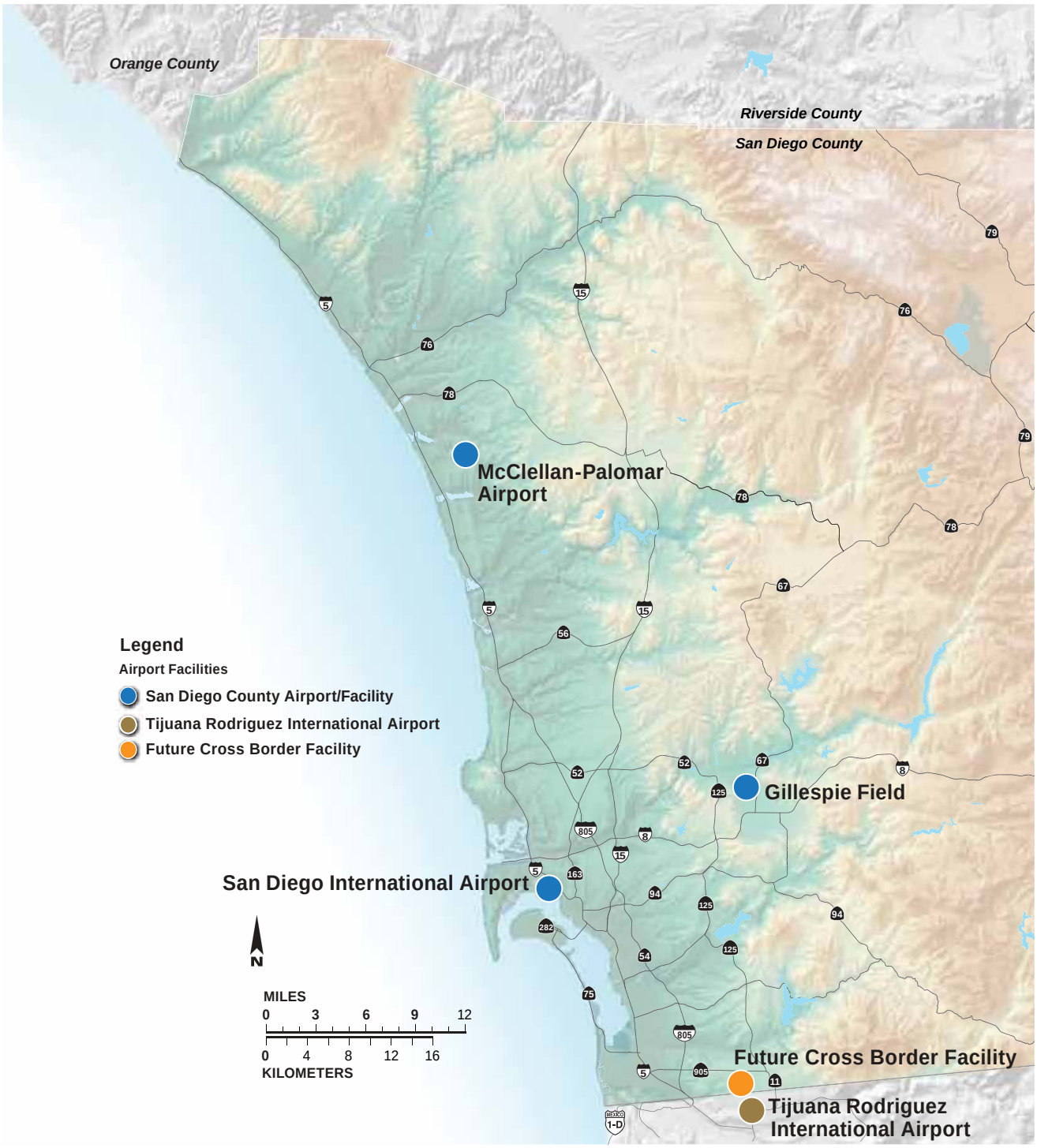


FIGURE 4.1
Airport Facilities Recommended for Multimodal Access Improvements
Airport Multimodal Accessibility Plan

Source: SANDAG 2011

4.1 San Diego International Airport

SDIA is the primary airport serving San Diego County. Located on 661 acres between San Diego Harbor and I-5, the airport is land-constrained and has the smallest footprint of any major U.S. metropolitan airport. SDIA is the busiest single-runway commercial service airport in the United States and is served by 16 passenger airlines and four air cargo carriers, with non-stop service to 46 destinations in the United States, Canada, Mexico, and London, UK. The airport has one paved runway that is 9,401 feet in length with 41 gates in Terminals 1 and 2 and four gates at the Commuter Terminal.

The RASP projected that annual aircraft operations will increase from nearly 230,000 in 2007 to approximately 300,000 between 2021 and 2030. Annual passengers could grow from 9.2 million annual passengers in 2007 to a projected demand of approximately 28 million annual passengers in 2030.

4.1.1 Surrounding and Adjacent Land Uses

SDIA is located approximately three miles from the central business district in downtown San Diego and approximately 20 miles north of the U.S.-Mexico border (Figure 4.1). SDIA is located northwest of downtown San Diego, along the northern edge of San Diego Bay within the City of San Diego, adjacent to the Marine Corps Recruit Depot (MCRD). There are three planning communities immediately adjacent to SDIA which include Peninsula, Midway/Pacific Highway Corridor, and Centre

City. The Peninsula community planning area is a highly urbanized area with a number of residential neighborhoods and established commercial areas, a liberal arts college (Point Loma Nazarene University), regional recreational resources (Sunset Cliffs, Shelter Island, and Cabrillo National Monument) and military property controlled by the Navy. The Midway/Pacific Highway Corridor community planning area is primarily an urbanized commercial area with a few residential areas. Industrial areas are located mainly along Pacific Highway. The Centre City community planning area is a highly urbanized area located downtown San Diego and includes eight different neighborhoods (Gaslamp, East Village, Columbia, Marina, Cortez, Little Italy, Horton Plaza, and Core). This community includes a mix of residential, retail, office, entertainment, hotels, and light industrial. Academic institutions are also located downtown San Diego.

The surrounding land use (Figure 4.2) primarily consists of military, industrial and commercial with residences located northwest of the airport in Point Loma, east of I-5, and in downtown San Diego. Additional business and retail centers as well as residential areas are located within the vicinity of the airport.

4.1.2 Existing Ground Access and Conditions

SDIA is uniquely situated in the San Diego urban area, which makes it an important element of the area's transportation network and overall LOS. Access to the airport is primarily auto-oriented with 56 percent of air passengers using a private auto, 18 percent using a rental car, 13 percent by taxi, and 12 percent by shared-ride vans. Furthermore, 66 percent of auto traffic comes from interstate highways and 34 percent from local streets. Primary access is from North Harbor Drive and I-5, with connections to State Route 163 (SR 163), and Interstate 8 (I-8) and Interstate 15 (I-15). Many of the roadways currently operate at LOS D, including North Harbor Drive, Grape Street and Hawthorn Street.

Transit options are limited at SDIA, resulting in only one percent of the trips to the airport served by public transportation. Bus Route 992 provides 15-minute service from Terminals 1 and 2 and the Commuter Terminal, to and from downtown San Diego, with connections to the MTS Trolley, numerous bus routes, and COASTER and Amtrak passenger rail services. Bus Route 923 serves Terminal 1 from the Point Loma area with hourly service on Saturdays only. Existing ground access associated with SDIA is shown in Figure 4.3.

4.1.3 Future Ground Access Conditions

As envisioned in the *Destination Lindbergh* and Airport ITC studies, future direct access to SDIA will be via I-5 and Pacific Highway with all access to the gates from the future north side terminal and the Airport ITC. By the year 2030, passenger numbers at SDIA are projected to increase by 60 percent to 28.2 million passengers per year (Airport Authority, 2009). This increase in airside operations will result in additional traffic demand on the access roadways. Relocation of access to the north side as well as proposed improvements summarized in *Destination Lindbergh* and the ITC Reports will help alleviate the increased demand. Without the improvements recommended in *Destination Lindbergh*, traffic in the surrounding arterials would increase as shown in Table 4.1.

Table 4.1 2008 and 2030 Traffic Data for Major Access Roads to SDIA

Access Route	Road Segment	2008 LOS[1]	2008 ADT[1]	2030 ADT[2]	% Increase in ADT 2008 to 2030
Harbor Drive	Rental Road to Laurel Street	F	80,000	107,000	+ 25
Grape Street	Kettner Boulevard to I-5	F	30,000	42,000	+29
Hawthorne Street	Kettner Boulevard to I-5	F	27,500	42,000	+35
India Street	Sassafras Street to Washington Street	F	21,000	29,000	+28
Laurel Street	Pacific Highway to Kettner Boulevard	D	23,300	34,500	+32
Pacific Highway	Laurel Street to Palm Avenue	A	19,000	25,000	+ 24

[1] Destination Lindbergh (Airport Authority, 2009)
[2] Baseline Scenario. Destination Lindbergh (Airport Authority, 2009)

4.1.4 Improvements Considered but Not Carried Forward

Several ground access improvements were considered for SDIA as part of the AMAP analysis but were dismissed based on input from the AMAP stakeholder working group or based on modeling results from the RASP. Alternative considered but not carried forward are described below.

Feeder Service from Santa Fe Depot in Downtown San Diego

As a ground access improvement to coincide with the RASP Scenario 3A (High-Speed Rail Station at Downtown San Diego with no stop at SDIA) a direct feeder service was proposed to travel from the

Downtown San Diego HSR Station to SDIA. After input from the AMAP stakeholder working group and MTS, this improvement was dropped due to its overlapping service with the MTS Trolley Blue Line.

Bus Rapid Transit Route between SDIA and McClellan–Palomar Airport

A bus rapid transit (BRT) route connecting SDIA to McClellan-Palomar Airport was initially considered. The route would travel along I-5 and El Camino Real taking advantage of the proposed Direct Access Ramps at Manchester Avenue. The same BRT route would serve the SPRINTER Rail Station at El Camino Real. This BRT route was eliminated from consideration after the proposed BRT service along El Camino Real was removed from the Draft 2050 RTP.

4.1.5 Recommended Improvements

SANDAG, the Airport Authority, and the City of San Diego completed *Destination Lindbergh* in 2009. That effort provided a vision for multimodal transportation improvements that SANDAG's current ITC advanced planning studies and the Airport Authority's upcoming SDIA Airport Master Plan update can build from in terms of specific improvements. As shown in Table 4.1, arterial improvements, in addition to the Airport ITC, will also need to be addressed. There are also improvements identified in *Destination Lindbergh* that are currently underway including a consolidated rental car facility and express bus services, both of which are discussed below. These improvements were reviewed by the AMAP stakeholder working group, and are included as recommended improvements in the AMAP.

Major Infrastructure Improvements

The Airport ITC will be located west of I-5, south of Washington Street, east of Pacific Highway, and north of Sassafras Street (Figure 4-4), and adjacent to the proposed northside airport terminal complex. The facility will be designed to provide direct connections to the airport terminal for regional transit services (COASTER, Trolley, and local bus services), Amtrak intercity rail services, as well as terminus station for the planned HST system.

Since 2009, SANDAG efforts have focused on an advanced planning study to assess site design options for the Airport ITC and outline of a Phase I Airport ITC improvement plan. This planning study has been closely coordinated with the Airport Authority's work effort for Phase I on-airport improvements, which include development of a Consolidated Car Rental Facility (CONRAC) on the northside of the airport and operation of an on-airport shuttle connection between the CONRAC facility and the existing southside terminal and gates. The City of San Diego also is participating in both work efforts.

One scenario for the Airport ITC facility is designed to coordinate with the Airport Authority's first phase efforts on northside airport improvements. . The consolidated Airport ITC station could serve trolley and bus services, and potentially commuter and intercity rail services that would be connected to the CONRAC and on-airport shuttle by an elevated pedestrian walkway over Pacific Highway (Figure 4.4 and Figure 4.5). Identifying the specific local bus and future bus rapid transit connections that will serve the ITC will be part of SANDAG's next phase of planning. *Destination Lindbergh* estimated the short-term Airport ITC facilities could accommodate four to six percent of airport passengers.

In the second scenario, the Airport ITC facility would be expanded to include the proposed southern terminus station for the HST system. In addition, conceptual design is currently underway on direct connector ramps from I-5 to Pacific Highway and potential rail grade separations as part of this second scenario. All passengers, whether arriving by train, trolley, bus, shuttle or private vehicles, would access SDIA through the north terminal. *Destination Lindbergh* envisioned all passenger processing occurring in the north terminal, including security screening and baggage claim. All passengers would then board an automated people mover to travel to the concourses on the south side. North Harbor Drive would no longer provide passenger access to these terminal facilities. Transit mode share of SDIA trips was forecast to increase to 13 percent.

Roadway Access Improvements

The AMAP does not propose any new roadway access improvements outside of those proposed in *Destination Lindbergh.*

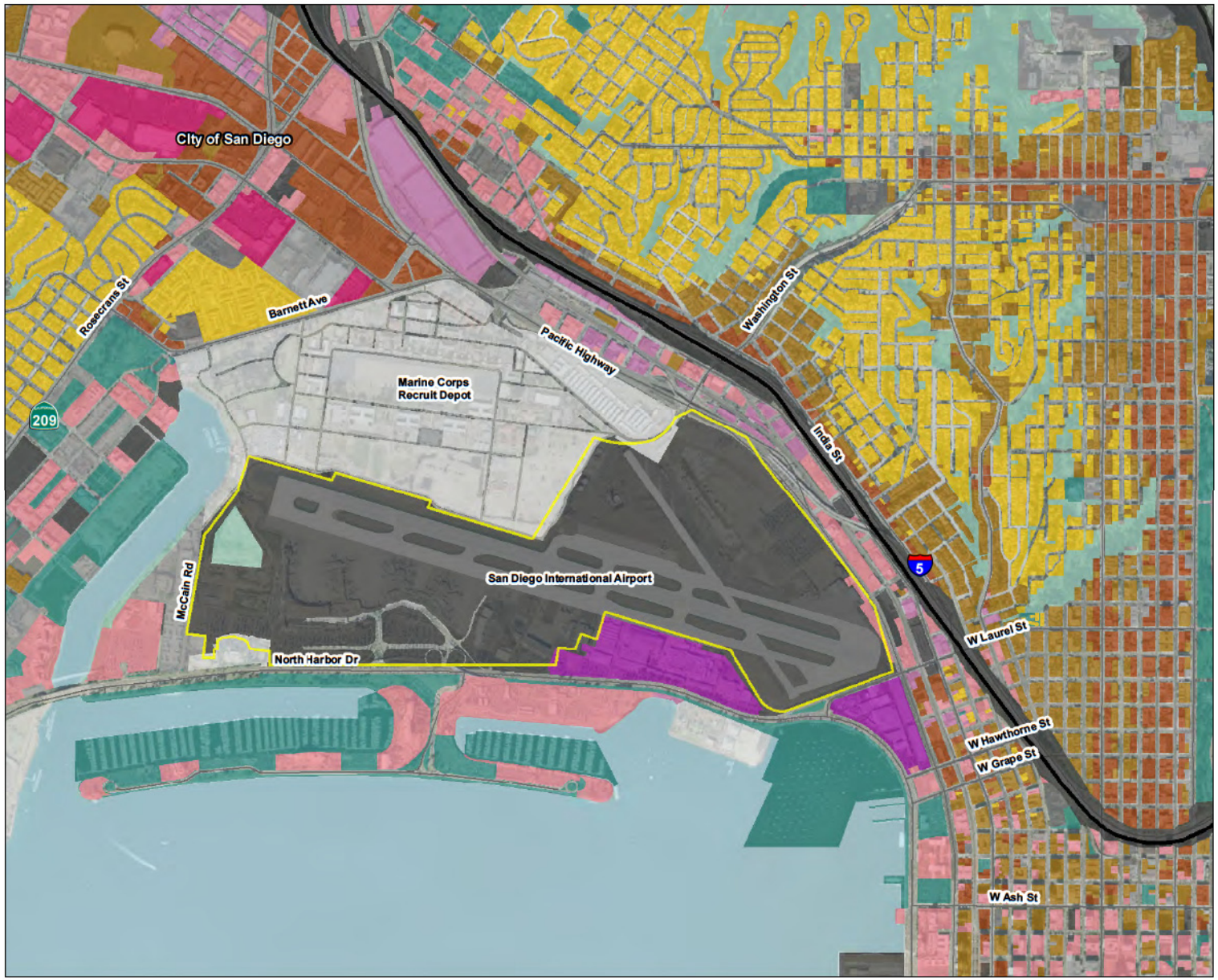
Transit Access Improvements

The 2050 RTP identifies the Airport ITC as a regional activity center with multimodal connections to a variety of transportation services. These include local and regional transit services, limited stop express bus and express trolley services. In addition, three express bus service routes were evaluated for service to and from the Airport ITC/SDIA. From this planning-level analysis as well as more detailed analysis by the Airport Authority, the 2050 RTP includes express bus services to SDIA from the I-5 and I-15 corridors. Section 4.5.1 of this report describes these routes in greater detail.

HST Los Angeles to San Diego Section Terminus at ITC

The RASP found that diverting a portion of aviation operations to HST service would delay by about five years the time when SDIA capacity becomes constrained. It should be noted that the true long-term impact of high-speed trains on the region could not be precisely determined. This is because results were evaluated for only three years, with effects being observed only between 2027, when

the CHSRA expects to be running service to San Diego, and 2030. Based on the degree of uncertainty surrounding the timing of HST, as well as the time and cost of accessing and using the service, the best estimate is that between 8 percent and 25 percent of the region's aviation demand to northern California would be diverted to high-speed trains.



LEGEND

- Freeways
- Major Roads
- Airport Property Line

Existing Land Use

RESIDENTIAL
- Single Family Residential
- Multi-Family Residential
- Mixed Use

COMMERCIAL AND OFFICE
- Shopping Centers
- *Commercial and Office*

INDUSTRIAL
- Heavy Industry
- Light Industry

PUBLIC FACILITIES AND UTILITIES
- Transportation, Communications, Utilities
- Education
- Institutions
- Military

PARKS AND RECREATION
- Recreation
- Open Space Parks

OTHER
- Water

Source: SANDAG, 2009
Airport Boundary – RASP, January 2011

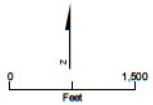


FIGURE 4.2
San Diego International Airport
Surrounding Land Use
Airport Multimodal Accessibility Plan

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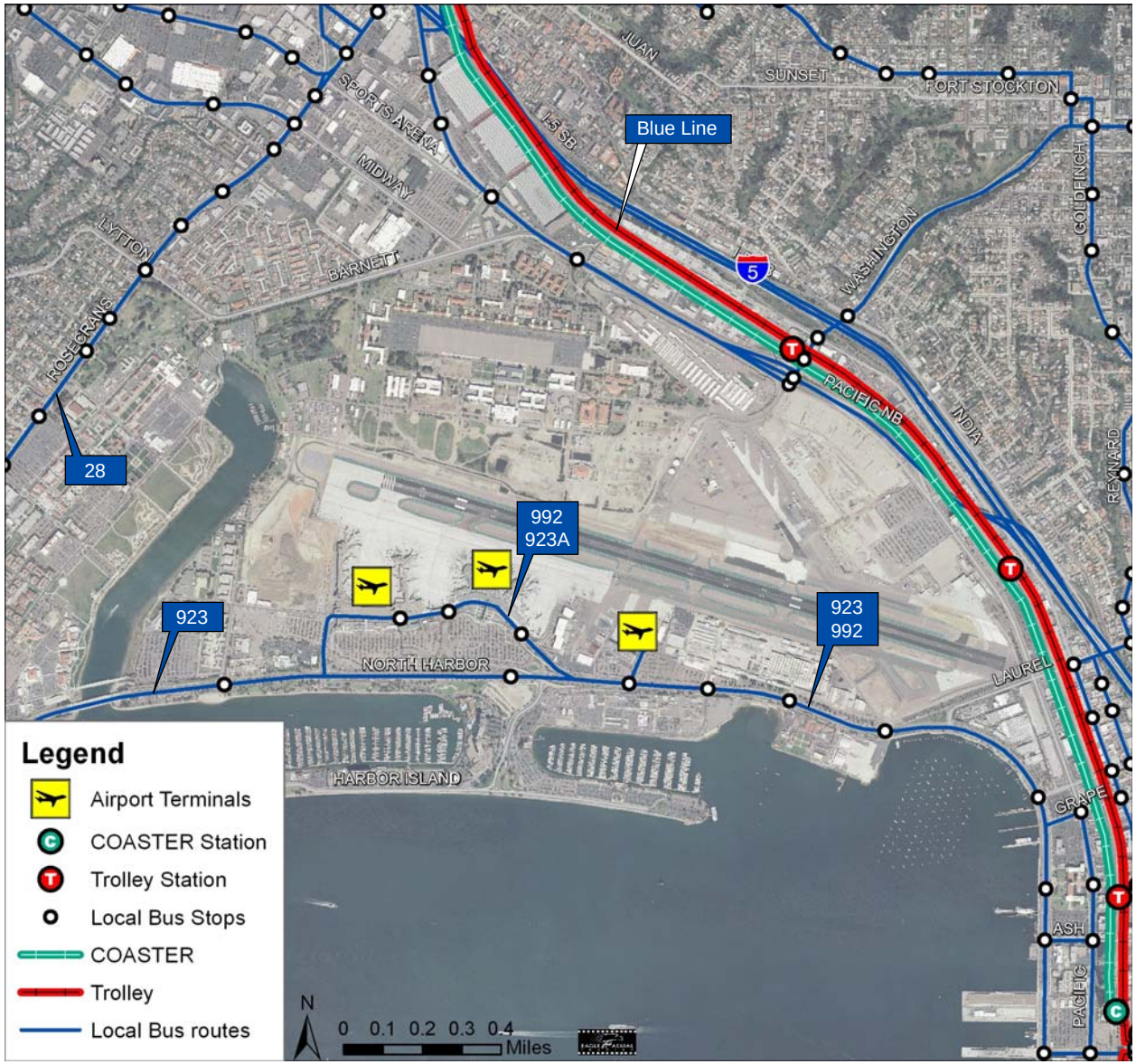

FIGURE 4.3
San Diego International Airport
Existing Ground Access
Airport Multimodal Accessibility Plan

Source: SANDAG 2011, MTS 2009

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LEGEND

- High Speed Train
- Trolley
- Heavy Rail
- Freeways
- Major Roads
- Airport Property Line

Recommended Improvements

- Airport Intermodal Transportation Center (ITC)
- Pedestrian Bridge
- Trolley and Heavy Rail Grade Separations
- Express Bus Service from McClellan-Palomar Airport and Manchester Park-n-Ride
- Express Bus Service from Escondido Transit Center and Mira Mesa Transit Station
- Express Bus Service to Cross Border Facility
- Conceptual I-5 Direct Access Ramps

Source: SANDAG, 2008
Airport Boundary – RASP, January 2011

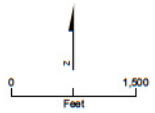

FIGURE 4.4
San Diego International Airport
Transit and Roadway Improvements
Airport Multimodal Accessibility Plan

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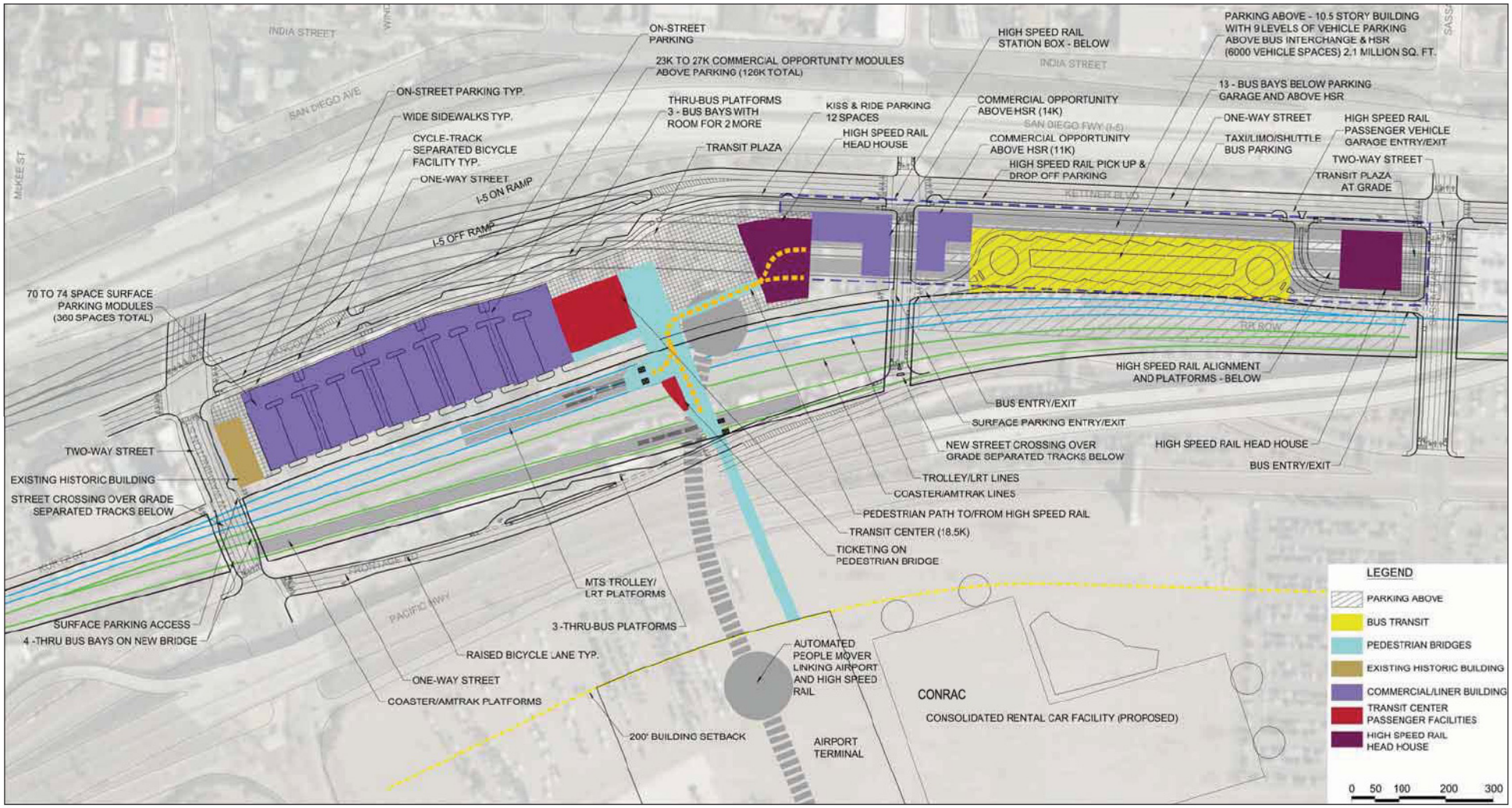

FIGURE 4.5
Proposed ITC Site Plan - Preferred Alternative (HSR Concept A)
Airport Multimodal Accessibility Plan

Source: SANDAG Airport Intermodal Transit Center (ITC), December 2010
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4.2 Cross Border Facility -Tijuana Rodriguez International Airport

The Tijuana Rodriguez International Airport is the fifth busiest airport in Mexico. In 2006, approximately 3.8 million passengers flew out of TIJ. This airport is a part of the Grupo Aeroportuario del Pacifico, a holding group that controls 12 international airports in central and northern Mexico. The airport has one runway with two terminals for commercial/passenger aviation and military aviation with some general aviation. Five airlines provide service to various destinations in Mexico (Grupo Aeroportuario del Pacifico, 2011). In addition, Aeromexico also provides direct international service to China and Japan.

The Department of State issued a Presidential Permit, effective August 3, 2010 (Otay-Tijuana Venture, L.L.C., 2009), authorizing Otay-Tijuana Venture L.L.C. to construct, operate, and maintain a Cross Border Facility (CBF). The CBF will serve as a connection to TIJ from the U.S. side of the U.S.-Mexico border with the facility straddling the border directly adjacent to the TIJ terminal. Passengers will be able to park on the U.S. side and walk across the border using a pedestrian bridge which will serve as a dedicated Port of Entry (POE). Construction of the CBF is scheduled to start late 2012 and be completed by the end of 2013 The CBF would be designed to serve up to 2 million passengers annually (Otay-Tijuana Venture, L.L.C., 2009).

The key benefit of the CBF is to provide potential passengers the ability to bypass the delays at the existing POEs at San Ysidro and Otay Mesa to access TIJ. The CBF would improve accessibility to passengers in the San Diego region. A secondary benefit of the planned CBF is the potential reduction in vehicle traffic crossing the border to TIJ, helping to relieve congestion at SDIA. The future CBF would provide access to flights and increased international destinations not offered at SDIA. This facility could ultimately become an airport terminal, with ticketing and baggage facilities for enplaning passengers from the United States that are departing from TIJ. The RASP includes an evaluation of the CBF as a future CBT, but for purposes of the proposed ground access improvements, the AMAP evaluates this as one facility.

4.2.1 Surrounding and Adjacent Land Uses

The future CBF would be located in the City of San Diego community of Otay Mesa west of the Otay Mesa POE, approximately 22 miles southeast of downtown San Diego (Figure 4.1). The surrounding land use (Figure 4.6) primarily consists of industrial, institutional, and vacant/undeveloped areas with some commercial use. Two major freeway corridors, State Route 905 (SR 905) and State Route 125 (SR 125) provide access to the future CBF. The City of San Diego is currently updating the Otay Mesa Community Plan. Future land uses in proximity to the CBF include a mixed-use urban village, commercial uses supporting business and international trade, technology, and light industrial uses.

4.2.2 Existing Ground Access Conditions

Existing access to TIJ from the U.S. is currently through the San Ysidro and Otay Mesa POEs. Passengers can drive across the international border to access TIJ or take transit to the POEs and walk across the border into Mexico and take a taxi, shuttle, or bus to TIJ. Transit passengers can access the San Ysidro POE via bus routes 929 and 932, or the MTS Trolley Blue Line. The Otay Mesa POE can be accessed via local bus route 905. Average weekday peak wait times for northbound passengers returning by vehicle to the U.S. from the TIJ are 43 minutes at Otay Mesa POE and 58 minutes at San Ysidro POE (Caltrans, 2008).

Primary access to the CBF would be via Siempre Viva Road. Siempre Viva Road can be accessed from SR 905 using Heritage Road, Britannia Boulevard or La Media Road. SR 905 can be reached from the west via I-5 and Interstate 805 (I-805), and from the east via SR 125. Traffic volumes on arterials in the vicinity of the CBF are currently low, because the area is not fully developed. Existing ground access associated with the future CBF is shown in Figure 4.7.

ADT for the arterials providing access to the CBF would more than double by the year 2030 as a result of traffic generated by the CBF. As an example, the ADT along Britannia Boulevard would increase to approximately 35,000 from the current 14,640.

4.2.3 Future Ground Access Conditions

Several improvements to the roadway infrastructure in the vicinity of the CBF are included in the Otay Mesa Community Plan. These improvements are intended to improve access to the CBF and include widening of Siempre Viva Road and Britannia Boulevard to 6-lane arterials. In addition to these arterial projects, two new freeways are proposed in the area. SR 905 is a new 6-lane freeway with local interchanges at Caliente Avenue, Heritage Road, Britannia Boulevard and La Media Road. State Route 11

(SR 11) will be a new 4-lane toll facility extending east from SR 125 to the proposed East Otay Mesa POE scheduled to open in 2015.

Primary access to the CBF will be via Siempre Viva Road, Britannia Boulevard, and La Media Road. Future traffic volumes at key segments of these arterials are listed in Table 4.2 (City of San Diego, 2011). Based on data from the 2010 Presidential Permit, by 2030 the CBF may serve as many as 6.3 million passengers per year. Key arterials would show ADT of as much as 49,000 with the highest volumes forecast for Britannia Boulevard and Siempre Viva Road by 2025.

Table 4.2 2030 Average Daily Traffic for Arterials in the Vicinity of the CBF

Arterial	From	To	2025 ADT[1] (thousands)
Siempre Viva Road	Cactus Road	Britannia Boulevard	8
Siempre Viva Road	Britannia Boulevard	CBF	34
Britannia Boulevard	SR 905	Airway Road	47
Britannia Boulevard	Airway Road	Siempre Viva Road	49
La Media Road	SR 905	Airway Road	27
La Media Road	Airway Road	Siempre Viva Road	19

[1.] Otay-Tijuana Cross Border Facility Recirculated Draft Environmental Document, City of San Diego, 2011.

4.2.4 Improvements Considered but Not Carried Forward

Several ground access improvements considered for the CBF and TIJ by the AMAP stakeholder working group were dismissed based on input from the group or on modeling results from the RASP. Below is a summary of these improvements.

Redirect Proposed Rapid Bus Route from Siempre Viva Road to the CBF

The proposed alignment for Rapid Bus Route 905 was modified to travel along Siempre Viva Road with a stop at the CBF. Route 905 connects to the MTS Trolley System via the Iris Avenue Trolley Station and to the proposed 2050 RTP BRT Routes, which will stop near the Otay Mesa POE.

After meeting with both City of San Diego Planning and MTS staff, this improvement was eliminated due to the desire for the rapid bus route to travel along Airway Road as called for in the updated Otay Mesa Community Plan.

High-Occupancy Vehicle (HOV) lanes and Direct HOV connectors at I-805 and SR 125 Connection to SR 905

High-occupancy vehicle (HOV) lanes along SR 905 between I-805 and SR 125 were considered to provide system connectivity to the regional HOV network to allow HOV and BRT access directly to the CBF from the proposed managed lanes along I-805 and the SR 125 Toll lanes. In addition to the HOV lanes, HOV direct connectors were considered at the following locations:

- South to east and west to north at the SR 905/I-805 Interchange
- East to north and south to west at the SR 905/SR 125 Interchange
- East to south and north to west to and from the CBF
- West to south and north to east to and from the CBF

After consultation with the AMAP stakeholder working group and consideration of the forecasted LOS along SR 905 these improvements were eliminated from consideration.

Extend Light Rail Transit (LRT) service from San Ysidro POE to Otay Mesa POE

One option considered included extending the light rail transit (LRT) system from the San Ysidro POE to the Otay Mesa POE with a stop at the CBF. This option would provide a connection between the Blue Line at San Ysidro and a proposed LRT line (Route 564) that was to travel from Chula Vista to the Otay Mesa POE along the SR 125 corridor.

This alternative was eliminated from consideration in favor of extending the HST system to the CBF.

4.2.5 Recommended Improvements

A number of ground access improvements for the CBF were proposed in the Otay Mesa Community Plan and the Presidential Permit for the CBF. These improvements were evaluated in terms of providing regional access to the CBF and reviewed by the SWG, and are included as recommended improvements in the AMAP (Figure 4.8).

Major Infrastructure Improvements

The CBF would include a pedestrian POE that would allow U.S. air passengers direct access to TIJ. The opening day facility will include a parking structure, customs and border protection, and traveler services. The proposed CBF will generate approximately 35,000 ADT in 2030 based on information from the 2010 Presidential Permit Application. Of the traffic generated by the CBF, it was assumed that 60 percent of the traffic would access the CBF from the SR 905/Britannia Boulevard Interchange and 40 percent via the SR

905/La Media Road Interchange. The ultimate configuration is proposed as a fully-functional airport terminal with ticketing and customs available on the U.S. side.

Roadway Access Improvements

The additional demand generated by the CBF would require roadway improvements in the vicinity of the proposed facility to accommodate increased ADT on surrounding arterials (Figure 4.8). All of the roadway improvements listed below would provide better access to and from the CBF by allowing the arterials and ramps to operate at an acceptable LOS D or better. These would include:

- Widening of Siempre Viva Road from 4 to 6 lanes between Britannia Boulevard and Avenida Costa Brava.
- Widening of Britannia Boulevard from 4 to 6 lanes between Siempre Viva Road and SR 905.
- Addition of a lane to the westbound ramps at the SR 905/Britannia Boulevard Interchange.
- Addition of a lane to the eastbound entrance ramp at the SR 905/Britannia Boulevard Interchange.

Transit Access Improvements

A transit stop at the CBF and modifications to the future MTS Route 661 are recommended to provide improved transit service to the CBF. The route would be diverted south to provide a stop at the CBF, which would provide access to and from the Otay Mesa area. This would provide connectivity to the MTS Trolley system at the Iris Avenue Station to the west and to the proposed BRT service at the Otay Mesa POE to the east. As with other rapid bus routes in the 2050 RTP, transit priority measures would be in place along key congested segments of the route.

Extension of HST/Commuter Rail from Downtown San Diego to the Otay Mesa POE

The *San Diego High Speed Train (HST) Feasibility Studies* (SANDAG, 2010a) analyzed the feasibility of extending the HST system from downtown San Diego or Airport ITC to the U.S.-Mexico border along with a local commuter rail service that would share the same right-of-way. The alignment parallels the I-5 corridor from downtown San Diego to the San Ysidro POE, then runs parallel to the U.S./Mexico border along Siempre Viva Road. This would provide connectivity from downtown San Diego or the Airport ITC to the CBF. Due to the project cost and because this extension is not currently included in the State's HST system, this project is included in the unconstrained scenario of the 2050 RTP.

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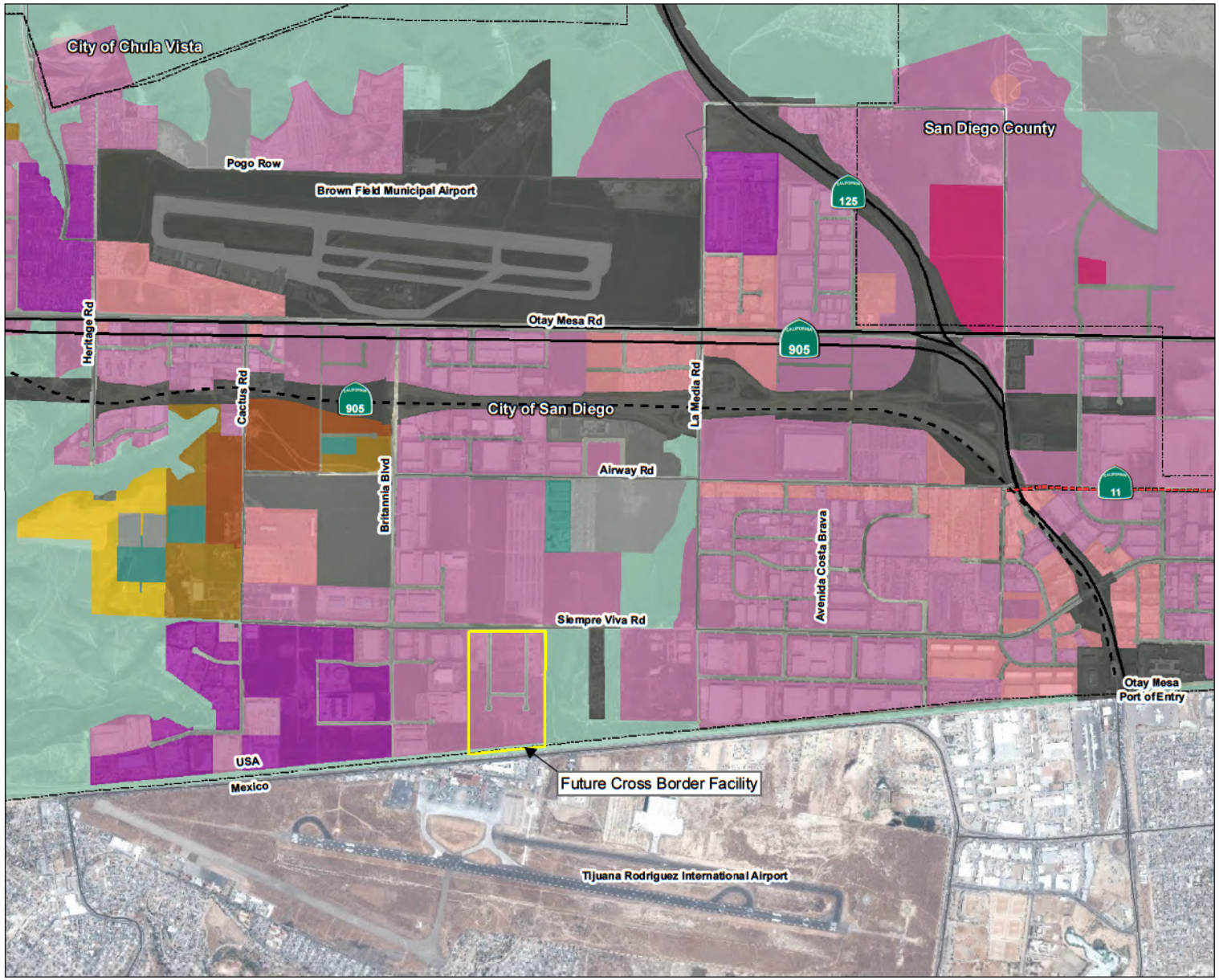

LEGEND

- Freeways
- Proposed SR 11
- Future SR 905, Under Construction
- Major Roads
- City Boundary
- Cross Border Facility Property Line

Existing Land Use

RESIDENTIAL
- Single Family Residential
- Multi-Family Residential
- Mixed Use

COMMERCIAL AND OFFICE
- Shopping Centers
- Commercial and Office

INDUSTRIAL
- Heavy Industry
- Light Industry
- Extractive Industry

PUBLIC FACILITIES AND UTILITIES
- Transportation, Communications, Utilities
- Education
- Institutions

PARKS AND RECREATION
- Recreation
- Open Space Parks

Source: SANDAG, 2009

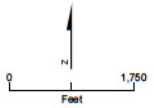

FIGURE 4.6
Future Cross Border Facility Surrounding Land Use
Airport Multimodal Accessibility Plan

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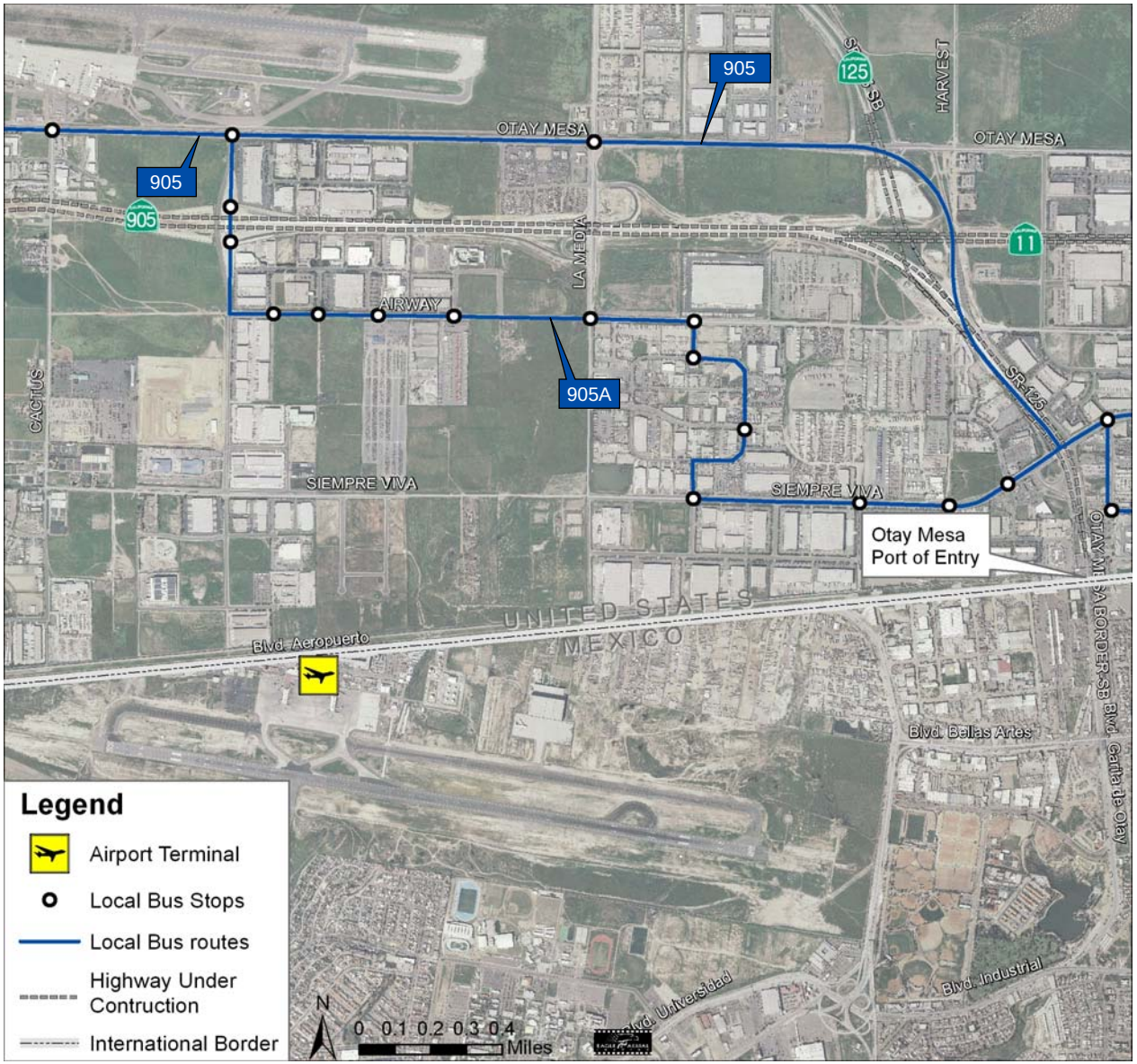

FIGURE 4.7
Future Cross Border Facility
Existing Ground Access
Airport Multimodal Accessibility Plan

Source: SANDAG 2011, MTS 2009

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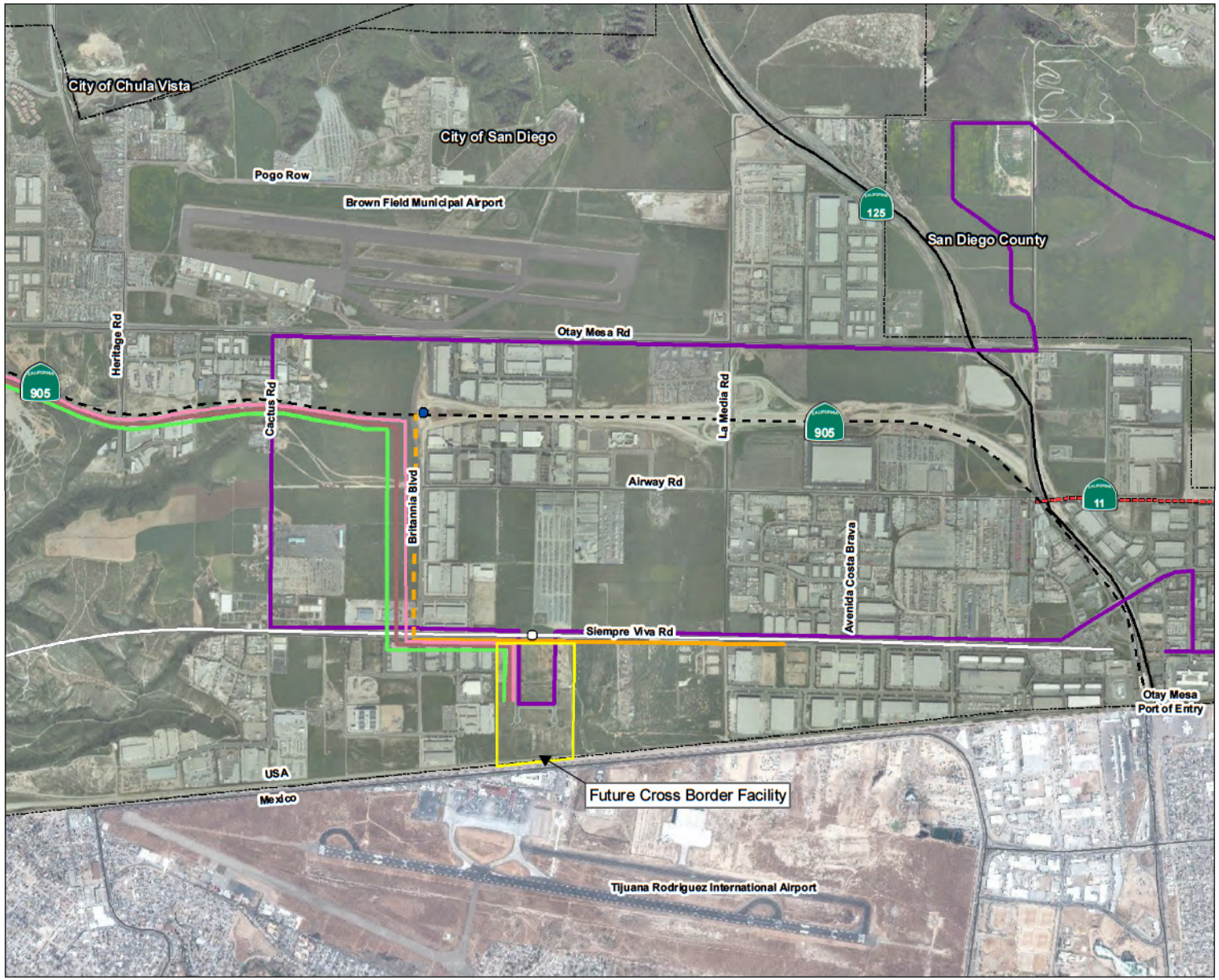

VICINITY MAP

LEGEND

- Freeways
- Proposed SR 11
- Future SR 905, Under Construction
- Major Roads
- City Boundary
- Cross Border Facility Property Line

Recommended Improvements

- Increase capacity of ramps at SR 905/Britannia Blvd Interchange
- Widen Siempre Viva Rd to 6 lanes
- Widen Britannia Blvd to 6 lanes from SR 905 to Siempre Viva Rd
- Modify Proposed Local Bus Route 661
- High Speed Train - Extension from Downtown San Diego to Otay Mesa
- High Speed Train Station
- Express Bus Service from H St Trolley Station
- Express Bus Service from Airport Intermodal Transportation Center
- Express Bus Service from Escondido and Mira Mesa Transit Stations

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FIGURE 4.8
Cross Border Facility Transit and Roadway Improvements
Airport Multimodal Accessibility Plan

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4.3 McClellan-Palomar Airport

McClellan-Palomar Airport is owned by the County of San Diego and is located in north county San Diego east of the I-5 freeway in the City of Carlsbad. Classified as a public use primary commercial airport, 274 aircraft are based at the airport, and United Express flies round trip service to LAX from this location. In 2010, 132,077 annual aircraft operations were reported for the airport. The airport's single runway is 4,897 feet in length, and airport facilities include a recently renovated terminal with passenger and baggage screening areas, a passenger lobby and boarding lounge, and access to the terminal from three new parking lots via a new elevator and walkway. The airport is an important part of the community, contributing $108 million per year to the local economy.

4.3.1 Surrounding and Adjacent Land Uses

McClellan-Palomar Airport is located along the north side of Palomar Airport Road and west of El Camino Real. The surrounding land use (Figure 4.9) primarily consists of industrial, commercial, and institutional with a planned community (Bressie Ranch) located southeast of the airport and other residential areas in the vicinity. The Carlsbad Oaks North Conservation Area is located east of the runway and office parks located to the north and south of the airport. A golf course is located to the west of the airport, with some areas of vacant/undeveloped land surrounding the airport.

4.3.2 Existing Ground Access Conditions

The main access to the McClellan-Palomar Airport is from Palomar Airport Road. Faraday Avenue and Poinsettia Lane are east-west corridors located to the north and south of the airport respectively. College Boulevard provides local access to Palomar Airport Road from the west and El Camino Real provides local access to Palomar Airport Road from the east. Camino Vida Roble connects Palomar Airport Road to Owens Avenue. Airport parking is located at the end of Owens Avenue and is accessible from the front of the terminal via an access road and pedestrian bridge. In addition, rental cars, taxi cabs, and shuttle services provide access to McClellan-Palomar Airport. I-5 is located approximately 3 miles west of the airport and has a local interchange at Palomar Airport Road.

The nearest COASTER station is the Carlsbad-Poinsettia Station located approximately 2.5 miles southwest of the airport on Avenida Encinas, west of I-5 and north of Poinsettia Lane. Bus Route 321 and Route 445 connect with this COASTER station and include stops at the entrance to the airport at Yarrow Drive and Palomar Airport Road. In addition, Route 309 includes a stop at Yarrow Drive as it travels along Palomar Airport Road. Existing ground access associated with McClellan-Palomar Airport is shown in Figure 4.10.

The most congested segment of Palomar Airport Road is between I-5 and Hidden Valley Road with an ADT of approximately 58,000. Existing ADT for other segments of Palomar Airport Road are shown in Table 4.3.

4.3.3 Future Ground Access Conditions

SANDAG Series 11 Growth Forecasts indicate that by 2030, traffic volumes along Palomar Airport Road will increase by as much as 18 percent in some segments. Table 4.3 summarizes the forecasted ADT volumes at key segments along Palomar Airport Road. Based on data from the RASP (Scenario 1C), operations at McClellan-Palomar Airport may increase from 57,000 enplanements per year to 641,355 enplanements per year. Using a trip generation rate of 2.001, this increase in operations would add an additional 7,032 ADT to Palomar Airport Road. That volume would be in addition to the forecasted volumes for Palomar Airport Road. Based on reviewing existing and forecasted traffic data along Palomar Airport Road, it is assumed that 60 percent of the vehicular traffic would access the McClellan-Palomar Airport from the west and the remaining 40 percent from the east.

Table 4.3 Existing and 2030 Average Daily Traffic for Palomar Airport Road

Arterial	From	To	Exist ADT (thousands)	2030 ADT[1] (thousands)
Palomar Airport Road	I-5	Paseo Del Norte	58	63
Palomar Airport Road	Paseo Del Norte	Armada Drive	53	58
Palomar Airport Road	Armada Drive	Hidden Valley Road	44	51
Palomar Airport Road	Camino Vida Roble	Yarrow Drive	30	33
Palomar Airport Road	Yarrow Drive	El Camino Real	33	40

1. SANDAG 2010.

4.3.4 Improvements Considered but Not Carried Forward

Several ground access improvements were considered for the McClellan-Palomar Airport as part of the AMAP analysis, but dismissed based on input from the SWG or based on modeling results from the RASP.

Realign Proposed Rapid Bus Route to stop at the McClellan-Palomar Airport

Two options for modifying the proposed Rapid Bus Route 440 to provide a stop at McClellan-Palomar Airport were considered:

- Constructing a bus stop along Palomar Airport Road just south of the airport visitor parking. This would include a pedestrian bridge over Palomar Airport Road for eastbound bus patrons.
- Diverting the proposed route from Palomar Airport Road to provide a stop at the McClellan-Palomar Airport Terminal.

These two options were dropped from consideration based on NCTD staff comments on taking the route off to serve the terminal and the decision not to include in the 2050 RTP.

Changes to Local Bus Service

This option included realigning the local bus (Route 321) to serve the McClellan-Palomar Airport Terminal. The route would start at the proposed Cannon Road direct access ramps to I-5 and travel along Paseo del Norte Road and Palomar Airport Road, and access the terminal via a new entrance at Owens Avenue, then join its original route at Palomar Airport Road. The headway for the bus route would also be increased to provide more frequent service. This option was eliminated from consideration after discussion with the AMAP stakeholder working group. An option to improve access from McClellan-Palomar Airport to the Carlsbad-Poinsettia station was considered to be more feasible.

Improvements to the Palomar Airport Road/I-5 Interchange

Based on traffic generated by the increased operations at the McClellan-Palomar Airport, widening of the ramps at the Palomar Airport Road/I-5 interchange was initially considered. This interchange improvement was developed using forecast volumes from the SANDAG Series 10: 2030 Regional Growth Forecast. This ground access improvement was eliminated from consideration after updating the volumes using the SANDAG Series 11: 2050 Regional Growth Forecast, which resulted in lower traffic volumes on the freeway ramps.

4.3.5 Recommended Improvements

Based on the enplanement projections for the McClellan-Palomar Airport under the RASP Scenario 1C, traffic demand would increase. To accommodate this increase in traffic, several roadway and transit improvements are recommended to provide additional multimodal access to the airport (Figure 4.11). These improvements are proposed to be located on airport property and therefore, subject to federal approval processes.

Major Infrastructure Improvements

No major infrastructure improvements are recommended.

Roadway Access Improvements

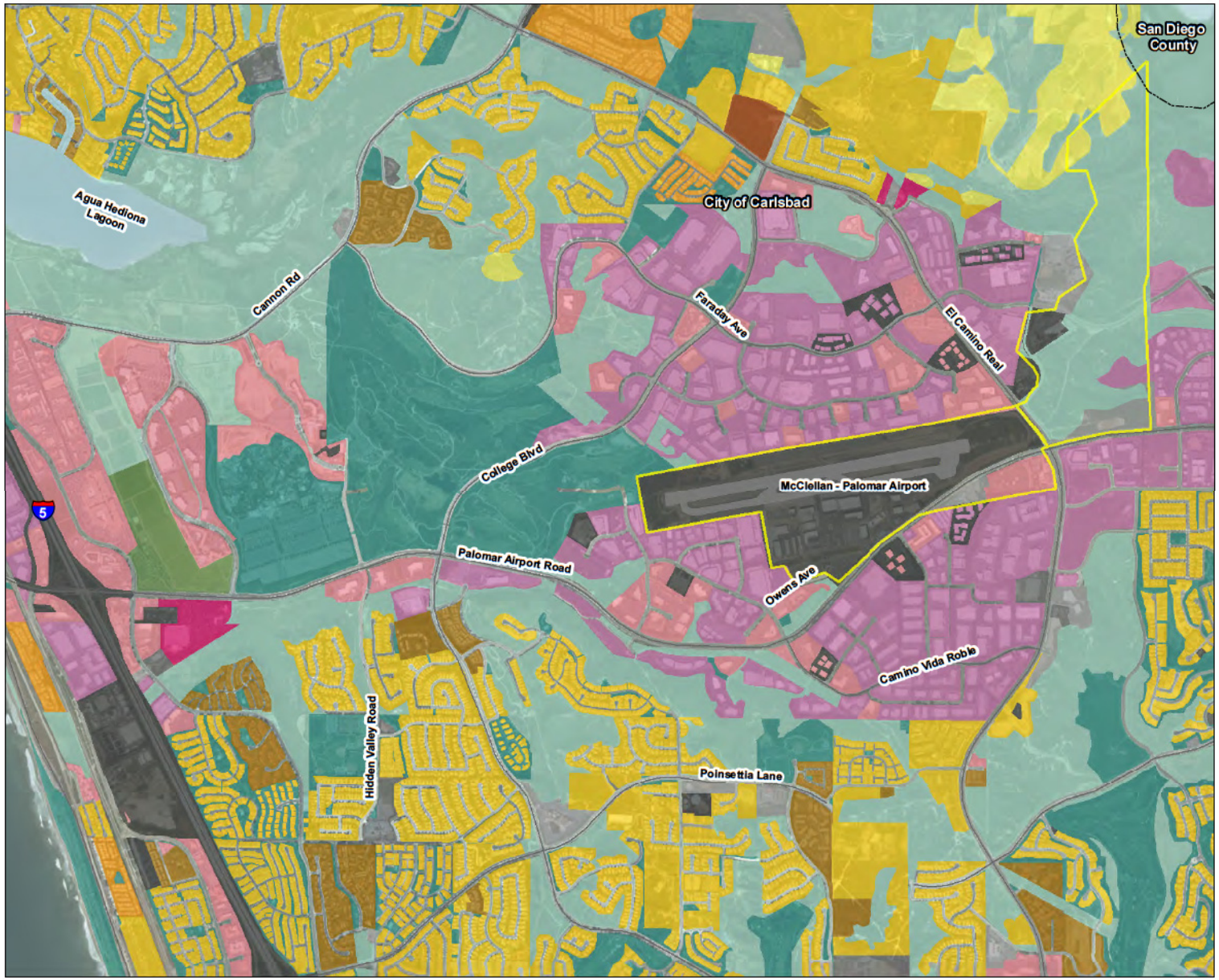
Based on the increased traffic generated by the McClellan-Palomar Airport under the RASP Scenario 1C, these roadway improvements are recommended to provide direct access to the airport and acceptable traffic operations along Palomar Airport Road:

- Widen Palomar Airport Road from 6 to 8 lanes between I-5 and Hidden Valley Road. Widening of Palomar Airport road would increase capacity and allow operation at LOS D, an acceptable level. A major element of this improvement would be the placement of retaining walls along both sides of Palomar Airport Road.

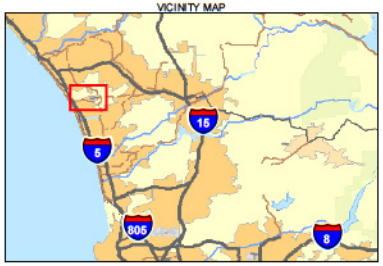
- Construct additional entrance to the airport terminal at Owens Avenue. This new access point would require construction of turning lanes and new traffic signalization at the Owens Ave/Camino Vida Roble intersection. It would also include the extension of Owens Avenue to connect with the existing access road that connects the airport terminal to visitor parking facilities from located southwest of the terminal and just north of Palomar Airport Road. This additional entrance and roadway extension would provide more direct access to and from the terminal for transit and other airport traffic. Upon discussion with the County of San Diego, the additional entrance is recommended in the unconstrained plan and additional analysis will be needed on traffic flows and travel times.

Transit Access Improvements

NCTD Route 445 could be modified to serve the airport terminal for more direct access to the terminal. This route modification would provide connectivity to COASTER service at the Carlsbad Poinsettia Station. A bus stop would be located near the terminal building.



VICINITY MAP



LEGEND

- Freeways
- Major Roads
- City Boundary
- Airport Property Line

Existing Land Use

RESIDENTIAL
- Spaced Rural Residential
- Single Family Residential
- Mobile Homes
- Multi-Family Residential
- Mixed Use

COMMERCIAL AND OFFICE
- Shopping Centers
- Commercial and Office

INDUSTRIAL
- Light Industry

PUBLIC FACILITIES AND UTILITIES
- Transportation, Communications, Utilities
- Education
- Institutions
- Military

PARKS AND RECREATION
- Recreation
- Open Space Parks

AGRICULTURE
- Intensive Agriculture

OTHER
- Water

Source: SANDAG, 2009
Airport Boundary – RASP, January 2011

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FIGURE 4.9
McClellan-Palomar Airport Surrounding Land Use
Airport Multimodal Accessibility Plan

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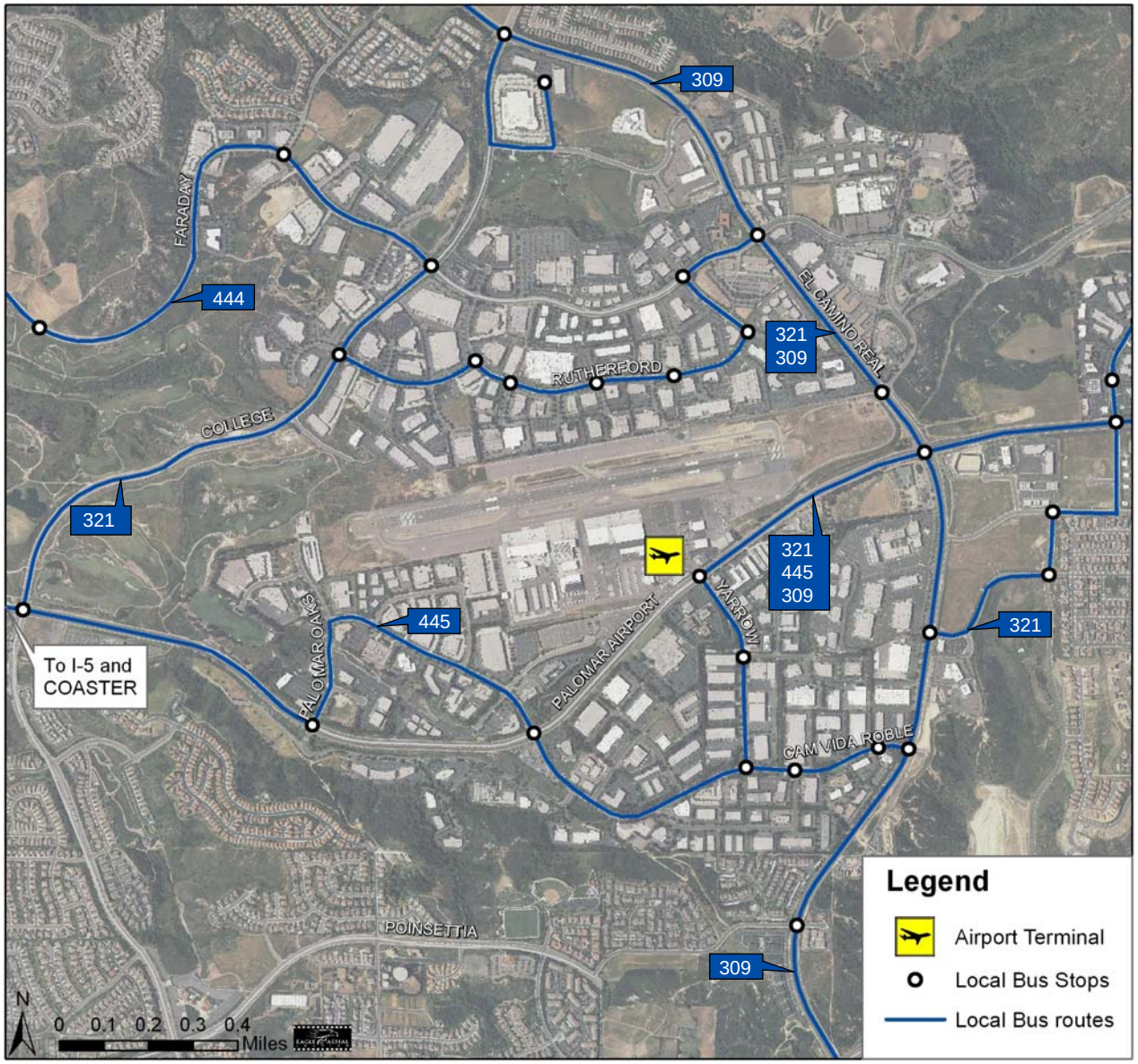

FIGURE 4.10
McClellan-Palomar Airport
Existing Ground Access

Source: SANDAG 2011, MTS 2009

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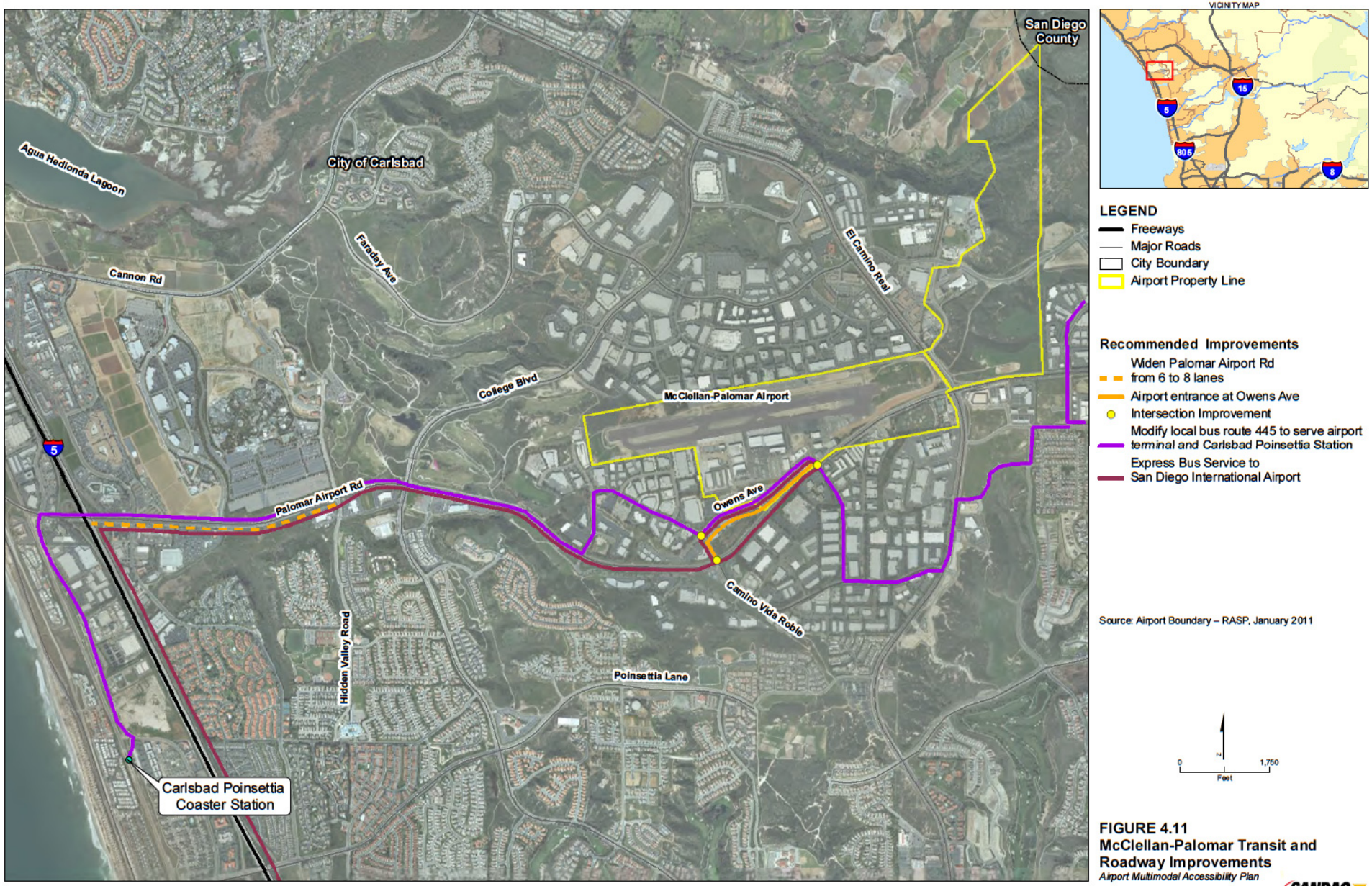

FIGURE 4.11
McClellan-Palomar Transit and Roadway Improvements
Airport Multimodal Accessibility Plan

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4.4 Gillespie Field

Gillespie Field is owned and operated by the County of San Diego and is located in the City of El Cajon, approximately 10 miles northeast of downtown San Diego (Figure 4.1). The airport's property encompasses approximately 775 acres and is home to more than 900 based aircraft. Gillespie Field serves the general aviation community with three paved runways. Operations at the airport numbered 209,345 in 2010 (County of San Diego, 2011). In addition to the runways, tower, and a terminal, Gillespie Field supports many airport-related businesses including two business parks which provide more than 2,000 jobs in the City of El Cajon and a $40 million boost to the local economy.

4.4.1 Surrounding and Adjacent Land Uses

Gillespie Field is located along the north side of West Bradley Avenue, west of North Magnolia Avenue, south of Prospect Avenue, and east of Cuyamaca Street. The surrounding land use primarily consists of industrial and residential with some mobile home parks, commercial, and vacant/undeveloped areas located north and east of the airport (Figure 4.12). Schools are located within the vicinity of the airport.

Three major freeway corridors, I-8, State Route 67 (SR 67), and the recently opened portion of State Route 52 (SR 52), surround the airport.

4.4.2 Existing Ground Access Conditions

There are a number of roadways that provide access to Gillespie Field; however, the primary access is via Marshall Avenue which is accessed from the south by West Bradley Avenue and from the north via Cuyamaca Street. Gillespie Field is approximately 0.25 mile west of SR 67 and 0.25 mile south of SR 52. From SR 52, Gillespie Field can be accessed using Cuyamaca Street. From SR 67, access is via West Bradley Avenue, where current traffic operations are LOS F at the SR 67 interchange.

Trolley service to the Gillespie Field Trolley stop, located over a half-mile from the main airport entrance, is provided by both the Green and the Orange Trolley Lines. The Orange line provides service to downtown San Diego and the Green Line provides service to Old Town and connections to the Blue Line at Old Town. Existing ground access associated with Gillespie Field is shown in Figure 4-13.

4.4.3 Future Ground Access Conditions

Forecast volumes for arterials that provide access to Gillespie Field are shown in Table 4.4. The increase in general aviation operations and Gillespie Field per the RASP Scenario 4C produces approximately 1,165 ADT.

Table 4.4 2030 Average Daily Traffic for Arterials Providing Access to Gillespie Field

Arterial	From	To	2030 ADT[1] (thousands)
Cuyamaca Street	SR 52	Marshall Avenue	36
Cuyamaca Street	Bradley Avenue	Billy Mitchell Drive	19
Marshall Avenue	Bradley Avenue	Billy Mitchell Drive	16
Marshall Avenue	Billy Mitchell Drive	Cuyamaca Street	11
Bradley Avenue	Marshall Avenue	N. Magnolia Avenue	17
Bradley Avenue	N. Magnolia Avenue	SR 67	18

1. SANDAG 2010.

In March 2011, SR 52 was extended as a 4-lane freeway from SR 125 east to SR 67. A local interchange at Cuyamaca Street was included in this project and provides access to Gillespie Field from SR 52.

The existing Bradley Avenue/SR 67 interchange is proposed to be reconstructed to improve the existing traffic congestion, operations and access to the surrounding community (County of San Diego, 2007). This project includes the following improvements:

- Bradley Avenue overcrossing widened from 2 lanes to 6 lanes, including 2 turn lanes.
- Bradley Avenue widened to 4 lanes between Graves Avenue and Mollison Avenue.
- Southbound and northbound ramps widened to accommodate turning movements.

The existing traffic conditions along Bradley Avenue at both northbound and southbound ramps are LOS F but with the proposed improvements, these facilities are expected to operate at LOS B. Although the projected aviation growth of Gillespie Field is not expected to be a major contributor to the congestion projected at the interchange, the interchange improvements will aid access to Gillespie Field from the SR 67 corridor.

4.4.4 Improvements Considered but Not Carried Forward

General aviation is traditionally a difficult market for transit to service efficiently. Additional transit improvements were evaluated but upon further discussion with the County of San Diego, were eliminated from further study:

- Relocate Gillespie Field Trolley Station. This improvement would relocate the existing Gillespie Field Trolley Station and its parking facility closer to the main entrance of Gillespie Field. The proposed station would be on the existing LRT alignment along a tangent section just south and west of the Gillespie Field entrance on Marshall Avenue. Upon more detailed evaluation, the location identified as the relocation site was already identified for future development by the County of San Diego.

4.4.5 Recommended Improvements

The anticipated changes in general aviation operations at Gillespie Field would require the following roadway and transit improvements to provide enhanced multimodal access to the airport.

Major Infrastructure Improvements

No major infrastructure improvements are recommended.

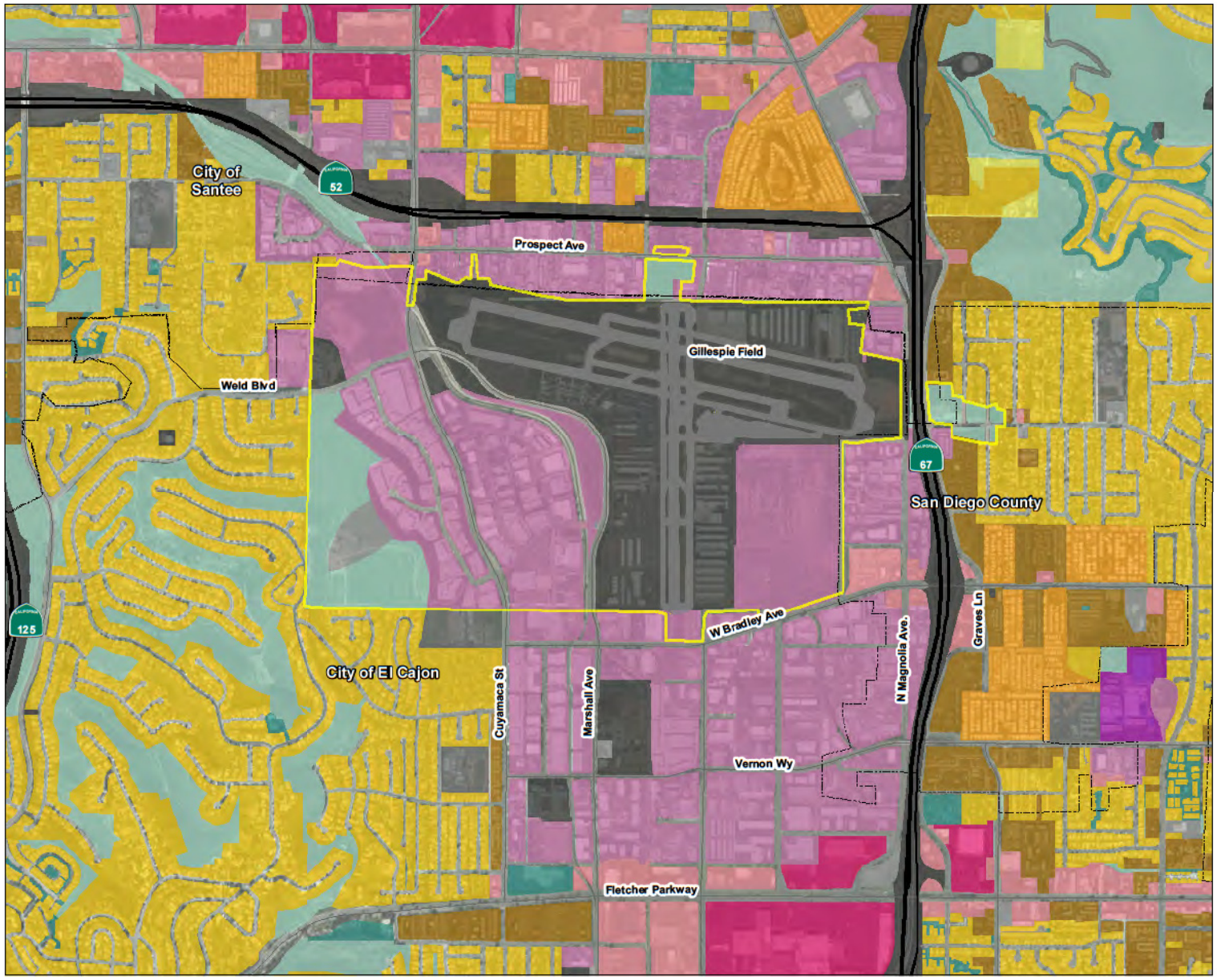
Roadway Access Improvements

Improvements to the Bradley Avenue/SR 67 interchange as described previously are recommended.

Transit Access Improvements

Better local and regional transit connections to the existing trolley station are recommended:

- Modify BRT Routes 90, 870, and/or 890. The BRT Routes (RTP Routes 90, 870 and/or 890) that are proposed to travel along Cuyamaca Street would be modified to provide more direct service to Gillespie Field by changing the routing to North Marshall Avenue from Cuyamaca Street between the El Cajon Transit Center and Cuyamaca Street, with a direct connection at the Gillespie Field Trolley Station.



LEGEND

- Freeways
- Major Roads
- City Boundary
- Airport Property Line

Existing Land Use

RESIDENTIAL
- Spaced Rural Residential
- Single Family Residential
- Mobile Homes
- Multi-Family Residential

COMMERCIAL AND OFFICE
- Shopping Centers
- Commercial and Office

INDUSTRIAL
- Heavy Industry
- Light Industry

PUBLIC FACILITIES AND UTILITIES
- Transportation, Communications, Utilities
- Education
- Institutions

PARKS AND RECREATION
- Recreation
- Open Space Parks

Source: SANDAG, 2009
Airport Boundary – RASP, January 2011

N

0 500 1,000
Feet

FIGURE 4.12
Gillespie Field
Surrounding Land Use
Airport Multimodal Accessibility Plan

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FIGURE 4.13
Gillespie Field
Existing Ground Access
Airport Multimodal Accessibility Plan

Source: SANDAG 2011, MTS 2009

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VICINITY MAP

LEGEND

- Trolley
- Freeways
- Major Roads
- City Boundary
- Airport Property Line
- Trolley Station

Recommended Improvements

- BRT Transit Station
- Modify Proposed BRT Routes
- Modify Bradley Ave / SR 67 Interchange

Source: Airport Boundary – RASP, January 2011

N

0 1,000
Feet

FIGURE 4.14
Gillespie Field Transit and Roadway Improvements
Airport Multimodal Accessibility Plan

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4.5 Express Bus Service to Regional Airports

It is not uncommon for direct bus services to be offered from remote terminal/parking lots and the airport from a distance of over 10 miles away as a way to address traffic congestion and parking demand constraints at the airport. Services range from an express bus service linking a parking facility directly to the airport to remote terminal facilities at the Park-n Ride lots where airline passengers can check in for flights and check luggage. For example, Los Angeles World Airports, which operates LAX, offers four non-stop express bus or FlyAway services to LAX from Los Angeles Union Station, Van Nuys, Irvine, and Westwood. Boston's Logan Express service provides direct transit service from Braintree, Framingham, Woburn, and Peabody. The LAX Flyaway and Boston's Logan Express are the only remove terminal services at commercial airports in the U.S. operated by the airport operator. Some other express bus services such as the Marin Airporter at San Francisco International Airport are operated by private companies. Airport express bus services commonly offer other amenities such as onboard Wi-Fi, luggage assistance, and car detailing/light maintenance at the parking location as a way to increase ridership. As long as these types of services are point-to-point for the benefit of airline passengers, the use of airport funds may be possible to subsidize service costs. However, the FAA would need to review and approve any contribution of airport revenues for these services.

The Airport Authority's SDIA Airport Transit Plan, Phase II, cites the following considerations for a successful airport express bus service:

- Service is provided 7 days per week.
- Maximum headways are 30 minutes.
- Remote terminal is located a minimum of 10 miles or 30 minutes from the airport.
- Non-stop service, or for longer routes a maximum of one stop, is required for consideration for FAA funding.
- Sufficient secured parking and visible location.
- Passenger amenities.

The AMAP evaluated the potential to provide remote terminal/express bus services to SDIA, CBF and McClellan-Palomar Airports following these criteria and consistency with the Airport Authority's Airport Transportation Plan (Figure 4.15). It should be noted that the location of the remote terminal parking lot is crucial to the success of the service and the identified express bus service listed below require further study to determine passenger catchment areas, station locations, expected demand, and appropriate turn-around and stop times, and hours of service. The Airport Authority recently

completed the SDIA Airport Transit Plan, Phase II report, which provides study results for remote terminal locations along the I-5, I-15, I-8 and I-805 corridors. This report focuses on feasibility analysis of recommended airport transit improvement measures identified in the Airport Transit Plan including Remote Parking/Terminal with express bus service. Development of the report was coordinated with members of the Airport Transit/Roadway Committee which includes representatives from the local and regional transportation agencies. The analysis concluded that the I-5 and I-15 corridors were the most promising for remote terminal service with either non-stop service from a location near the I-56 interchange or one-stop service with an additional remote terminal/parking location in the City of Carlsbad along the I-5 corridor or City of Escondido along the I-15 corridor.

4.5.1 SDIA

Three express bus service routes are recommended for service to and from SDIA. These services also provide connections to McClellan-Palomar Airport and the CBF.

- I-5 express bus service: This route originates at McClellan-Palomar Airport and was assumed to make one stop before terminating at the Airport ITC. In the near term the mid-point stop is in the I-5/State Route 56 (SR 56) area and for the long-term, a stop at the Manchester Park-n-Ride should be evaluated. Service was assumed to be every 30 minutes daily, roughly between 4:30 a.m. and 1:00 a.m.

- I-15 Corridor express bus service: The route originates at the Escondido Transit Center (ETC) and would make one stop at the Mira Mesa Transit Center, taking advantage of the future Direct Access Ramp, before terminating at the Airport ITC. Service was assumed to be every 30 minutes daily between roughly 4:30 a.m. and 1:00 a.m. One consideration for this route is parking availability at ETC, as this is already an important regional transit connection for SPRINTER light rail, local bus, and future I-15 BRT service.

- CBF express bus service from the Airport ITC: This route originates at the Airport ITC and proceeds directly to the CBF via I-5, SR 94, and I-805. Service was assumed to be every 30 minutes between approximately 4:30 a.m. and 1:00 a.m.

Through a planning level evaluation of the ridership forecast for these routes, the I-5 and I-15 express bus services to SDIA were included in the 2050 RTP (Appendix B).

4.5.2 Cross Border Facility

Express bus service to the CBF would be provided from several key locations in the San Diego region. These locations were determined through coordination with SANDAG, MTS, and the Airport Authority and taking into account projected population densities and connectivity to the region's transportation system. In addition to the express bus service to and from the Airport ITC discussed above, two other express bus routes are proposed to provide service to the CBF.

- I-15 Corridor express bus service: The route originates at the ETC and makes one stop at the Mira Mesa Transit Center before terminating at the CBF. Service was assumed to be every 30 minutes daily. As noted above, parking availability at ETC should be explored further, as this is already an important regional transit connection for SPRINTER light rail, local bus, and future I-15 BRT service.

- H Street Trolley Station (Chula Vista): This route would travel non-stop on I-5 and SR 905 from the H Street Trolley Station to the CBF. Service was assumed to be every 30 minutes daily. This service recommendation should be further studied for feasibility, in terms of passenger catchment area and distance; as route may be too short to effectively draw passengers.

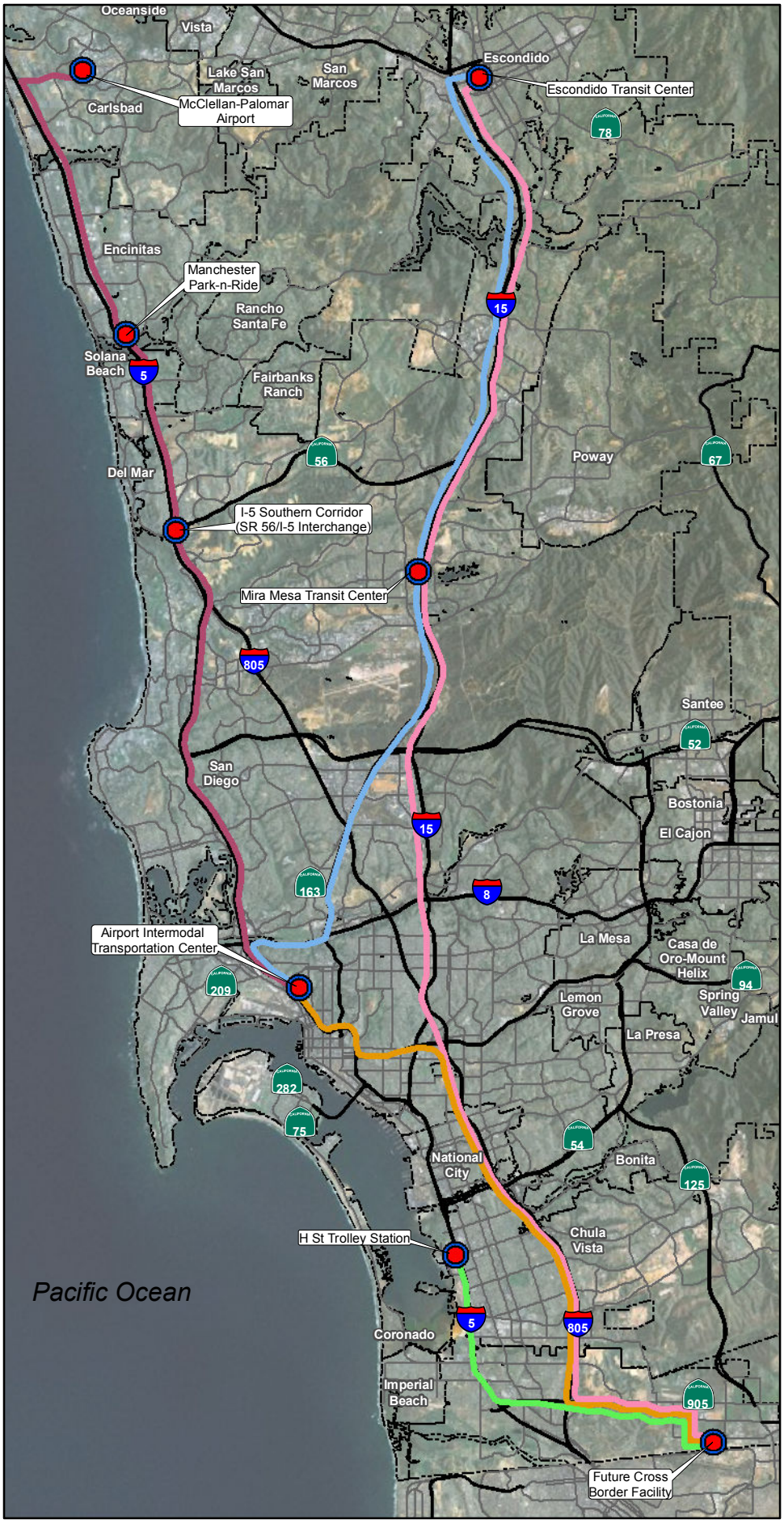
Through a planning level evaluation of the ridership forecast for these routes, the I-15 express bus service to the CBF was included in the 2050 RTP (Appendix B).

4.5.3 McClellan-Palomar Airport

No express bus service routes are proposed for McClellan-Palomar Airport as part of the AMAP. As noted above it would serve as remote parking for the I-5 express bus to SDIA.

4.5.4 Gillespie Field

No express bus service routes are proposed for Gillespie Field as part of the AMAP.



VICINITY MAP

LEGEND

- Freeways
- Major Roads
- City Boundary

Recommended Improvements (Project Number)

San Diego International Airport Express Bus Service

- From McClellan-Palomar Airport and Manchester Park-n-Ride (1)
- From Escondido Transit Center and Mira Mesa Transit Station (2)
- From Cross Border Facility (3)
- Express Bus Service Stops

Cross Border Facility Express Bus Service

- From Airport Intermodal Transportation Center (3)
- From Escondido and Mira Mesa Transit Stations (4)
- From H St Trolley Station (5)
- Express Bus Service Stops

N

0 2.75 5.5

Miles

FIGURE 4.15
San Diego International Airport and Cross Border Facility Express Bus Service
Airport Multimodal Accessibility Plan

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4.6 Cost Estimates

Conceptual, planning level cost estimates for both capital and operating costs were developed to help inform and evaluate the various AMAP roadway and transit ground access improvements. The following discussion provides information on the development of costs and assumptions.

4.6.1 Capital Cost Estimates

Capital costs for the improvements at the SDIA were obtained from the *SANDAG Intermodal Transit Center (ITC)-Phase 1 Final Report* (SANDAG, 2010), and by consultation with SANDAG staff. Preliminary, planning-level capital costs estimates for the proposed ground access improvements at other airports were developed using costs from similar regional roadway and transit projects (Table 4.5). Projects used as reference when developing the planning-level unit costs for the AMAP projects included the following:

SANDAG Green Line Extension: The costs for demolition and reconstruction of the station platforms and shelters from the Gaslamp Quarter Trolley station reconstruction were used to determine the costs for the Gillespie Field Trolley Station.

SANDAG SR 15 Mid-City BRT: This project includes freeway widening, ramp improvements and BRT stations along SR 15. Unit costs from this project were used to determine conceptual level costs for BRT stations, ramp improvements and pedestrian crossings for AMAP efforts.

SANDAG I-15 Mira Mesa DAR and Transit Station: This project includes the construction of direct access ramps, arterial widening and a new transit station with parking. Unit costs from this project were used to help determine AMAP proposed transit and arterial improvement costs.

All capital costs include a 35 percent contingency to account for the limited level of analysis and detail for these planning level estimates. Additional information and detail on the individual capital cost estimates is included in Appendix D. Appendix D also contains information regarding the potential phasing of the proposed projects as assumed in the 2050 RTP.

4.6.2 Operating Cost Estimates

Preliminary, planning-level operations costs were estimated for express bus and local transit service operations. Service costs were based on current MTS 2011 cost per mile rates, providing a

conservative estimate for operations. Headways for the express bus services to/from the Airport ITC were developed for 30 minute headways from approximately 4:30 a.m. to 1:00 a.m., again providing a conservative estimate for planning-level operations purposes. Headways to/from the CBF at TIJ were estimated for daily 30 minute service, with no break in service to account for TIJ's round-the-clock operations, unlike SDIA that has prohibitions to take-offs between 11:30 p.m. and 6:30 a.m. Detailed operational cost estimates and additional assumptions can be found in Appendix D.

Conceptual, planning-level capital and annual operating costs for the proposed roadway and transit ground access improvements to the Airport ITC, CBF, McClellan-Palomar Airport and Gillespie Field are summarized as follows:

Table 4.5 Summary of Preliminary Planning-Level Capital and Operating Cost Estimates (2011 dollars)

Project	Capital Costs ($ Millions)	Annual Operational Cost ($ Millions)
San Diego International Airport		
Airport ITC with Pedestrian Bridge	$164.0	n/a
Trolley Rail Grade Separation	$551.6	n/a
Heavy Rail Grade Separation	$850.0	n/a
High-Speed Train Station	TBD	-
Direct Connector Ramps from I-5	TBD	n/a
Cross Border Facility		
Modify SR 905/Britannia Boulevard Interchange	$9.3	n/a
Widen Siempre Viva Road	$5.2	n/a
Widen Britannia Boulevard	$2.5	n/a
Modify Local Bus Route 661	$0.3	$0.1
HST Service with CBF Station	$3,557.0	n/a
McClellan-Palomar Airport		
Widen Palomar Airport Road	$15.7	n/a
Additional airport access at Owens Avenue and improvements to the Owens Avenue/Camino Vida Roble intersection	$3.5	n/a
Modification of Local Route 445	$0.3	$0.2
Gillespie Field		
Construct BRT Station at Gillespie Field Trolley Station	$0.6	n/a

Table 4.5 Summary of Preliminary Planning-Level Capital and Operating Cost Estimates (2011 dollars)

Project	Capital Costs ($ Millions)	Annual Operational Cost ($ Millions)
Modification of proposed BRT Routes	No net capital or operational cost increase	n/a
Modification of Bradley Avenue/SR 67 Interchange	$30.0	n/a
Express Bus Service		
I-5 Express Bus Service to SDIA from McClellan-Palomar Airport and the Manchester Park-n-Ride/I-5/SR 56 location	$7.6	$5.5
I-15 Express Bus Service to SDIA from Escondido and the Mira Mesa Transit Station	$7.6	$5.3
Express Bus Service between ITC and CBF	$5.4	$3.9
I-15 Express Bus Service to CBF from Escondido and the Mira Mesa Transit Stations	$8.6	$8.6
H Street Trolley to/from CBF	$4.3	$2.2

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5 Implementation Strategies and Summary

The AMAP develops a multimodal strategy to improve surface transportation access to the airports identified in the RASP for future enhancements. Currently, ground access to the region's airports is primarily roadway and auto focused. Improvements focus on providing public transportation or direct express bus service options in addition to minor arterial and roadway improvements in order to meet the future demand associated with these aviation improvements.

The AMAP has been completed in close cooperation with the Airport Authority and the development of the RASP. SANDAG focused on ground access improvements to airports which were identified by the RASP as candidates for future enhancements rather than identifying potential improvements to all airports in the region. Aviation forecasts developed as part of the RASP were used in the ADT analysis that provided the basis for the evaluation of the AMAP ground access improvements.

Major findings from both the RASP and AMAP are also compatible with the 2050 RTP in terms of the systems development section and transportation networks.

5.1 Summary of Findings

In 2009, the Airport Authority initiated the development of the RASP, beginning with a strategic assessment of each of the 12 public use airports in San Diego County as well as Tijuana International Airport. Next, detailed alternatives analysis was completed on 15 service scenarios and through this analysis, the RASP identified four facilities for future enhancements: SDIA, CBF/CBT, McClellan-Palomar, and Gillespie Field. In addition, the Airport Authority analyzed the potential for high-speed train service to alleviate airport demand at SDIA. The RASP was finalized in March 2011 by the Airport Authority Board of Directors and is available at www.sdrasp.com.

SANDAG initiated the AMAP in 2010 and began by evaluating a range of ground access alternatives to the subset of airports that had been identified by the Airport Authority through the Strategic Assessment as candidates for enhancements. These facilities were SDIA, CBF/CBT, McClellan-Palomar, Gillespie Field, Montgomery Field, Brown Field, and Ramona Airport. Through additional analysis by the Airport Authority, the latter three airports were subsequently dropped from further evaluation.

For SDIA, the AMAP focuses on the Airport ITC as the major ground access improvement, which is closely coordinated with the work of the Airport Authority on the north side airport development. Bus, trolley, commuter and intercity rail, and future high-speed train service will be accommodated at

this facility. Direct connector ramps from I-5 will be designed and incorporated to serve the facility. For the short-term, express bus service from the I-5 and I-15 corridors is also evaluated.

For the CBF, the AMAP focuses on transit and arterial improvements and express bus services in the near term. The feasibility of extending the HST system from the Airport ITC to the U.S. - Mexico border is evaluated as a future phase.

For McClellan-Palomar Airport, the AMAP focuses on direct transit shuttle service between the airport terminal and the Poinsettia COASTER commuter rail station, with service increases matched to increases in COASTER service between now and 2035. Arterial improvements to facilitate more direct access to the terminal are also analyzed. Any improvements on airport property would need to be coordinated through the airport layout plan and future plans by the County of San Diego.

The RASP recommends enhancements to general aviation at Gillespie Field, an activity that is traditionally difficult to be served by public transportation. Therefore, only minor roadway improvements are called for in the AMAP. The future Bradley Avenue/SR 67 interchange improvement will also facilitate access. Future transit improvements including the realignment of future Bus Rapid Transit services are evaluated.

5.2 Implementation Strategies

Regional Collaboration

Completion of the RASP and AMAP has showcased the benefits of collaboration between SANDAG, the Airport Authority, and regional stakeholders. Aviation planning and airport ground access has been incorporated into the 2050 RTP at a level above and beyond previous plans. Further collaboration is warranted both in terms of future updates to the RASP and RTP, but also to identify the necessary steps toward successful implementation of the ground access improvements identified in the AMAP.

Encourage Incorporation into Local Plans

SANDAG supports continued collaboration at the local level in terms of working with staff from the Cities of San Diego, Carlsbad, and El Cajon, as well as the airport owners to assess the feasibility of incorporating ground access improvements in local plans, airport layout and master plans, and coordination with other planning efforts.

SANDAG will continue to monitor these local projects through our Intergovernmental Review Program which oversees the review of local environmental documents and monitors current and future

development plans for potential impacts on the regional transportation network and will comment regarding particular ground access improvements through this process.

Financial Strategies

The total capital cost of ground access improvements identified in the AMAP is $1.65 billion for the Revenue Constrained Plan and $3.6 billion for the Revenue Unconstrained Plan. The annual operational cost is $25.5 million for the 2020 phase. These improvements have been included in the 2050 RTP either as a separate transit improvement receiving dedicated funding such as the express bus services or included in local transportation networks.

Implementation of the AMAP findings will be dependent on funding and policy changes which are needed to further the goals of SB 10. The reauthorization of the surface transportation program, SAFETEA-LU, has been deferred until at least April 2012 and there is little agreement on how to raise federal funds to address the current funding shortfall in the Highway Trust Fund. Compounding this problem is the current economic state and its impact on state funding for transportation. It is unlikely that any additional state funds will be accessible until the national, state, regional and local economies improve. As a result, there appear to be few federal or state funding options to implement the proposed ground access improvements in the short term.

That said, the following strategies could be explored for funding opportunities with the goal of leveraging local funding with state, federal and private dollars:

Federal Sources

- Potential Intermodal Airport Funding Pilot Program: Explore the potential of a federal pilot program in the surface transportation reauthorization bill between FAA, Federal Transit Administration, Federal Highway Administration, and Federal Railroad Administration to fund intermodal projects to serve airports. This pilot could include nontraditional sources of funding for ground access improvements. One example is the ITC in which a number of transportation modes will converge to also serve SDIA. SANDAG will also work with other Metropolitan Planning Organizations in California to coordinate statewide support of this concept.
- Federal Livability Initiative: There are new and continuing funding sources that relate to the Federal Livability Initiative. In June 2009, the Partnership for Sustainable Communities was formed by the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA) Up to $25.7 million was made available for alternatives analysis for transit projects in 2010. The funds were distributed in support of the Department of Transportation's Livability Initiative.

- Transportation Investment Generating Economic Recovery (TIGER) The TIGER Discretionary Grant Program was included in the American Recovery and Reinvestment Act to spur a national competition for innovative, multimodal, and multi-jurisdictional transportation projects that promise significant economic and environmental benefits to an entire metropolitan area, a region, or the nation. In February 2010, USDOT selected 51 projects to be funded with the $1.5 billion allocated in the Recovery Act, including improvements to roads, bridges, rail, ports, and transit and intermodal facilities. There is currently a call for application for a fourth round of TIGER funding.
- FTA Funds: There are a variety of traditional discretionary Federal Transit Administration Funds that could be pursued as part of this program, such as New Starts (light rail, heavy rail), Small Starts (Bus Rapid Transit) and Very Small Starts (trolleys and streetcars).
- Complete Streets: The federal "Complete Streets" program may have funding to enhance the roadway network, and non-motorized (bicycle and pedestrian) components of the capital program. Caltrans has adopted a Complete Streets policy and program as well.
- Environmental and Natural Resources Grants: There are a variety of non-traditional funding sources for transit projects that target the environmental mitigation components of a project.
- TIFIA Loan: Consider a federal Transportation Infrastructure Finance and Innovation Act (TIFIA) loan. The strategic goal of the TIFIA program is to leverage limited Federal resources and stimulate capital investment in transportation infrastructure by providing credit rather than grants to projects of critical importance to the nation's transportation system. Although there is limited TIFIA budget authority currently, this financing technique should be considered once the Reauthorization bill is approved. This loan would be paid back with local or regional funds. The most successful projects for this program would be the larger, regionally significant ones.

State Sources

- Intermodal Connectivity Funding: Review Statewide Transportation Funding Program for options to incorporate a directed funding source for intermodal connectivity projects at regional airports.
- High Speed Rail Funding: Continue to support the CHSRA efforts to secure state and federal funding for the Los Angeles to San Diego via Inland Empire HST corridor. Also pursue cooperative funding opportunities with the CHSRA related to intermodal connectivity and station development along the HST corridor. In addition to state and federal HSR funding, there is a private funding component in the CHSRA business plan that should be considered.
- CPUC Grade Separation Funding: Consider California Public Utilities Commission (CPUC) Section 190 Grade Separation funding for the grade separations in the proposed plan. Although not a large program at $15 million per year, it can help leverage other local funding.

- CTC Prop. 1B Grade Crossing Funds: Although there is no new Proposition 1B funding, the California Transportation Commission is soliciting projects to replace the projects in the current programs that have stalled due to lack of local match. One program that may be of interest is the Proposition 1B Highway-Railroad Crossing Safety Account.
- Caltrans Transportation Planning Grant Program: These funds are available for planning projects that improve mobility and lead to the planning, programming, and implementation of transportation improvement projects. In 2010, SANDAG received a planning grant for initial planning studies for the Airport ITC through this program.

Local and Regional Sources

- Restructured Local Bus Service to Serve Airport: Encourage MTS and NCTD to incorporate local bus service to airports in their service plans and capital improvement plans. Assist by identifying potential funding sources and to further define the capital and operating plans.

Private Sources

- Private Shuttles to Airports: Explore models from other transit systems whereby larger employers within the service area provide private shuttle service to the airports either directly or via transit stations adjacent to the airports.
- Joint Development: Analyze the potential for Joint Development around transit stations, along transit corridors and along the perimeter of the airport to help fund transit service and roadway improvements.
- Assessment Districts: Explore the implementation of an assessment district on the adjacent development whereby a rate would be charged based on value of airport access via transit and roadway improvements. The funds generated could be financed to provide funding for the improvements.
- Public/Private Partnerships (P3s): P3s are a viable consideration for the larger capital plan projects. P3s provide a new delivery alternative and potential private investment.

5.3 Project Refinements

While the AMAP provides planning-level cost estimates and project concepts, additional work is needed in order to complete the planning, design, and ultimately construction and implementation of these ground access improvements:

Express Bus Services

- Support Airport Authority's efforts to implement express bus service to SDIA by continuing to participate on the Authority's stakeholder working groups to refine route alignments and service plans. Support the Authority's requests for funding as needed.
- Provide AMAP analysis to the Otay-Tijuana Venture LLC on future express bus services from the Airport ITC and I-15 Corridor to the CBF.

High-Speed Train Service

- Work with CHSRA and southern California regional partners on HST connection to San Diego, including the continued analysis of Air-Rail Connectivity in order to alleviate airport demand at SDIA.
- Work with the Cities of San Diego and Escondido on HST station area planning efforts as requested.

San Diego International Airport

- Secure funding and complete the planning and design of the Airport ITC including traffic analysis, engineering and design of the initial transit station including pedestrian bridge and continue to work with agency stakeholders on this initial phase.
- Work with CHSRA and Caltrans on the engineering and final design of the HST station and Direct Connector Ramps from I-5.

Cross Border Facility

- Work with MTS and Otay-Tijuana Venture LLC to provide the necessary infrastructure to support local transit service to the facility on opening day.
- Continue to support efforts by the City of San Diego to update the Otay Mesa Community Plan, including the necessary arterial improvements to support the CBF.
- Reassess the feasibility of extending the HST network from the Airport ITC to the CBF and the potential to include the project in the Revenue Constrained 2014 RTP.

McClellan-Palomar Airport

- Work with the City of Carlsbad and County of San Diego Airports, Airport Authority, FAA, and NCTD to continue to refine arterial and transit improvements to the terminal.
- Continue to construct capital improvements on the coastal rail corridor in order to facilitate additional COASTER commuter rail service. Support NCTD efforts to increase local bus services including a shuttle connection to the airport.

Gillespie Field

- Support efforts to secure funds for construction of the Bradley Avenue/SR 67 interchange project.

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Appendix A
Public and Stakeholder Outreach

Airport Multimodal Access Plan
Public Workshop Materials

Joint public workshops on the preliminary findings of the Regional Aviation Strategic Plan and the Airport Multimodal Access Plan studies were presented to the public at four public workshops held on the following dates.

- September 14, 2010 at SDIA
- September 16, 2010 at McClellan-Palomar Airport
- September 22, 2010 at Gillespie Field
- September 30, 2010 at South County Economic Development Council
- January 26, 2011 at SDIA

Materials presented at the Public Workshops included the following:

1. San Diego International Airport Transit and Roadway Improvements
2. Cross Border Facility Transit Improvements
3. Cross Border Facility Roadway Improvements
4. McClellan-Palomar Transit and Roadway Improvements
5. Gillespie Field Transit and Roadway Improvements
6. Express Bus Service to/from SDIA and CBF
7. 2050 RTP Fact Sheet (English and Spanish) – available at *www.sandag.org*
8. 2050 RTP Comment Cards
9. General SANDAG Fact Sheet (English and Spanish) – available at *www.sandag.org*
10. AMAP Fact Sheet (included)
11. AMAP Comment Form (included)

Summary of Stakeholder Meetings

Date	Meeting Participants	Purpose
March 19, 2010	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to SANDAG Transportation Committee
April 26, 2010	• SANDAG • Airport Authority • MTS • NCTD • Caltrans District 11	– Brainstorming potential ground access improvements
June 8, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Project Initiation – Overview of ongoing RASP and 2030 RTP planning efforts as basis for AMAP study
August 18, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Overview of AMAP, RASP, and Draft 2050 RTP studies. Review of preliminary ground access improvements
September 8, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Overview of AMAP, RASP, and Draft 2050 RTP studies. Review of recommended ground access improvements
October 21, 2010	• SANDAG • City of San Diego Planning Department	– AMAP overview and discussion of potential ground access improvements within Otay Mesa Community Planning area
October 28, 2010	• SANDAG • City of Carlsbad Transportation Department	– AMAP overview and discussion of potential ground access improvements within McClellan-Palomar Airport and local roadways
November 30, 2010	• SANDAG • Airport Authority • Caltrans District 11 • MTS	– Overview of RASP modeling results and Draft 2050 RTP scenarios. AMAP overview of ground access improvements
January 5, 2011	• SANDAG • Airport Authority • Otay-Tijuana Venture LLC (CBF)	– AMAP and CBF overview and discuss potential ground access improvements in Cross Border Terminal (CBT) project area
January 11, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to Airport Authority RASP Board Committee
January 21, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to SANDAG Transportation Committee
February 16, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to City of San Diego Rules Committee
March 2, 2011	• SANDAG • Airport Authority	– Joint Update on RASP/AMAP to County of San Diego Board of Supervisors

Summary of Stakeholder Meetings

Date	Meeting Participants	Purpose
April 13, 2011	• Transit/Roadway Committee (Airport Authority)	– Review draft AMAP improvements
June 17, 2011	• SANDAG Transportation Committee	– Review draft AMAP plan and recommend public release to the Board of Directors
June 24, 2011	• SANDAG Board of Directors	– Release the draft AMAP report for a 60-day public comment period.
July 11, 2011	• SANDAG Cities/County Transportation Advisory Committee	– Overview of the draft plan, request for comments.
August 11, 2011	• SANDAG Regional Planning Technical Working Group	– Overview of the draft plan, request for comments.
August 23, 2011	• Regional Chamber of Commerce Transportation Committee	– Overview of the draft plan, request for comments.
December 19, 2011	• County Airports staff	– Overview of the specific recommendations at McClellan-Palomar Airport
January 19, 2012	• Palomar Advisory Committee	– Overview of the specific recommendations at McClellan-Palomar Airport
January 30, 2012	• County Airports staff	– Overview of the specific recommendations at Gillespie Field
March 16, 2012	• SANDAG Transportation Committee	– Overview of specific recommendations, recommend to Board they approve
March 23, 2012	• SANDAG Board of Directors	– Overview; consideration of final approval

Draft Airport Multimodal Accessibility Plan Public Comments and Responses

June 24, 2011 through August 24, 2011

Date	Individual/ Organization	Name	Comment	Response
08/15/2011	Individual	Joyce Hassell	Looking over the information, it is not clear how trains will be able to get to the airport. I like to take the Coaster but the public bus is not on time nor has room for luggage. At least while construction is going on, provide an airport shuttle so people can be encouraged to take public transportation to the airport.	The COASTER will stop at the future Airport Intermodal Transportation Center adjacent to the north side of the airport. A shuttle bus in the near term and possibly a people mover in the future will be available to connect passengers between the ITC and airport terminals.
08/11/2011	Individual	Doug McKennon	I would like to offer another proposal. Add a people mover automatic circular loop that would connect Old Town, Santa Fe Train/trolley area and all three current terminals at the airport. That way you have a feeder system coming from the north to Old Town and another feeder system coming from the south from San Diego/Mexico to Santa Fe Train/trolley area. If necessary, future terminals could easily be connected. Parking structures could be added to Old Town and the Santa Fe Train/trolley area for cars to park without taking up space at the Airport.	Dedicated systems such as your suggestion were not evaluated as part of this effort due mainly to their expense and lack of flexibility. Rather, improvements that take advantage of the region's past transportation investments were identified. For example, an Airport Intermodal Transportation Center adjacent to the existing rail corridor is identified as the rail improvement for San Diego International Airport. Service by both existing commuter and intercity rail services is an option, as are connections from local bus and future Bus Rapid Transit, as well as future high-speed passenger rail. With a robust transit hub, the need for parking would be minimized.

Draft Airport Multimodal Accessibility Plan Public Comments and Responses

June 24, 2011 through August 24, 2011

Date	Individual / Organization	Name	Comment	Response
08/12/2011	Individual	Robert G. Baker	Unless you provide for direct access for cars from Interstate 5 to the terminals I consider the airport access totally unacceptable. Every major airport I have visited has direct freeway access. Access on the city street system is far too time consuming and inefficient. Any funds available to spend on trolley or bus access should be diverted to improving automobile access to the terminals. The problem with all modes of access on the north side is that passengers have to heft luggage onto a shuttle and off the shuttle to the terminal entrance. Even carry-on that is rolled is a hassle. Presently one gets dropped off at the entrance and rolls to the selected gate. I suggest a ramp off of Pacific Highway that curves around to the main terminal without using any surface streets. Multi-modal could use the same ramp.	Direct access from Interstate 5 is included in the draft report, however, not with direct access to the existing terminals but to the Airport Intermodal Transportation Center, consistent with the San Diego County Regional Airport Authority's *Destination Lindbergh* plan.
08/18/2011	Individual	Walter Brewer	Question # 1), Do you agree the principal objective for airport ground access is to provide the large majority of passengers with the most direct fast convenient access possible to aircraft at gates? (Compatible with efficient flight operations of course.) I suggest San Diego International airport is one of the country's most convenient and fast for the large majority of passengers. There is direct access to convenient parking, and a short walk to three conveniently separated terminals. (Construction periods ignored of course.)Bus, taxis, and vans provide virtually curbside service to terminals. Question 2), Why does the Airport Multimodal Access Plan eliminate this and raise the following: a), Complicating access by all autos, taxis, and vans to a single terminal across the airport, requiring a transfer by another mode back to where terminals are now? b), Multimodal Old Town Transit Center handles about 12,000 passenger movements daily at a fraction of the proposed facilities' complexities and cost. Extrapolating from the current about 1 percent, do you project mass transit use to approach OTTC capability? c), For the modes of mass transit listed, and expected volume, why is an expensive multimodal facility and pedestrian bridge needed? d), Have you considered an express bus from OTTC to SDIA, possible with modes additions at OTTC as an alternative to the multimodal transit center? If not, why not?	We agree, however, it is a regional priority to design transportation systems in the future that offer competitive choices among all modes seeking to access a major regional facility such as SDIA. The draft AMAP builds upon past studies that call for a multimodal approach with direct access ramps from Interstate 5, an Airport Intermodal Transportation Center with access from the region's commuter, intercity, and future high-speed rail lines, and convenient bus connections. One such report, *Destination Lindbergh*, estimated as much as 13 percent mode share for public transportation. Part of the future planning for the Airport ITC will be the study of potential local bus connections as you suggest.

Draft Airport Multimodal Accessibility Plan Public Comments and Responses

June 24, 2011 through August 24, 2011

Date	Individual / Organization	Name	Comment	Response
			Question # 3), Why is the terminal for the proposed California High Speed Rail located at the airport? a), The large majority of HSR users would seem to come from more central locations in the region, and have very little interaction with air travel at SDIA. Please show HSR user projections that may say otherwise. b), Wouldn't one of several other more central locations for HSR that also have direct transfer connection so the mass transit network be more useful? Question 4), The RASP states; full build out of the ITC and north side terminal has no effect on suppressed demand which limits SDIA effectiveness by 2025 or so. As the Agency responsible for access, has a comparison been made with a Plan to provided improved access to the current expanded terminals by routing the planned ramp from Interstate-5 directly to the current terminal locations? In addition to relief of Harbor Dr. traffic, and help develop property to the south, with added parking, including rentals, this would preserve current simple convenient air passenger access. a), if so, has a cost estimate for this option been prepared? How does it compare with AMAP as proposed? b), If not, what are the quantitative reasons for rejection? c), Has a Plan like this been described and discussed with stakeholders and the public; at least as an option to AMAP? d), Recognizing insufficient land for a taxiway on the north side of the runway a small terminal might be desired if air passenger volume approaches extreme estimates... Assuming care in choosing flight schedules from the north side terminal, what numerical impact on daily flight operations would be expected? Question 5), This planning timescale reaches to 2050 at least. In that period extended versions of the automated personal "podcars" now operating at Heathrow airport in England could deliver passengers directly to airport terminals, or possibly gate areas; security needs recognized. This also would reduce need for current access modes, traffic on Harbor Dr. and in addition reduce parking needs. In multiple community locations, pod access terminals would be in high volume use areas, including those with mass transit access.	The California High-Speed Rail Authority has studied two alternative terminus locations for high-speed trains in the San Diego region - Qualcomm Stadium and the Santa Fe Depot. Engineering and service reasons are cited in the Authority's Alternatives Analysis report, released in March 2011, for why these locations should be dropped from further study. Impacts of daily flight operations were not part of the AMAP scope of work. The planning horizon for AMAP is 2030/2035, consistent with the RASP, and therefore, future technologies such as podcars were not evaluated as part of this scope of work. However, future Regional Transportation Plans, as was the case with the 2008 and 2011 RTPs, will complete an evaluation of future transportation technologies.

Draft Airport Multimodal Accessibility Plan Public Comments and Responses

June 24, 2011 through August 24, 2011

Date	Individual / Organization	Name	Comment	Response
			a), Has a Plan to evaluate and phase in this form of access been prepared? b), If not what are reasons for not doing so? c), What additional information and authorizations are needed to install and operate at least one demonstration facility?	
08/12/2011	Individual	Leah Patti Martin	Thank you for receiving our comments regarding the Airport Multimodal Accessibility Plan. I have a suggestion that addresses two safety issues: a Lindbergh Freeway connecting 8 at Hotel Circle with the proposed transportation center on the north side of Lindbergh Field. The safety issues are avoiding commuter gridlock on 5/PCH and permitting faster evacuations in case of fires along 15. The proposed Lindbergh Freeway allows faster commute times for taxis, ambulances, and city buses by separating the airport bound traffic on 8 west from the other westbound traffic headed towards Sea World, UCSD, or Del Mar. The Sunset Cove Stage is already a security risk without PCH "carmaggedon." If some of the traffic could be directed over PCH and Washington Street, north and east, PCH and 5 wouldn't be the only escape routes. Putting on/off ramps near UCSD Medical Center would be useful. The dollar value of safety is not easily calculated. A toll could be charged those who are parking at the airport to offset some of the cost. Tolls encourage people-who-want-to-save-money to use public transportation without holding up the creation of jobs. Qualcomm Stadium will still be an attraction of some sort, even if we do build a new Charger Stadium down-town. The traffic won't diminish even with increased use of public transportation because population will increase and tourism. I hear SANDAG is considering spending $345 million SR-125. I think it would be smarter to lease the SR-125 to another private company. Let them take in the tolls, pay the fifty toll-taker salaries and pensions, and make a profit. SANDAG will still have the $345 million, the lease payments, and TransNet.	Improved connectivity from Interstate 5 to an Airport Intermodal Transportation Center adjacent to the airport is included in the draft plan. The study did not evaluate additional freeway improvements beyond those called for in the 2050 RTP, which includes I-8 operational improvements.

Appendix B
AMAP Modeling Results

AMAP Modeling Results

Background

SANDAG has produced transportation forecasts since 1981. The SANDAG forecasts are used by policymakers and the general public, as well as by public and private agencies throughout the region. For example, SANDAG uses the forecasts to develop the Regional Transportation Plan (RTP), the Regional Comprehensive Plan (RCP), and the Air Quality Conformity Plan. Local jurisdictions use the forecasts for general plan updates and capital facilities planning, including environmental impact reports (EIR), as well as for local transportation planning. The SANDAG transportation model provides an analytical platform so that different alternatives and inputs can be evaluated in an iterative and controlled environment. SANDAG uses an enhanced four-step transportation model. Four-step models have been the standard in transportation modeling since the late 1950s, and they are used by nearly every Metropolitan Planning Organization (MPO) in the United States for the development of transportation plans, corridor studies, Federal Transit Administration New Starts proposals, and air quality analyses.

For assisting in evaluating the proposed transportation improvements in the AMAP, the SANDAG transportation model was used both to identify future travel patterns and transit ridership forecasts. The report identifies the average daily traffic associated with the particular roadway facility in 2030, based in part on the aviation forecasts generated through the RASP. Table B-1 shows the initial transit ridership forecasts that were generated for both the modified local transit routes and the proposed express bus services discussed in the plan and completed for the 2050 RTP.

Table B-1
RIDERSHIP FORECASTS FOR PROPOSED BUS IMPROVEMENTS
(Average Daily Weekday Riders Before/After AMAP Improvements)

Description	*2050 (RTP)*	*2050 (RTP with AMAP)*
Express Bus to Airports[1]:		
H St Trolley Station to CBF	-	8
SDIA / Airport ITC to CBF	-	104
Escondido to CBF via I-15	-	967
Escondido to SDIA / Airport ITC via I-15	-	829
McClellan Palomar to SDIA / Airport ITC via I-5	-	409
Local Bus:		
McClellan Palomar to Poinsettia COASTER Station[2]	333	1,082
CBF to Otay Mesa and Iris Avenue Trolley[2]	2,317	9,222
BRT From El Cajon Gillespie Field Trolley Station to UTC	985	978
BRT From El Cajon to Gillespie Field Trolley Station to Sorrento Mesa	1,364	1,458

[1] $8 one way fare and $8 daily parking charge assumed.
[2] Increases in ridership not solely attributable to airport riders.
– not available; route not included prior to AMAP.

Overall, the express bus services from both the I-5 and I-15 corridors performed fairly well. The express routes from both the H Street Trolley Station and SDIA/Airport ITC to the CBF compete with other transit modes with lower fares such as the San Diego Trolley, and therefore, did not perform as well. For the modifications proposed to the local bus services, increases were forecast for the McClellan-Palomar and CBF routes, although not all of this increase can be attributable solely to airport passengers as route changes were beneficial to riders overall. The proposed modifications to the BRT services to more closely serve Gillespie Field were mixed, with ridership on one route decreasing and slightly increasing on the other. Further analysis of these changes is warranted.

While the modeling effort provided another planning tool to assist in the ground access recommendations made in the report, the San Diego County Regional Airport Authority has completed more extensive analysis of both air passenger demand volume and passenger density per acre for the express bus services proposed for service directly to SDIA. Using both sets of information, the recommended services are the I-15 to SDIA, I-5 to SDIA, and I-15 to CBF express bus routes. These corridors were included in the 2050 RTP as a result.

Context

It is important to note that SANDAG's transportation model is a regional model and as such has proved very accurate over the years in terms of overall highway travel and transit ridership forecasts. When measuring specific trips such as transit ridership to airports, there are several assumptions that SANDAG's 4-step regional model does not adequately address such as the various parking choices available around the airport, the availability of mode choices such as shuttles and taxis, and the lack of current transit options that can be used to calibrate the transit mode choice for airport trips.

Appendix C
Ground Access Alternatives/Improvements at Airports Not Carried Forward

Ground Access Alternatives/Improvements at Airports Not Carried Forward

At the early stages of the AMAP, preliminary ground access improvements were developed for the following airports that were eventually dropped from consideration from the RASP and AMAP process:

- Brown Field Municipal Airport
- Montgomery Field
- Ramona Airport

These airports were determined to have physical, operational, environmental, or other significant constraints that hindered their ability to meet the long-term needs of the region were dropped from further study in the RASP. Initial evaluation of the ground access improvements considered for these airports which was completed prior to these facilities being dropped from further study, is summarized below.

Brown Field

Several ground access improvements were considered for Brown Field Municipal Airport early in the project development. These improvements were to coincide with RASP Scenarios 1D, 4B and 5A. All improvements to Brown Field Municipal Airport were eventually dropped from the RASP due to its location, potential for public opposition and the infeasibility of precision instrument approaches. The roadway and transit improvements considered in the early part of the AMAP study process are summarized below:

Realign Proposed Rapid Bus Route 638

The proposed Rapid Bus Route was to be realigned to continue easterly on Otay Mesa Road as opposed to traveling south on Heritage Road. There would be a stop along Otay Mesa Road with a pedestrian overcrossing providing access to Brown Field Municipal Airport.

Increase the Service on local MTS Route 905

Increasing the service frequency on the local bus route 905 was evaluated as a way to provide more frequent service between a proposed LRT station near SR 125 and Otay Mesa Road and the terminal.

Construct Additional Entrance

An additional entrance to Brown Field Municipal Airport was considered at Britannia Boulevard. This additional entrance would provide more direct access to and from Brown Field. It also would be consistent with the Brown Field Airport Master Plan.

Widening of Heritage Road and La Media Road

Both Heritage Road and La Media Road were to be widened from 2 to 4 lanes between Otay Mesa Road and Pogo Row. These roadway improvements would provide better access to the proposed industrial development to the north of Brown Field Municipal Airport.

Improvements to Pogo Row

Pogo Row which runs east and west just north of Brown Field Municipal Airport was to be realigned and extended to connect Heritage Road and La Media Road. This widening was proposed to improve circulation around Brown Field Municipal Airport and provide access to the proposed improvements industrial to the north of Brown Field Municipal Airport.

Montgomery Field

Early in the development of the RASP and the AMAP, construction of northbound ramps along Aero Drive at either SR 163 or I-805 was considered. As with other airports in the San Diego region, runway length, the ability to lengthen the runways, as well as political and or public opposition, restrict commercial use of Montgomery Field. Additionally, the capacity for general aviation use also surpasses demand. For these reasons no major improvements were identified at Montgomery Field that warranted ground access improvements, therefore the identified ground access improvements were dropped from further study.

Ramona Airport

Early in the development of both the RASP and AMAP, ground access improvements discussed for the Ramona Airport that included both roadway and transit access changes. Ramona Airport is primarily reached via an undivided, two-lane road (Montecito) – the two ground access improvements under consideration were as follows:

- Widen Montecito Road to four lanes
- Extend local rural bus service from Ramona Station to the Ramona Airport.

The Ramona Airport is not located near a population/economic base to provide commercial service. Additionally, the general aviation capacity exceeds the demand. For these reasons, no significant improvements to the Ramona Airport were identified in the RASP. Similarly, after review of the RASP and

consultation with the AMAP stakeholder working group, no ground access improvements were carried forward in the AMAP.

Appendix D
Preliminary Capital and Operating Cost Estimates and Phasing

Preliminary Capital and Operating Cost Estimates and Project Phasing

Conceptual, planning level cost estimates for both capital and operating costs were developed to help inform and evaluate the various AMAP roadway and transit ground access improvements. The following discussion provides information on the development of costs and assumptions.

Capital Cost Estimates

Preliminary, planning-level capital costs estimates for the various ground access improvements were developed using costs from similar regional roadway and transit projects, including the following:

SANDAG Green Line Extension: The costs for demolition and reconstruction of the station platforms and shelters from the Gaslamp Quarter Trolley station reconstruction were used to determine the costs for the Gillespie Field Trolley Station.

SANDAG SR 15 Mid-City BRT: This project includes freeway widening, ramp improvements and BRT stations along SR 15. Unit costs from this project were used to determine conceptual level costs for BRT stations, ramp improvements and pedestrian crossings for AMAP efforts.

SANDAG SR 15 Mira Mesa DAR and Transit Station: This project includes the construction of direct access ramps, arterial widening and a new transit station with parking. Unit costs from this project were used to help determine AMAP proposed transit and arterial improvement costs.

All capital costs include a 35 percent contingency to account for the limited level of analysis and detail for these planning level estimates. Planning level cost estimate sheets for the proposed projects are provided immediately following the cost estimate summary table for each airport.

Transit Costs:

Preliminary-level transit operating costs were estimated using a current cost per mile price and anticipated route distance.

Direct Service Cost Estimate Assumptions:

- 30 minute headways.
    - Intermodal Transportation Center service between 4:30AM and 1:00AM.
    - Cross Border Facility service provided 24 hours per day. 60 minute headways between 12:00AM and 4:00AM.
- Based on maximum service (serving 100% of aircraft seats). This represents bus service during all currently scheduled arrival and departure flights.
- Operating cost per mile based on MTS FY11 rate.

- Average travel time based on an estimated 35 MPH average speed.
- 5 minute turnaround times at each stop (minimum).
- Buses purchased.
- One extra bus per route.

Local Transit Service Cost Estimate Assumptions:

- Operational costs only include additional distance added to the proposed route.
- No additional buses needed.
- Operational cost per mile based on MTS FY11 rate.
    - Route 445
        - 20 minute headways during peak hours.
        - 60 minute headways during off-peak hours.
        - No nighttime service.
    - Route 661
        - 10 minute headways during peak hours.
        - 10 minute headways during off-peak hours.
        - 30 minute headways during nighttime service.

Organization of Cost Estimate Information

The following cost data covering the AMAP capital and operational costs are included in this appendix.

- *AMAP Project Costs*: Summarizes the capital and operational costs for ground access improvements at each airport facility.
- *Preliminary Cost Summary Sheets*: Individual cost data sheets for roadway ground access improvements at the CBT, the McClellan-Palomar Airport and Gillespie Field.
- *AMAP Estimated Express Bus Service Costs*: Summarizes the conceptual operating costs for the proposed express bus service routes.
- *AMAP Estimated Bus Route Modifications Costs*: Summarizes the added conceptual operating costs for the proposed modified bus routes 445 and 661.

AMAP Project Costs (2010 Dollars)

San Diego International Airport Transit and Roadway Improvements

PROJECT	DESCRIPTION	Major Features	COST ($ millions)	ANNUAL TRANSIT OPERATION COST ($ millions)	RTP Phase [1]	APPLICABLE RASP SCENARIO
1	Airport Intermodal Transportation Center with Pedestrian Bridge					
	1) Opening Day Scenario	Intermodal Transportation Center with Commuter Rail, BRT, local bus and roadway access to SAN	$164.0 [2]		2020	1A and 3B
	2) High Speed Train	Addition of High Speed Train facilities & services	TBD	TBD	2035	1A and 3B
2	Trolley Rail Grade Separation	LRT Grade Separation from just north of Noelle St to the Middletown Trolley Station	$551.6 [2]		2035	1A and 3B
3	Heavy Rail Grade Separation	Rail grade separation to accommodate both LRT and heavy rail from Witherby St to Laurel St	$850.0 [2]		2035	1A and 3B
4	Conceptual I-5 Direct Access Ramps	Direct access ramps from northbound and southbound Interstate 5	TBD		2035	1A and 3B

1. 2050 Regional Transportation Plan(RTP) Revenue Phases. "2020" and "2035" are phases of the draft constrained plan. Improvements in the draft unconstrained plan are labeled accordingly.
2. Costs from SANDAG AIRPORT INTERMODAL TRANSIT CENTER (ITC)-PHASE 1 FINAL REPORT 2010.
3. Includes 35% construction contingency cost.

AMAP Project Costs (2010 Dollars)

Cross Border Facility (CBF) Transit and Roadway Improvements

PROJECT	DESCRIPTION	Major Features	COST ($ millions)	ANNUAL TRANSIT OPERATION COST ($ millions)	RTP Phase [1]	APPLICABLE RASP SCENARIO
1	Increase SR 905/Britannia Interchange Capacity	Add a single lane to both westbound ramps and the eastbound entrance ramp, construct retaining walls along widened ramps	$9.3 [4]		2035	2B and 2C
2	Widening of Siempre Viva Road from 4 to 6 lanes and construction of new roadway between CBF and La Media Rd [2]	Widening of Siempre Viva Road, construction of new roadway, signal modifications at CBF entrance	$5.2 [4]		2035	2B and 2C
3	Widening of Britannia from SR 905 to Siempre Viva Rd [2]	Widening of Britannia from 4 to 6 lanes	$2.5 [4]		2035	2B and 2C
4	Modify proposed local bus route (RTP Route 661)	Modify local bus route to provide access to the CBF (10 minute peak and off peak headway, 30 minute night service headway)	$0.3 [4]	$0.1	2020	2B and 2C
5,6	High Speed Train (HST) service with CBF station	HST with commuter rail overlay along I-5 Corridor fro	$3,557.0 [3]		Unconstrained	2B and 2C

1. 2050 Regional Transportation Plan(RTP) Revenue Phases. "2020" and "2035" are phases of the draft constrained plan. Improvements in the draft unconstrained plan are labeled accordingly.

2. OTAY MESA PUBLIC FACILITIES FINANCING PLAN 2007

3. SAN DIEGO HIGH-SPEED TRAIN (HST) FEASIBILITY STUDIES, SANDAG 2010

4. Includes 35% construction contingency cost

AMAP Project Costs (2010 Dollars)

McClellan-Palomar Airport Transit and Roadway Improvements

PROJECT	DESCRIPTION	Major Features	COST ($ millions)	ANNUAL TRANSIT OPERATION COST (millions)	RTP Phase [1]	APPLICABLE RASP SCENARIO[4]
1	Widen Palomar Airport Road from 6 to 8 thru lanes between I-5 and Hidden Valley Rd.	Construct 1 thru lane in each direction and maintain current turn and bicycle lane configuration, construct retaining walls along Palomar Airport Rd	$15.7 [2]		2020	1C and 4A
2	Additional airport access at Owens Avenue and improvements to the Owens Ave/Camino Vida Roble intersection.	Construct new access road along existing parking, widen Owens Ave and Camino Vida Roble to accommodate turn lanes, signalize Owens Ave/Camino Vida Roble intersection and construct retaining walls	$3.5 [2]		2020	1C and 4A
3	Modification of Route 445 to provide service to the terminal and the Carlsbad Poinsettia Train Station.	Operational modifications to future Route 445 (20 minute peak headway , 60 minute off-peak headway, no night service)	$0.25 [2]	$0.23 [3]	2020	1C and 4A

1. 2050 Regional Transportatin Plan(RTP) Revenue Phases. "2020" and "2035" are phases of the draft constrained plan. Improvements in the draft unconstrained plan are labeled accordingly.
2. Includes 35% construction contingency cost
3. Additional cost for route modification
4. AMAP improvements based on RASP scenario 1C.

AMAP Project Costs (2010 Dollars)

Gillespie Field Transit and Roadway Improvements

PROJECT	DESCRIPTION	Major Features	COST ($ millions)	ANNUAL TRANSIT OPERATION COST (millions)	RTP Phase [1]	APPLICABLE RASP SCENARIO
1	Relocate Trolley Station	New trolley station across from airport entrance along Marshall Ave to replace the existing Gillespie Field Trolley Station, parking lot and pedestrian bridge over Forrester Creek Channel	$6.4 [3]		Unconstrained	4C
2	Bus Rapid Transit (BRT) Station	BRT Station with access to future trolley station	$0.6 [3]		Unconstrained	4C
3	Intersection Improvements	Signalization of the airport entrance along Marshall Avenue	$0.2 [3]		2035	4C
4	Modification of proposed BRT Routes [2]	Divert proposed BRT (RTP Routes 90, 870 and/or 890) from Cuyamaca St to travel along Marshall Ave between W. Bradley Ave and Weld Blvd.			Unconstrained	4C
5	Modification of Bradley Ave/SR 67 Interchange	Widen the Bradley Overcrossing from 2 to 6 lanes (including turn lanes), widen Bradley Ave from 2 thru lanes to 4 thru lanes from Graves to Mollison Ave, reconstruct southbound and northbound ramps	$30 [4]		2020	4C

1. 2050 Regional Transportation Plan(RTP) Revenue Phases. "2020" and "2035" are phases of the draft constrained plan. Improvements in the draft unconstrained plan are labeled accordingly.
2. No net, capital or operational cost increase.
3. Includes 35% construction contingency cost
4. 2007 Bradley Ave/SR 67 Project Report

Widen Britannia Blvd to 6 Lanes
Roadway Improvements for CBF access
Preliminary Design - Cost Opinion Summary

2010 Dollars

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOTAL
1	**PAVEMENT REMOVAL**	sq.yd	2,400		$7.63	$19,000
2	**PAVEMENT**					
	Mainline	sq.yd			$177.00	$0
	Ramp	sq.yd			$53.0	$0
	Arterial	sq.yd	17100		$37.0	$633,000
					Subtotal Pavement Costs	$652,000
3	**EARTHWORK**	L.S.	12	% of Items 1-2	N/A	$79,000
4	**DRAINAGE**	L.S.	15	% of Items 1-2	N/A	$98,000
5	**EROSION CONTROL**	L.S.	2	% of Items 1-2	N/A	$14,000
6	**TRAFFIC CONTROL**	L.S.	25	% of Items 1-2	N/A	$163,000
7	**LIGHTING**	L.S.	6	% of Items 1-2	N/A	$40,000
8	**SIGNING/MARKINGS**	L.S.	6	% of Items 1-2	N/A	$40,000
9	**TYPICAL UTILITIES**	L.S.	15	% of Items 1-2	N/A	$98,000
10	**INCIDENTAL**	L.S.	20	% of Items 1-2	N/A	$131,000
11	**LANDSCAPING**	L.S.	10	% of Items 1-2	N/A	$66,000
12	**BICYCLE FACILITIES**	L.S.	2	% of Items 1-2	N/A	$14,000
13	**TRAFFIC SIGNALS**	E.A.	0		$200,000	$0
TOTAL ROADWAY ITEMS COST (Items 1-13)						**$1,395,000**
14	**RETAINING WALL**					
	MSE	sq. ft			$133.00	$0
	Tangent Pile	sq. ft			$239.00	$0
					Subtotal Retaining Wall	$0
15	**RETAINING WALL INCIDENTALS**	L.S.	15	% of Retaining Wall	N/A	$0
TOTAL RETAINING WALL COSTS (Items 14-15)						**$0**
TOTAL ROADWAY & RETAINING WALL COSTS (Items 1-15)						**$1,395,000**
16	**STRUCTURES**					
	Bridge Removal	sq. ft			$27.00	$0
	New Bridge	sq. ft			$212.00	$0
	Rehabilitation	sq. ft			$106.00	$0
	Bridge Widening	sq. ft			$212.00	$0
					Subtotal Structure Costs	$0
17	**STRUCTURAL INCIDENTAL**	L.S.	15	% of Structures	N/A	$0
TOTAL STRUCTURE COSTS (Items 16-17)						**$0**
18	**RAILROAD RELOCATION**	MILE		0	$2,120,000.00	$0
19	**CONTINGENCY**	L.S.	35%	% of items 1-18	N/A	$ 489,000
TOTAL CONSTRUCTION COSTS (Items 1-19)						**$1,884,000**
20	**ENGINEERING**					
	Preliminary Design & PSE	L.S.	12	% Items 1-19	N/A	$227,000
	Environmental Mitigation	L.S.	10	% Items 1-19	N/A	$189,000
	Final Engineering	L.S.	10	% Items 1-19	N/A	$189,000
TOTAL ENGINEERING COSTS						**$605,000**
TOTAL PROJECT COST						**$ 2,500,000**

Widen Siempre Viva Rd to 6 Lanes
Roadway Improvements for CBF access
Preliminary Design - Cost Opinion Summary

2010 Dollars

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOTAL
1	**PAVEMENT REMOVAL**	sq.yd			$7.63	$0
2	**PAVEMENT**					
	Mainline	sq.yd			$177.00	$0
	Ramp	sq.yd			$53.0	$0
	Arterial	sq.yd	34000		$37.0	$1,258,000
					Subtotal Pavement Costs	$1,258,000
3	**EARTHWORK**	L.S.	12	% of Items 1-2	N/A	$151,000
4	**DRAINAGE**	L.S.	15	% of Items 1-2	N/A	$189,000
5	**EROSION CONTROL**	L.S.	2	% of Items 1-2	N/A	$26,000
6	**TRAFFIC CONTROL**	L.S.	25	% of Items 1-2	N/A	$315,000
7	**LIGHTING**	L.S.	6	% of Items 1-2	N/A	$76,000
8	**SIGNING/MARKINGS**	L.S.	6	% of Items 1-2	N/A	$76,000
9	**TYPICAL UTILITIES**	L.S.	15	% of Items 1-2	N/A	$189,000
10	**INCIDENTAL**	L.S.	20	% of Items 1-2	N/A	$252,000
11	**LANDSCAPING**	L.S.	10	% of Items 1-2	N/A	$126,000
12	**BICYCLE FACILITIES**	L.S.	2	% of Items 1-2	N/A	$26,000
13	**TRAFFIC SIGNALS**	E.A.	1		$200,000	$200,000
TOTAL ROADWAY ITEMS COST (Items 1-13)						**$2,884,000**
14	**RETAINING WALL**					
	MSE	sq. ft	0		$133.00	$0
	Tangent Pile	sq. ft			$239.00	$0
					Subtotal Retaining Wall	$0
15	**RETAINING WALL INCIDENTALS**	L.S.	15	% of Retaining Wall	N/A	$0
TOTAL RETAINING WALL COSTS (Items 14-15)						**$0**
TOTAL ROADWAY & RETAINING WALLCOSTS (Items 1-15)						**$2,884,000**
16	**STRUCTURES**					
	Bridge Removal	sq. ft			$27.00	$0
	New Bridge	sq. ft			$212.00	$0
	Bridge Rehabilitation	sq. ft			$106.00	$0
	Bridge Widening	sq. ft			$212.00	$0
					Subtotal Structure Costs	$0
17	**STRUCTURAL INCIDENTAL**	L.S.	15	% of Structures	N/A	$0
TOTAL STRUCTURE COSTS (Items 16-17)						**$0**
18	**RAILROAD RELOCATION**	MILE			$2,120,000.00	$0
19	**CONTINGENCY**	L.S.	35%	% of items 1-18	N/A	$ 1,010,000
TOTAL CONSTRUCTION COSTS (Items 1-19)						**$3,894,000**
20	**ENGINEERING**					
	Preliminary Design & PSE	L.S.	12	% Items 1-19	N/A	$468,000
	Environmental Mitigation	L.S.	10	% Items 1-19	N/A	$390,000
	Final Engineering	L.S.	10	% Items 1-19	N/A	$390,000
TOTAL ENGINEERING COSTS						**$1,248,000**
TOTAL PROJECT COST						**$5,200,000**

Increase Capacity of Ramps at SR 905/Britannia Blvd Interchange
Widening of both EB ramps and the WB entrance ramp
Preliminary Design - Cost Opinion Summary

2010 Dollars

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOTAL
1	**PAVEMENT REMOVAL**	sq.yd	3,600		$7.63	$28,000
2	**PAVEMENT**					$0
	Mainline	sq.yd			$177.00	$0
	Ramp	sq.yd	5,400		$53.0	$287,000
	Arterial	sq.yd			$37.0	$0
					Subtotal Pavement Costs	$315,000
3	**EARTHWORK**	L.S.	12	% of Items 1-2	N/A	$38,000
4	**DRAINAGE**	L.S.	15	% of Items 1-2	N/A	$48,000
5	**EROSION CONTROL**	L.S.	2	% of Items 1-2	N/A	$7,000
6	**TRAFFIC CONTROL**	L.S.	25	% of Items 1-2	N/A	$79,000
7	**LIGHTING**	L.S.	6	% of Items 1-2	N/A	$19,000
8	**SIGNING/MARKINGS**	L.S.	6	% of Items 1-2	N/A	$19,000
9	**TYPICAL UTILITIES**	L.S.	15	% of Items 1-2	N/A	$48,000
10	**INCIDENTAL**	L.S.	20	% of Items 1-2	N/A	$63,000
11	**LANDSCAPING**	L.S.	10	% of Items 1-2	N/A	$32,000
12	**BICYCLE FACILITIES**	L.S.	2	% of Items 1-2	N/A	$7,000
13	**TRAFFIC SIGNALS**	E.A.	0		$200,000	$0
TOTAL ROADWAY ITEMS COST (Items 1-13)						**$675,000**
14	**RETAINING WALL**					
	MSE	sq. ft	0		$133.00	$0
	Caltrans Standard Ret Wall (Spread Footing)	LF	5,240		$750.00	$3,930,000
					Subtotal Retaining Wall	$3,930,000
15	**RETAINING WALL INCIDENTALS**	L.S.	15	% of Retaining Wall	N/A	$590,000
TOTAL RETAINING WALL COSTS (Items 14-15)						**$4,520,000**
TOTAL ROADWAY & RETAINING WALLCOSTS (Items 1-15)						**$5,195,000**
16	**STRUCTURES**					
	Bridge Removal	sq. ft			$27.00	$0
	New Bridge	sq. ft			$212.00	$0
	Bridge Rehabilitation	sq. ft			$106.00	$0
	Bridge Widening	sq. ft			$212.00	$0
					Subtotal Structure Costs	$0
17	**STRUCTURAL INCIDENTAL**	L.S.	15	% of Structures	N/A	$0
TOTAL STRUCTURE COSTS (Items 16-17)						**$0**
18	**RAILROAD RELOCATION**	MILE			$2,120,000.00	$0
19	**CONTINGENCY**	L.S.	35%	% of items 1-18	N/A	$ 1,819,000
TOTAL CONSTRUCTION COSTS (Items 1-19)						**$7,014,000**
20	**ENGINEERING**					
	Preliminary Design & PSE	L.S.	12	% Items 1-19	N/A	$842,000
	Environmental Mitigation	L.S.	10	% Items 1-19	N/A	$702,000
	Final Engineering	L.S.	10	% Items 1-19	N/A	$702,000
TOTAL ENGINEERING COSTS						**$2,246,000**
TOTAL PROJECT COST						**$9,300,000**

Palomar Airport Road Widening
Add 1 lane in each direction from I-5 to Hidden Valley Road
Preliminary Design - Cost Opinion Summary

2010 Dollars

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOTAL
1	**PAVEMENT REMOVAL**	sq.yd	14,200		$7.63	$109,000
2	**PAVEMENT**					
	Mainline	sq.yd			$177.00	$0
	Ramp	sq.yd	0		$53.0	$0
	Arterial	sq.yd	33,800		$37.0	$1,251,000
					Subtotal Pavement Costs	$1,360,000
3	**EARTHWORK**	L.S.	12	% of Items 1-2	N/A	$164,000
4	**DRAINAGE**	L.S.	15	% of Items 1-2	N/A	$204,000
5	**EROSION CONTROL**	L.S.	2	% of Items 1-2	N/A	$28,000
6	**TRAFFIC CONTROL**	L.S.	25	% of Items 1-2	N/A	$340,000
7	**LIGHTING**	L.S.	6	% of Items 1-2	N/A	$82,000
8	**SIGNING/MARKINGS**	L.S.	6	% of Items 1-2	N/A	$82,000
9	**TYPICAL UTILITIES**	L.S.	15	% of Items 1-2	N/A	$204,000
10	**INCIDENTAL**	L.S.	20	% of Items 1-2	N/A	$272,000
11	**LANDSCAPING**	L.S.	10	% of Items 1-2	N/A	$136,000
12	**BICYCLE FACILITIES**	L.S.	2	% of Items 1-2	N/A	$28,000
13	**TRAFFIC SIGNALS**	E.A.	0		$200,000	$0
TOTAL ROADWAY ITEMS COST (Items 1-13)						**$2,900,000**
14	**RETAINING WALL**					
	MSE	sq. ft	0		$133.00	$0
	Caltrans Standard Ret Wall (Spread Footing)	LF	6,795		$750.00	$5,097,000
					Subtotal Retaining Wall	$5,097,000
15	**RETAINING WALL INCIDENTALS**	L.S.	15	% of Retaining Wall	N/A	$765,000
TOTAL RETAINING WALL COSTS (Items 14-15)						**$5,862,000**
TOTAL ROADWAY & RETAINING WALL COSTS (Items 1-15)						**$8,762,000**
16	**STRUCTURES**					
	Bridge Removal	sq. ft			$27.00	$0
	New Bridge	sq. ft			$212.00	$0
	Rehabilitation	sq. ft			$106.00	$0
	Bridge Widening	sq. ft			$212.00	$0
					Subtotal Structure Costs	$0
17	**STRUCTURAL INCIDENTAL**	L.S.	15	% of Structures	N/A	$0
TOTAL STRUCTURE COSTS (Items 16-17)						**$0**
18	**RAILROAD RELOCATION**	MILE		0	$2,000,000.00	$0
19	**CONTINGENCY**	L.S.	35	% of items 1-18	N/A	$ 3,067,000
TOTAL CONSTRUCTION COSTS (Items 1-19)						**$11,829,000**
20	**ENGINEERING**					
	Preliminary Design & PSE	L.S.	12	% Items 1-19	N/A	$1,420,000
	Environmental Mitigation	L.S.	10	% Items 1-19	N/A	$1,183,000
	Final Engineering	L.S.	10	% Items 1-19	N/A	$1,183,000
TOTAL ENGINEERING COSTS						**$3,786,000**
TOTAL PROJECT COST						**$ 15,700,000**

Aircraft road widening and connection with Owens Ave
New access to McClellan-Palomar airport terminal from Owens Ave
Preliminary Design - Cost Opinion Summary

2010 Dollars

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
1	**PAVEMENT REMOVAL**	sq.yd	10,300	$7.63	$79,000
2	**PAVEMENT**				
	Mainline	sq.yd		$177.00	$0
	Ramp	sq.yd		$53.0	$0
	Arterial	sq.yd	13,000	$37.0	$481,000
				Subtotal Pavement Costs	$560,000
3	**EARTHWORK**	L.S.	12 % of Items 1-2	N/A	$68,000
4	**DRAINAGE**	L.S.	15 % of Items 1-2	N/A	$84,000
5	**EROSION CONTROL**	L.S.	2 % of Items 1-2	N/A	$12,000
6	**TRAFFIC CONTROL**	L.S.	25 % of Items 1-2	N/A	$140,000
7	**LIGHTING**	L.S.	6 % of Items 1-2	N/A	$34,000
8	**SIGNING/MARKINGS**	L.S.	6 % of Items 1-2	N/A	$34,000
9	**TYPICAL UTILITIES**	L.S.	15 % of Items 1-2	N/A	$84,000
10	**INCIDENTAL**	L.S.	20 % of Items 1-2	N/A	$112,000
11	**LANDSCAPING**	L.S.	10 % of Items 1-2	N/A	$56,000
12	**BICYCLE FACILITIES**	L.S.	2 % of Items 1-2	N/A	$12,000
13	**TRAFFIC SIGNALS**	E.A.	1	$200,000	$200,000
TOTAL ROADWAY ITEMS COST (Items 1-13)					**$1,396,000**
14	**RETAINING WALL**				
	MSE	sq. ft	0	$133.00	$0
	Caltrans Standard Ret Wall (Spread Footing)	LF	560	$750.00	$420,000
				Subtotal Retaining Wall	$420,000
15	**RETAINING WALL INCIDENTALS**	L.S.	15 % of Retaining Wall	N/A	$63,000
TOTAL RETAINING WALL COSTS (Items 14-15)					**$483,000**
TOTAL ROADWAY & RETAINING WALLCOSTS (Items 1-15)					**$1,879,000**
16	**STRUCTURES**				
	Bus Shelter	E.A.	1	$50,000.00	$50,000
	New Bridge	sq. ft		$212.00	$0
	Bridge Rehabilitation	sq. ft		$106.00	$0
	Bridge Widening	sq. ft		$212.00	$0
				Subtotal Structure Costs	$50,000
17	**STRUCTURAL INCIDENTAL**	L.S.	15 % of Structures	N/A	$8,000
TOTAL STRUCTURE COSTS (Items 16-17)					**$58,000**
18	**RAILROAD RELOCATION**	MILE		$2,000,000.00	$0
19	**CONTINGENCY**	L.S.	35 % of items 1-18	N/A	$ 678,000
TOTAL CONSTRUCTION COSTS (Items 1-19)					**$2,615,000**
20	**ENGINEERING**				
	Preliminary Design & PSE	L.S.	12 % Items 1-19	N/A	$314,000
	Environmental Mitigation	L.S.	10 % Items 1-19	N/A	$262,000
	Final Engineering	L.S.	10 % Items 1-19	N/A	$262,000
TOTAL ENGINEERING COSTS					**$838,000**
TOTAL PROJECT COST					**$ 3,500,000**

Gillespie Field
New Trolley Station and Parking
Preliminary Design - Cost Opinion Summary

2010 Dollars

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOTAL
1	**PAVEMENT REMOVAL**	sq.yd	10,100		$7.63	$78,000
2	**PAVEMENT**					
	Mainline	sq.yd			$177.00	$0
	Ramp	sq.yd			$53.0	$0
	Arterial	sq.yd	9400		$37.0	$348,000
					Subtotal Pavement Costs	$426,000
3	**EARTHWORK**	L.S.	12	% of Items 1-2	N/A	$52,000
4	**DRAINAGE**	L.S.	15	% of Items 1-2	N/A	$64,000
5	**EROSION CONTROL**	L.S.	2	% of Items 1-2	N/A	$9,000
6	**TRAFFIC CONTROL**	L.S.	25	% of Items 1-2	N/A	$107,000
7	**LIGHTING**	L.S.	6	% of Items 1-2	N/A	$26,000
8	**SIGNING/MARKINGS**	L.S.	6	% of Items 1-2	N/A	$26,000
9	**TYPICAL UTILITIES**	L.S.	15	% of Items 1-2	N/A	$64,000
10	**INCIDENTAL**	L.S.	20	% of Items 1-2	N/A	$86,000
11	**LANDSCAPING**	L.S.	10	% of Items 1-2	N/A	$43,000
12	**BICYCLE FACILITIES**	L.S.	2	% of Items 1-2	N/A	$9,000
13	**TRAFFIC SIGNALS**	E.A.	1		$200,000	$200,000
TOTAL ROADWAY ITEMS COST (Items 1-13)						**$1,112,000**
14	**RETAINING WALL**					
	MSE	sq. ft			$133.00	$0
	Tangent Pile	sq. ft			$239.00	$0
					Subtotal Retaining Wall	$0
15	**RETAINING WALL INCIDENTALS**	L.S.	15	% of Retaining Wall	N/A	$0
TOTAL RETAINING WALL COSTS (Items 14-15)						**$0**
TOTAL ROADWAY & RETAINING WALL COSTS (Items 1-15)						**$1,112,000**
16	**STRUCTURES**					
	Bridge Removal	sq. ft			$27.00	$0
	New Bridge	sq. ft	1,722		$223.00	$385,000
	Rehabilitation	sq. ft			$106.00	$0
	Bridge Widening	sq. ft			$212.00	$0
					Subtotal Structure Costs	$385,000
17	**STRUCTURAL INCIDENTAL**	L.S.	15	% of Structures	N/A	$58,000
TOTAL STRUCTURE COSTS (Items 16-17)						**$443,000**
18	**RAILROAD RELOCATION**	MILE		0	$2,120,000.00	$0
19	**NEW TROLLEY STATION**	LS	0	1	$2,000,000.00	$2,000,000
20	**CONTINGENCY**	L.S.	35%	% of items 1-18	N/A	$ 1,245,000
TOTAL CONSTRUCTION COSTS (Items 1-19)						**$4,800,000**
21	**ENGINEERING**					
	Preliminary Design & PSE	L.S.	12	% Items 1-19	N/A	$576,000
	Environmental Mitigation	L.S.	10	% Items 1-19	N/A	$480,000
	Final Engineering	L.S.	10	% Items 1-19	N/A	$480,000
TOTAL ENGINEERING COSTS						**$1,536,000**
TOTAL PROJECT COST						**$ 6,400,000**

Gillespie Field
BRT along Marshall Ave
Preliminary Design - Cost Opinion Summary

2010 Dollars

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOTAL
1	**PAVEMENT REMOVAL**	sq.yd	200		$7.63	$2,000
2	**PAVEMENT**					
	Mainline	sq.yd			$177.00	$0
	Ramp	sq.yd			$53.0	$0
	Arterial	sq.yd	700		$37.0	$26,000
					Subtotal Pavement Costs	$28,000
3	**EARTHWORK**	L.S.	12	% of Items 1-2	N/A	$4,000
4	**DRAINAGE**	L.S.	15	% of Items 1-2	N/A	$5,000
5	**EROSION CONTROL**	L.S.	2	% of Items 1-2	N/A	$1,000
6	**TRAFFIC CONTROL**	L.S.	25	% of Items 1-2	N/A	$7,000
7	**LIGHTING**	L.S.	6	% of Items 1-2	N/A	$2,000
8	**SIGNING/MARKINGS**	L.S.	6	% of Items 1-2	N/A	$2,000
9	**TYPICAL UTILITIES**	L.S.	15	% of Items 1-2	N/A	$5,000
10	**INCIDENTAL**	L.S.	20	% of Items 1-2	N/A	$6,000
11	**LANDSCAPING**	L.S.	10	% of Items 1-2	N/A	$3,000
12	**BICYCLE FACILITIES**	L.S.	2	% of Items 1-2	N/A	$1,000
13	**TRAFFIC SIGNALS**	E.A.	1		$200,000	$200,000
TOTAL ROADWAY ITEMS COST (Items 1-13)						**$264,000**
14	**RETAINING WALL**					
	MSE	sq. ft			$133.00	$0
	Tangent Pile	sq. ft			$239.00	$0
					Subtotal Retaining Wall	$0
15	**RETAINING WALL INCIDENTALS**	L.S.	15	% of Retaining Wall	N/A	$0
TOTAL RETAINING WALL COSTS (Items 14-15)						**$0**
TOTAL ROADWAY & RETAINING WALL COSTS (Items 1-15)						**$264,000**
16	**STRUCTURES**					
	Bridge Removal	sq. ft			$27.00	$0
	New Bridge	sq. ft	0		$212.00	$0
	Rehabilitation	sq. ft	0		$106.00	$0
	Bus Shelters	E.A.	2		$25,000.00	$50,000
					Subtotal Structure Costs	$50,000
17	**STRUCTURAL INCIDENTAL**	L.S.	15	% of Structures	N/A	$8,000
TOTAL STRUCTURE COSTS (Items 16-17)						**$58,000**
18	**RAILROAD RELOCATION**	MILE		0	$2,120,000.00	$0
19	**NEW TROLLEY STATION**	LS	0	0	$2,000,000.00	$0
20	**CONTINGENCY**	L.S.	35%	% of items 1-18	N/A	112700
TOTAL CONSTRUCTION COSTS (Items 1-19)						**$434,700**
21	**ENGINEERING**					
	Preliminary Design & PSE	L.S.	12	% Items 1-19	N/A	$53,000
	Environmental Mitigation	L.S.	10	% Items 1-19	N/A	$44,000
	Final Engineering	L.S.	10	% Items 1-19	N/A	$44,000
TOTAL ENGINEERING COSTS						**$141,000**
TOTAL PROJECT COST						**$ 600,000**

AMAP Estimated Express Bus Service Costs (2011 Dollars)

San Diego International Airport Express Bus Service

Routes	Distance	Average Travel Time	Bus Hours of Operation		Trips Per Day (One-Way)	Operating Cost (Per Mile)	Bus Operating Cost (Per Year)	Number of Buses	Bus Purchase Price (EA)	Initial Bus Capital Cost[1]
I-5 - McClellan-Palomar and SR 56/Manchester Park-n-Ride	33	62	3:50 AM	1:40 AM	80	$5.66	**$5,500,000**	7	$800,000	**$7,560,000**
I-15 - Escondido and Mira Mesa Transit Stations	32	60	3:00 AM	2:00 AM	80	$5.66	**$5,300,000**	7	$800,000	**$7,560,000**
Cross Border Facility	23	39	3:50 AM	1:40 AM	80	$5.66	**$3,900,000**	5	$800,000	**$5,400,000**

1. Includes 35% contingency.

Cross Border Facility Express Bus Service

Routes	Distance	Average Travel Time	Bus Hours of Operation	Trips Per Day (One-Way)	Operating Cost (Per Mile)	Bus Operating Cost (Per Year)	Number of Buses	Bus Purchase Price (EA)	Initial Bus Capital Cost[1]
I-15 Route - Escondido and Mira Mesa Transit Stations	47	86	24 Hour Service	88	$5.66	**$8,600,000**	8	$800,000	**$8,640,000**
H Street Trolley Station	12	21	24 Hour Service	88	$5.66	**$2,200,000**	4	$800,000	**$4,320,000**

1. Includes 35% contingency.

AMAP Estimated Bus Route Modification Costs

Modification of Proposed Bus Route 445 and 661 Estimated Operational Costs

Routes	Additional Distance	Average Travel Time	Peak Hour Trips (6-9AM and 3-6PM)	Off-Peak Hour Trips (9AM-3PM and 6-10PM)	Nighttime Trips (10PM-6AM)	Total Trips Per Day (one-way)	Operating Cost (Per Mile)	Bus Operating Cost (Per Year)
Modification of Route 445	1	7	36	20	0	56	$5.60	**$120,000**
Modification of Proposed RTP Route 661	0.25	3	72	40	32	144	$5.60	**$80,000**

Appendix BB Attachment 2:

Regional Aviation Strategic Plan Implementation Report

Regional Aviation Strategic Plan (RASP) Implementation Report

April 2021

PREPARED FOR
San Diego County Regional Airport Authority

SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY

PRESENTED BY
Landrum & Brown, Incorporated and C&S Companies

Table of Contents

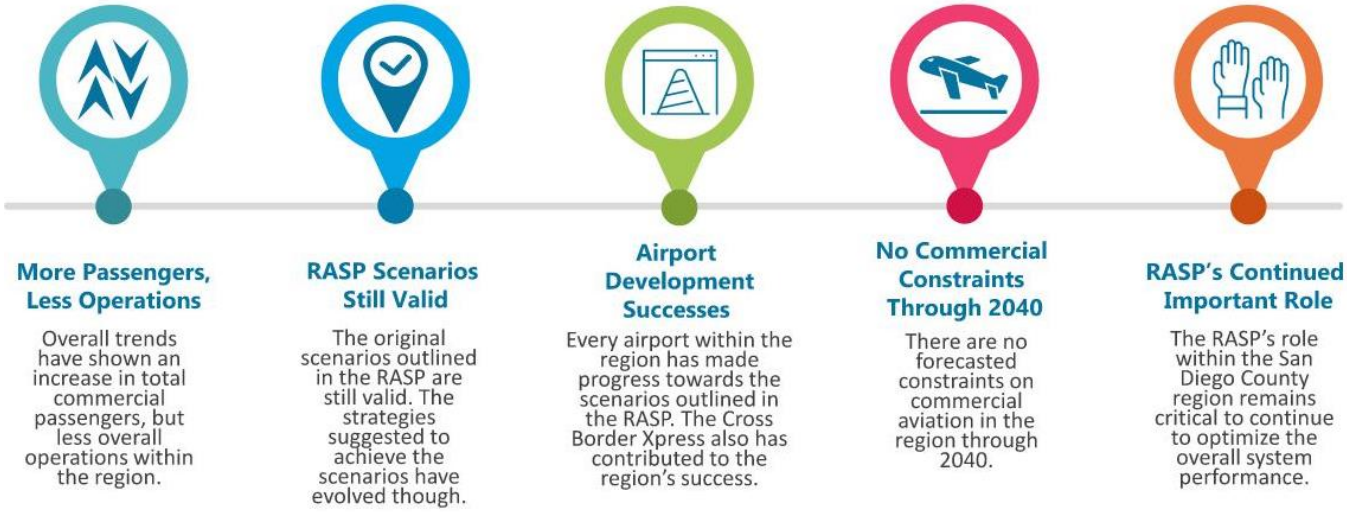
Section 1—Executive Summary

1.1 Overview

In 2011, the San Diego Regional Aviation Strategic Plan (RASP) was prepared by the San Diego County Regional Airport Authority (Airport Authority or Authority) to evaluate the long-term capabilities of the public-use airports within the County of San Diego Region (Region) to meet future air travel demand through 2030. This Implementation Report (Report) considers the 12 public-use airports within the Region plus Tijuana Rodriguez International Airport and provides an analysis of each airport, the aviation industry, developments within the Region, and each of the alternative scenarios discussed in the RASP. The RASP alternative scenarios include:

- **Scenario One: Commercial Service Optimization -** This scenario seeks to address commercial service capacity limitations by developing future facilities, enhancing airline service at other regional airports, preserving capacity at San Diego International Airport (SAN) for commercial service, and adjusting the size of aircraft at the airport to accommodate more passengers.
- **Scenario Two: Enhanced Utilization of Tijuana Rodriguez International Airport -** This scenario focuses on improving access to Tijuana Rodriguez International Airport to assist in accommodating the Region's passenger demand.
- **Scenario Three: California High Speed Rail -** This scenario identified high speed rail to offer passengers an alternative transportation resources to reach cities within California.
- **Scenario Four: General Aviation Optimization -** This scenario focuses on enhancing the Region's high-end general aviation airports, providing an alternative to SAN.
- **Scenario Five: Air Cargo Optimization -** This scenario focuses on enhancing the Region's ability to process cargo at the general aviation airports, providing an alternative to SAN.

Figure 1.1—RASP Implementation Report Summary of Key Findings



Source: Consultant Team, 2020

Section 2—RASP Implementation Report Overview

2.1 Introduction

In 2011, the San Diego Regional Aviation Strategic Plan (RASP) was prepared by the San Diego County Regional Airport Authority (Airport Authority or Authority) to evaluate the long-term capabilities of the public-use airports within the County of San Diego Region (Region). The RASP also identified opportunities to collectively improve the San Diego Regional Airport System to help meet future air travel demand through 2030.

For more information on the 2011 RASP, visit the Authority's website.

2.2 Background

The San Diego Regional Airport System is comprised of the 12 public-use airports located within San Diego County plus Tijuana Rodriguez International Airport, which is located just south of the California-Mexico border. All 13 airports were considered in the RASP, but only 7 airports were evaluated to improve operational efficiencies and/or increase capacity – Brown Field Municipal, Gillespie Field, McClellan-Palomar, Montgomery Field (now named Montgomery-Gibbs Executive), San Diego International, Tijuana Rodriguez International, and Ramona. The four military airfields in San Diego County were excluded from the RASP, because they do not accommodate civilian air travel.

California Senate Bill 10 (2007) and the California Public Utilities Code defines the roles of the Authority and the San Diego Association of Governments (SANDAG) in the development of the RASP and an Airport Multimodal Accessibility Plan (AMAP). These plans feed into SANDAG's Regional Transportation Plan (RTP), which seeks to establish a balanced vision for the evolution of the Region's transportation system over the next 40 years. In addition to the requirements set forth by the State, the objective of the RASP is to define the Region's long-range air transportation needs and the role of each airport in meeting them. Additionally, the RASP looks to determine opportunities and constraints with respect to accommodating future demand and develop strategies to maximize the efficiency and effectiveness of existing and planned facilities.

2.3 Regional Airport System

The National Plan of Integrated Airport Systems (NPIAS) is prepared biannually by the Federal Aviation Administration (FAA) and defines the role of each public-use airport in the United States. For the purposes of this Implementation Report, it is important to note that nomenclature classifying airports in the NPIAS has been slightly altered since the RASP was originally prepared; however, the overall roles of the airports studied in the RASP have not changed.

The *NPIAS 2021-2025 Report*, produced by the U.S. Department of Transportation (DOT), documents the projected facility improvements and needs for 3,304 existing and six proposed airports location in the United States (U.S.). The NPIAS categorizes airports into nine different classifications, as defined below.

Primary Airports – In 2020, there were 396 primary airports grouped into the four categories below:

- Large Hub – accounts for one percent or more of the total U.S. passenger enplanements, or people boarding aircraft. These airports primarily serve commercial service and cargo operations with limited general aviation (GA) operations.
- Medium Hub – accounts for between 0.25 and one percent of total U.S. passenger enplanements. Typically, these airports accommodate more GA traffic than the large hub airports.
- Small Hub – accounts for between 0.05 to 0.25% of total U.S. passenger enplanements. These airports accommodate a great deal of GA traffic in addition to commercial service operations.
- Non Hub – accounts for less than 0.05% of total U.S. passenger enplanements. These airports are also used heavily by GA traffic.

Nonprimary Airports – are mainly used by GA traffic and in 2020 included 123 nonprimary commercial service, 250 relievers, and 2,535 general aviation airports. These airports are divided into five categories, as defined below:

- National – located in metropolitan areas near major business centers and support air traffic throughout the U.S. and the world.
- Regional – are also located in metropolitan areas and serve large populations. These airports support regional economies with interstate and long distance flying.
- Local – provide communities with access to local and regional markets. Usually located near large population centers, but not in metropolitan areas.
- Basic – provide a means for private GA flying within a community, linked with the national airport system.
- Unclassified – limited activity and include public and privately-owned airports.

The principal difference between primary and nonprimary airports is the amount of commercial service operations handled at the airport. Per current FAA regulations, primary airports handle over 10,000 operations per year and fall into a different category of federal funding than nonprimary airports. In addition to the categories defined by the NIPAS for nonprimary airports, these airports are further classified as:

- Nonprimary Commercial Service – handle between 2,500 and 10,000 commercial service passengers annually.
- Reliever – large general aviation facilities located in metropolitan areas that provide "relief" for Hub airports in the region.
- General Aviation – these facilities have at least 10 based aircraft and handle fewer than 2,500 scheduled passengers per year.
- Unclassified – all other facilities fall under this category.

The following airports make up the San Diego Regional Airport System and were evaluated as part of the RASP. Several airports within the Region are not part of the NPIAS, these airports are listed as "limited use general aviation." The region's airports are operated by several Airport Operators (responsible jurisdictions) as listed in **Table 2.1**.

Table 2.1 — List of Airport within the San Diego Region

Airport	Airport Operator	Regional Role
San Diego International (SAN)	San Diego County Regional Airport Authority	Large-Hub Commercial Service
McClellan-Palomar (CRQ)	County of San Diego	National Commercial Service
Montgomery-Gibbs Executive (MYF)	City of San Diego	Regional Reliever
Gillespie Field (SEE)	County of San Diego	National Reliever
Brown Field Municipal (SDM)	City of San Diego	Regional Reliever
Ramona (RNM)	County of San Diego	Regional Reliever
Bob Maxwell Memorial Airfield (OKB)	City of Oceanside	Local General Aviation
Fallbrook Community Airpark (L18)	County of San Diego	Local General Aviation
Borrego Valley (L08)	County of San Diego	Basic General Aviation
Agua Caliente (L54)	County of San Diego	Limited Use General Aviation
Ocotillo (L90)	County of San Diego	Limited Use General Aviation
Jacumba (L78)	County of San Diego	Limited Use General Aviation
Tijuana Rodríguez International Airport (TIJ)/Cross Border Xpress	Grupo Aeroportuario del Pacifico/Cross Border Xpress	International Commercial Service

Source: FAA NPIAS, and Consultant Team, 2020

2.4 RASP Implementation Report

This Implementation Report generally provides an update and status of the factors evaluated in the RASP. Specifically, the Report considers the 2011 RASP, changes in the aviation industry since the RASP was developed, and progress in implementing the scenarios originally identified in the RASP. The Report includes sections detailing:

- An inventory of airports, including their unique operational characteristics
- Reassessment of airport system capacity and regional demand forecasts
- Collective progress in implementing airport improvements to increase efficiency and/or capacity

The findings of the Report are noted throughout the document. The Report will be considered by SANDAG in their update to the RTP, helping to ensure strong connectivity between air and surface transportation networks in the San Diego region.

It should be noted that during the development of this Report, the COVID-19 pandemic had a significant impact on the aviation industry globally and, likewise, some airports within San Diego County. The Report does not incorporate COVID-19 considerations into its forecasts and findings, primarily because the full long-term impacts to global and regional aviation are not yet known.

2.5 RASP Implementation Report Stakeholders

Consistent with the 2011 RASP, the RASP Implementation Report was developed with the input, participation and guidance of the Region's airport sponsors and partners. The Stakeholder group meet several times throughout the process to share information and provide input on the development of the report.

Representatives from the following entities participated in the preparation of this report:

- City of Oceanside
- City of San Diego
- County of San Diego
- Cross Border Xpress
- San Diego Association of Governments
- San Diego County Regional Airport Authority
- Tijuana International Airport

2.6 Summary of Scenarios

The 2011 RASP anticipated that many Southern California commercial service airports, including San Diego International, would reach capacity during the 2011 RASP forecast period (2010-2030). It was anticipated that when these airports reached capacity, it would be necessary to find alternative methods to meet the region's commercial service demands. While no airport in Southern California has reached its capacity as anticipated in the original RASP, the region has made progress towards overall implementation within most of the scenarios. The following three pages provide a high-level summary of the status of each of the scenarios. The five scenarios considered in the RASP are summarized in **Figure 2.1** and discussed in detail in **Section 6**.

Figure 2.1 — Summary of RASP Scenarios

Source: Consultant Team, 2020

Implementation Report Finding

The 2020 Implementation Report's findings are summarized and reported throughout the document in call-out boxes. Generally, the findings follow a summary of a particular component of the 2011 RASP and a related status update.

Section 3— Airport Inventories

3.1 Introduction

The San Diego Region is considered one of the busiest and most complex airspace regions in the United States. As shown in **Figure 3.1**, with multiple airports in close proximity, surrounded by military airspace and complex terrain, each airport within the system has unique attributes and constraints that must be considered when discussing the roles within the Region. The San Diego Regional Airport System consists of two Commercial Service airports (SAN, and CRQ), four Reliever airports (MRY, SEE, SDM, and RNM), three General Aviation airports (OKB, L18, and L08), and three Limited Use General Aviation airports (L54, L90, and L78). Combined, these airports offer a total of 17 runways and handled 1,349,203 and 1,221,142 total aircraft operations in 2007 and 2018, respectively. The 2011 RASP evaluated each airport and considered its strengths, weaknesses, opportunities and threats (now simplified into "Opportunities" and "Constraints"). On the following pages, the Report summarizes and provides an update to the general description of each airport. While many factors considered in the RASP remain valid, each airport has seen significant changes and development since last evaluated.

Figure 3.1 — San Diego Region's Airports

Source: Consultant Team, 2020

3.2 San Diego International Airport (SAN)

Airport Overview – The San Diego International Airport is the regional airport system's Primary Commercial Service Airport. The airport is focused on accommodating the Region's commercial service and cargo activity. Owned and operated by the San Diego County Regional Airport Authority, the Airport is located near downtown San Diego and is ultimately constrained by both surrounding land uses and its single runway.

For more information visit SAN's website.

Formally known as Lindbergh Field, SAN is the busiest single runway airport in the United States and is served by 17 airlines including: Air Canada, Alaska Airlines, Allegiant Air, American Airlines, British Airways, Delta Airlines, Edelweiss Airlines, Frontier Airlines, Hawaiian Airlines, Japan Airlines, jetBlue Airlines, Lufthansa Airlines, Southwest Airlines, Spirit Airlines, Sun Country Airlines, United Airlines, and WestJet Airlines.

Figure 3.2—SAN

Source: Consultant Team, 2020

Airport Opportunities – The Airport is located three miles northwest of downtown San Diego and the Region's strong economic drivers (including tourism, conventions, and nearby military bases) provide a strong and constant customer base for SAN. Currently underway, SAN's Airport Development Program (ADP) includes both landside and airfield improvements that will modernize the facility, improve operational efficiency, and enhance the overall user experience.

Airport Constraints – At 661 acres, the Airport's footprint is limited to its current single runway configuration. As such, maximizing the efficiency and use of the entire Airport property is critical. Additionally, the Airport's close proximity to downtown San Diego and its skyscrapers results in potential airspace encroachment. Any proposed development near the Airport should continue to be closely reviewed per local, state, and federal regulations to ensure critical airspace for commercial air service is protected.

Table 3.1—SAN

Description	RASP	Implementation Report
NPIAS Designation	Primary Commercial Hub	Primary Commercial Hub
California Aviation System Plan Designation	Large Hub Primary Commercial	Large Hub Primary Commercial
Runway Length (feet)		9,400
Miles from Downtown San Diego		3
Annual Passengers (2007 and 2018)	21,724,000	24,238,300
% Change in Annual Passengers		11.6%
Annual Operations (2007 and 2018)	245,908	225,058
% Change in Annual Operations		-8.5%
Forecast Passengers (2030)	28,213,494	35,390,567
% Variance 2030 Forecast Passengers		+25.4%
Forecast Operations (2030)	309,800	280,955
% Variance 2030 Forecast Operations		-9.3%
2038 Airport Passenger Forecast		38,653,535
2038 Airport Operations Forecast	-	377,230

Source: FAA NPIAS, Airport Data, Caltrans System Plan and Consultant Team, 2020

Implementation Report Finding

Notable improvements completed by the Airport Authority at the San Diego International Airport since the 2011 RASP include the 10-gate expansion of Terminal 2 and a new International Arrivals facility. On the Airport's north side, a new consolidated rental car center and new fixed-base operator (FBO) facility have been constructed; while a new parking plaza and other ground transportation improvements have been completed in the south side terminal area. SAN is currently pursuing its Airport Development Program (ADP), which aims to replace Terminal 1 with a more modern, 30-gate facility and other airfield improvements that will enhance the overall airport experience for all.

SAN has seen a -8.5% decrease in annual operations since 2007 and a -9.3% decrease in 20-year forecasted operations. The Airport has experienced an 11.6% increase in annual passengers over the same time period. The disproportionate growth of enplanements versus operations is mainly due to the up-gauging of aircraft size by airlines.

3.3 McClellan-Palomar (CRQ)

Airport Overview – The McClellan-Palomar Airport (CRQ) is high-end corporate general aviation airport, operated by the County of San Diego. Historically, CRQ has served the general aviation market and provided non-stop commuter service to Los Angeles (LAX) with seven flights per day offered by a single carrier (Skywest/United Express). While commuter service has been discontinued at the Airport, the County is actively working to reestablish this service. The facility currently prioritizes high-end corporate general aviation activity with a continued focus for commercial service.

For more information visit CRQ's website.

Figure 3.2—CRQ

Source: Consultant Team, 2020

Airport Opportunities – The Airport is located near the population center of northern San Diego County and is in close proximity to large tourist attractions. There is a modern terminal, a customs facility on site for international business jet arrivals, and a strong on-airport tenant base. The Airport is currently working towards adding an EMAS system, which will enhance safety, and allow for larger aircraft to use the facility.

Airport Constraints – As the Airports continues to work towards commercial service operations, it is constrained by the length of its runway, size of the commercial aircraft ramp, and a City/County ordinance that limits the size of aircraft using the Airport to 70 seats or less.

Table 3.2—CRQ

Description	RASP	Implementation Report
NPIAS Designation	Primary Commercial Non-hub	National Commercial Service
California Aviation System Plan Designation	Non-Hub Primary Commercial	National General Aviation
Runway Length (feet)	-	4,897
Miles from Downtown San Diego	-	32
Annual Passengers (2007 and 2018)	100,000	15,974
% Change in Annual Passengers		-84.0%
Annual Operations (2007 and 2018)	227,847	156,113
% Change in Annual Operations		-31.5%
Forecast Passengers (2030)	100,000	274,670
% Variance 2030 Forecast Passengers		+174.7%
Forecast Operations (2030)	268,700	188,324
% Variance 2030 Forecast Operations		-29.9%
2038 Airport Passenger Forecast		283,722
2038 Airport Operations Forecast		195,050

Source: FAA NPIAS, Airport Data, Caltrans System Plan and Consultant Team, 2020

Implementation Report Finding

Notable improvements completed by the County of San Diego at the McClellan-Palomar Airport since the 2011 RASP include the Airport's continued work to attract commercial service and multiple airfield improvements. Currently, the Airport has initiated the design of EMAS improvements, which will be a key consideration in additional air service at the Airport. Several past airlines have established the validity of the commercial service market. The Airport's instrument landing system makes it an attractive airport for high-end aircraft. The Airport continues to see successful general aviation operations with the fixed-based operators consolidating, while also increasing in size. The Airport has seen a 31.5% decrease in operations since 2007 and 29.9% decrease in 20-year forecasted operations.

3.4 Montgomery-Gibbs Executive (MYF)

Airport Overview – The Montgomery-Gibbs Executive Airport is operated by the City of San Diego and located 8.5 miles north of downtown San Diego. The airport shares its airspace with Marine Corps Air Station (MCAS) Miramar and primarily accommodates recreational and educational general aviation traffic. The Airport has significant land available for development and its location close to downtown provides convenient access.

For more information visit MYF's website.

Figure 3.3—MYF

Source: Consultant Team, 2020

Airport Opportunities – As mentioned, the Airport is located in close proximity to downtown San Diego and the County's population center. The Airport is a busy facility with room for additional development as needed. The relocation of the displaced threshold and the main runway's grooving will help the Airport improve safety and its operations.

Airport Constraints – The Airport is limited to small general aviation aircraft due to the length of its runways and a City Ordinance prohibiting operations by aircraft weighing more than 20,000 lbs. The proximity of MCAS Miramar could potentially limit future instrument operations or changes in airport operational patterns. Additionally, the Airport is constrained by environmental issues that could potentially limit its ability to develop.

Table 3.3—MYF

Description	RASP	Implementation Report
NPIAS Designation	Metropolitan GA	Regional Reliever
California Aviation System Plan Designation	Reliever	Regional Reliever
Runway Length (feet)	-	3,401
Miles from Downtown San Diego	-	8
Annual Enplanements (2007 and 2018)	-	394
Annual Operations (2007 and 2018)	253,769	226,599
% Change in Annual Operations		-10.7%
Forecast Operations (2030)	271,800	214,582
% Variance 2030 Forecast Operations		-21.1%
2038 Airport Operations Forecast		221,896

Source: FAA NPIAS, Airport Data, Caltrans System Plan and Consultant Team, 2020

Implementation Report Finding

Notable improvements completed by the City of San Diego at the Montgomery-Gibbs Executive Airport since the 2011 RASP include significant growth in operations with existing operations surpassing the 2019 Master Plan forecast. The Airport is being rapidly developed by existing FBOs and is expected to accommodate additional FBOs in the near future. Two FBO's are currently under construction and the City is seeking a third development. Additionally, the Airport is also seeing a demand for helicopter facility development and, as such, has recently approved the development of a helicopter-focused FBO.

The Airport has seen a 10.7% decrease in operations since 2007 and a 21.1% decrease in 20-year forecasted operations. The Airport is finalizing a new master plan, which forecasts increased general aviation activity and the need for the associated facilities to meet that demand.

3.5 Gillespie Field (SEE)

Airport Overview – The Gillespie Field Airport serves as a Reliever Airport to SAN, and is the busiest airport within the Region. The airport accommodates flight school activity, recreational general aviation and corporate jet activity. The Airport is operated by the County of San Diego and located between El Cajon and Santee.

For more information visit SEE's website.

Figure 3.4—SEE

Source: Consultant Team, 2020

Airport Opportunities – The Airport has substantial on-airport land for development, including the 70-acre El Cajon development to expand the tenant base. The airport's location near the Orange and Green Trolley lines stop at SEE, providing public transportation between the airport, downtown San Diego, and other regional locations.

Airport Constraints – The Airport's instrument approach capabilities are limited by the surrounding military airspace and terrain. Additionally, the Airport's primary runway ends are surrounded by development.

Table 3.4—SEE

Description	RASP	Implementation Report
NPIAS Designation	Regional GA	National Reliever
California Aviation System Plan Designation	Reliever	National Reliever
Runway Length (feet)	-	4,145, 2,738, and 5,342
Miles from Downtown San Diego	-	23
Annual Operations (2007 and 2018)	299,769	238,879
% Change in Annual Operations		-20.3%
Forecast Operations (2030)	489,600	261,081
% Variance 2030 Forecast Operations		-46.7%
2038 Airport Operations Forecast		276,746

Source: FAA NPIAS, Airport Data, Caltrans System Plan and Consultant Team, 2020

Implementation Report Finding

Notable improvements completed by the County of San Diego at the Gillespie Field Airport since the 2011 RASP include the initial development of the 70-acre El Cajon Center. The development allows for the Airport to accommodate current and future aviation demand. A detention basin was built to accommodate development on the site and transient aircraft apron and two five-acre lots are currently being prepped for development.

The Airport saw a 20.3% decrease in operations since 2007 and 46.0% decrease in 20-year forecasted operations. The Airport is planning for general airfield rehabilitation and improvements to current standards.

3.6 Brown Field Municipal (SDM)

Airport Overview – The Brown Field Municipal Airport serves as a Reliever Airport to SAN. The airport accommodates corporate and recreational general aviation activity. The Airport is operated by the City of San Diego and is located 20 miles southeast of downtown San Diego, and 1.5 miles north of the Mexican border. The Airport is near the Otay Mesa Port of Entry.

For more information visit SDM's website.

Figure 3.5—SDM

Source: Consultant Team, 2020

Airport Opportunities – The Airport's runway is 7,972 feet long, which is a sufficient length to accommodate a large range of aircraft types (including commercial service and cargo aircraft). The Airport is also well located near highways 805, 905, and 125.

Airport Constraints – The Airport's airspace operations and instrument approach capabilities are limited by the Otay Mountain located directly east of the Airport. As a result, the only instrument approach is to Runway 8L from the west. However, these constraints may change in the future with newly-available GPS technology.

Table 3.5—SDM

Description	RASP	Implementation Report
NPIAS Designation	Regional GA	Regional Reliever
California Aviation System Plan Designation	Reliever	Regional Reliever
Runway Length (feet)	-	7,972, and 3,185
Miles from Downtown San Diego	-	20
Annual Enplanements (2007 and 2018)	-	46
Annual Operations (2007 and 2018)	142,820	78,046
% Change in Annual Operations		-45.4%
Forecast Operations (2030)	175,900	86,625
% Variance 2030 Forecast Operations		-50.8%
2038 Airport Operations Forecast		87.050

Source: FAA NPIAS, Airport Data, Caltrans System Plan and Consultant Team, 2020

Implementation Report Finding

Notable improvements completed by the City of San Diego at the Brown Field Municipal Airport since the 2011 RASP include further planning for a 260-acre new development that would create a new main entrance to the Airport and establish new onsite lease areas for general aviation. Additionally, the Customs facility is planned to be upgraded in the near-term.

The Airport has seen a 45.4% decrease in operations since 2007 and 50.8% decrease in 20-year forecasted operations. The Airport is currently finalizing a new master plan that predicts a need for additional t-hangar capacity for future general aviation needs.

3.7 Bob Maxwell Memorial Airfield (OKB)

Airport Overview – The Bob Maxwell Memorial Airfield, formerly the Oceanside Municipal Airport, is owned by the City of Oceanside, but operated by a third party under a long term lease. The Airport is located in the eastern section of the City of Oceanside, approximately 35 miles north of downtown San Diego.

For more information visit OKB's website.

Figure 3.6—OKB

Source: Consultant Team, 2020

Airport Opportunities – The Airport's location is close to both the north San Diego and Orange County general aviation market base. The Airport has a strong tenant base appealing to the tourism market, including skydiving and aero-tour in both helicopters and biplanes.

Airport Constraints – The Airport is constrained by surrounding development and nearby military airspace. With Camp Pendleton's airspace encircling it, a road and river to the west, and commercial development to the east, the Airport is limited in its ability to expand outside of its current footprint.

Table 3.6—OKB

Description	RASP	Implementation Report
NPIAS Designation	Regional GA	Local GA
California Aviation System Plan Designation	GA	Local GA
Runway Length (feet)	-	2,712
Miles from Downtown San Diego	-	40
Annual Operations (2007 and 2018)	15,092	8,300
% Change in Annual Operations		-45.0%
Forecast Operations (2030)	18,200	23,050
% Variance 2030 Forecast Operations		+26.6%
2038 Airport Operations Forecast		24,300

Source: FAA NPIAS, Airport Data, Caltrans System Plan and Consultant Team, 2020

Implementation Report Finding

Notable improvements completed by the City of Oceanside at the Bob Maxwell Memorial Airport since the 2011 RASP include multiple airfield and hangar enhancements. The Airport is currently at capacity with aircraft storage hangars and has a desire to expand pending future funding. The Airport has also been identified as an ideal location for urban air mobility – serving as a base for north San Diego County.

The Airport has seen a 45.0% decrease in operations since 2007 and a 26.6% increase in 20-year forecasted operations.

3.8 Tijuana Rodriguez International Airport (TIJ) & Cross Border Xpress (CBX)

Airport Overview – The Tijuana Rodríguez International Airport is owned and operated by the Grupo Aeroportuario del Pacífico. Starting operations in December 2015, Cross Border Xpress is a pedestrian bridge for passengers from the Tijuana International Airport, allowing passengers to cross the border between Mexico and the United States. CBX users can fly directly to more than 35 destinations in Mexico, as well as take advantage of overseas service to China.

For more information visit TIJ's and CBX's websites.

Figure 3.7—TIJ

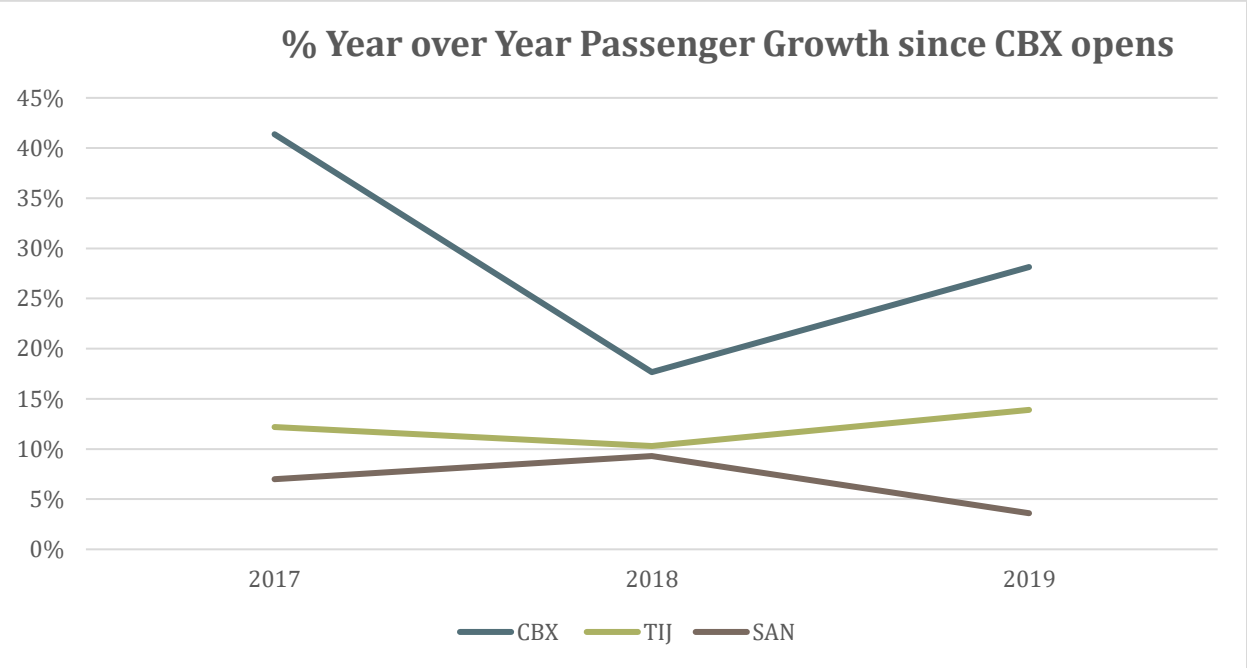
Source: Consultant Team, 2020

Figure 3.**8—CBX**

Source: Consultant Team, 2020

Airport Opportunities – CBX provides a link to TIJ and its non-stop service to Mexico markets, many of which are not directly served by SAN. The rapid and successful growth seen by both TIJ and CBX will allow for continued and expanded service offerings in the future. In addition, CBX received its own IATA locator code in 2020, which will soon allow travelers to find flights from CBX/TIJ when searching for flights offered in the San Diego Region.

Figure 3.9 — CBX



Source: CBX, and Consultant Team, 2020

Airport Constraints – The CBX model is an untraditional method to broaden air travel service opportunities for the San Diego Region. Markets often experience a "learning curve," when introducing a new service or method. As such, some portion of the commercial service passenger market in the Region may require additional time before taking advantage of the CBX/TIJ connection. Further considerations include the uncertainty of future changes in border security due to pandemics, or other unforeseen changes in Federal policy.

Table 3.7—TIJ

Description	RASP	Implementation Report
NPIAS Designation	n/a – as an international facility, it's not part of the U.S. system	
California Aviation System Plan Designation	n/a – as an international facility, it's not part of the U.S. system	
Runway Length (feet)	-	9,711
Miles from Downtown San Diego	-	24
Annual Passengers (2007 and 2018)	-	14,070,714
% Change in Annual Passengers	TIJ passengers/operations were not considered in the RASP.	
Forecast Passengers (2030)		14,070,714
% Variance 2030 Passengers Operations	TIJ passengers/operations were not considered in the RASP.	
2038 Airport Operations Forecast		20,788,853

Source: FAA NPIAS, Airport Data, Caltrans System Plan and Consultant Team, 2020

Implementation Report Finding

CBX has seen tremendous growth since opening in 2015. Nearly 3 million passengers used the facility in 2019 and it surpassed 10 million cumulative passengers in less than five years of operation. TIJ Airport had seen an approximate annual growth rate of 2% per year prior to the CBX facility opening, since then, growth has been near 20%. TIJ has the second highest amount of connections out of any Mexican airport behind Mexico City and recently completed a $95 million (U.S.) facility upgrade. TIJ has seen a 0.7% increase in operations since 2007 and 53.6% increase in 20-year forecasted operations. TIJ plans to double the terminal area size by 2022.

It is estimated that most passengers are coming from the Los Angeles area to utilize the CBX/TIJ facilities, as they allow passengers to access low-cost domestic flights instead of higher-priced international flights out of LA area airports. In the future, once TIJ's International processor is complete (in approximately 2 years), more international traffic is expected.

3.9 San Diego County Rural Airports

San Diego County Rural Airports Overview – The County of San Diego owns and operates six rural general aviation airports. While each airport plays an important role within the regional system due to their remote locations and focus on recreational general aviation, they do not play a significant role in the scenarios recommended in the 2011 RASP. These airports are summarized below, and an in-depth analysis of each airport can be found in the original Report.

For more information visit the County's website.

Ramona Airport (RNM) – Ramona Airport is 36 miles northeast of downtown San Diego. The Airport is a single runway reliever airport that accommodates recreational general aviation activity. The Airport has seen a 47.3% decrease in operations since 2007 and has a forecasted 20-year 22.1% increase in operations. While RNM is a reliever airport, due to its location, it did not factor into the recommended scenarios in the RASP.

Figure 3.10— San Diego County Rural Airports - RNM

Source: Consultant Team, 2020

Fallbrook Community Airport (L18) – Fallbrook Community Airpark is 58 miles east-northeast of downtown San Diego. The Airport is a single runway airport that accommodates recreational general aviation activity. The Airport has seen a 45.1% decrease in operations since 2007 and has a forecasted 20-year 39.8% increase in operations.

Figure 3.11— San Diego County Rural Airports - L18

Source: Consultant Team, 2020

Borrego Valley Airport (L08) – Borrego Valley Airport is 90 miles northeast of downtown San Diego. The Airport is a limited use, single runway airport that accommodates recreational general aviation activity. The airport has seen a 0.7% decrease in operations since 2007 and has a forecasted 20-year 34.5% increase in operations.

Figure 3.12— San Diego County Rural Airports – L08

Source: Consultant Team, 2020

Ocotillo Airport (L90) – Ocotillo Airport is 65 miles east of downtown San Diego. The Airport is a single runway airport that accommodates recreational general aviation activity. The Airport has seen a 125% increase in operations since 2007 and has a forecasted 20-year 11.7% increase in operations.

Figure 3.13— San Diego County Rural Airports – L90

Source: Consultant Team, 2020

Agua Caliente Airport (L54) – Agua Caliente Airport is 77 miles east of downtown San Diego. The Airport is a limited use, single runway airport that accommodates recreational general aviation activity. The Airport has seen a 1.3% increase in operations since 2007 and has a forecasted 20-year 3.2% increase in operations.

Figure 3.14— San Diego County Rural Airports – L54

Source: Consultant Team, 2020

Jacumba Airport (L78) – Jacumba Airport is 74 miles east-southeast of downtown San Diego. The Airport is a limited use, single runway airport that accommodates glider and sailplane activity. The Airport has seen a 321.5% increase in operations since 2007 and has a forecasted 20-year 3.2% increase in operations.

Figure 3.15— San Diego County Rural Airports – L78

Source: Consultant Team, 2020

Implementation Report Finding

Since the RASP was completed, each airport within the San Diego Region has made significant improvements towards the various scenarios laid out in the RASP. While the forecasted operations, passengers, scenarios, and methods described in the RASP have evolved, additional analysis can be found in Section 5 of this Report.

Section 4—System Capacity

4.1 Airport System Capacity

The entire aviation industry has evolved since the 2011 RASP was developed. Airlines operate under different business models (i.e. up-gauging the fleet mix, and maximum occupancy flights) and there has been significant consolidation of the industry. Airports across Southern California have undergone major capacity upgrades and each airport in the San Diego Region has undergone improvements.

4.1.1 National System Capacity

The 2011 RASP cited the FAA's 2007 Future Airport Capacity Task (FACT) 2, which stated that the San Diego Region would need aviation capacity after 2025. It also said SAN should be closely monitored to gauge the effects of a swiftly-changing industry, which could expedite the need for additional capacity. The FAA's 2015 FACT3: Airport Capacity Needs in the National Airspace System no longer considers SAN to be capacity constrained. It should be noted that Los Angeles International (LAX) is also no longer constrained.

In 2020, the FACT3 report was replaced by the FAA with the NPIAS, which utilizes a new evaluation methodology to determine capacity constrained airports across the country. Generally, these analyses focus on commercial passenger operations. Across the country, general aviation operation are expected to maintain similar numbers as today with slight increases in business jets and experimental aircraft. Using the new methodology in the 2020 NPIAS, both SAN and LAX are designated as constrained through 2030. Going forward, the biennial NPIAS will be a valuable tool to continue to monitor airport capacity constraints within the San Diego Region and across the broader Southern California area to track changes in aviation forecasts and related variables (i.e. aircraft up-gauging and load factors).

4.1.2 Southern California System Capacity

Many Southern California airports were modeled to also reach capacity during the RASP forecast period. LAX was modeled to reach capacity during the RASP forecast period (through 2030), spreading commercial service passengers to the other Southern California airports. LAX was anticipated to reach capacity around 2015 at approximately 133-176 operations per hour (depending on weather conditions), theoretically triggering the need to shift operations to other nearby airports. While the current NPIAS anticipates potential commercial passenger service constraints at SAN and LAX, other Southern California airports, including John Wayne/Orange County, Long Beach, Ontario International, and Burbank are not considered constrained within the planning horizon. In addition, all Southern California airports in some way are pursuing airfield and/or operational improvements that help proactively address the area's long-term capacity constraints.

4.1.3 Regional System Capacity

The RASP predicted more demand for commercial air service than the San Diego Region's airports could supply. The San Diego Region was expected to reach commercial service capacity during the RASP planning horizon (2030) at approximately 28 million annual passengers. The RASP demand model indicated that between 2020 and 2025, the effects of the capacity constraints would result in diminished levels of service, increased operating delays, and higher airline fares. As highlighted earlier in this Implementation Report, SAN is now not expected to reach its airfield capacity until at least 2040, well beyond the 2011 RASP projections.

Implementation Report Finding

Since the 2011 RASP was completed, the FAA determined that SAN was no longer constrained in 2015. Then after updating the metrics to evaluate constraints, the 2020 NPIAS again designated SAN as constrained. It should be noted that LAX was also removed from the FAA's constrained airport list in 2015, but is again considered constrained today.

Despite the FAA's recent re-designation, SAN is not anticipated to reach capacity during the RASP planning period. SAN's capacity is now estimated to be 40 million annual passengers (as opposed to 28 million in the 2011 RASP) due to up-gauged aircraft and changes in industry practices.

Section 5—Demand Forecast

5.1 Introduction

An obligation of SB-10 was that the RASP's forecasts were to consider opportunities and constraints for accommodating future aviation demand. This report was prepared to present a compilation of the latest available forecast projections for the Region, with a review of the 2011 RASP forecast, changes in air traffic through 2018, and changes in the aviation industry that may impact demand.

The current forecast of aviation demand for the San Diego Region is summarized below. The aviation demand forecast considers the same areas and airports in the 2011 RASP against completed and planned improvements in the regional airport system. Updated forecasts are critical to ensuring that future aviation demand can still be accommodated given the existing and future capacities at the San Diego Region's airports.

5.2 2011 RASP Forecast Review

The RASP was prepared to assess the long-range capabilities of all public-use airports in the Region with the goal of improving the performance of the San Diego Regional Airport System. Forecasts of aviation traffic demand were prepared for the RASP study for each of the 12 public-use airports of the San Diego Region.

The forecasts provided future projections primarily of commercial passengers and aircraft operations (commercial, general aviation/air taxi, military) for comparison to airport capacities and future infrastructure developments.

The forecast summary projected that commercial passenger traffic for the Region would increase from 18,439,750 passengers in 2007 to 28,313,494 passengers in 2030, representing a 1.8% average annual growth rate (AAGR). San Diego International would handle nearly all of the expected commercial passenger traffic, with 100,000 annual passengers projected for McClellan-Palomar by 2030. The forecast summary projected an increase from 1,349,203 total operations in 2007 to 1,769,525 operations by 2030, representing a 1.2% AAGR.

5.3 2018 Air Traffic Review

From 2007 through 2018, San Diego regional airports experienced some general declines in traffic of air taxi and general aviation aircraft operations, generally following the same national trends of reduced small aircraft usage for personal or business use. Conversely, commercial passenger levels continued to increase, notably exceeding the forecast for 2018. The 12 airports have maintained their same aviation roles in the regional system with SAN still serving as the Region's primary commercial service airport.

The RASP forecast estimated commercial passengers would increase from 18.3 million annual passengers (MAP) at SAN in 2007 to 21.7 million by 2018. Actual passenger levels at SAN in 2018 were reported at 24.2 million, representing growth at 11.6% higher than projected, or an average annual growth of 2.6% actual compared to 1.5% forecasted.

Passengers at CRQ were estimated to increase in the RASP from 93,818 in 2007 to 100,000 in 2018, but due to United Airlines dropping feeder service to Los Angeles in 2015, only 15,975 total passengers were reported for CRQ in 2018, which is 84 percent lower than projected.

Not included in the previous 2011 RASP forecast, but important to the 2019 RASP forecast review, is the impact of traffic growth at the TIJ and the CBX facility, which adds another international entry point via San Diego or Tijuana. After its completion and service launch in 2015, traffic through the CBX facility had reached nearly 2.3 million passengers in 2018 and almost 3 million passengers in 2019. Roughly 29% of passenger to/from TIJ used the CBX facility for access to/from the San Diego Region.

The success of the CBX facility and growth at TIJ, compared to the faster than projected traffic growth at SAN, should suggest even more total demand for the San Diego Region than previously forecast. **Table 5.1** below shows the comparison of 2018 passenger traffic levels as estimated in the RASP and reported for the San Diego Region.

Table 5.1 — 2018 Passenger Forecast Comparison

San Diego Region Airports	Airport Type	Total Passengers		
		RASP Estimate	2018 Actual	% Variance
San Diego International (SAN)	Commercial	21,724,000	24,238,300	+11.6%
Tijuana Rodríguez International Airport (TIJ)	Commercial	-	7,835,100	
McClellan-Palomar (CRQ)	Commercial	100,000	15,974	-84.0%
Montgomery-Gibbs Executive (MYF)	Non-Comm	-	394	
Gillespie Field (SEE)	Non-Comm	-	-	
Brown Field Municipal (SDM)	Non-Comm	-	46	
Ramona (RNM)	Non-Comm	-	-	
Bob Maxwell Memorial Airfield (OKB)	Non-Comm	-	-	
Fallbrook Community Airpark (L18)	Non-Comm	-	-	
Borrego Valley (L08)	Non-Comm	-	-	
Agua Caliente (L54)	Non-Comm	-	-	
Ocotillo (L90)	Non-Comm	-	-	
Jacumba (L78)	Non-Comm	-	-	
Total		**21,824,000**	**32,089,814**	**+47.0%**

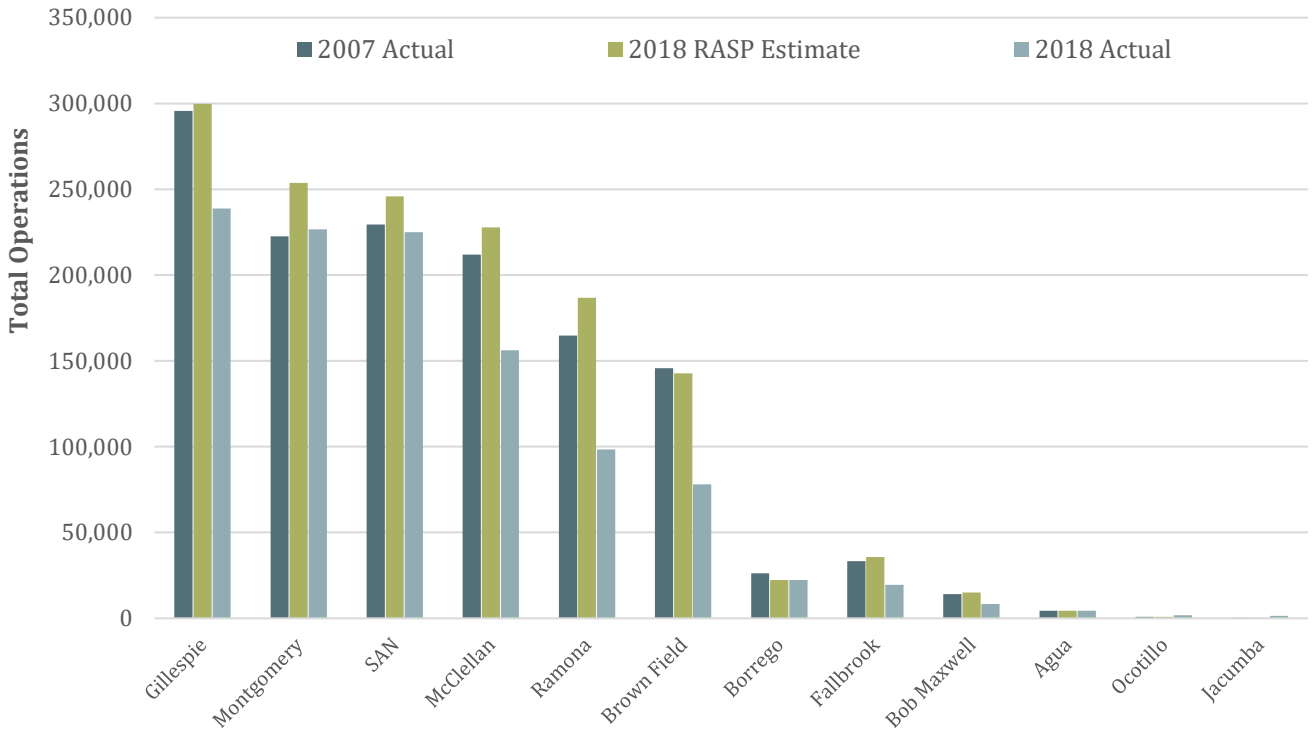
Note: TIJ passenger estimate was not part of the 2011 RASP study
Source: Consultant Team, 2020

The RASP forecast estimated total operations (commercial, air taxi, general aviation and military) would increase from 1,349,203 total aircraft operations in 2007 to 1,435,482 operations in 2018. Actual reported total operations at the San Diego Regional airports in 2018 was 1,080,880, representing traffic levels 25% less than projected, and 20% below the baseline in 2007.

The decrease in total Regional aircraft operations from 2007 to 2018 is mainly due to reduced demand for air taxi and general aviation operations at CRQ, Brown Field (SDM), Gillespie Field (SEE), and Ramona (RNM). Total operations at SAN were also less than projected in 2018 at 225,058 aircraft operations compared to 245,908 aircraft operations due to use of larger commercial passenger aircraft with more available seats, and essentially there was no growth in total operations at SAN since the RASP Report was prepared.

Figure 5.1 and Table 5.2 present the comparison of 2018 total operations levels as estimated in the RASP and as actually reported for the San Diego Region.

Figure 5.1— Change in Operations Levels at San Diego Airports



Source: Consultant Team, 2020

Table 5.2 — Operations Forecast Comparison

San Diego Region Airports	Airport Type	Total Operations		
		RASP Estimate	2018 Actual	% Variance
San Diego International (SAN)	Commercial	245,908	225,058	-8.5%
McClellan-Palomar (CRQ)	Commercial	227,847	156,113	-31.5%
Montgomery-Gibbs Executive (MYF)	Non-Comm	253,769	226,599	-10.7%
Gillespie Field (SEE)	Non-Comm	299,686	238,876	-20.3%
Brown Field Municipal (SDM)	Non-Comm	142,820	78,046	-45.4%
Ramona (RNM)	Non-Comm	186,715	98,419	-47.3%
Bob Maxwell Memorial Airfield (OKB)	Non-Comm	15,092	8,300	-45.0%
Fallbrook Community Airpark (L18)	Non-Comm	35,720	19,594	-45.1%
Borrego Valley (L08)	Non-Comm	22,400	22,250	-0.7%
Agua Caliente (L54)	Non-Comm	4,400	4,455	+1.3%
Ocotillo (L90)	Non-Comm	800	1,800	+125%
Jacumba (L78)	Non-Comm	325	1,370	+321.5%
Total		**1,435,482**	**1,080,880**	**-24.7%**

Note: TIJ total operations data not available
Source: Consultant Team, 2020

The three smallest airports (Agua Caliente Springs, Jacumba, and Ocotillo), in terms of the fewest number of operations, were the only airports to show any increase in operations from 2007 to 2018, and the only airports to achieve traffic activity above the RASP estimates.

Implementation Report Finding

The long-term passenger demand at SAN now shows an increased projection due to a larger anticipated aircraft fleet and the addition of flights during non-peak, mid-day periods. Long-term passenger growth at SAN is still estimated to be capped at around 40 million passengers, with the FAA TAF estimating that constraint will be reached by 2040.

Although no traffic forecast for TIJ was available, long-term passenger demand at TIJ was assumed to grow at an average annual rate of five percent during the forecast period. Increased usage of the CBX facility for international traffic flows is also assumed to increase and grow with strong demand for border crossings between San Diego and Tijuana.

The 2018 Master Plan forecast for McClellan-Palomar shows an aggressive increase in demand based on assumptions that commercial service will not only return, but grow considerably in the future. The FAA projection does not currently include the local optimism yet in the 2019 FAA TAF, in which estimated passenger demand for 2038 is still just 22,254 passengers.

Total operations demand for the San Diego Regional airports is now projected at 1,221,142 in 2030 based on the consolidation of the more recent forecasts. This total operational level is considerably less than the 1,847,225 operations in 2030 as estimated in the RASP forecast report.

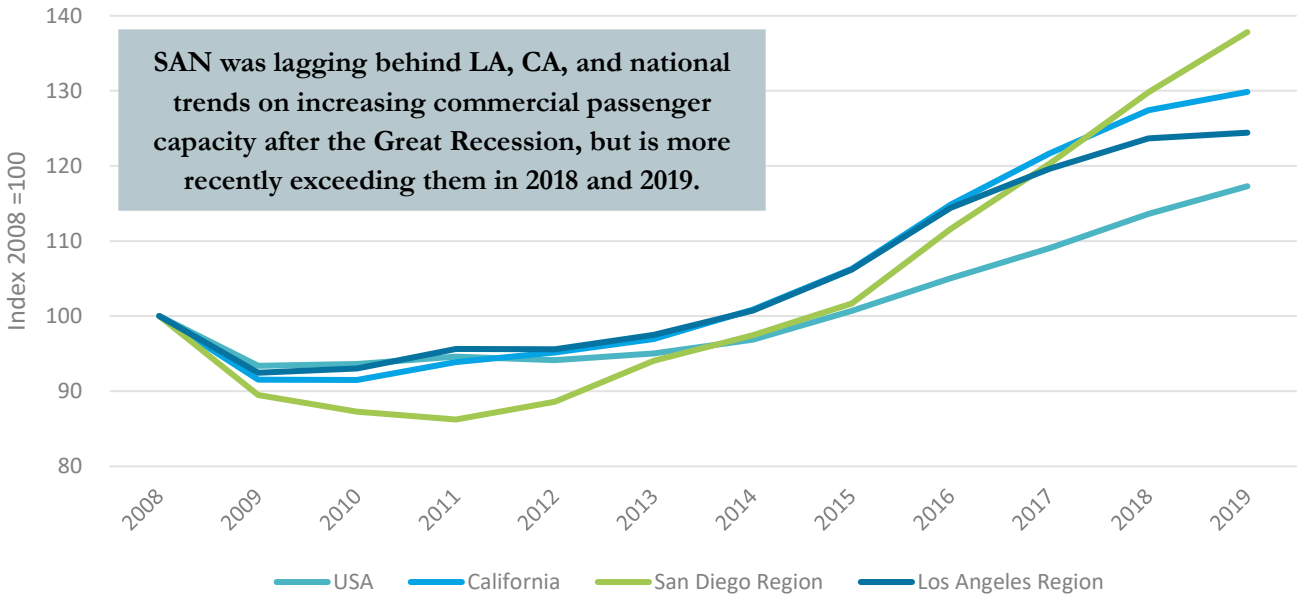
5.4 Aviation Industry and Socioeconomic Trends

The RASP forecast and latest forecast projections of traffic demand for San Diego Region airports were based on different periods of historical data (RASP: through 2007 + partial 2008; latest forecasts: through 2015 – 2017) and reflect some variances with broader aviation industry trends.

In an effort to reflect the trends in the aviation industry and in the socioeconomic sector, the following benchmarking charts were prepared to show how certain aviation components and metrics in the San Diego region compared to Los Angeles (LA), the State of California (CA), and the United States.

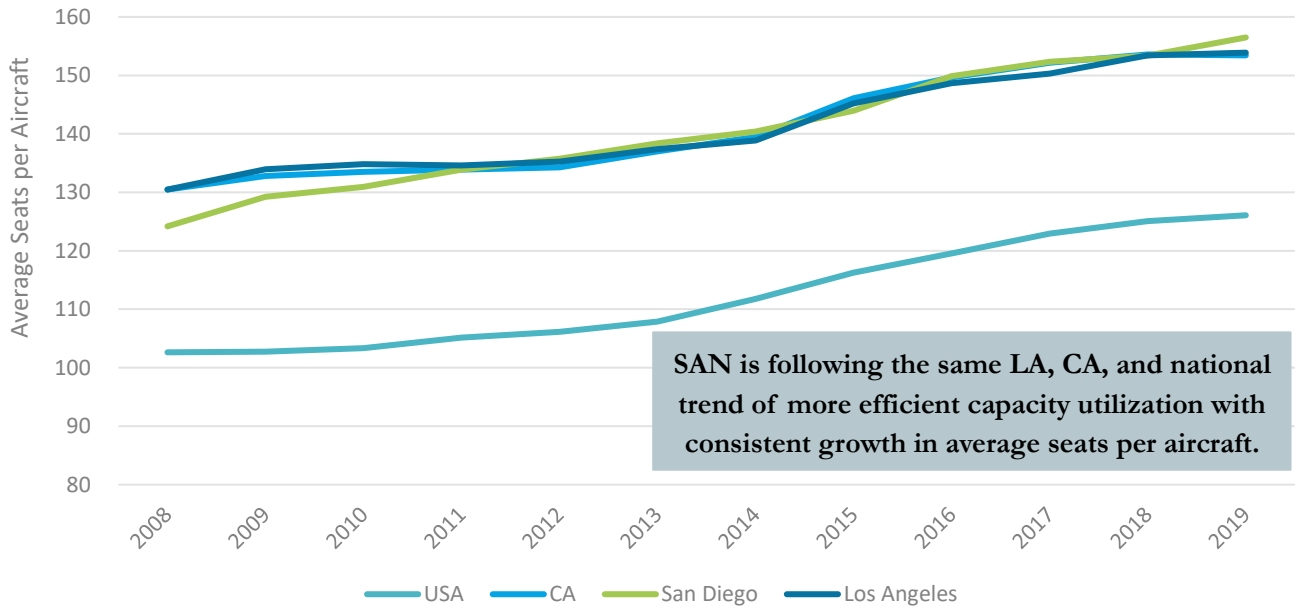
Trends in commercial passenger traffic activity were observed and reviewed for scheduled seats, average seat gauge (seats/per aircraft), reported ticketed passengers on commercial aircraft, and scheduled commercial passenger aircraft operations. As can be observed in **Figures 5.2 – 5.5**, the San Diego Region generally exhibited similar trends from 2008 – 2019 with these benchmark regions, and thus it can be reasonably expected the San Diego Region will continue to follow local, state and national trends. **Figure 5.4** depicts the T-100 data, or data reported by United States carriers operating between domestic airports.

Figure 5.2— Scheduled Commercial Passenger Seats Comparison



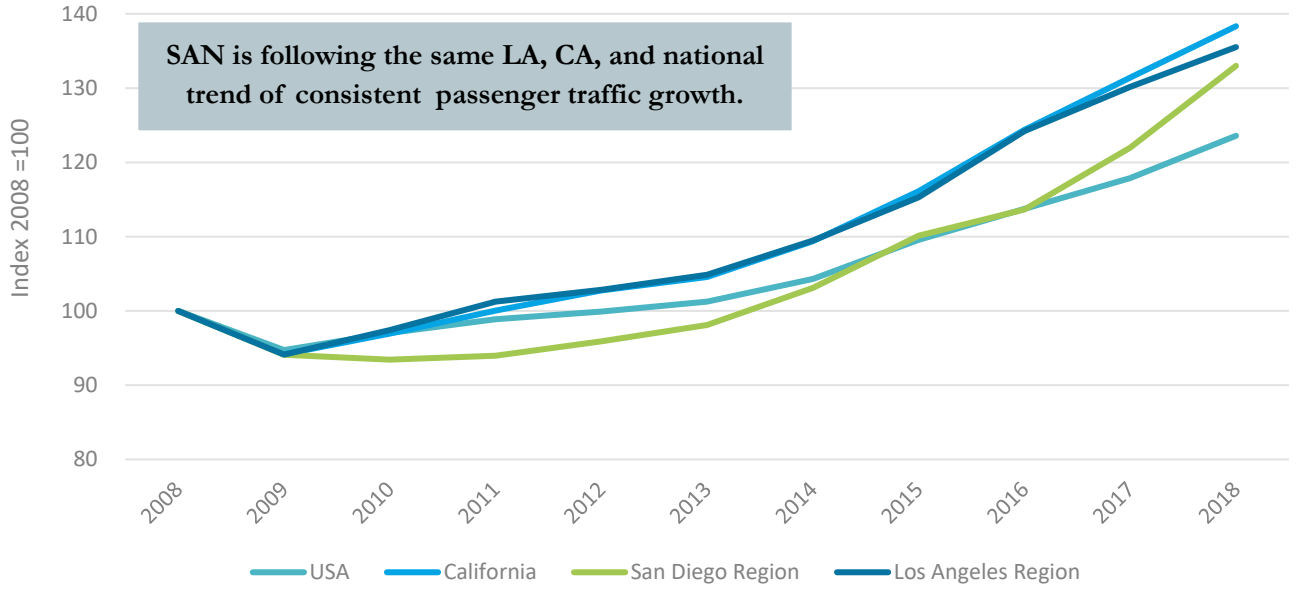
Source: Consultant Team; Official Airline Guide (OAG) data, 2020

Figure 5.3— Average Scheduled Seat Gauge Comparison



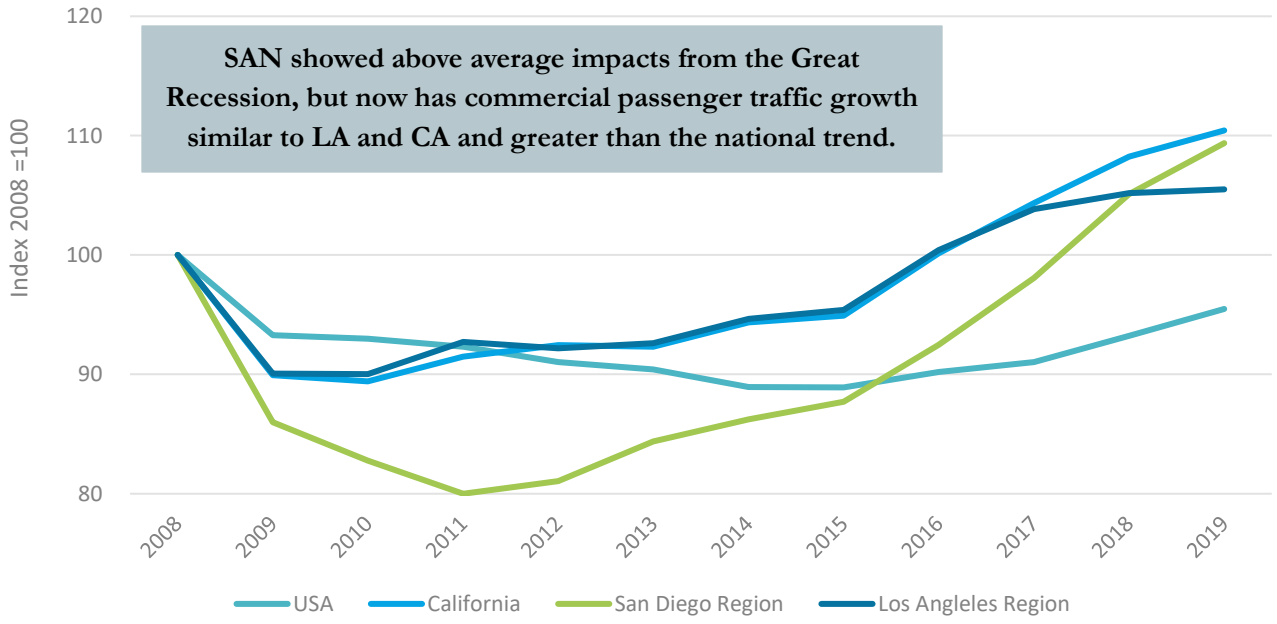
Source: Consultant Team; Official Airline Guide (OAG) data, 2020

Figure 5.4— Reported T-100 Total Passengers Comparison



Source: Consultant Team; U.S. DOT Schedule T-100 data, 2020

Figure 5.5— Scheduled Commercial Passenger Operations Comparison



Source: Consultant Team; Official Airline Guide (OAG) data, 2020

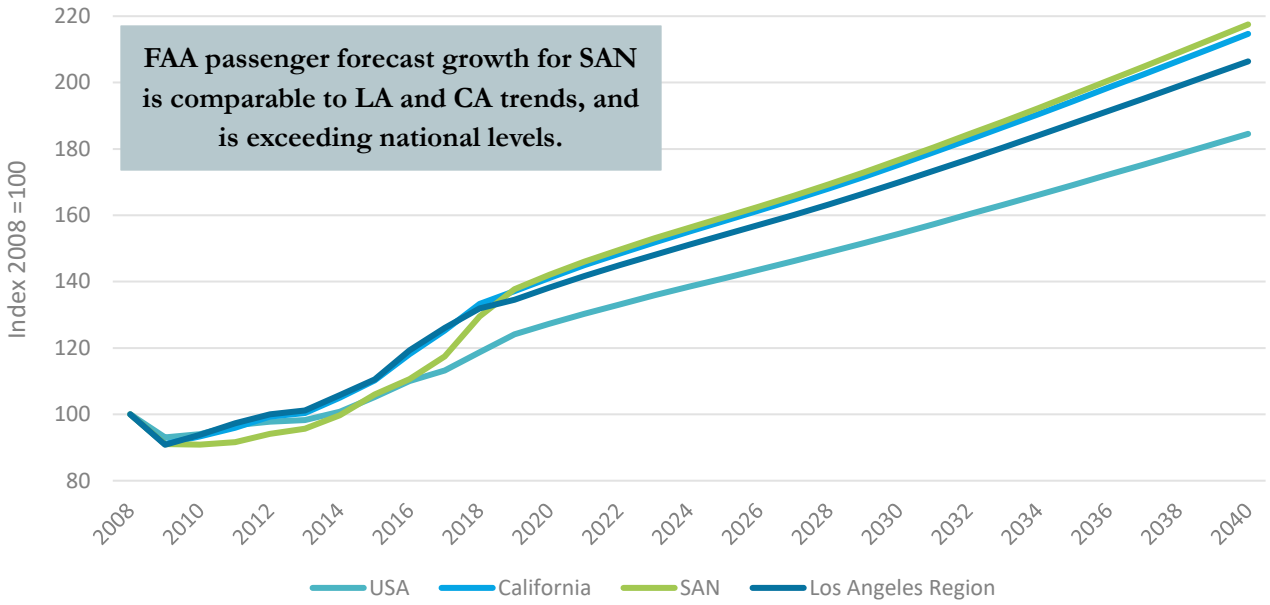
Other than in seat gauge, commercial passenger segments of seats, passengers, and operations all reflected the decline in traffic and demand in 2009 as an impact from the "Great Recession" financial crisis in 2008-2009, with a return to slow and gradual growth within a few years thereafter. The aviation industry has shown resiliency in the past and typical recovery times from major system shocks are usually less than three years before a return to the previous normal demand levels and growth conditions.

The 2019 FAA TAF projections for SAN, the San Diego Region, Los Angeles Region, State of California, and the U.S. are also exhibiting very similar and consistent trends; historically from 2008 – 2018, and for future growth from 2018 to 2040.

Enplanements shown in **Figure 5.6** are estimated to have very similar long-term growth rates through 2040, with SAN having a slightly higher estimate at 2.4% Compound Annual Growth Rate (CAGR) than the other benchmark regions (Los Angeles = 2.1% CAGR, California = 2.2% CAGR, and U.S. = 2.0% CAGR).

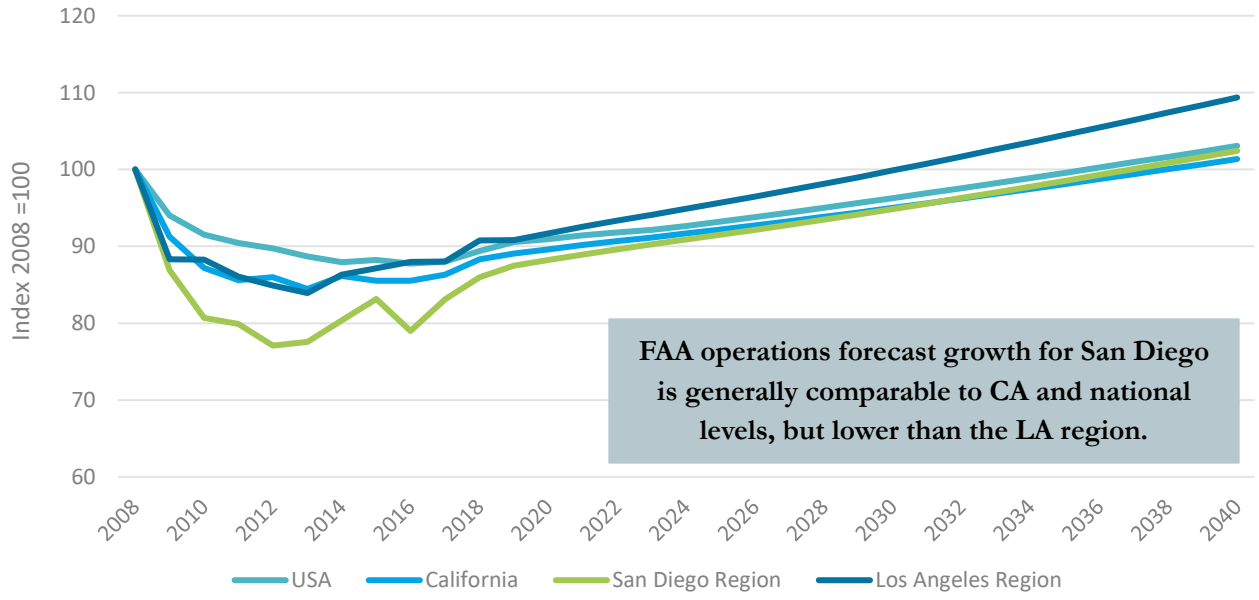
Figure 5.7 presents an indexed comparison of total operations projections for the benchmark regions with a small variance in average growth rates, having a range of 0.6% - 0.9% CAGR from 2018 to 2040 (San Diego = 0.8% CAGR, Los Angeles = 0.9% CAGR, California = 0.6% CAGR, and U.S. = 0.6% CAGR).

Figure 5.6 — FAA TAF Benchmark Enplanement Forecast Comparison



Source: Consultant Team; FAA 2019 Terminal Area Forecast, 2020

Figure 5.7 — FAA TAF Benchmark Total Operations Forecast Comparison



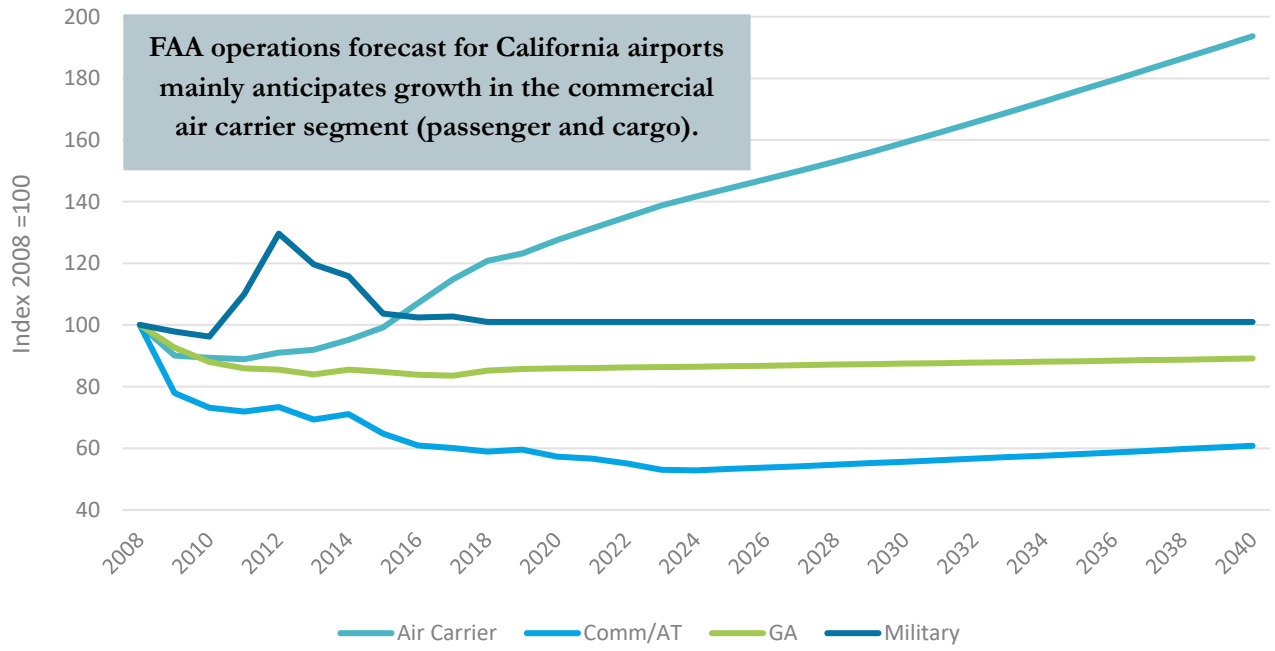
Source: Consultant Team; FAA 2019 Terminal Area Forecast, 2020

The TAF projections for total enplanements and total operations for the benchmark regions exhibited obvious similarities reflecting some consistency in expected growth in passenger traffic and total aviation operations traffic, but each segment of aviation is not expected to change (increase/decrease) in the same manner. **Figures 5.8** and **5.9** present the forecasts of operations for each segment of the TAF for California airports and all U.S. airports.

Most commercial passenger and freighter activity are provided by Air Carrier or Commuter aircraft with a general shift to larger aircraft as demand increases and efforts for greater efficiency are implemented. Since the "Great Recession" and even earlier back to 2004, demand for general aviation traffic has been decreasing due to higher oil and fuel costs.

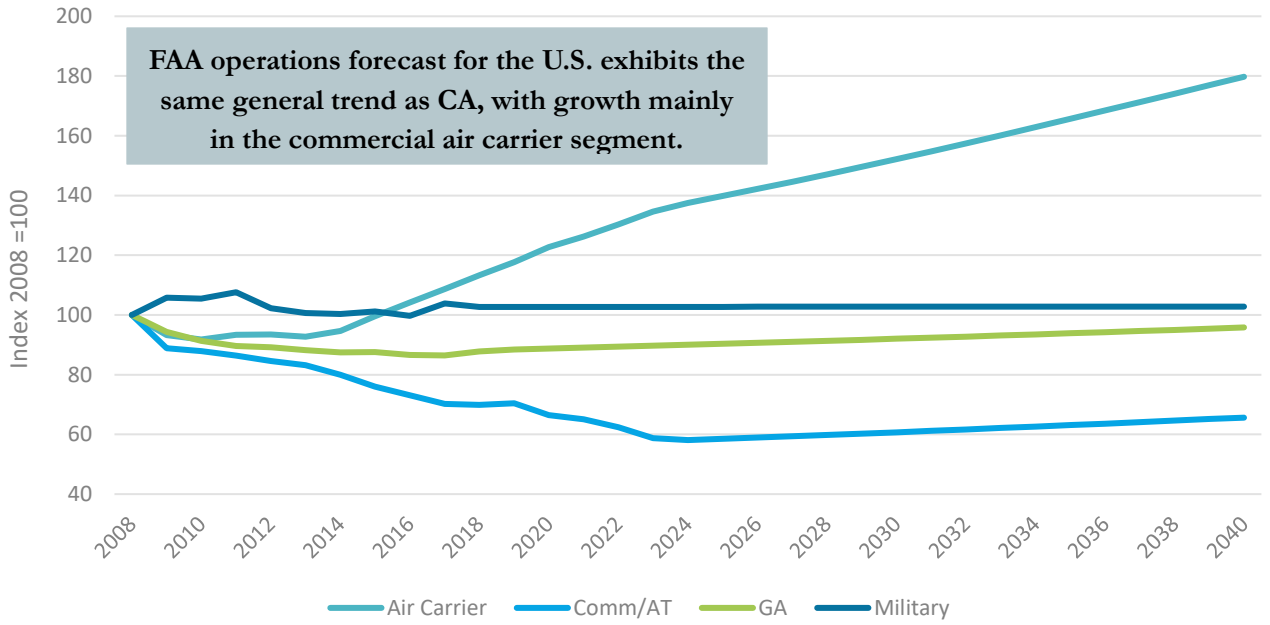
The TAF essentially expects only commercial traffic on Air Carrier aircraft to show real observable growth in the forecast. Business Aviation, the larger jet segment of Air Taxi operations and GA operations, is also expected to increase, while the other smaller aircraft within the GA segment is expected to be mostly flat, as is the military segment.

Figure 5.8 — FAA TAF Benchmark Operations - CALIFORNIA Segments Forecast Comparison



Source: Consultant Team; FAA 2019 Terminal Area Forecast, 2020

Figure 5.9— FAA TAF Benchmark Operations – U.S. Segments Forecast Comparison

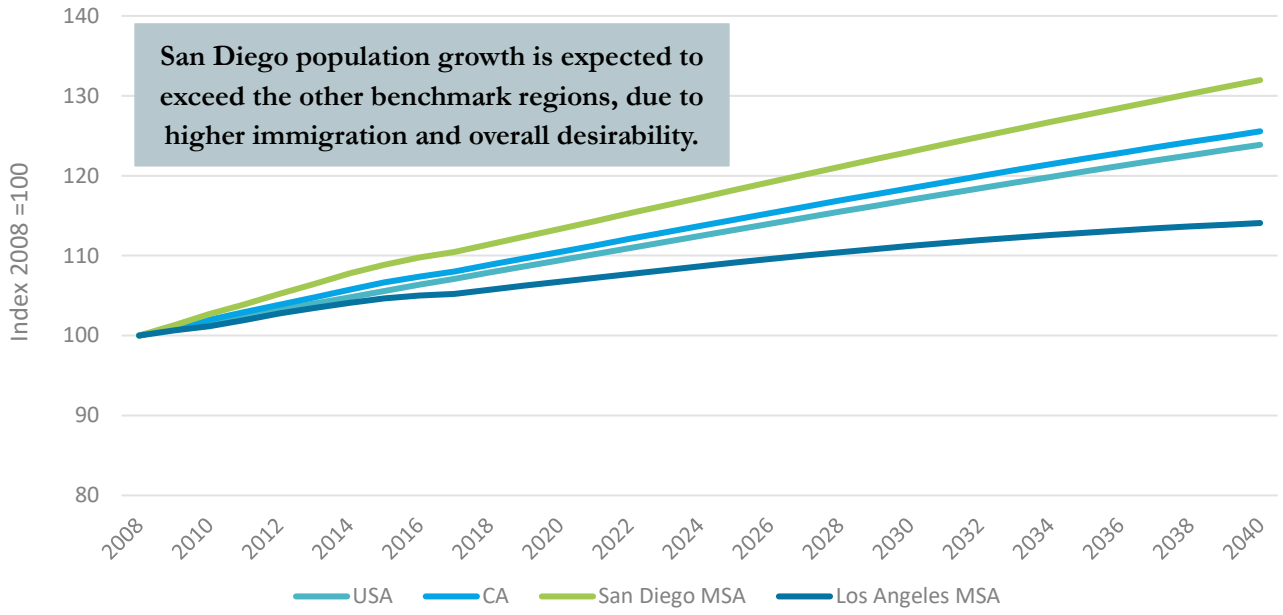


Source: Consultant Team; FAA 2019 Terminal Area Forecast, 2020

In addition to trends in aviation, socioeconomic conditions are typically good indicators of what drives or influences demand for aviation. Trends in common socioeconomic factors such as population, employment, and economic output (represented by gross domestic or regional product) were reviewed for comparison among the benchmark regions to understand how the San Diego Region has compared historically and how similar are future projections. Population growth for the San Diego Metropolitan Statistical Area (MSA) was observed to be higher than the benchmark regions since 2008 and is projected to maintain a higher growth rate through 2040, likely due to the proximity to the Mexico border and its status as a leisure market.

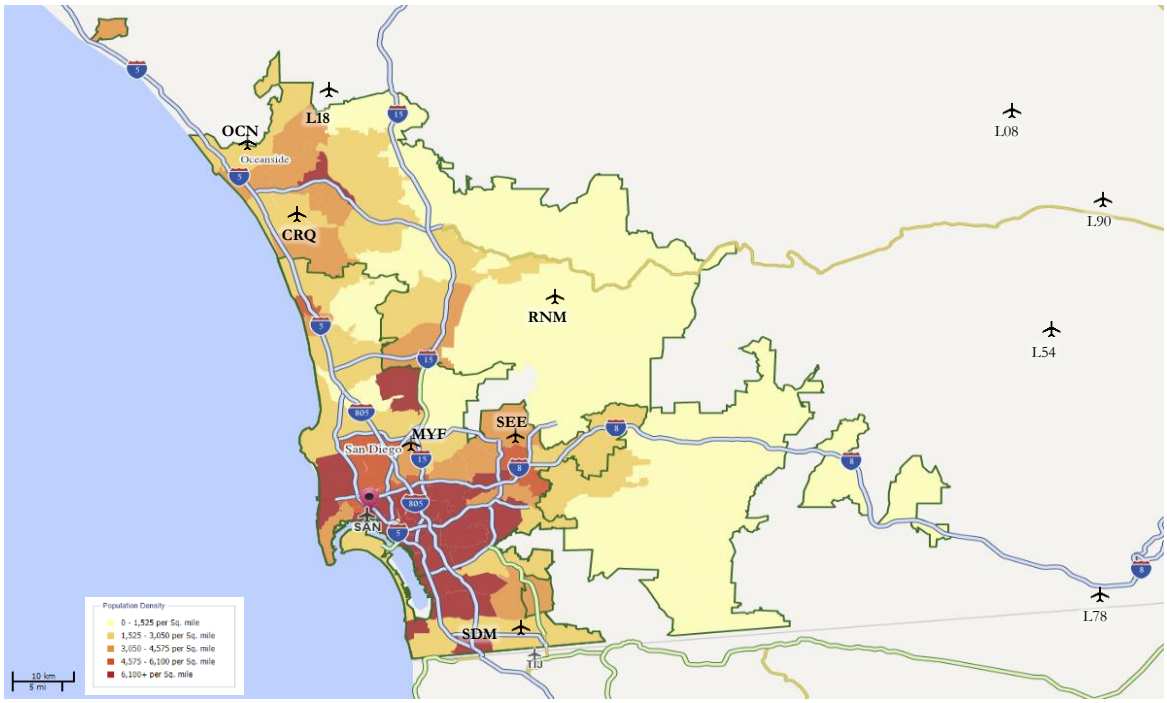
Figure 5.10 exhibits growth in all regions and represents a range of long-term growth rates from 0.3% CAGR for the Los Angeles MSA to 0.8% for the San Diego MSA (California = 0.7% CAGR and U.S. = 0.6% CAGR). **Figure 5.11** presents the population densities of the San Diego aviation region and locations of all the regional airports. Population growth tends to be slower than growth in employment, which is more closely linked to economic growth. Improvements in the broader economy typically suggests business travel and personal travel will also increase with a stronger and growing economy. This growth impacts both the commercial and general aviation segments of the aviation industry. Military traffic is mostly independent and does not necessarily follow the same trends as the other segments in relation to demand from economic conditions.

Figure 5.10 — Benchmark Population Forecasts Comparison



Sources: Consultant Team, Woods & Poole Complete Economic and Demographic Data Source (CEDDS), 2019

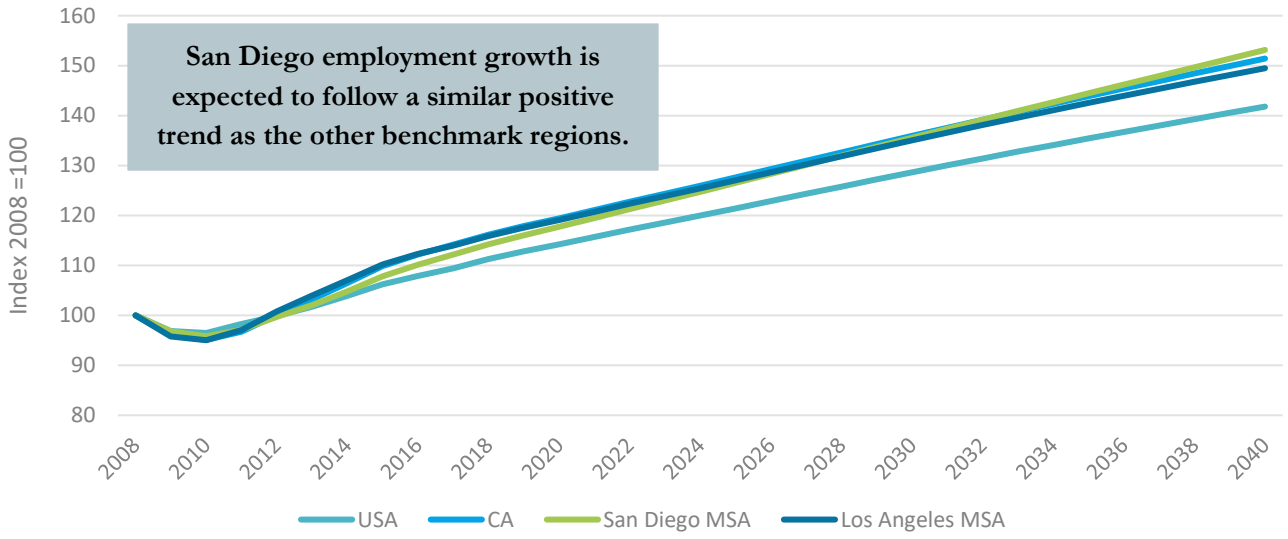
Figure 5.11 — Population Density Map for San Diego Region (2011 RASP)



Sources: RASP, 2011

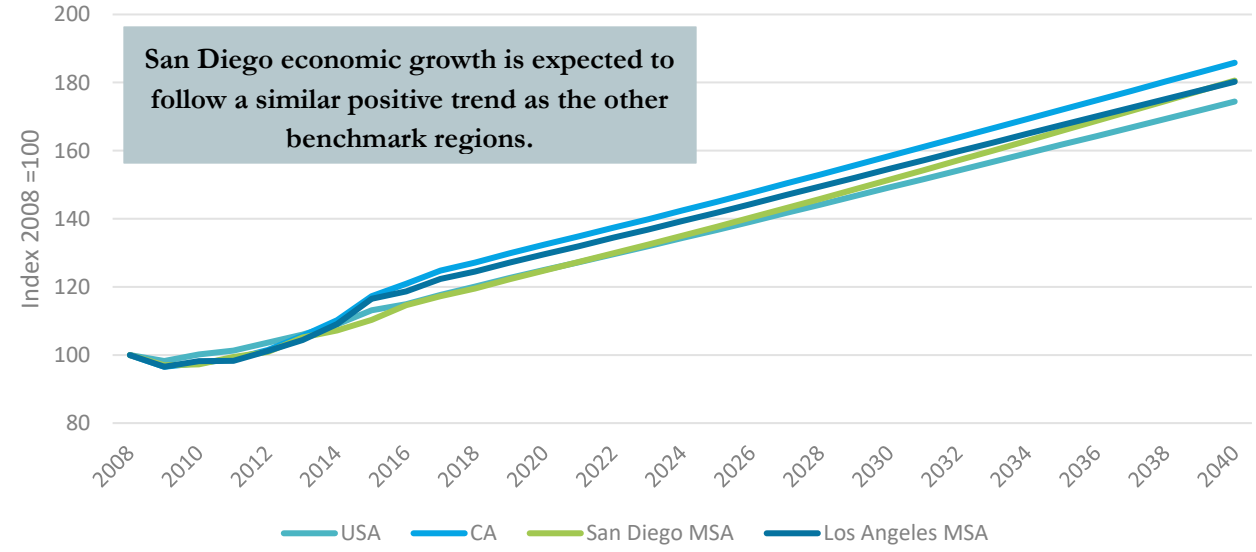
Figures 5.12 and **5.13** show the expected growth in employment and gross domestic product (GDP)/ gross rating point (GRP) for each of the benchmark Regions. Employment growth in the long-term forecast comparisons suggest growth at roughly 1.3% CAGR for the San Diego MSA with 1.2% CAGR for the other Regions. GDP/GRP growth follows the same relationship with 1.9% CAGR projected for the San Diego MSA and 1.7% CAGR for the other regions.

Figure 5.12 — Benchmark Employment Forecasts Comparison



Sources: Consultant Team, Woods & Poole Complete Economic and Demographic Data Source (CEDDS), 2019

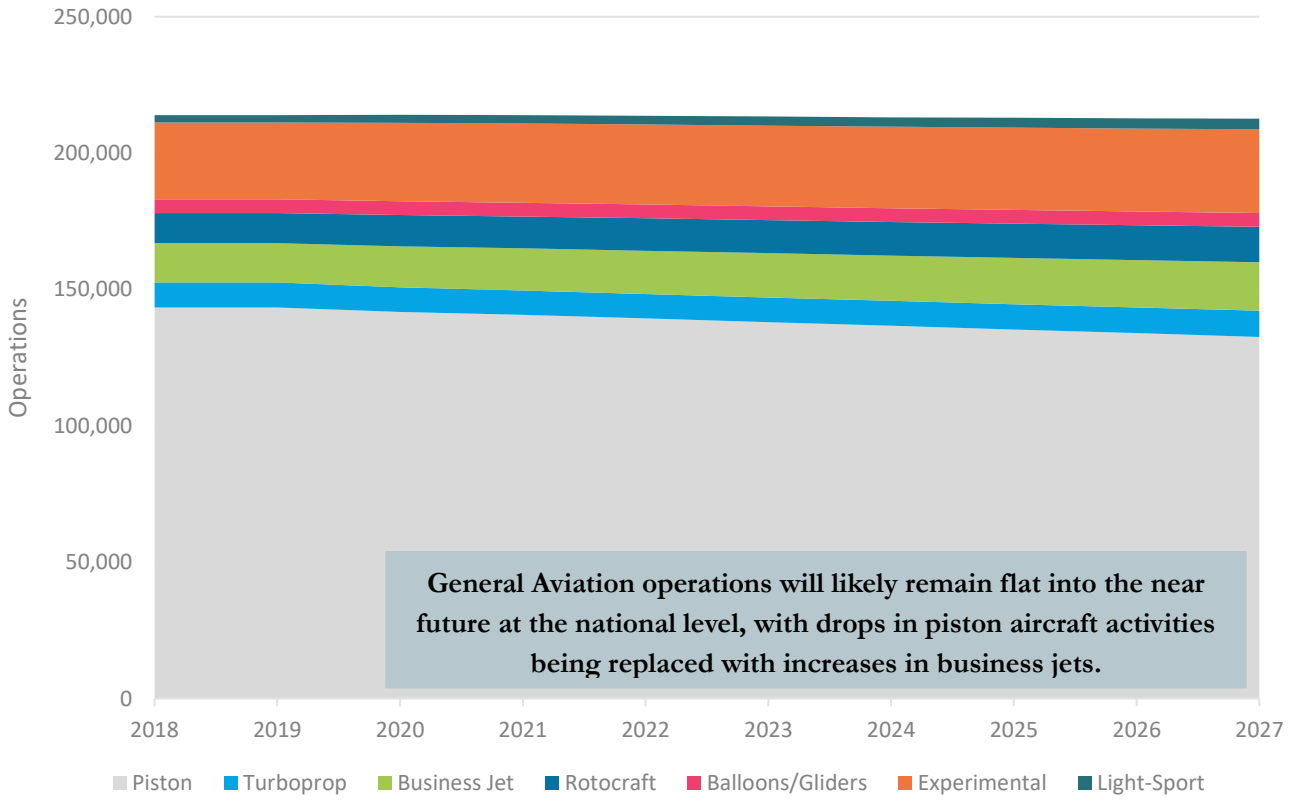
Figure 5.13 — Benchmark GDP/GRP Employment Forecasts Comparison



Sources: Consultant Team, Woods & Poole Complete Economic and Demographic Data Source (CEDDS), 2019

Trends in the General Aviation segment as summarized in the 2018 Annual Report of the General Aviation Manufactures Association (GAMA) projects a flat outlook of demand for general aviation aircraft in terms of the number of aircraft. The size of the U.S. GA fleet is expected to maintain similar numbers, but with slight increases in Business Jets and Experimental Aircraft amid continued reductions in Piston Aircraft. **Figure 5.14** shows the forecast of general aviation aircraft levels by segment through 2027.

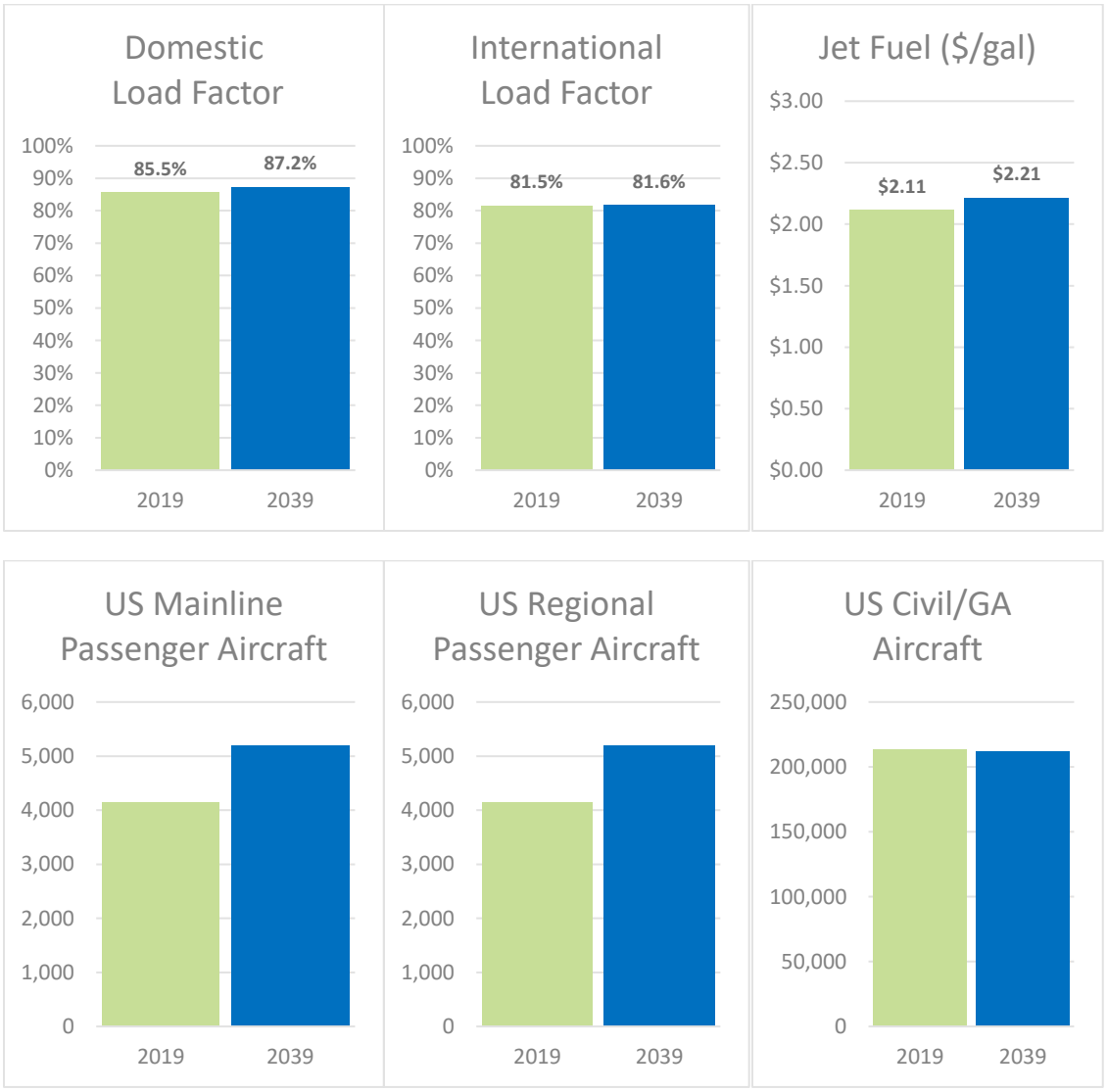
Figure 5.14 — 2018 General Aviation Aircraft Forecast for the United States



Sources: Consultant Team, GAMA 2018 Annual Report data

In the latest FAA Aerospace Forecast Report for Fiscal Years 2019-2039, the FAA projections and assumptions for changes in the aviation industry depict modest growth in the overall industry based in the U.S. with minor increases in jet fuel costs and already high domestic load factor, no real change in international load factor and a continual shift to larger aircraft including more jets versus piston aircraft. Overall from 2019 to 2039, U.S. enplanements are forecast to grow at an average annual rate of 1.6% per year for domestic traffic and 3.0% per year for international traffic. Total U.S. airport operations are projected to grow at 0.8% per year on average. **Figure 5.15** and **Figure 5.16** provide the overall changes in key aviation industry metrics between 2019 and 2039 as provided in the 2019-2039 FAA Aerospace Forecast.

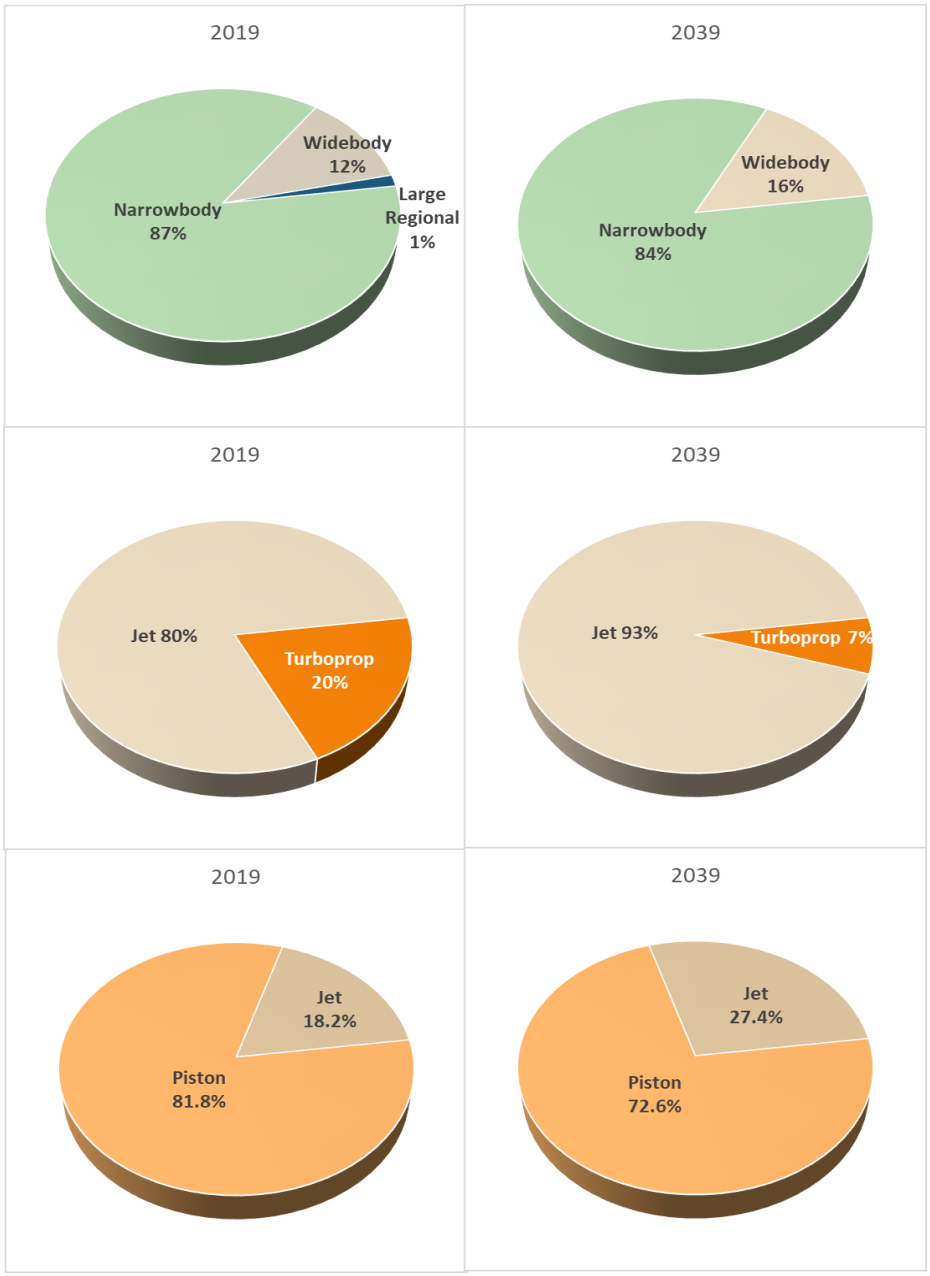
Figure 5.15 — 2019 FAA Aerospace Forecast - Key Industry Metrics Projections



Sources: Consultant Team, FAA Aerospace Forecast, Fiscal Years 2019-2039

The 2019 FAA Aerospace Forecast for Fiscal Years 2019-2039 projects that commercial passenger aircraft will be represented by 16% widebody and 84% narrowbody aircraft by 2039, up from just 12% widebody in 2019. Business aviation is expected to increase from 80% to 93% usage of jet aircraft by 2039, and overall the general aviation segment is expected to be 27.4% jet aircraft in 2039 up from 18.2% in 2019.

Figure 5.16 — 2019 FAA Aerospace Forecast - Commercial Passenger Aircraft Fleet Mix



Sources: Consultant Team, FAA Aerospace Forecast, Fiscal Years 2019-2039

Implementation Report Finding

The San Diego Region is historically consistent with trends in aviation, and socioeconomic conditions seen both nationally and in California. These are typically good indicators of what drives or influences demand for aviation. Trends in common socioeconomic factors such as population, employment, and economic output (represented by gross domestic or regional product) were reviewed for comparison among the benchmark regions to understand that the San Diego Region has compared historically to these trends and will continue to follow future projections.

5.5 Current Forecasts

Since the RASP was completed and finalized in 2011, new forecasts were prepared independently for six of the 12 San Diego Regional airports, and the remaining six airport traffic forecasts were collectively developed as part of the San Diego County Regional Airport Authority's Airport Land Use Compatibility Plans (ALUCPs).

The following list establishes the specific documents (and their completion dates) reviewed to derive the forecasts consolidated in this RASP Implementation Report:

- San Diego International Airport, Airport Development Plan (ADP) – 2019
- McClellan-Palomar Airport, Master Plan Update – 2018
- Bob Maxwell Field – Oceanside, Master Plan Study – 2016
- Gillespie Field, Airfield Demand/Capacity Analysis & Safety and Efficiency Study – 2015
- Brown Field Municipal Airport, Master Plan – 2017
- Montgomery-Gibbs Executive Airport, Master Plan – 2017
- FAA Terminal Area Forecast (TAF) – 2019

For the airports not directly listed above, the following forecast was used:

- San Diego County Airports Land Use Compatibility Plan, Appendix C – 2018

Upon review and consolidation of the available forecasts for the San Diego Regional airports, **Table 5.3** and **Table 5.4** were prepared and show the comparison of the previous RASP forecast projections for 2030 and the new updated forecasts for 2030; additionally the new forecasts now have projections through 2038. FAA projections from the 2019 Terminal Area Forecast for the year 2038 are also included as a reference point for the latest long-term comparisons.

Table 5.3—Updated Passengers Forecast Comparison

	Total Passengers 2030			Total Passengers 2038		
Airport	2011 RASP	2020 Update	% Variance	FAA TAF	2020 Update	% Variance
San Diego International (SAN)	28,213,494	35,390,567	+25.4%	38,725,820	38,653,535	0.2%
Tijuana Rodríguez International Airport* (TIJ)	-	14,070,714	-	-	20,788,853	-
McClellan-Palomar (CRQ)	100,000	274,670	+174.7%	22,254	283,722	-92.2%
Montgomery-Gibbs Executive (MYF)	-	-	-	-	-	-
Gillespie Field (SEE)	-	-	-	-	-	-
Brown Field Municipal (SDM)	-	-	-	-	-	-
Ramona (RNM)	-	-	-	-	-	-
Bob Maxwell Memorial Airfield (OKB)	-	-	-	-	-	-
Fallbrook Community Airpark (L18)	-	-	-	-	-	-
Borrego Valley (L08)	-	-	-	-	-	-
Agua Caliente (L54)	-	-	-	-	-	-
Ocotillo (L90)	-	-	-	-	-	-
Jacumba (L78)	-	-	-	-	-	-
Total	**28,313,494**	**49,735,951**	**+17.3%**	**38,748,074**	**59,726,110**	**-0.3%**

Notes: *TIJ passenger estimates were not part of the 2011 RASP study; TIJ is also not part of the FAA TAF
Source: Consultant Team, 2020

Table 5.4—Updated Operations Forecast Comparison

	Total Operations 2030			Total Operations 2038		
Airport	2011 RASP	2020 Update	% Variance	FAA TAF	2020 Update	% Variance
San Diego International (SAN)	309,800	280,955	-9.3%	343,427	377,230	-9.0%
McClellan-Palomar (CRQ)	268,700	188,324	-29.9%	162,768	195,050	-16.6%
Montgomery-Gibbs Executive (MYF)	271,800	214,582	-21.1%	238,497	221,896	+7.5%
Gillespie Field (SEE)	489,600	261,081	-46.7%	276,746	276,746	-
Brown Field Municipal (SDM)	175,900	86,625	-50.8%	82,199	87,050	-5.6%
Ramona (RNM)	242,100	114,946	-52.5%	104,948	123,120	-14.8%
Bob Maxwell Memorial Airfield (OKB)	18,200	23,050	+26.6%	16,246	24,300	-33.1%
Fallbrook Community Airpark (L18)	43,200	20,618	-52.3%	19,594	21,300	-8.0%
Borrego Valley (L08)	22,400	23,120	+3.2%	22,250	23,700	-6.1%
Agua Caliente (L54)	4,400	4,575	+4.0%	n/a	4,655	n.c.
Ocotillo (L90)	800	1,818	+127.3%	n/a	1,830	n.c.
Jacumba (L78)	325	1,448	+345.5%	n/a	1,500	n.c.
Total	**1,847,225**	**1,221,142**	**-33.9%**	**1,266,675**	**1,358,377**	**6.9%**

Notes: TIJ operations were not part of the 2011 RASP and no operation forecasts were estimated
Source: Consultant Team, 2020

Implementation Report Finding

The RASP forecasts were based on data through 2007 and partial 2008 traffic data, which did not yet foresee the global financial crisis in 2008-2009, lasting spikes in oil prices from 2008-2014, and the resulting decline in general aviation demand that occurred in the following years.

The current forecasts' consolidated estimate of 1,221,242 operations in 2030 represents a decrease in total regional operations demand of 9.5% below the baseline in 2007 (or 1,349,203 operations) and 34% lower than the previous RASP forecast estimate for 2030.

The current consolidated operations forecast for 2038 of 1,358,277 is also 7.2% higher than the latest FAA TAF estimate of 1,266,675 total operations for 2038[1]. Total operations demand is projected to increase at 1.1% during the long-term forecast period of 2018 to 2038. See forecast comparisons in **Table 5.3** and **Table 5.4**

[1] The 2019 FAA TAF does not include estimates for three non-listed public airports (Agua Caliente, Jacumba Airport and Ocotillo Airport), which each had very limited activity reported at less than 1,000 operations in the RASP study.

Section 6—Implementation Scenarios

6.1 Introduction

In 2011, a wide range of reasonable concepts were evaluated in the RASP. Some remain valid today, some have been completed, and others are now considered less feasible than originally thought. Each scenario is reviewed below and updated to reflect 2020 considerations.

The scenarios included individual measures that could be taken to optimize markets and use types – which if enacted could optimize the broader San Diego Regional Airport System. While no single measure was anticipated to make a significant impact on its own, the collective effect of multiple scenarios was expected to lead to worthwhile system optimization.

In 2020, most of the scenarios are still viable, but, in most cases, the individual measures originally envisioned to support the scenarios are no longer feasible.

6.2 Scenario One – Commercial Passenger Optimization

This scenario seeks to address capacity limitations at SAN by developing future facilities, enhancing airline service at other regional airports, preserving capacity at SAN for commercial service, and adjusting the size of aircraft at the Airport.

Figure 6.1— Scenario One

Source: Consultant Team, 2020

Full Build-out of the ITC and North Side Terminal at San Diego International

The 2011 RASP envisioned the expansion of terminal facilities onto the Airport's north side, in conjunction with an Intermodal Transit Center (ITC) to better connect to the regional transit network. This would accommodate between 1.2 and 1.8 million additional annual passengers.

While siting terminals on SAN's north side has been found to be infeasible due to airfield operational constraints, several transit and mobility improvements have been made at SAN and more improvements are planned as part of Airport Development Plan implementation. Some improvements and developments towards this measure include:

- Vehicle parking facilities were expanded in 2018 with a 2,901-space parking garage.
- The new consolidated rental car facility was completed in 2016, reducing traffic congestion on North Harbor Drive.
- A "Trolley-to-Terminal" shuttle connection was launched in 2016, linking Middletown Trolley Station to both airport terminals
- A new on-airport entry roadway with multi-use path is planned as part of the ADP
- New shuttle service between Old Town Transit Center and airport terminal areas is planned as part of the ADP

The scenario also considered the preservation of the SAN airfield for commercial service.

- As part of the ADP, SAN is developing a new taxiway and implementing other airfield upgrades, which will increase airfield functionality.

Enhance Commercial Passenger Service at McClellan-Palomar

This measure seeks to maximize the use of CRQ for commercial passenger activity by increasing Airport capacity from approximately 500,000 to 750,000 annual passenger enplanements, and to offer non-stop/direct services to markets within a 1,500-mile radius.

Two subsets of air service "drivers" were considered:

(1) McClellan-Palomar infrastructure enhancements where facility expansion attracts more activity; and

(2) San Diego International capacity constraints where the lack of capacity causes aviation activity to go elsewhere.

In 2020, CRQ is undertaking airfield improvements that will further support commercial service aircraft using the Airport. Not all of the specific projects outlined in the RASP at CRQ are currently planned (terminal and parking expansion) in the near-term horizon, but could be considered when demand dictates. As the operator of CRQ, the County of San Diego continuously works to bring commercial service to the airport and is undertaking an EMAS project. While these improvements are not the measures outlined in this scenario, they continue to support and enhance commercial passenger service opportunities at CRQ.

Enhance Commercial Passenger Service at Brown Field

This measure looks to introduce commercial passenger service at SDM. The current airfield would not restrict the type of aircraft operating at the facility, but service would most likely be provided by regional jets (e.g., greater than 70 seat aircraft).

Several major improvements, which are not currently planned in the short term at the airport, would also be necessary to facilitate air service at SDN:

- New passenger terminal building
- Access/entrance roadway improvements
- 2,800 automobile parking spaces
- Facilities for Code of Federal Regulations Part 139 certification (e.g., requirements for commercial passenger services, including security fencing, firefighting facilities)
- Various utility upgrades

There are several other factors that must be considered for this scenario to be successful:

- The proximity of Brown Field to two existing commercial service airports (San Diego and Tijuana Rodriguez International Airports) negatively impacts the viability of this scenario
- The remote location in the southern portion of San Diego County is not desirable for commercial passenger operators, as compared to norther San Diego County and CRQ.
- Terrain and airspace complications hinder the implementation of precision approaches – necessary facilities for the initiation of commercial service

As such, the City of San Diego continues to focus solely on general aviation at Brown field Municipal Airport in 2020.

Up-gauge San Diego International's Aircraft Fleet Mix

This measure encourages air carriers to reduce the use of regional jet or smaller aircraft at SAN; aircraft operations would be replaced by narrow-body type aircraft with an average seat capacity of 140 seats. Additionally, it encourage air carriers to deploy large capacity aircraft at SAN.

The Authority has no legal jurisdiction to dictate the type of aircraft operated by its users. However, market forces normally prevail; air carriers "right size" seat capacity based on the characteristics of their overall network, including destinations served, services, and demand. This has generally occurred at SAN since the RASP, with airlines transitioning from operating limited-capacity regional jets to larger aircraft and resulting in the closure of SAN's Commuter Terminal in mid-2015.

Implementation Report Finding

Commercial Service Optimization Scenario: SAN has completed some improvements proposed in this scenario, such as a consolidated rental car center on its northside. The SAN Airport Development Plan (ADP) is currently underway, which includes a new taxiway and a replacement terminal. The airlines using SAN have also successfully upgraded their fleets, although the Authority does not play a role in this decision. Several commercial service airlines have provided service from CRQ since 2011 and the County is working to restart commercial passenger service at the Airport. Commercial service is not currently being considered at SDM.

In terms of optimizing ground access to commercial service airports, SANDAG is working towards a Central Mobility Hub to better connect SAN to the regional transit system, via an automated people mover. New shuttle service between the Old Town Transit Center and the airport terminal areas is also being launched in the near term as part of the SAN ADP.

While many of the original measures under this scenario have yet to materialize at CRQ and SDM, the region continues to be able to support commercial service at more than one facility and this is expected to continue. Furthermore, this scenario remains valid as SAN continues to make improvements, maximizes the intermodal efficiencies, and air carriers up-gauge the fleet mix.

6.3 Scenario Two – Enhanced Utilization of Tijuana Rodriguez International Airport

This scenario focuses on improving access to Tijuana Rodriguez International Airport to assist in accommodating the region's passenger demand. The scenario focuses on facilitating border crossings, an aviation passenger cross border facility, and a cross border airport terminal.

Figure 6.2— Scenario Two

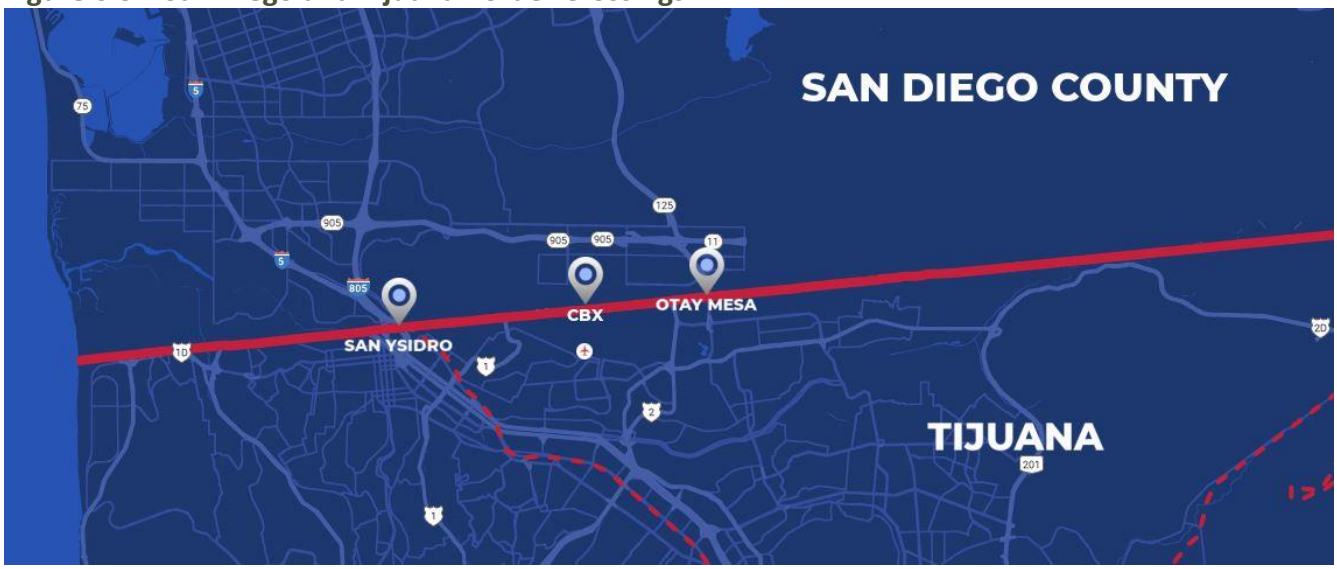
Source: Consultant Team, 2020

Facilitate Border Crossings

This measure focused on increasing access to TIJ by improving existing Otay Mesa and San Ysidro international border crossings. The Otay Mesa Port of Entry connects San Diego with the Otay Centenario borough of Tijuana. It was constructed in 1983 to divert commercial truck traffic from the San Ysidro Port of Entry. The San Ysidro Port of Entry is the largest land border crossing between San Diego and Tijuana. Both ports of entry have undergone roadway and facility improvements to facility faster border crossings and more upgrades are planned.

This measure assumed the implementation of *Project Smart Border 2010*, a San Diego Regional Chamber of Commerce initiative. These improvements focused on reducing border crossing times by 40%, increase shuttle and bus service to Tijuana from the Los Angeles and San Diego Regions, increasing air service to Mexican international markets and limited increases in air service to U.S. markets, and facility improvements at TIJ.

Figure 6.3—San Diego and Tijuana Border Crossings



Source: Smart Border Coalition, 2020.

In 2020, this effort is now led by the Smart Border Coalition, an organization with the aim to bring together San Diego and Tijuana businesses, government, agency and civic society leaders to advocate for improvements at the U.S. ports of entry. Since 2014, this effort is independent of the Chamber of Commerce.

Aviation Passenger Cross Border Facility

This scenario proposed the increased use of TIJ by offering a cross border facility, allowing U.S. ticketed passengers' access into the Airport.

As of 2015, this scenario has been successfully achieved. Cross Border Xpress (CBX) is a terminal facility located in the United States, which allows passengers in the U.S. to access the Tijuana International Airport via a bridge that connects to the concourse, so passengers can take flights to destinations within Mexico or internationally as if they were domestic passengers once past border security.

For passengers entering the United States, there are four "double-stack" booths at CBX accommodating up to 8 Custom and Border Patrol (CBP) officers. Due to the high demand, this is now being doubled, so that 16 CBP officers can work at one time. In addition, a new processing facility is being built at TIJ, so that inbound International passengers will no longer have to clear Mexican customs before clearing U.S. customs.

Cross Border Airport Terminal

This scenario proposes a passenger cross border terminal on the U.S. side of the border to facilitate processing of U.S. passengers utilizing TIJ. As opposed to the passenger cross border facility measure (see above), this facility would also include passenger processing facilities (i.e. ticketing, bag checks, security screening, etc). In 2020, no such facility is being contemplated and the current cross border facility (CBX) has likely adequately addressed this need in the Region.

Implementation Report Finding

Enhanced Utilization of Tijuana Scenario: Opened in December 2015, Cross Border Xpress (CBX) provides a pedestrian bridge for passengers to more easily access the Tijuana Rodriguez International Airport from the United States. The 390-foot bridge directly connects to the foreign airport terminal, which mainly provides air service to other destinations within Mexico. In addition, border crossing improvements have been successfully completed to reduce wait times at San Ysidro and Otay Mesa and more upgrades are planned. A regional transit connection to CBX is under consideration by SANDAG, which would improve ground access between CBX and SAN.

The CBX facility is one of the measures from the RASP that has been successfully implemented as envisioned. As seen in the forecast section of this Report, the CBX facility allows commercial passengers direct access to markets not directly served by SAN. Improvements made at the three border crossings facilitate travel from San Diego to Tijuana and all support this scenario's goal of optimizing the utilization of TIJ.

6.4 Scenario Three – California High Speed Rail (HSR)

This scenario identified high speed rail to offer passengers an alternative transportation resources to reach cities within

California. The scenario identified stations and alignments in downtown San Diego and SAN. Additionally, the Region's residents could use HSR to access other Southern California airports and their ultimate destination.

Figure 6.4— Scenario Three

Source: Consultant Team, 2020

When the RASP was in development, the HSR was conceptual in nature and planned to connect from Sacramento and the Bay Area, through central California to San Diego. When all segments of the project are completed, HSR can be used an alternative or replacement for intra-California air travel or to access another airport within California. This scenario would not only provide San Diego residents an alternative to intra-California air travel, but also an alternative ground transportation method to access SAN.

In 2020, the future of high-speed rail throughout California is still conceptual. Current focus is on developing Phase 1 of the State's HSR network connecting Anaheim to the San Francisco via the Central Valley. No concrete plans have been made for construction in the San Diego Region. This segment of the project is planned to be one of the last phases of the HSR project. While there is not a published timeline for completion of the entire HSR, it is anticipated to fall outside of the RASP planning period.

Implementation Report Finding

California High Speed Rail Scenario: When the RASP was in development, California High Speed Rail (HSR) was expected to start service in the San Diego Region in 2027. Currently, the California HSR Authority is focusing on the Phase 1 segments of the statewide alignment. In Southern California, the HSR Authority is working to identify the best configuration for the Los Angeles to San Diego section. However, this HSR section is a later phase of the project and no specific date is published for its estimated completion.

High-speed rail may still alleviate commercial passenger service demand when it is implemented, but cannot be counted on to be implemented within the RASP planning period. In the 2011 RASP, this scenario had the highest potential to ease commercial service passenger constraints for the Region, yet HSR is sponsored by the State of California's High-Speed Rail Authority – not the Region's airport sponsors.

6.5 Scenario Four – General Aviation Optimization

This scenario focuses on enhancing the Region's high-end general aviation airports, thus providing an alternative to SAN. The scenario suggests a regional redistribution of general aviation activity with based aircraft shifted away from airports that offer commercial passenger service. Under these assumptions, facility improvements at each facility would incentivize aircraft owners to relocate or increase their utilization of the airport being improved. This scenario also assumes a "coordinated" regional FBO and general aviation policy between all the Airport Operators in the Region to facilitate and shift the traffic.

Figure 6.5— Scenario Four

Source: Consultant Team, 2020

Enhance CRQ for High-end/Corporate General Aviation

The McClellan-Palomar Airport would shift its role to solely focus on general aviation. Its existing terminal would be converted into a high-end FBO facility and the runway extended 1,000 feet to accommodate a full range of high-end general aviation traffic (general aviation traffic such as corporate travel and jet flights). Today, CRQ continues to focus on improvement and development that would benefit all users, both general aviation and commercial service.

Enhance SDM for High-end/Corporate General Aviation

Consistent with the Airport's current development, this measure anticipated the construction of an additional FBO facility, corporate hangars, and t-hangars at Brown Field Municipal Airport in order to accommodate the Region's high-end general aviation traffic.

Enhance SEE for Mixed Use General Aviation

Gillespie Field continues to develop its facilities to support the Region's general aviation activity. Additional apron and airfield improvements increase the demand for recreational and corporate general aviation activity.

Implementation Report Finding

General Aviation Optimization Scenario: This scenario assumed that these three airports would focus only on the general aviation market. Although CRQ continues to pursue commercial passenger service, the County has made improvements that support the general aviation markets at the airport. Likewise, the City of San Diego is finalizing a new master plan for Brownfield Municipal that will expand its general aviation amenities. There are no current efforts for a regional approach to a FBO and general aviation policy, which is an important component to this scenario. Finally, the lower-than-forecasted operational levels for the Region's airports suggests that there is not currently a need to shift the general aviation traffic between the airports within the Region, as originally predicted in the RASP.

6.6 Scenario Five – Air Cargo Optimization

This scenario looked to relocate air cargo services away from SAN, but was identified as flawed in the RASP for the following reasons:

- Air cargo operators are unwilling to operate from facilities other than San Diego International due to increased distance from air cargo sorting infrastructure.
- Most of the San Diego International air cargo is accommodated on integrated/express air cargo carriers (90%) and originates in or is destined for downtown San Diego.
- There is a significant lack of cargo infrastructure located near Brown Field, whereas this type of supporting infrastructure is already in place near San Diego International.
- Terrain surrounding the Airport, as well as its proximity to Mexican airspace, limits the ability for instrument approaches, which would be needed to air cargo operations in all weather situations.

Figure 6.6— Scenario Five

Source: Consultant Team, 2020

Implementation Report Finding

Air Cargo Optimization Scenario: When the RASP was in development, this alternative was identified as flawed due to airspace and logistical constraints. There also continues to be no regional desire, demand, or need to relocate cargo from SAN to another airport. It should be noted that SAN has included planned improvements to its northside cargo facilities in its airport master plan to enhance air cargo service for the Region. Consistent with the RASP, this scenario is still unlikely to happen. All of the constraints identified in the 2011 RASP still exist in 2020.

Section 7—Conclusion

7.1 Overview

The airport operators in the San Diego Region – San Diego County Regional Airport Authority, County of San Diego, City of San Diego, City of Oceanside, as well as the operators of the CrossBorder Xpress and Tijuana International Airport – have collectively made significant progress in implementing the 2011 Regional Aviation Strategic Plan. Since 2011, capital improvements and operational modifications have been completed at nearly all 12 public use airports, plus CBX/TIJ, which help to optimize the San Diego Regional Airport System. The RASP's five scenarios to help balance and meet the regional demand for commercial and general aviation traffic remain valid, but many of the individual measures identified under each scenario have evolved and will likely continue to do so. The 2011 RASP also continues to inform SANDAG's regional transportation planning efforts, including the current preparation of the 2021 Regional Transportation Plan ("San Diego Forward: The Regional Plan") to ensure efficient and effective ground access to the region's airports.

Table 7.1 – RASP Scenario Summary

Scenario	2011 RASP		2020 Implementation Report	
	Valid	Not Valid	Valid	Not Valid
1. Commercial Service Optimization	✓		✓	
2. Enhanced Utilization of Tijuana	✓		✓	
3. California High Speed Rail	✓		✓	
4. General Aviation Optimization	✓		✓	
5. Air Cargo Optimization	✓		✓	

Source: Consultant Team, 2020

Passenger demand in the San Diego Region has grown at a rate well above the values, which were projected in the 2011 RASP, while overall operation levels has not grown due to a decrease in general aviation traffic demand and the up-gauging of commercial service aircraft. Therefore, commercial service capacity in the San Diego Region is no longer considered constrained within the RASP's planning horizon. The updated airport forecasts consolidated in this Implementation Report predict that roughly 1.35 million annual operations are expected for the San Diego Region (excluding Tijuana International) in 2038. Concurrently, total commercial passengers (excluding Tijuana International) for the San Diego Region are forecast to increase to 38.9 million annual passengers by 2038. Nearly all of this commercial passenger growth is assumed to occur at San Diego International Airport, where runway capacity limits passenger traffic to approximately 40 million annual passengers. Excess passenger demand after 2038 in the San Diego Region could result in "leakage" to airports in the Los Angeles region or to Tijuana International Airport, via the Cross Border Xpress facility.

As such, the need remains for continuing a coordinated and collective approach, as successfully done through the 2011 RASP and this Implementation Report, to optimize the San Diego Regional Airport System. The RASP will be reevaluated periodically by the San Diego County Regional Airport Authority, in collaboration with the other airport operators. It is likely that the 2011 RASP scenarios will need to be formally updated at some point in the future. When this occurs, emerging technologies such as urban air mobility, unmanned aircraft systems, electric aircraft and vehicles, and other new innovations will need to be assessed to better understand opportunities and challenges with integrating them into the region's airport infrastructure.

For additional information about the Region's Airports, the RASP, and this Report, please visit the RASP's website.