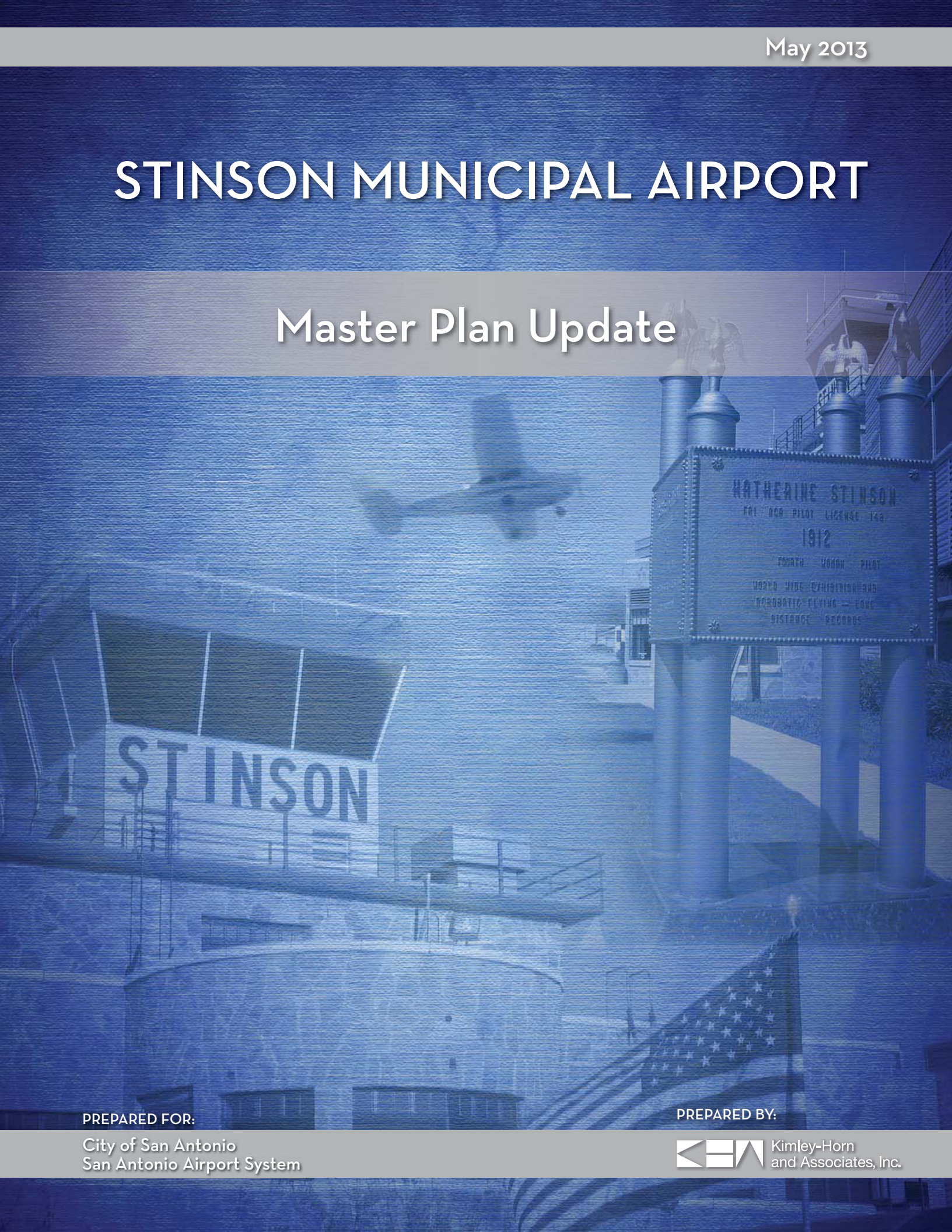
May 2013

STINSON MUNICIPAL AIRPORT

Master Plan Update



PREPARED FOR:

City of San Antonio
San Antonio Airport System

PREPARED BY:

Kimley-Horn
and Associates, Inc.

STINSON MUNICIPAL AIRPORT
MASTER PLAN UPDATE

Prepared for:
City of San Antonio, Texas

Prepared by:
Kimley-Horn and Associates, Inc.

In association with:
Bain Medina Bain, Inc.
Geodetix, Inc.
Kutchins & Groh LLC
Raba-Kistner Consultants, Inc.
Ricondo & Associates, Inc.
Williams CAD Consulting
Ximenes & Associates, Inc.

May 2013

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EXECUTIVE SUMMARY

INTRODUCTION

Stinson Municipal Airport (SSF or the Airport) is a general aviation airport owned by the City of San Antonio (COSA) and operated by the San Antonio Aviation System (SAAS). Stinson Municipal Airport is one of 24 reliever airports located in Texas[1].

A Master Plan Study for the Airport was most recently completed in 2002. Many of the recommended components of that plan have been completed, including land acquisition, a runway extension, taxiway improvements, and a renovated and expanded terminal building. As an ongoing commitment to the Airport's development and significant role in general aviation, the 2002 plan was updated. This process involved airport stakeholder and user engagement from a wide array of sources in order to develop a plan that not only suits the Airport's facility needs but also the needs of its users, the community, and the region.

This document describes the analyses and assessments conducted during the Airport Master Plan process and provides the results of those efforts. The master planning study is intended to span approximately a 20-year period; however, certain aspects of the recommended plan will take into consideration expansion beyond the final planning horizon. The intent is to maintain a flexible framework, to allow for contingencies which are increasingly a part of airport development, and to not in any way propose a rigid program which would inhibit the City's ability to respond to circumstances that cannot be reasonably predicted at this time.

The master plan elements were conducted in accordance with Federal Aviation Administration (FAA) guidelines established in Advisory Circulars 150/5070-6B, Airport Master Plans, and 150/5300-13, Airport Design. Specific elements included as part of this master plan are:

- Inventory
- Activity forecasts
- Demand/capacity analysis and facility requirements
- Alternatives development
- Environmental review
- Financial plan and
- Airport layout plan drawing set preparation.

Master Plan study activities and coordination during the course of the project occurred at various strategic milestones throughout the project's duration. These activities included stakeholder meetings, Airport staff meetings, public information meetings, and a business development workshop.

The following subsections briefly outline the major findings and recommendations presented in the Master Plan Update Technical Report.

[1] Texas Airport System Plan Update 2010, Texas Department of Transportation, Table 3.

AVIATION ACTIVITY FORECASTS

Projections of aviation activity were developed for a 20-year planning period (2011-2031). These forecasts cover short-term (2011-2016), mid-term (2016-2021) and long-term (2021-2031). These projections are used for evaluating the capability of the existing Airport facilities to meet current and future demand, and to estimate the extent to which facilities should be provided in the future.

Table ES-1 below highlights the projections of based aircraft and annual aircraft operations through the 20-year planning period.

Table ES-1 – Based Aircraft and Operations Forecast Summary

Year	Based Aircraft[(1)]	Total Annual Operations[(2)]	Peak Month Operations[(3)]	PMAD Operations[(4)]	Peak Hour Operations (PMAD)[(5)]
2011	115	140,700	14,900	481	58
2016	144	166,400	17,600	568	68
2021	155	195,200	20,700	668	80
2026	167	229,100	24,300	784	94
2031	179	268,800	28,500	919	110

Notes:
(1) Data from Table 3.8.
(2) Data from Table 3.11. Numbers rounded to nearest 100.
(3) Peak month operations equals 10.6 percent of total annual operations. Numbers rounded to nearest 100.
(4) Peak month average day operations equals peak month operations divided by 31. Numbers rounded to nearest integer.
(5) Equals 12 percent of PMAD operations. Numbers rounded to nearest integer.

Source: Kimley-Horn and Associates, Inc. 2012

DEMAND/CAPACITY ANALYSIS AND FACILITY REQUIREMENTS

The objective of the demand/capacity and facility requirements analysis is to ensure each of the Airport's functional areas has long-term capacity, flexibility, and growth potential to enable them to respond to changing demand scenarios. The projections of aviation activity presented above in Table ES-1 were used in the demand/capacity analysis for the development of airport facility requirements.

AIRFIELD FACILITY REQUIREMENTS

The components of the airfield, including runways, taxiways, and navigational aids were analyzed for their long-term ability to accommodate the anticipated demand. As a result, the following recommendations were made for the airfield facilities:

- Upgrade runway separation standards for at least one runway to Airport Reference Code (ARC) B-II standards.
- Upgrade Runway 14-32 pavement strength to 30,000 pounds single-wheel if it is identified for upgrade to ARC B-II standards.
- Explore/investigate an extension of one of the runways to 6,000 feet in order to accommodate corporate jets to the maximum extent of their range.

GENERAL AVIATION AND SUPPORT FACILITY REQUIREMENTS

General aviation facility requirements were developed for hangar space, apron space, vehicular parking, and support facilities, including customs and border patrol (CBP), roadway access, instrument approach procedures, fuel facilities, and maintenance facilities. The following requirements were developed for general aviation and support facilities:

General Aviation Facilities

- Plan for the location of a CBP facility inside the Terminal building or as a stand-alone facility.
- Develop additional T-hangars to accommodate a projected deficiency of 61 units throughout the planning period.
- Develop additional conventional hangars to accommodate a projected deficiency of approximately 121,600 square feet throughout the planning period.
- Provide a minimum additional apron area of approximately 102,000 square feet throughout the planning period.
- Through either additional apron area or redistribution of existing areas, provide additional FBO or itinerant aircraft apron areas to address projected deficiencies in apron areas utilized by itinerant and based aircraft provided by public aviation service providers.
- Provide additional general aviation public vehicular parking of approximately 98 stalls or 29,400 square feet.

Support Facilities

- Expand the Airport's Jet A and 100LL fuel storage facilities through additional tanks, expanded fuel farm, or increasing frequency of fuel deliveries.
- Identify potential areas on airport property for a new airport maintenance facility to provide additional space and more direct airfield access.
- Investigate potential of adding an instrument approach with precision-like minimum altitudes and/or vertical guidance.
- Consideration of CBP space and/or operations potential at the Airport either through usage of office space in the terminal building or through appointments with CBP staff at San Antonio International Airport.
- Increase roadway connectivity between west and east sides of airport by creating a single, continuous roadway between Roosevelt Avenue and Mission Road, and improve signage and way finding.

ALTERNATIVES ANALYSIS

The alternatives analysis process consisted of developing alternatives to meet the projected needs of the Airport in each of its functional areas. Four general airfield alternatives were developed, including scenarios for upgrades to ARC B-II standards, runway extensions, runway realignment, and additional runways.

Three general aviation site plan alternatives were developed, which included various spatial configurations of facilities to meet projected needs for hangar space, apron space, fixed base operators, and support facilities.

After analysis by the Planning Advisory Committee, Airport staff, local agencies, and the consultant team, an overall airport development plan was created, which combined the preferred airfield and general aviation alternatives into an overall long-term airport development scenario. The proposed airport development includes the following improvements:

- Upgrade Runway 9-27 to ARC B-II standards by shifting Taxiway D approximately 30 feet to the north
- Construction of a parallel taxiway on the west side of Runway 14-32
- Premier fixed base operator facility and apron
- Conventional hangar development
- T-hangar development
- Additional apron space
- Roadway access connecting Roosevelt Avenue to Mission Road
- Monument signage and way-finding improvements

IMPLEMENTATION AND FINANCIAL PLAN

Following the development of the airport development plan, an Implementation Plan was created which assigned project phasing to the airport development projects. The implementation plan also provides recommendations on post-master plan study activities that should be continued in the future.

The Financial Plan outlines the programmed improvements over the 20-year planning period. Cost estimates were developed for the projects in the airport development plan, and each project is listed in an overall Capital Improvement Program (CIP). The CIP is broken down by phase, and analyzes funding sources for each project and the estimated federal, state, and local funding share of each. The proposed CIP summary is shown below in **Table ES-2.**

Table ES-2 – Proposed Capital Improvement Program Summary

Item	Phase I (2013-2017) Total	Phase II (2018-2022) Total	Phase III (2023-2032) Total	Program Total
Airfield	$5,050,000	$1,218,000	$1,085,000	$7,353,000
General Aviation Area	$6,620,000	$21,606,000	$15,001,000	$43,227,000
Surface Transportation Facilities	$2,580,000	$0	$0	$2,580,000
Miscellaneous & Maintenance	$11,496,800	$1,100,000	$2,100,000	$14,696,800
Capital Improvement Program Totals	**$25,746,800**	**$23,924,000**	**$18,186,000**	**$67,856,800**

Source: Kimley-Horn and Associates, Inc. 2012

ENVIRONMENTAL OVERVIEW

This phase of the master plan update study was to analyze potential environmental impacts that may result from the implementation of the projects in the airport development plan. The environmental overview assessed impact categories as listed in FAA Order 1050.1E, which are listed below.

- Air Quality
- Coastal Resources
- Compatible Land Use

- Construction Impacts
- Section 4(f)
- Prime Farmlands
- Biotic Communities - Fish, Wildlife, Birds and Vegetation
- Floodplains
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Wetlands/Waters of the U.S.
- Light Emissions and Visual Impacts
- Natural Resources, Energy Supply, and Sustainable Design
- Noise
- Socioeconomic Impacts, Environmental Justice, and Safety Risks
- Water Quality
- Cultural Resources
- Wild and Scenic Rivers
- Secondary (Induced) Impacts

The environmental overview is not intended to be a formal environmental assessment or environmental impact statement. Rather, its purpose is to ensure environmental factors are considered and to point out those areas that may be potentially affected by the planned development at the Airport.

The result of the environmental assessment was there are no major environmental impacts anticipated as a result of the proposed airport development, with potential minor impacts to floodplains, cultural resources (historical and archaeological), and environmental justice.

AIRPORT LAYOUT PLAN

The improvements as depicted in the airport development plan are incorporated into an Airport Layout Plan (ALP) drawing set. The ALP is a group of drawings which serve as the primary tool for the guidance and future growth at the Airport. The various drawings depict the recommendations contained within this master plan update with regard to development at Stinson Municipal Airport. The ALP drawing set includes the following sheets:

- Cover Sheet
- Airport Layout Drawing
- Terminal Area Drawings
- Airport Airspace Plan
- Inner Portion of the Approach Surface Drawings
- Airport Land Use Drawing
- Airport Property Map

The ALP reflects improvements recommended through the 2032 planning horizon, including greater taxiway separation on Runway 9-27, hangar development, apron space development, and airport support facilities. In addition, although not within the 2032 planning horizon, a 1,000-foot eastward extension of Runway 9-27 is depicted on the Airport Layout Drawing as an ultimate condition beyond the 20-year planning period.

SECTION 1 - INTRODUCTION

Stinson Municipal Airport (SSF or the Airport) is a general aviation airport owned by the City of San Antonio (COSA) and operated by the San Antonio Aviation System (SAAS). Stinson Municipal Airport is one of 24 reliever airports located in Texas[2].

A Master Plan Study for the Airport was most recently completed in 2002. Many of the recommended components of that plan have been completed, including land acquisition, a runway extension, taxiway improvements, and a renovated and expanded terminal building. As an ongoing commitment to the Airport's development and significant role in general aviation, the 2002 plan is being updated. This process will involve airport stakeholder and user engagement from a wide array of sources in order to develop a plan that will not only suit the Airport's facility needs but also the needs of its users, the community, and the region.

This document describes the analyses and assessments conducted during the Airport Master Plan process and provides the results of those efforts. The master planning study is intended to span approximately a 20-year period; however, certain aspects of the recommended plan will take into consideration expansion beyond the final planning horizon. The intent is to maintain a flexible framework, to allow for contingencies which are increasingly a part of airport development, and to not in any way propose a rigid program which would inhibit the City's ability to respond to circumstances that cannot be reasonably predicted at this time.

The master plan elements were conducted in accordance with Federal Aviation Administration (FAA) guidelines established in Advisory Circulars 150/5070-6B, Airport Master Plans, and 150/5300-13, Airport Design. Specific elements included as part of this master plan are:

- Inventory
- Activity forecasts
- Demand/capacity analysis and facility requirements
- Alternatives development
- Environmental review
- Financial plan and
- Airport layout plan drawing set preparation.

The remainder of this Section discusses previous Master Plan efforts, a brief history of the Airport, and discussion of the current Master Plan goals and objectives.

1.1 AIRPORT BACKGROUND

1.1.1 AIRPORT HISTORY

Stinson Municipal Airport is the second oldest general aviation airport in continuous operation in the United States. The Airport was established in 1915 by the Stinson family (Marjorie, Katherine, and

[2] Texas Airport System Plan Update 2010, Texas Department of Transportation, Table 3.

Eddie), when they rented a 500-acre area from the City of San Antonio to create the Stinson School of Flying. Incidentally, this was the basis for the Airport's official 3-letter identifier: SSF. The flying school remained in operation until American entry in World War I brought a ban on civilian flying, and control of the Airport returned to the City of San Antonio.

During the 1920's and 1930's, SSF was primarily used by barnstormers and experimental pilots. After the original Terminal building was constructed in the late 1930's as part of the Works Progress Administration (WPA) effort, commercial service into Stinson began with American, Braniff, and Eastern Airlines.

During the 1940's, the US Army Air Force took control of Stinson Airport for use as a training base during World War II. The US Army Air Force constructed over a hundred buildings on site, some of which are still standing today. At the conclusion of World War II, commercial aviation moved to San Antonio Municipal Airport, now known as San Antonio International Airport (SAT).

In 1946, after the conclusion of World War II, operational control of the Airport was transferred back to the City of San Antonio. Since the 1940's, Stinson has served as a general aviation airport and eventually became a reliever airport for San Antonio International Airport.

1.1.2 AIRPORT LOCATION

Stinson Municipal Airport is located in southern Bexar County, Texas, approximately 6 miles south of downtown San Antonio, and 13 miles south of San Antonio International Airport. **Exhibit 1.1** depicts the general location of the Airport. The Airport is generally bounded by Roosevelt Avenue to the west, East Ashley Road to the south, Mission Road to the east, and 99th Street, Echo Street, 96th Street, and 97th Street to the north.

1.1.3 AIRPORT ORGANIZATION

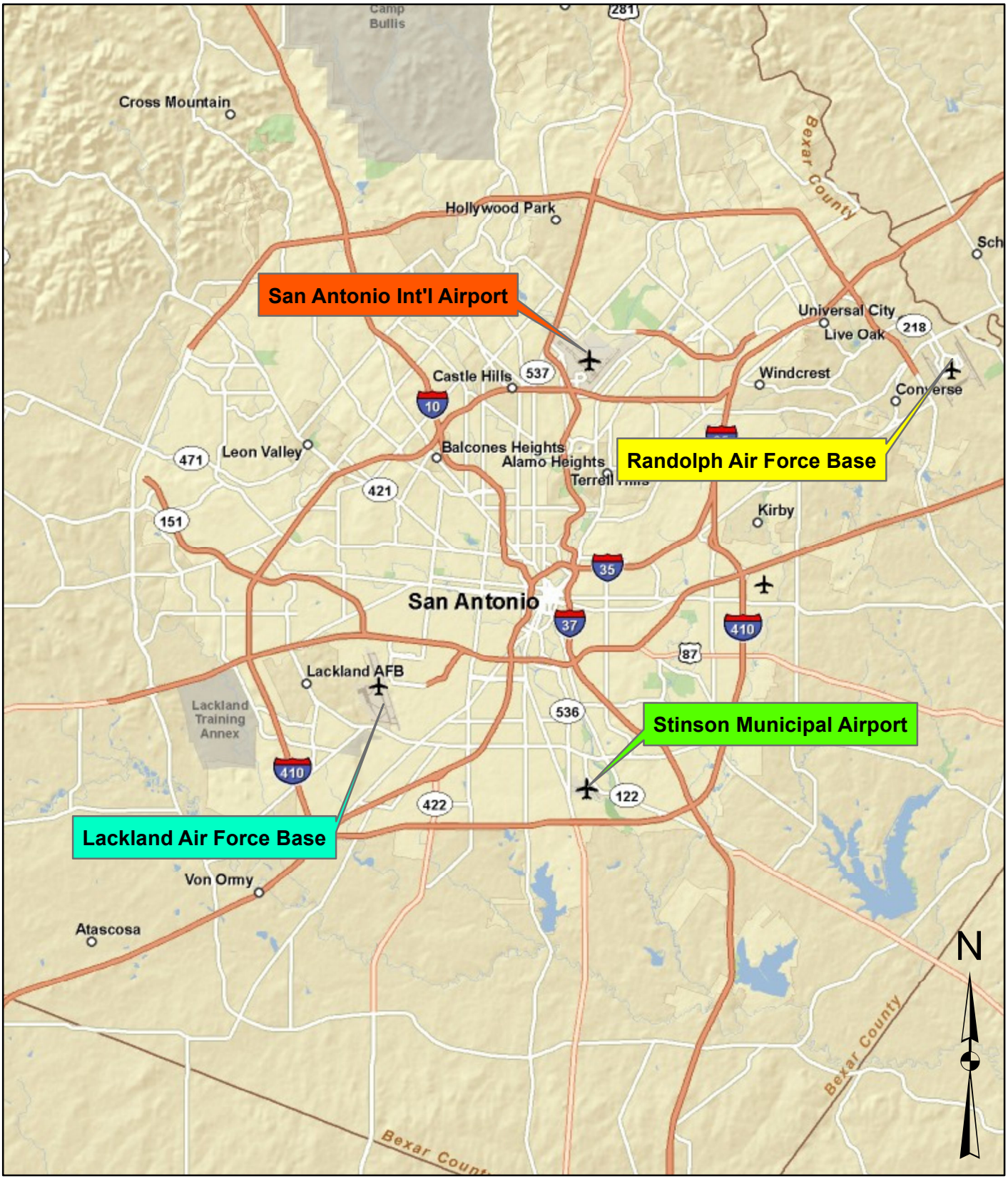
The Airport is owned by the City of San Antonio and operated by the City of San Antonio Aviation Department. A 19-member Airport Advisory Commission (AAC) advises the City's Aviation Director on policies affecting the City's airports and air transportation initiatives[3]. There are currently eight airport employees with the City of San Antonio at the Airport, including the Airport Manager with offices in the airport terminal building.

1.2 PREVIOUS STUDIES

1.2.1 2002 MASTER PLAN

The previous Master Plan for Stinson Municipal Airport was completed in October 2002 and identified options for future Airport development. Recommended airport improvements were divided into four phases for programming purposes.

[3] City of San Antonio, Boards & Commissions Agendas website, https://webapps2.sanantonio.gov/boardcomm/, accessed June 20, 2011.



Source: ESRI 2012
Prepared By: Kimley-Horn and Associates, Inc. 2012

Scale: 1" = 5 miles

STINSON MUNICIPAL AIRPORT

Exhibit 1.1

Location Map

Stinson Municipal Airport
Master Plan Update

The recommended Capital Improvement Program[4] included approximately $110 million of improvements over the four planning phases. Phase 1 (2001-2004) short-term improvements accounted for $9 million, and Phase 2 (2005-2009) near-term improvements accounted for $2.4 million. Phase 3 (2010-2014) intermediate-term improvements were estimated at $9 million, and long-term Phase 4 (2015-2019) improvements accounted for $90 million.

Many of the short-, near-, and intermediate-term improvement projects have been completed as of 2011. The completed projects include the following:

- Runway 9-27 Extension to 5,000 feet
- Extension of Taxiway D
- Extension of Taxilane D2
- Precision Approach Path Indicator (PAPI) Installation on Runway 14-32
- Upgrade of Taxiway A lighting
- Acquisition of 66-acre tract of land east of Mission Rd.
- Terminal Building Improvements
- Relocation of Sanitary Sewer Line

Long-term projects focused on the land acquisition, planning, design, and construction of a new runway and taxiway system to realign and replace an existing runway. The need for these recommended improvements that have not been implemented will be reassessed as part of this Master Plan Update.

1.2.2 TARGET INDUSTRY STUDY

A Target Industry Study was completed in 2002. The objective of this study was to facilitate development of the Airport by identifying industries and businesses that are likely to relocate or expand their operations at the Airport, and develop potential strategies to achieve these goals. Some of these strategies included the following:

- Continued Development of Core Airport Businesses
- Flight Instruction Enhancement
- Pursuit of Increased Corporate Traffic
- Creation of Port of Entry
- Non-Aviation Business Support Services
- Collaborative Development

1.2.3 ENVIRONMENTAL ASSESSMENT FOR RUNWAY 9-27 EXTENSION

An Environmental Assessment (EA) concluded in May 2007, which examined the environmental impacts of a proposed 165-foot extension to the east end of Runway 9-27, resulting in a usable runway length of 5,000 feet. Under the proposed action alternative, the expected environmental effects included temporary construction-related activities, aircraft noise, and temporary effects to surface transportation. The result of the EA was a Finding of No Significant Impact (FONSI).

[4] Master Plan Study for Stinson Municipal Airport, Ricondo & Associates, Inc., October 3, 2002; Chapter VI – Financial Plan.

1.3 COORDINATION PROCEDURES

Master Plan study activities and coordination during the life of the project occurred both internally within the City as well as externally through specific public outreach efforts. Final approval of all recommendations rests with the City of San Antonio.

Throughout the various phases of the Master Plan Update, SAAS staff was responsible for the study's administration, providing direct guidance to the study consultant, Kimley-Horn and Associates, Inc. Kimley-Horn was further supported by a team of seven subconsultants: Bain Medina Bain, Inc., Geodetix, Inc., Kutchins & Groh, LLC, Raba-Kistner Consultants, Inc., Ricondo & Associates, Inc., Williams CAD Consulting, and Ximenes & Associates, Inc.

Over the course of the Master Plan execution, the Consultant Team, working with SAAS staff, conducted a series of informational meetings and workshops aimed at disseminating information to various groups residing both on and off airport property. To facilitate a heightened awareness amongst these groups and to solicit valuable input to the study process, a Planning Advisory Committee (PAC) was formed which represented key stakeholders and interested entities. The PAC participated throughout the study process and was involved at key milestones. The PAC was comprised of representatives from the following:

- City of San Antonio
    - City Council
    - City South Management Authority
    - District Appointee
- Airport Advisory Commission
- Texas Department of Transportation
- Airport Tenants/FBO
    - San Antonio Aviation
    - Palo Alto College
    - i3
    - Ocotillo Aviation
- Southside Chamber of Commerce
- National Business Aviation Administration

In total approximately 12-15 individuals were included in the group's membership. In accordance with the tasks identified in the Scope of Services, the Consultant collected the pertinent inventory data, performed the necessary analyses, and developed a series of conclusions and recommendations for the Airport over the ensuing 20-year planning period. Documentation for these efforts was assembled and published in a series of draft report chapters incorporated into a working project notebook. The notebooks were distributed to SAAS staff for review and comments. The PAC received specific excerpts of the technical analyses and findings during a series of presentations to support their understanding of the master plan process, the issues, the approach to each unique problem or issue, and the ultimate findings and recommendations. Comments from all parties were received by the Consultant Team and incorporated, as appropriate, in subsequent analyses. Meetings with SAAS staff, the PAC, and other agencies were conducted at key milestones during the study to discuss specific issues and findings, and to reach consensus on recommendations for future airport activities.

The PAC met four times throughout the life of the study at the following intervals:

1) Project Background / Issues, Goals, and Objectives – September 14, 2011
2) Existing Conditions Inventory and Aviation Activity Forecasts – November 15, 2011
3) Facility Requirements and Alternatives Development – May 10, 2012
4) Airport Development Plan, Financial Plan, and Environmental Overview – August 14, 2012

Public involvement through two open house format presentations occurred at key junctures in the planning process to provide valuable information on the growth of the Airport, and to seek critical input to ensure the study's success and acceptance. The public information open houses took place at the following milestones:

1) Aviation Forecasts, Facility Requirements, and Alternatives Development – May 22, 2012
2) Airport Development Plan, Financial Plan, and Environmental Overview – August 21, 2012

Once the Master Plan findings and recommendations were complete, an Airport Advisory Commission briefing was held on October 16, 2012, and a presentation to the Infrastructure & Growth Committee of the San Antonio City Council was made on October 17, 2012.

Details of the PAC meetings, including meeting notes, agendas, and attendance records, the Public Information Open House meetings, the Airport Advisory Commission briefing, and the City Council presentation can be found in **Appendix A**.

1.4 PURPOSE OF THE STUDY

The purpose of the Master Plan Update is to establish a long range development strategy or "blueprint" for the sustained, and fiscally responsible, growth of the Airport through 2031, which seeks to balance airport growth against the need to minimize impacts on the surrounding environment. In doing so, the study shall focus on optimizing operations at the airport, providing flexible options for growth, while identifying possible areas on-airport suitable for new facilities, by performing the following:

- Inventory of Facilities and Services
- Aviation Activity Demand Forecasts
- Facility Requirements (preceded by Demand/Capacity Analyses)
- Justifiable Facility Improvements
- Phased Capital Improvement Program
- Airport Layout Plan Drawing Set

The Master Plan improvements should satisfy projected aviation demand, ensure the safety of airport operations, and be compatible with the environment, community development and other transportation modes. Above all else, the Master Plan must be technically sound, practical and economically feasible. The airport plans are submitted to the FAA for approval and for FAA's use in evaluating grant requests and other actions involving the Airport. Thus, the Master Plan provides guidance on the priority of airport development projects to be submitted to the FAA and/or Texas Department of Transportation (TxDOT) for funding. As such, this study will update previous master planning efforts. In general, the Master Plan will develop a City of San Antonio vision for Stinson Municipal Airport, along with clear goals and objectives, to provide guidance for future airport development in a financially feasible manner, to maximize its safe and efficient use, and to enhance the environmental soundness of the Airport within its environs.

Specifically the purpose of the Master Plan Update is to:

- Illustrate through demand forecasts, the growth in activity that is anticipated at Stinson Municipal.
- Provide an indication of plans for infrastructure enhancements in light of its continued role.
- Provide a useful tool for communicating to a broad range of stakeholders including tenants, local government, community groups, and state and federal agencies, to allow them to make well informed decisions.
- Supplement long-term resource planning for local and regional bodies, particularly in the preparation of local plans and strategies.
- Help establish the key milestones of airport development, carefully triggered by demand, and supported by adequate justification for implementation.
- Demonstrate the probable costs required over the life of the study and ensure that the program is financially viable.
- Enable the City of San Antonio and others to assess local social and environmental impacts and provide an opportunity to develop preliminary proposals on how those impacts could be mitigated, as appropriate.
- Provide a consistent and publicly available vehicle for the continued involvement by government, users, and the general public.

In concert with updating the plan, specific goals and objectives have been identified and are enumerated in the following subsection.

1.5 GOALS AND OBJECTIVES

The Airport Master Planning process is most effective when it engages airport users and stakeholders in a collaborative fashion. One of the objectives of the first PAC meeting was to identify the goals and objectives of this Master Plan Update. A goal is defined as an overall outcome that is desired of this plan, while objectives are steps taken to achieve that goal. The goal of this Master Plan Update, as agreed upon at the initial PAC meeting, is as follows:

Stinson Municipal Airport becomes the primary general aviation airport for the San Antonio region, and is developed to meet general aviation requirements and to support and stimulate regional economic activity, while maintaining feasibility for aviation flight education.

The following objectives to support this goal are as follows:

- Development of additional T-hangars
- Improved roadway access to the Airport
- Addition of a precision instrument approach
- Integration of as much flexibility as possible to accommodate change
- An in-depth study of facilities at Stinson to determine if they are competitive in the General Aviation (GA) market
- Acquisition of additional land
- Consideration of an additional runway