

City of **Auburn**

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www.auburn.ca.gov

May 8, 2019

Mr. Mike Luken
Executive Director
Placer County Transportation Planning Agency
299 Nevada Street
Auburn, CA 95603

RECEIVED
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PCTPA

Subject: Auburn Municipal Airport Layout Plan and Narrative Report

Dear Mr. Luken,

Enclosed please find the Auburn Municipal Airport Layout Plan, Narrative Report, and Federal Aviation Administration (FAA) Conditional Approval of the Airport Layout Plan (ALP). We would like to request an Airport Land Use Commission (ALUC) consistency determination to initiate the process of updating the Auburn Municipal Airport Land Use Compatibility Plan (ALUCP).

Please do not hesitate to contact me at 530.823.4211 ext 144, should you require additional information.

Respectfully Submitted,



Bernie Schroeder
Director of Planning & Public Works
1225 Lincoln Way
Auburn, CA 95603
City of Auburn
bschroeder@auburn.ca.gov

Cc: File

Airport Layout Plan Update – Narrative Report

The City of Auburn

Auburn, California

Auburn Municipal Airport

FINAL

2019





U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 220
Brisbane, California 94005-1835

November 21, 2018

Bernie Schroeder
Director of Planning and Public Works
Auburn Municipal Airport- AUN
1225 Lincoln Way
Auburn, CA 95603

Dear Ms. Schroeder,

RE: Federal Aviation Administration (FAA) Conditional Approval of Airport Layout Plan (ALP) for the Auburn Municipal Airport (AUN); Airspace Case Study No. 2018-AWP-2472-NRA

The San Francisco Airports District Office (SFO-ADO) has completed the final review of the Auburn Municipal Airport's updated Airport Layout Plan (ALP). Accordingly, a **Conditional Approval** is issued for the subject ALP, dated October 10, 2018. Four (4) signed copies of the approved ALP is enclosed.

An aeronautical study, Airspace Case Study No. 2018-AWP-2472-NRA, was conducted on the proposed development. This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed man-made objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

The FAA has only limited means to prevent the construction of structures near an airport. The airport sponsor has the primary responsibility to protect the airport environs through such means as local zoning ordinances, property acquisition, aviation easements, letters of agreement or other means.

This ALP approval is conditioned on acknowledgement that any development on airport property requiring Federal environmental approval must receive such written approval from FAA prior to commencement of the subject development. This ALP approval is also conditioned on acceptance of the plan under local land use laws. We encourage appropriate agencies to adopt land use and height restrictive zoning based on the plan.

Approval of the plan does not indicate that the United States will participate in the cost of any development proposed. Airport Improvement Program (AIP) funding requires evidence of eligibility and justification at the time a funding request is ripe for consideration. When construction of any proposed structure or development indicated on the plan is undertaken, such construction requires normal 45-day advance notification to FAA for review in accordance with applicable Federal Aviation Regulations (i.e., Parts 77, 157, 152, etc.). More notice is generally beneficial to ensure that all statutory, regulatory, technical and operational issues can be addressed in a timely manner.

Please attach this letter to the FAA Conditionally Approved Airport Layout Plan and retain it for your records. We wish you great success in your plans for the development of the airport.

Sincerely,



Laurie Suttmeier
Assistant Manager
San Francisco Airports District Office

Enclosure: FAA Conditionally Approved ALP for Auburn Airport

cc: CALTRANS Aeronautics Division,
ATO Planning and Integration

Archive Search Results: Notice of Proposed Construction or Alteration - On Airport

| Overview Study (ASN): 2018-AWP-2472-NRA Prior Study: Status: Determined | | Received Date: 07/05/2018 Entered Date: 07/05/2018 Completion Date: 08/14/2018 Map: View Map | | | | | | | | | | | |
|--|-----------|--|-----|----------|-----------|-----------|-----|----------|--|--|--|--|--|
| Sponsor Information Sponsor: City of Auburn Attention Of: Derrick Whitehead Address: 1225 Lincoln Way Address2: City: Auburn State: CA Postal Code: 95603 Country: US Phones: (530) 823-4211 142 Fax: | | Sponsor's Representative Information Representative: Attention Of: Address: Address2: City: State: Postal Code: Country: Phone: Fax: | | | | | | | | | | | |
| Construction / Alteration Information Notice Of: Alteration Duration: None <i>if Temporary</i> : Months: Days: Work Schedule - Start: Work Schedule - End: | | Case Information Component Type: PLANNING Development Type: PLANNING - Airport Layout Plan Other Desc: Prior Study: Date Determined: 08/14/2018 Letters: None | | | | | | | | | | | |
| Structure Details Nearest State: CA Loc ID: AUN Airport: AUBURN MUNI City: AUBURN Latitude: 38-57-17.4 N Longitude: 121-4-54.2 W Horizontal Datum: NAD83 Site Elevation (SE): 1538 (nearest foot) Structure Height (AGL): 0 (nearest foot) | | Common Frequency Bands <table border="1"> <thead> <tr> <th>Low Freq</th> <th>High Freq</th> <th>Freq Unit</th> <th>ERP</th> <th>ERP Unit</th> </tr> </thead> <tbody> <tr> <td colspan="5"> </td> </tr> </tbody> </table> | | Low Freq | High Freq | Freq Unit | ERP | ERP Unit | | | | | |
| Low Freq | High Freq | Freq Unit | ERP | ERP Unit | | | | | | | | | |
| | | | | | | | | | | | | | |
| Describe/Remarks Provided for your technical review and comments is the Updated Airport Layout Plan (ALP) Drawing Set for the Auburn Airport (AUN) located in Auburn, California. The ALP drawing set dated February 2018. Please provide a review of this ALP within your area of expertise and responsibility and enter your Division's response by close of business, September 7th, 2018. A PDF copy of the Auburn Airport ALP drawing set is uploaded for review. | | Specific Frequencies | | | | | | | | | | | |

Chris Ciardella

From: Katherine.Kennedy@faa.gov
Sent: Thursday, April 18, 2019 12:56 PM
To: Chris Ciardella
Subject: RE: 3-06-0012-012-2015 Auburn Airport Layout Plan Update - FAA Review Memo Supplemental

Hi Chris,

Thanks for the email and sorry for the delay! This is our standard letter for ALP approvals. All sheets are approved under the letter (sheets 1-12) except the exhibit 'A' property map (sheet 13) which is accepted. Please use this email if there is any confusion over what is approved or have them reach out to us for questions. Because we have a standard approval process for all ALPs we don't wish to be issuing new supplements to the approvals because from experience, things can get really convoluted by doing so. We are happy to answer any questions that come up if there is confusion.

Please let me know if you need anything else.

Thanks,

Katherine Kennedy
Community Planner
FAA San Francisco Airports District Office
650-827-7611

From: Chris Ciardella <cciardella@auburn.ca.gov>
Sent: Tuesday, March 26, 2019 11:37 AM
To: Kennedy, Katherine (FAA) <Katherine.Kennedy@faa.gov>
Subject: FW: 3-06-0012-012-2015 Auburn Airport Layout Plan Update - FAA Review Memo Supplemental

Good Morning Katherine,

I am an associate civil engineer for the City of Auburn and I manage the projects at the Auburn Municipal Airport. Previously, I was in contact with Jasmine concerning any planning projects and my understanding is that you are the new contact.

Recently we have closed out a planning grant for the Airport Layout Plan Update after the plan set was conditionally approved. However, the memo we received was not specific about the whole 13 plan set (see attached)being conditionally approved by FAA which could be problematic when we have the ALP Update reviewed for consistency with the Airport Land Use Plan. Can you please provide a supplemental memo with a statement along the lines of **"The ALP plan set, 13 total sheets and dated October 10, 2018, has been conditionally approved by FAA"** as the attached memo was not specific in what was approved.

Thank you,
Chris Ciardella, P.E.
Associate Civil Engineer
City of Auburn, Planning & Public Works

Final

Prepared for
The City of Auburn
1225 Lincoln Way
Auburn, California 95603
www.auburn.ca.gov/

Prepared By
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1. Introduction

The City of Auburn has contracted with Jacobs to conduct an Airport Layout Plan Update and Narrative Report for the Auburn Municipal Airport (AUN). The AUN Master Plan was completed in 2006. The ALP Update and Narrative Report began in September 2015, and is funded jointly by the FAA; California Department of Transportation (CALTRANS), and the City of Auburn.

The Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B Airport Master Plans, outlines the necessary steps in the preparation of an Airport Layout Plan Update and Narrative Report. The elements of the narrative report include:

- ▶ Goals and Objectives
- ▶ Inventory of Existing Conditions
- ▶ Aviation Demand Forecast
- ▶ Airport Facility Requirements
- ▶ Concept Development and Evaluation
- ▶ Capital Improvement Plan
- ▶ Airport Layout Plan Set

The above-mentioned steps will be comprehensively documented in this report and the results are reflected within the Airport Layout Plan set.

2. Goals and Objectives

The objective of the ALP Update and Narrative Report is:

- ▶ evaluate the Airport's capabilities and role
- ▶ develop aviation demand forecasts
- ▶ determine land use recommendations for both on and off-airport properties
- ▶ plan for a realistic 20-year capital improvement plan
- ▶ complete a Federal Aviation Administration (FAA) Airports Geographic Information System (AGIS) level survey
- ▶ update the airport layout plan.

The City of Auburn recognizes the importance of general aviation to the local community and regional general aviation system. With a sound and realistic plan, AUN can maintain its role within the system while maintaining the existing public and private investments in its facilities.

The goals for the project were established at a project kickoff meeting that was held during the Airport's regularly scheduled and publicly advertised Auburn Aviation Association Airport Advisory (5AC) committee meeting held on September 29th, 2015 and the City of Auburn's November 9th, 2015 council meeting. They are as follows:

- ▶ evaluate potential helicopter parking area alternative locations
- ▶ perform a runway length analysis and ensure it meets the Airport's long-term needs
- ▶ ensure there is adequate aircraft storage to meet forecasted aviation demand
- ▶ ensure there is adequate transient aircraft parking
- ▶ evaluate and provide concepts for the core development area
- ▶ ensure consistency with the Placer County Airport Land Use Compatibility Plan (ALUCP)

3. Inventory of Existing Conditions

This chapter documents the existing conditions of the Auburn Municipal Airport (AUN) and identifies the area it serves. The material in this chapter provides essential background information for the ALP Update and Narrative Report.

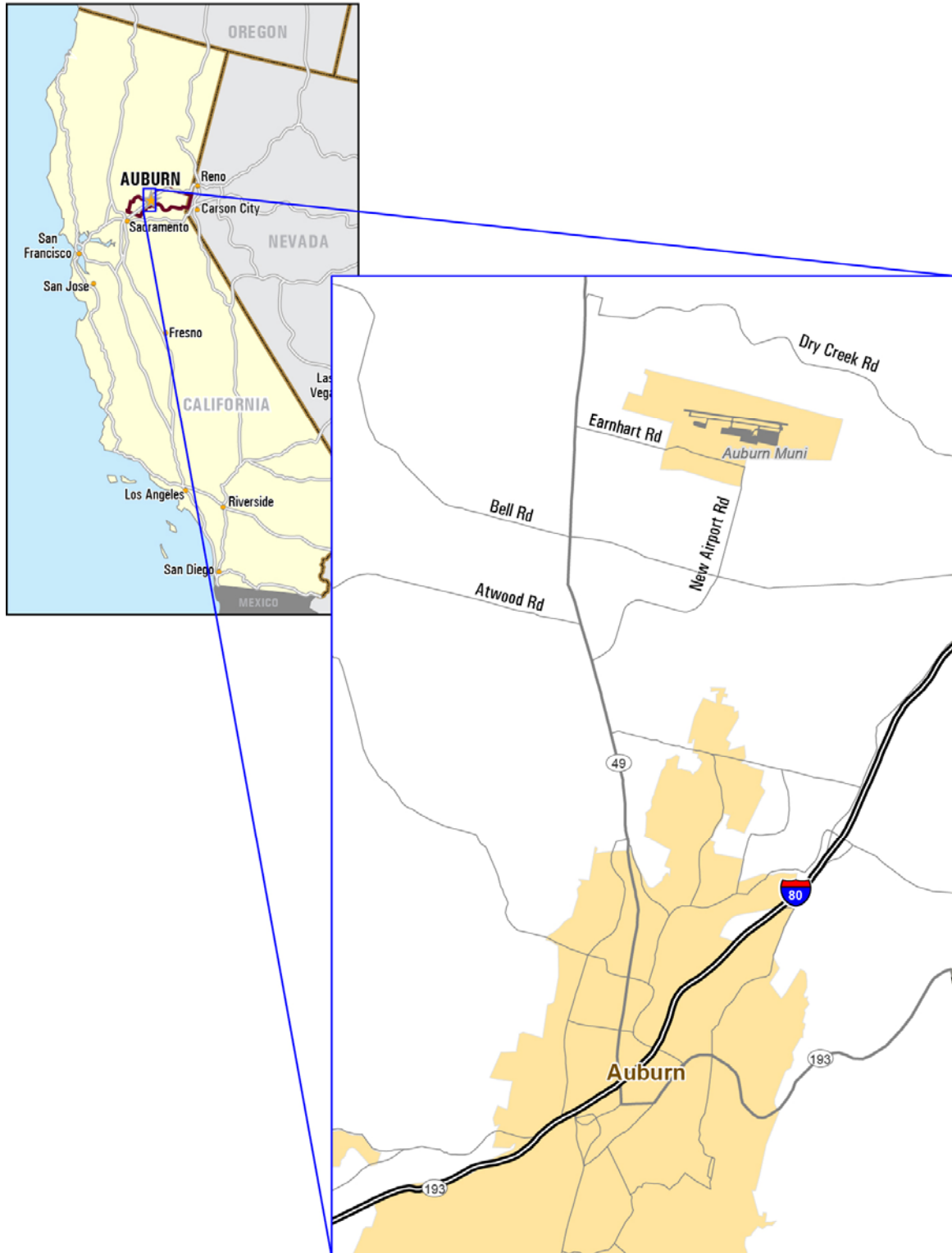
- ▶ airport background
- ▶ location and ground access
- ▶ airfield/airspace
- ▶ general aviation terminal core area
- ▶ general aviation support facilities
- ▶ aircraft operations
- ▶ airport financial situation
- ▶ regional setting and land-use
- ▶ environmental overview

3.1 Background and Setting

The City of Auburn is located in northern California on the foothills of the Sierra Nevada Mountains, approximately 35 miles northeast of Sacramento, California in Placer County. AUN is located north of the junction for Interstate 80 and Highway 49, between Sacramento and Lake Tahoe. The Airport is set on approximately 293 acres at an elevation of 1,539 feet above sea level. Owned and operated by the City of Auburn, the Airport is a public-use; regional general aviation airport (as classified by the CALTRANS Aeronautics) that serves Placer County and the greater Sacramento area's private, public and business operations.

As shown in **Figure 3-1** the Airport is approximately 3-miles north of the City of Auburn's central business district in a noncontiguous incorporated area surrounded by Placer County. The Airport is accessed by means of the New Airport Road, Rickenbacker Way, and Lindbergh Street from Highway 49 and Bell Road from I-80.

Figure 3-1 Airport Location



Source: Jacobs, 2015.

3.2 History

The 2006 Airport Master Plan states that the Airport was established in the early 1930s when the Civil Aviation Authority leased 160 acres of land from local ranchers to develop a refueling stop for planes flying mail on the Salt Lake City to San Francisco Airway. During World War II, the Airport was closed for public use.

After World War II, the federal government notified the local community that the airfield was no longer needed and the lease for the land would not be renewed. A group of local officials, pilots, and interested citizens developed a plan to avoid closing the Airport. This group raised money through public subscriptions to purchase 160 acres of land and donated it to the City of Auburn. The City of Auburn acquired the title to the Airport in November 1946.

In the early 1970s, an additional 75 acres of land was acquired. The runway was shifted slightly northward, remaining at 3,100 feet in length, a parallel taxiway was built, and the aircraft parking apron was expanded. A northeast/southwest crosswind runway – running diagonally across what is now Rickenbacker Way since Airport's beginning days was abandoned during the period as well. These 40 acres of land made available by closure of the crosswind runway was designated as an industrial park. In the late 1970s, the City of Auburn acquired an additional 40 acres of property from Pacific Gas & Electric Company (PG&E) allowing the planned industrial park to expand westward.

Most of the buildings in the Airport core area, as well as the first buildings in the industrial park date from the 1970s. Most of the facilities that give the Airport its present character were constructed in the 1980s and 1990s. In 2001, the Airport completed extensions to both ends of the runway, bringing the present length to 3,700 feet. This project added 15 feet to the north side of the runway, bringing the total width to 75 feet.

3.3 Existing Airport Conditions

3.3.1 Airfield

The Airport has a single runway configuration, as shown in **Figure 3-2** and **Table 3-1**. AUN's primary runway (Runway 7/25) measures 75 feet wide and 3,700 feet long. The runway has an asphalt surface with a weight bearing capacity for single wheel gear aircraft of 30,000 pounds. The runway is equipped with medium intensity runway lights (MIRL). Runway 7/25 had a surface seal coat in 2010; and the asphalt pavement and markings are in good condition.

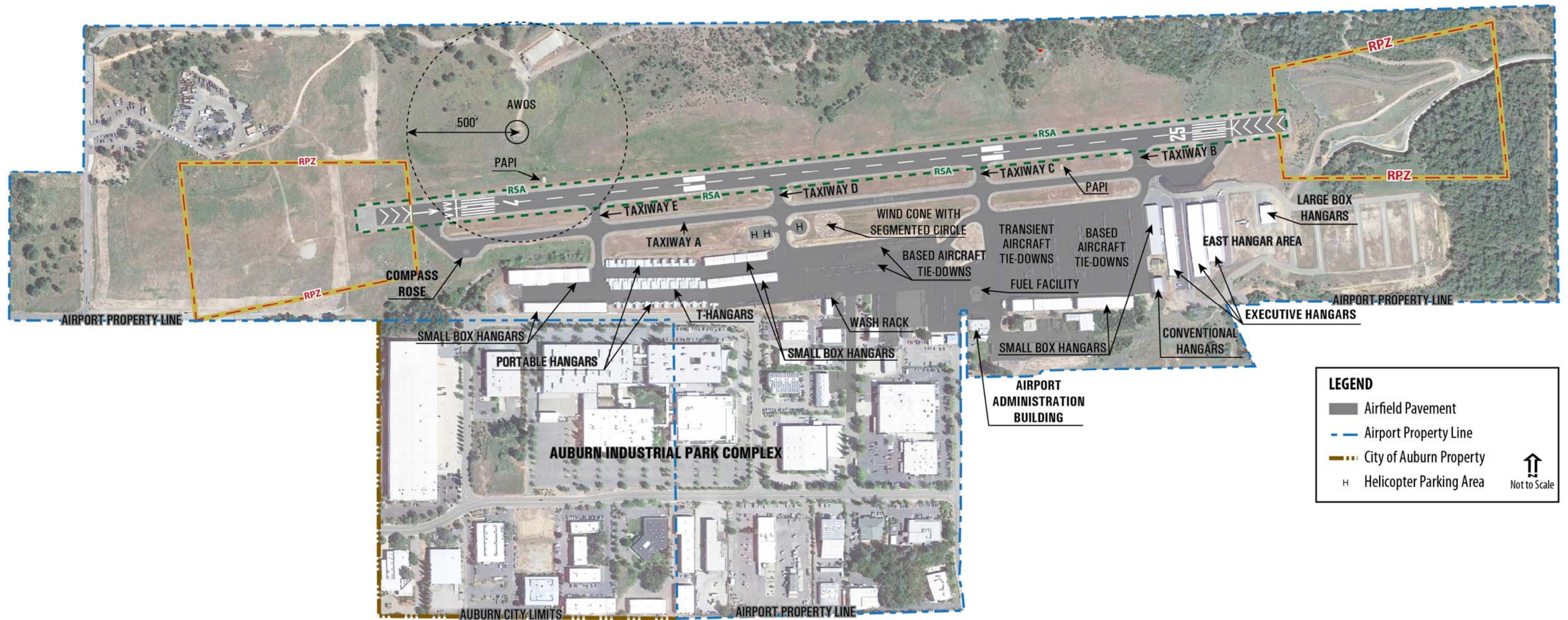
The taxiway system provides access between the primary runway and the apron. A full-length taxiway known as Taxiway "A" is located approximately 150 feet south and parallel to Runway 7/25. Taxiway "A" is approximately 3,500 feet in length and 30 feet wide. At each end of the primary runway are connectors as well as four midfield exit taxiways (Taxiway B, C, D, and E). The entire taxiway system had a surface seal coat in the year 2010 and remains in good condition. Also, in 2010 medium intensity taxiway lighting was installed. This taxiway has medium intensity taxiway lighting that is programmed for rehabilitation in 2016 to replace with Light-Emitting Diode (LED) light fixtures and isolation transformers.

Table 3-1 AUN Airport Data

| General Airport Information | |
|---|--|
| Name and Identifier | Auburn Municipal Airport (AUN) |
| Ownership | City of Auburn, California |
| Airport Field Elevation | 1,539 feet |
| Airport Reference Code | B – I (small) |
| Runway Design Code | B - I - 5000 |
| Taxiway Design Group | 1A |
| Airport Reference Point | Lat. 38° 57' 17.3" N; Long. 121° 04' 54.2" W |
| Runway Data | |
| | 7/25 |
| Width | 75 feet |
| Length | 3,699 feet |
| Pavement Strength (pounds) | SW-30,000 |
| Type (Condition) / PCI (Year) | Asphalt (Good) / 82 (2011) |
| Gradient | 1.23% |
| FAR Part 77 Approach Slope | 34:1/20:1 |
| Markings (Condition) | Non-Precision (Fair) |
| Lighting | MIRL |
| Taxiway Data | |
| | "A" |
| Width | 30' |
| Type (Condition) | Asphalt (Good) |
| Lighting | MITL |
| Navigational Aids | |
| Airport Beacon, Lighted Wind Cone, Segmented Circle with Tetrahedron, PAPIs, Compass Rose, AWOS-III | |

Source: FAA Form 5010 Data, Jacobs, 2015.

Figure 3-2 Airport Facilities



Source: Jacobs, 2015.

3.3.2 General Aviation Apron and Hangar Areas

There are several different parking aprons that are located immediately south of the primary runway, accumulating a total area of approximately 18,265 square yards, 123 paved aircraft tie-downs and 3 helicopter parking areas. The apron areas had a surface seal coat completed in 2010 and remain in good condition.

Table 3-2 Apron Data

| Apron Data | Square Yards (# Tie-downs) |
|--------------------------|-----------------------------------|
| Itinerant Aircraft Apron | 2,240 Sq. Yards (16 Tie-downs) |
| Based Aircraft Apron | 14,980 Sq. Yards (107 Tie-downs) |
| Helicopter Parking Area | 1,045 Sq. Yards (3 Parking Areas) |

Source: Jacobs, 2015.

Located south of Taxiway “A” and adjacent to Taxiway “E” connector are three helicopters parking positions. These parking positions support both based and transient helicopter operations at AUN.

As shown in **Table 3-3**, the existing hangars at AUN consist of box hangars located in multi-hangar building units, conventional (stand-alone) hangars, portable, executive and t-hangars. They make up a total of approximately 201,925 square feet. According to AUN management, hangar capacity is full. In 2003, an east hangar development site was constructed to provide space for additional hangars. This hangar development site includes paved taxi lanes and drainage.

Table 3-3 AUN Hangar Facilities

| Hangar Type | # of Hangars | Square Feet |
|--------------|--------------|----------------|
| Box | 40 | 99,500 |
| Conventional | 3 | 21,000 |
| Executive | 18 | 48,125 |
| Portable | 41 | 33,300 |
| Total | 102 | 201,925 |

Source: Jacobs, 2015.

*Square Feet Approximate

3.3.3 Support Facilities

The Airport Administration Building (AAB) at the terminal core area includes airport offices, pilot lounge, conference area, restroom and flight training facilities. Additionally, on-airport businesses located throughout the core area include several aviation services and aircraft maintenance businesses, flying schools, and a restaurant.

The City of Auburn owns fuel tanks operated by the on-airport Fixed Based Operator (FBO). The FBO provides 24/7 fueling for based and transient aircraft. Aviation fuel at the Airport is currently stored in three underground storage tanks:

- ▶ one (1) 12,000-gallon Jet-A storage tank
- ▶ two (2) 12,000-gallon 100 Low Lead (LL) storage tanks.

Auto-parking is located south and south-west of the Airport Administration Building and consists of approximately 70 auto-parking spots.

The Airport has a number of readily available utilities, including gas/electricity through PG&E, Placer County Water Agency, trash removal provided by Recology Auburn Placer, and Wi-Fi provided by Wave Broadband.

Local Fire Protection is provided by Placer Consolidated Fire Protection. Additionally, Auburn Fire Protection has a garage connected to the Airport Administration building. Police enforcement is provided by the local City of Auburn, California Highway Patrol, and the Placer County Sheriff.

3.4 Airport Business Park

The AUN Business Park is south of the airfield. The businesses located within the park include avionics, electronics manufacturers, technology based firms, bioscience research, solar energy developers, regional distributors, and motion picture producers.

The existing runway length of 3,699 feet limits the stage length of aircraft operating in to and out of the Airport. This ALP Update will examine potential ultimate runway lengths for planning purposes that will support ultimate general aviation and business aviation aircraft that would benefit existing and future tenants of the airport business park.

3.5 Airport Operations

3.5.1 Operating Revenue and Expenses

A general aviation airport is both a public service and a business. The goal of a general aviation airport is to grow into a self-sufficient and economically viable enterprise, while meeting the needs of general aviation, which include the services necessary to support airport business, non-aviation related business, emergency services, and visitors at reasonable prices. The City of Auburn’s budget includes salaries, benefits, aviation fuel, maintenance, and leases for the Airport and is projected through the year 2015, as indicated in **Table 3-4**.

Table 3-4 City of Auburn’s Airport Budget

| | FY 12 Actual Revenue | FY 12 Actual Expenditures | FY 13 Actual Revenue | FY 13 Actual Expenditures | FY 14 Actual Revenue | FY 14 Actual Expenditures | FY 15 Budgeted Expenditures |
|--------------|----------------------|---------------------------|----------------------|---------------------------|----------------------|---------------------------|-----------------------------|
| Airport Fund | \$662,621* | \$477,169* | \$785,277* | \$602,032* | \$829,231** | \$688,848** | \$550,670** |

*Obtained from FY2014/15 Adopted City Budget

**Obtained from FY 15/16 Adopted City Budget

3.5.2 Existing Aircraft Operations

AUN currently averages 1,320 fixed and rotary operations per week, with the busiest season being in July. Of these 68,770 operations, 51 percent are local operations, 47 percent are itinerant operations, and 2 percent are air taxi. Currently, AUN has 187 single engine, 14 multi engine, 5 helicopters, and 2 ultra-light aircraft. However, local airport management indicates that up to nine helicopters operate at the Airport on a regular basis.

Recently Helicopter operations at AUN have increased significantly. These operations range from helicopter rides/tours, maintenance, training, powerline surveys, California Department of Forestry/Fire Protection, and California Highway Patrol. They make up a total of approximately 8 percent of total aircraft operations.

3.5.3 Socioeconomics

Placer County’s 2014 estimated population was approximately 374,493, according to Woods and Pool Economics, Inc. The population for Placer County has increased on average 3.61 percent annually since the year 1970 census. **Table 3-5** includes historical population growth in Placer County.

Table 3-5 Placer County Population

| Area | 1970 | 1980 | 1990 | 2000 | 2010 | 2011 | 2012 | 2013 | 2014 | AAGR 1990- 2014 |
|---------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|-----------------------|
| Placer County | 78,725 | 118,382 | 175,477 | 251,012 | 350,137 | 356,946 | 361,420 | 367,309 | 374,493 | 3.61% |

Source: Woods and Poole, 2015.

AAGR = Average Annual Growth Rate.

Represented in **Table 3-6**, the number of jobs within Placer County increased by 3.41 percent annually since 1990, while the personal income per capita increased by 1.92 percent annually since 1990.

Table 3-6 Placer County Historical Economic Data

| Year | Jobs | Total Personal Income Per Capita (2009 dollars) |
|------|---------|---|
| 1990 | 90,077 | 32,860 |
| 1995 | 107,771 | 36,738 |
| 2000 | 145,307 | 46,081 |
| 2005 | 187,268 | 48,670 |
| 2010 | 180,828 | 46,982 |
| 2011 | 183,236 | 48,439 |
| 2012 | 187,262 | 50,687 |
| 2013 | 196,305 | 51,172 |
| 2014 | 201,605 | 51,836 |
| AAGR | 3.41% | 1.92% |

Source: Woods and Poole, 2015.

3.5.4 Weather

AUN is considered to be a good-weather airport, as its elevation is typically above the fog that affects the Sacramento valley. The nearest weather station recorded an average of 37.15 inches of annual precipitation between 1981 and 2010. The average maximum temperature of the warmest month (July) is 91.7° Fahrenheit (F), with the average minimum temperature of the coldest month (December) being 37.7° F.

3.5.5 Surrounding Airspace

Four other airports are located within a 25-nautical mile (nm) radius at AUN and are described below:

▶ **Lincoln Regional Airport/Karl Harder Field (KLHM)** -13 nm west

- Primary Runway Length: 6,001'
- Helipad H1: 60' X 60'
- Based Aircraft: 176
- Annual Operations: 74,400

▶ **Nevada County Air Park (KGOO)** -17 nm north

- Primary Runway Length: 4,351'
- Based Aircraft: 137
- Annual Operations: 27,750

▶ **Placerville Airport (KPVF)** - 21 nm southeast

- Primary Runway Length: 3,910'
- Helipad H1: 50' X 50'
- Based Aircraft: 120
- Annual Operations: 59,400

▶ **McClellan Airfield (KMCC)** - 23 nm southwest

- Primary Runway Length: 10,599'
- Helipad H1: 57' X 57'
- Helipad H2: 57' X 57'
- Helipad H3: 57' X 57'
- Helipad H4: 57' X 57'
- Based Aircraft: 94

- Annual Operations: 18,000

3.5.6 Environmental Setting

The environmental setting on airport property consists primarily of annual grassland and oak woodland. A closed/buried landfill exists on the approach end of Runway 7. No wetlands or floodplains exist on airport property. **Figure 3-3** illustrates the environmental setting at AUN.

3.5.7 Airport Land Use

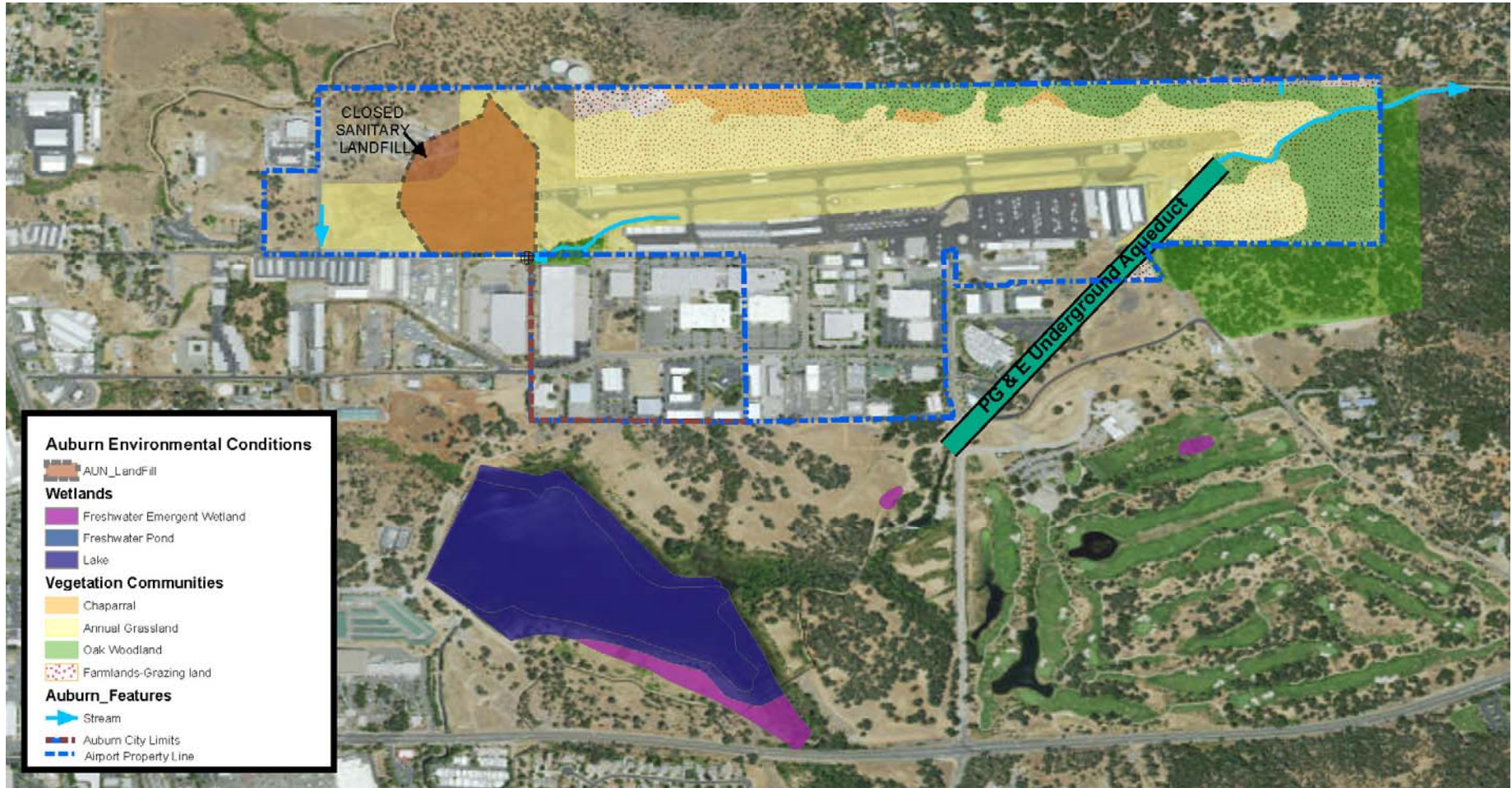
Figure 3-4 depicts surrounding airport land uses as represented in the Airport Land Use Compatibility Plan (ALUCP) adopted by the Airport Land Use Commission (ALUC) on February 26, 2014. The 2006 AUN Master Plan preferred development plan and aviation demand forecast served as the basis for the current ALUCP. The surrounding land uses contain a mixture of mixed use, open space, business park, residential, industrial, commercial and rural estate. Additional land use south of the Airport includes a golf course, reservoir, and undeveloped land.

The area immediately surrounding the Airport is experiencing increased urbanization. As a result, land use pressures have been put on to local jurisdictions in recent years and City and County general plans are not consistent with the adopted 2014 ALUCP.

3.5.8 Airport Waste Recycling Program

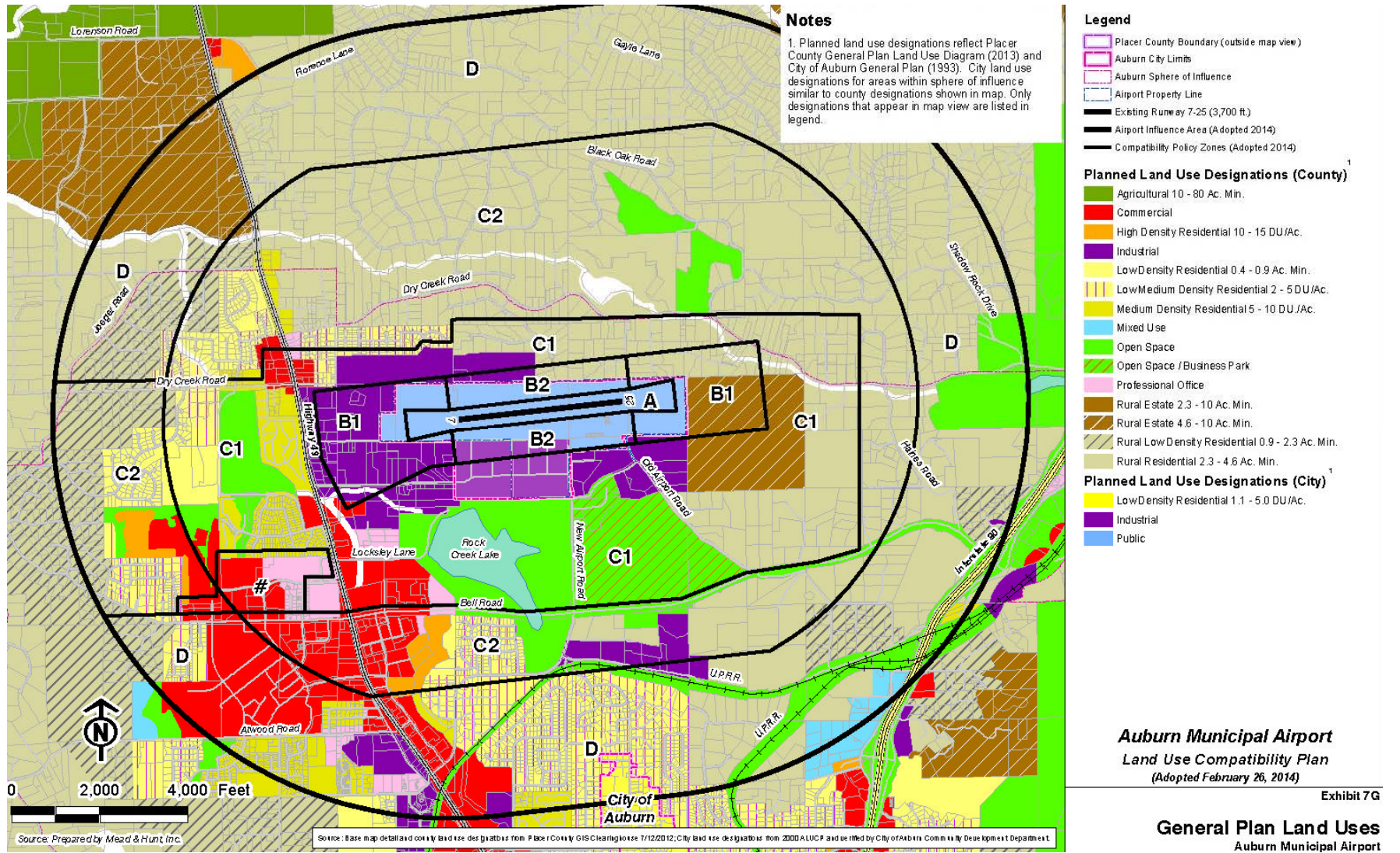
Recology Auburn Placer currently has a solid waste recycling program at the Airport for on-airport users to utilize.

Figure 3-3 AUN Environmental Base Map



Source: Jacobs, National Wetland Inventory, 2015.

Figure 3-4 AUN Surrounding Land Uses



4. Forecast of Aviation Demand

The Forecast of Aviation Demand section analyzes activity projections for the Auburn Municipal Airport (KAUN). This forecast is used for evaluating the capability of the existing airport facilities to meet current and future demand. This analysis compares the forecasting efforts of the previous Airport Master Plan with updated efforts of the Federal Aviation Administration (FAA) and the California Department of Transportation (CALTRANS).

Aviation demand forecasts typically use a variety of statistical techniques that project demonstrated historical relationships between components of aviation demand and various socioeconomic characteristics of the study area and forecast or project those relationships into the future.

4.1 Previous Forecasts

The previous aviation demand forecasts developed for AUN and the general aviation industry include the 2006 Master Plan forecast, the 2015 FAA Terminal Area Forecast and the FAA Aerospace Forecast FY 2015 through 2035. A summary of these forecasts are as follows and depicted in **Table 4-1**:

- ▶ The 2006 Master Plan projects 290 total aircraft and 104,000 operations through 2025.
- ▶ The FAA’s Terminal Area Forecast (TAF) projects both based aircraft and operations to have flat-line growth through 2035.
- ▶ The FAA predicts that active general aviation aircraft fleet (potential based aircraft) will grow by 0.4 percent through 2035 and the active general aviation hours flown (potential operations) will grow by 1.4 percent. Those growth rates were applied to base year (2015) numbers for AUN and shown in **Table 4-1**.

Table 4-1 Previous Forecasts

| Year | Based Aircraft | | | Total Operations | | |
|---------------|------------------|---------|------------------------|------------------|---------|------------------------|
| | 2006 Master Plan | FAA TAF | FAA Aerospace Forecast | 2006 Master Plan | FAA TAF | FAA Aerospace Forecast |
| 2015 | 250 | 212 | 212 | 85,000 | 68,770 | 68,770 |
| 2020 | - | 212 | 216 | - | 68,770 | 73,721 |
| 2025 | 290 | 212 | 221 | 104,000 | 68,770 | 79,028 |
| 2030 | - | 212 | 225 | - | 68,770 | 84,717 |
| 2035 | - | 212 | 230 | - | 68,770 | 90,815 |
| Forecast CAGR | 1.50% | 0.00% | 0.40% | 2.04% | 0.00% | 1.14% |

Source: AUN Airport Master Plan, 2006. FAA Terminal Area Forecast, 2015. FAA Aerospace Forecast, 2015.

4.2 Future Forecast Scenarios

Aviation activity is affected by many influences at the local, regional and national level, making it difficult to predict year-to-year fluctuations of activity over the 20-year planning period. Therefore, it is important to remember that these forecasts serve as guidelines and planning must remain flexible enough to respond to unforeseen developments.

4.2.1 Forecast Methodologies

Aviation demand forecasts typically use a variety of statistical techniques that project demonstrated historical relationships between components of aviation demand and various socioeconomic characteristics of the study area and forecast or project those relationships into the future. The statistical analysis techniques applied to this forecast include:

- ▶ Market share analysis
- ▶ Trend analysis
- ▶ Operations per based aircraft
- ▶ Regression analysis

There are also intangible factors that must be considered when developing a final or “preferred” forecast, such as:

- ▶ Expected and anticipated changes in the local economic environment and national economy
- ▶ Impact of new local businesses
- ▶ Intended use of a particular forecast

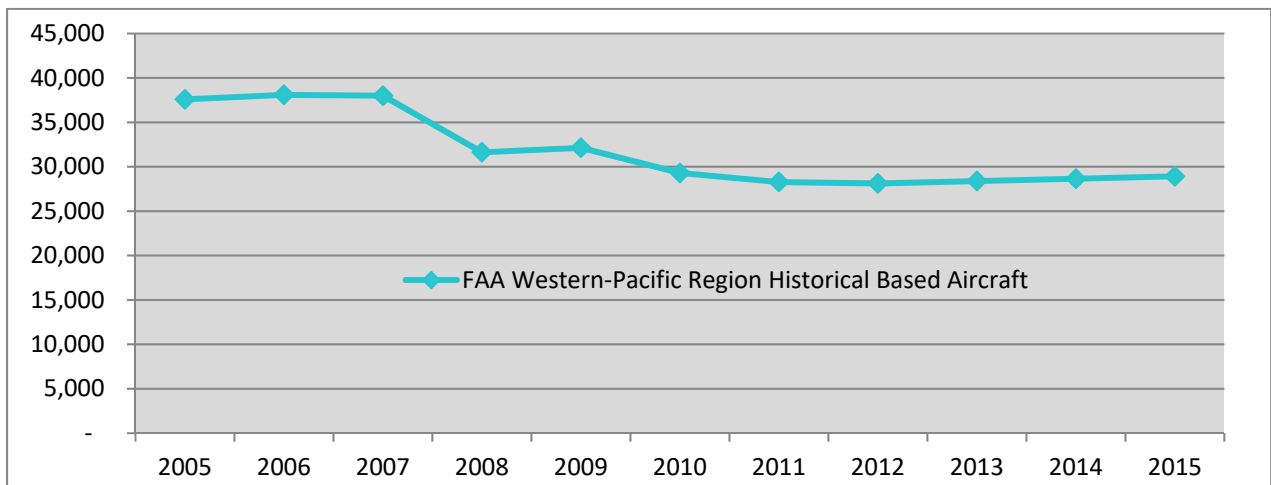
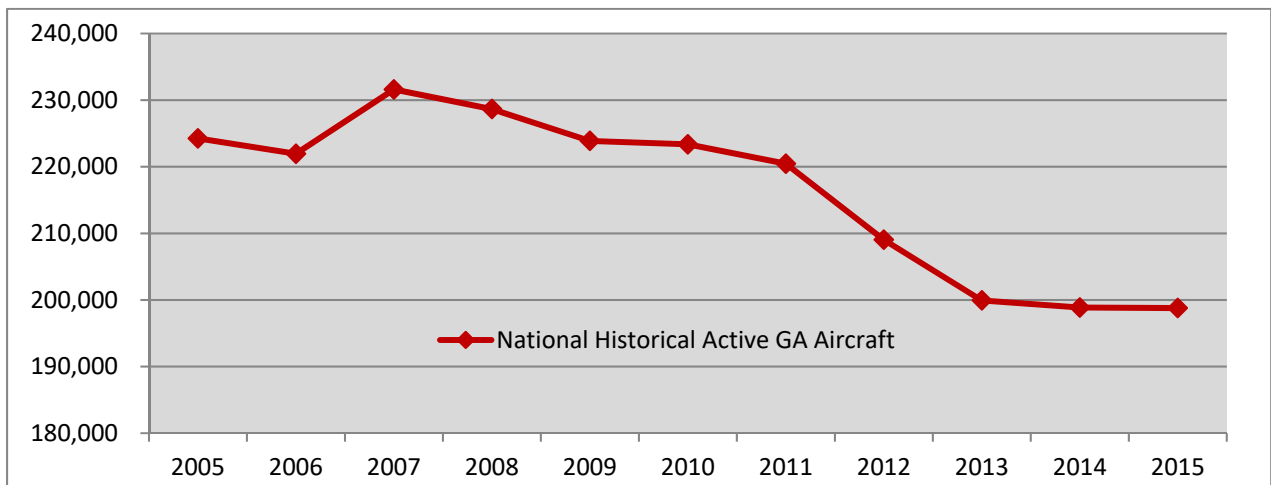
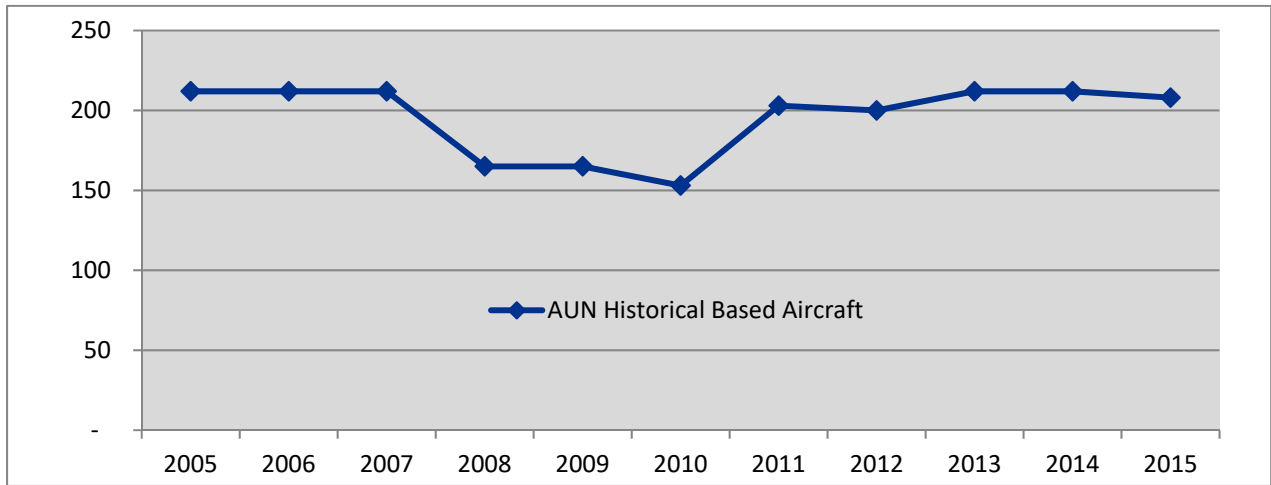
Forecasts also influence facility planning, which is highly dependent on the accuracy of the forecast. Typically, forecasts are less accurate as the forecast period extends beyond 5 or more years; however, facility development can require 5 to 10 years to implement and complete. In order to plan for long range facility needs, aviation forecasts produced for AUN represent the unconstrained potential for aviation activity at the Airport.

4.2.2 Forecast Based Aircraft

Historically, based aircraft totals at AUN have fluctuated, experiencing periods of growth and no growth. FAA data (FAA Terminal Area Forecast, 2015) indicates that during the “Great Recession”, AUN based aircraft totals dropped from a 2007 high of 212 to a 2010 low of 153. This is similar to the based aircraft trends that occurred both nationally and in the FAA’s Western Pacific Region, see **Figure 4-1**. However, as can be seen in the figure, AUN’s based aircraft count has recovered, while the region and country’s based aircraft numbers have not yet returned to their pre-recession levels.

Several based aircraft projections were developed for the purpose of this forecast based upon differing growth factors.

Figure 4-1 Historical Based Aircraft Comparison



Source: FAA, 2015

4.2.2.1 Western Pacific Region Projected Based Aircraft

This method simply applies the FAA's Western Pacific Region forecasted based aircraft average annual growth rate (AAGR) of **0.96%** through 2035. As a result of this growth rate, based aircraft totals are expected to reach a total of 252 based aircraft by the year 2035, an increase of 44 based aircraft.

4.2.2.2 Historical Trend

Historically, based aircraft at AUN has remained relatively flat, with 206 based aircraft in 1990 and 208 based aircraft in 2015. This is partially due to the historic lack of available hangar space. In 2003, an east hangar development area was constructed to add additional hangar capacity; however, the impact to based aircraft totals has been limited.

Applying the historical trend growth rate to the 2015 based aircraft count results in a 2035 based aircraft count of 210 (**0.04%**).

4.2.2.3 Market Share – Surrounding Sacramento Area Airports

Market share analysis can be applied to any measure for which a reliable higher-level (i.e., larger aggregate) forecast is available. Historical shares are calculated and used as a basis for projecting future shares.

- **California Market Share**
 - Over the past ten (10) years, based aircraft at AUN have accounted for 0.85 percent of all based aircraft in California.
 - Applying AUN's historical based aircraft market share to the FAA's forecast for based aircraft in the State of California, it is projected that based aircraft total will remain flat at 208 in 2035 (**0.00% AAGR**).
- **McClellan Airfield (MCC), Lincoln Regional/Karl Harder Field (LHM), Nevada County Airpark (GOO) Market Share**
 - Over the past ten (10) years, based aircraft at AUN have accounted for 32 percent of all based aircraft among nearby competing airports MCC, LHM and GOO.
 - Applying AUN's historical based aircraft market share to the FAA's forecast for based aircraft among these surrounding airports, , it is projected that based aircraft total will increase to 222 in 2035 (**0.33% AAGR**).
- **MCC and LHM Market Share**
 - Over the past ten (10) years, based aircraft at AUN have accounted for 41.2 percent of all based aircraft among nearby competing airports MCC and LHM.
 - Applying AUN's historical based aircraft market share to the FAA's forecast for based aircraft among these surrounding airports, , it is projected that based aircraft total will increase to 228 in 2035 (**0.46% AAGR**) .

4.2.2.4 Regression Analysis

Regression analysis determines the relationship between a dependent or response variable and an independent or predictor variable. The correlation coefficient – R-squared value – in regression analysis represents the degree to which the dependent variable, in this case general aviation based aircraft, is determined by the respective independent variables. A perfect correlation coefficient or R-squared value equals one, which would indicate a 100 percent variation in based aircraft at AUN is driven by socioeconomic factors in Placer County.

Regression analysis was performed using five (5) different socioeconomic factors for Placer County – population, employment, earnings, personal income and per capita personal income (PCI). In each scenario, the regression analysis did not identify a socioeconomic variable – or combination of variables – with a strong correlation coefficient. Therefore, regression analysis could not be utilized as a viable methodology to accurately project future based aircraft at AUN.

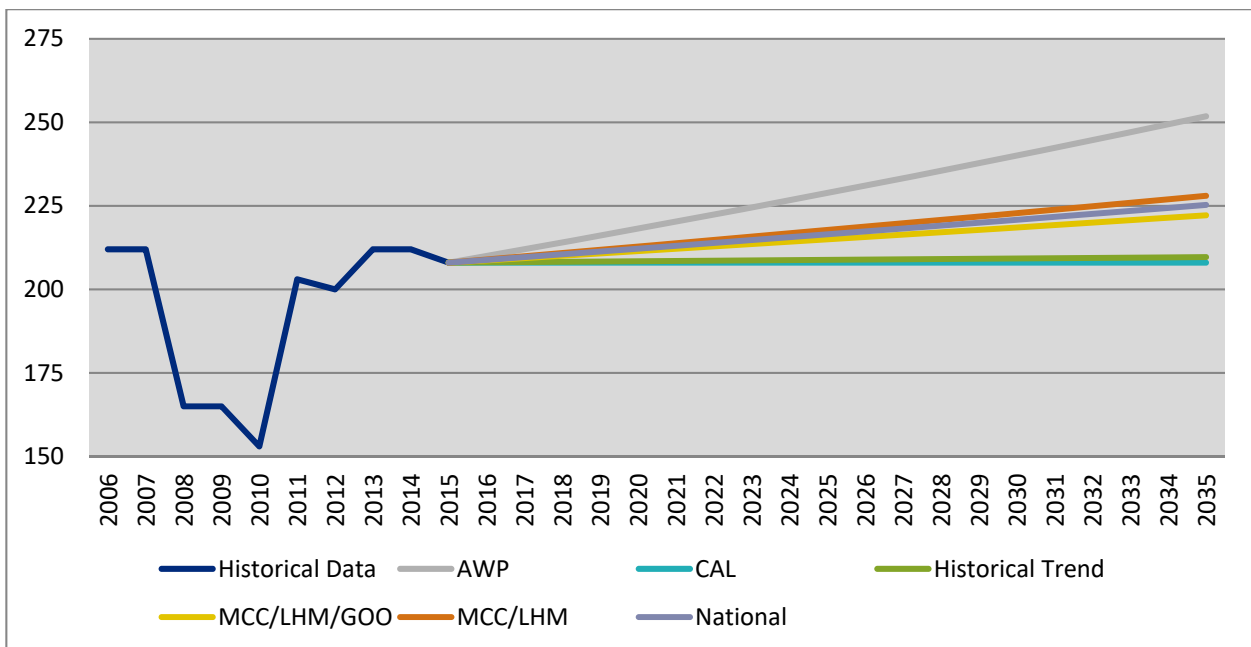
4.2.2.5 Preferred Based Aircraft Forecast

The forecast methodologies outlined in the section are summarized in **Figure 4-2**.

Activity and the fleet mix creating that activity at AUN over the past ten (10) years generally reflects the general aviation trends nationally. These trends include increased rotorcraft and business aircraft operations with steady or decreasing small single-engine aircraft operations since the great recession. AUN has, in general, recovered from the dip in based aircraft experienced during the great recession much faster than other airports in the region.

Market share analysis of surrounding /competing airports indicates that AUN will likely continue to experience general aviation based aircraft growth similar to that of the FAA’s National Aerospace Forecast (**AAGR 0.4%**). AUN is expected to experience moderate growth in based aircraft during the planning period. While occasional downturns in activity are expected, the overall trend is expected to be positive. This results in a based aircraft forecast of **225 based aircraft in 2035**.

Figure 4-2 AUN Based Aircraft Forecast Scenarios



Source: Jacobs Analysis, 2015

4.2.3 Aircraft Operations Forecasts

Aircraft Operations are inherently difficult to estimate at non-towered general aviation airports. Airport staff has performed periodic weekly operations counts that indicate operations total approximately 70,000 annually. The FAA's TAF also indicates that historically, aircraft operations total a similar 68,770.

Comparing the total number of based aircraft to the total number of general aviation operations provides a means of quantifying future general aviation activity. This methodology is known as operations per based aircraft (OPBA) approach. OPBA is a methodology recognized by the FAA that relates total general aviation aircraft to a known variable, in this case, based aircraft. The OPBA methodology uses the historical number of general aviation operations per based aircraft to project future general aviation activity. This number is then applied to the based aircraft forecast for each year in the forecast period to determine total general aviation operations.

- **Current OPBA** – Currently, there are 208 based aircraft on the field. Using the current estimate of approximately 70,000 annual aircraft operations results in an OPBA of 337.
- **Historical Average OPBA** – Comparing historical based aircraft to historical aircraft operations results in an average OPBA of 339
- **National Plan of Integrated Airport Systems (NPIAS) OPBA – FAA Order 5090.3C**, Field Formulation of the NPIAS provides guidance for estimating OPBA at non-towered general aviation airports. For airports with a significant number of itinerant operations like AUN, the document provides a guideline of 350 OPBA, similar to the historical OPBA's outlined above.

It is recommended that the FAA's guidance of 350 OPBA be applied to the forecast of based aircraft due to its similarity with historical trends at AUN. This results in a year 2035 annual aircraft operations forecast of **78,750**.

4.2.4 Local and Itinerant Operations Forecast

Total forecasted general aviation operations have been further categorized as Local or Itinerant. Local operations, as defined by the FAA, are:

- Operations performed in the local traffic pattern or within sight of an airport
- Performed by aircraft departing for, or arriving from, flight in local practice areas located within a 20-mile radius of an airport
- Performed by aircraft executing simulated or actual, instrument or visual approaches, or touch and goes.

Itinerant operations are all other operations.

Historical data indicates that Local and Itinerant operations at AUN are split at approximately 51/49 percent, respectfully. This ratio is not expected to change during the forecast period.

4.2.5 Instrument Operations

An instrument operation is an aircraft operation in accordance with an instrument flight plan or an operation where instrument flight rules separation between aircraft is provided by a terminal control facility or air route traffic control center (ARTCC). These types of operations typically occur within the vicinity of AUN, when local weather conditions are below visual flight rule minimums.

There is no record of the number of instrument operations currently occurring at AUN on an annual basis. However, the existing minimums associated with the instrument approaches at the Airport are not expected to change during the planning period. Because of the lack of historical data and the minor changes expected in instrument procedures during the planning period, an instrument operations forecast was not developed.

4.2.6 Military Activity

Historically, the FAA TAF shows very few military operations at AUN over the past 20 years. Therefore, forecasts for military activity at DGW were not prepared as a component of this forecast update.

4.3 Ultimate Forecast Scenario

This forecast scenario considers factors beyond the 20 year planning period. These factors include a potential runway extension at AUN and resulting changes in fleet mix and activity levels. The 2010 CALTRANS General Aviation Needs Assessment Element of the California Aviation System Plan states:

Auburn Municipal Airport's runways are short of their uniquely determined minimum required runway length –... 1,300 feet short ... If environmental and land use planning conditions could be satisfied, Auburn would be a strong candidate for a runway extension project. There are periods when the other airports on the Sacramento valley floor are severely constrained due to weather, namely dense fog. Quite often when fog restricts some valley airports, Auburn's elevation of 1,539 feet supports VFR conditions. A longer runway would also aid emergency firefighting aircraft such as those used in the August 2009 wildfire in Auburn that destroyed numerous homes, businesses and forest land.

As a result of the above-mention analysis it is prudent to plan for potential forecast impacts of an ultimate runway extension at AUN to 5,000 ft.

Fleet mix forecast for the Sacramento valley general aviation airports such as Sacramento Mather Airport (MHR) and Sacramento Executive (SAC) were reviewed to determine potential future fleet mixes should diversion of those aircraft be required to AUN when valley airports are weather restricted. The forecasts indicate a significant growth in both small and large business jets and a decrease in single engine piston aircraft activity. Therefore, a longer runway at AUN would likely need to accommodate this fleet to be justified beyond the 20-year planning period. These assumptions will be incorporated in to the Forecasted Fleet Mix.

4.4 Fleet Mix Forecast

The forecasted based aircraft fleet mix generally reflects the national trends projected in the *FAA Aerospace Forecasts, FY 2015-2035*. The FAA forecasts a 2.2 percent average annual growth rate for general aviation jet aircraft, a negative 0.6 percent decrease for single – engine piston aircraft and a negative 0.9 average annual decrease in multi-engine piston aircraft. However, local conditions indicate that the lack of runway length will slow the growth rate of jet aircraft at AUN. The helicopter growth is expected to remain robust as long as suitable conditions for their operations are maintained at the Airport. The forecasted based aircraft fleet mix for AUN is reflected in **Table 4-2**.

Table 4-2 Forecasted Based Aircraft Fleet Mix

| Year | Single Engine | Multi-Engine | Jet | Helicopter | Other | Total |
|-----------------------------------|---------------|--------------|-----|------------|-------|-------|
| 2015 | 187 | 14 | 0 | 5 | 2 | 208 |
| Percentage | 90% | 6.7% | 0% | 2.4% | 0.9% | 100% |
| Forecast | | | | | | |
| 2020 | 189 | 15 | 0 | 6 | 2 | 212 |
| 2025 | 189 | 15 | 1 | 7 | 4 | 216 |
| 2030 | 191 | 15 | 2 | 8 | 5 | 221 |
| 2035 | 191 | 16 | 3 | 9 | 6 | 225 |
| Ultimate (Beyond Planning Period) | 189 | 16 | 5 | 9 | 6 | 225 |

Source: Jacobs Analysis, 2015.

Table 4-3 Forecasted Operations Fleet Mix

| Year | Single Engine | Multi-Engine | Jet | Helicopter | Other | Total |
|-----------------------------------|---------------|--------------|-------|------------|-------|--------|
| 2020 | 66,038 | 5,194 | 104 | 2,226 | 638 | 74,200 |
| 2025 | 66,150 | 5,216 | 350 | 2,524 | 1,360 | 75,600 |
| 2030 | 66,850 | 5,250 | 700 | 2,800 | 1,750 | 77,350 |
| 2035 | 66,850 | 5,600 | 1,050 | 3,150 | 2,100 | 78,750 |
| Ultimate (Beyond Planning Period) | 66,150 | 5,600 | 1,750 | 3,150 | 2,100 | 78,750 |

Source: Jacobs Analysis, 2015.

4.5 Critical Aircraft

The FAA planning guidelines recommend the identification of an existing and future design aircraft. The critical design aircraft is defined as the most demanding aircraft that performs or is predicted to perform at least 500 annual operations at the facility.

The 2007 Master Plan indicated that approximately 95 percent of the operations at AUN were small, single-engine aircraft, with regular use by helicopters and occasional business jet use. The operations today are very similar to those outlined in the Master Plan; however, airport management has seen a recent increase in helicopter activity as a result of flight training, law enforcement and other industrial helicopter traffic. According to airport management and the Airport’s based aircraft database, the fleet mix making regular use of the airport has not changed significantly since 2007.

The existing B-I critical design aircraft (e.g. Cessna 401 or Beechcraft Baron) both continue to make both regular use of- and are based at the Airport. Therefore, there is no evidence that a change critical design aircraft at AUN, both existing and future, is warranted at this time.

4.6 Aviation Demand Forecast Summary

The AUN 20-year forecast for aviation activity projects steady growth over the period for general aviation activity. The preferred summary of forecasted demand at the airport is presented in **Table 4-4**. To better assist in the FAA’s review of the forecast elements, the operations forecast summary is compared to the FAA TAF in **Table 4-5**.

Table 4-4 AUN Aviation Demand Forecast Summary

| Description | Projected | | | | | Average Annual Growth Rate | | |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|-------------|-------------|
| | 2015 | 2020 | 2025 | 2030 | 2035 | 2015 - 2020 | 2015 – 2025 | 2015 - 2035 |
| OPERATIONS | | | | | | | | |
| <u>Itinerant</u> | | | | | | | | |
| General Aviation | 34,300 | 36,358 | 37,044 | 37,901 | 38,587 | 1.2% | 0.8% | 0.6% |
| <u>Local</u> | | | | | | | | |
| General Aviation | 35,700 | 37,842 | 38,556 | 39,449 | 40,163 | 1.2% | 0.8% | 0.6% |
| TOTAL OPERATIONS | 70,000 | 74,200 | 75,600 | 77,350 | 78,750 | 1.2% | 0.8% | 0.6% |
| BASED AIRCRAFT | | | | | | | | |
| Single Engine | 187 | 189 | 189 | 191 | 191 | 0.2% | 0.1% | 0.1% |
| Multi Engine | 15 | 15 | 15 | 15 | 16 | 0.0% | 0.0% | 0.3% |
| Jet | 0 | 0 | 1 | 2 | 3 | 0.0% | 100.0% | 100.0% |
| Helicopter | 5 | 6 | 7 | 8 | 9 | 3.7% | 3.4% | 3.0% |
| Other | 2 | 2 | 4 | 5 | 6 | 0.0% | 7.2% | 5.6% |
| TOTAL BASED AIRCRAFT | 208 | 212 | 216 | 221 | 225 | 0.4% | 0.4% | 0.4% |
| OPBA | 337 | 350 | 350 | 350 | 350 | | | |

Source: Jacobs Analysis, 2015

The FAA requires that aviation activity forecasts prepared must be supported by a reasonable analysis and be consistent with the TAF. The FAA has established the following criteria for determining whether or not forecasts of total operations are consistent with the TAF.

- ▶ Forecasts differ by less than 10 percent in the first 5-year forecast and by less than 15 percent in the 10-year period, or
- ▶ Forecasts do not affect the timing or scale of an airport project, or
- ▶ Forecasts do not change the role of the airport as defined in FAA Order 5090.3, Field Formulation of the National Plan of Integrated Airport Systems.

Table 4-5 is a comparison of the AUN's preferred aviation demand forecast with the FAA TAF.

Table 4-5 TAF Comparison Table

| Total Operations | Year | AUN Aviation Demand Forecast | FAA TAF | % Difference |
|---------------------|------|------------------------------|---------|--------------|
| Base Year | 2015 | 70,000 | 68,770 | 2% |
| Base Year +5 Years | 2020 | 74,200 | 68,770 | 8% |
| Base Year +10 Years | 2025 | 75,600 | 68,770 | 10% |

Source: FAA, Jacobs Analysis, 2015

As indicated the table above, the preferred aviation demand forecast for AUN is consistent with the FAA TAF.

5. Facility Requirements

This chapter analyzes the ability of the current facilities at Auburn Municipal Airport (AUN), as documented in Chapter 2, *Inventory of Existing Conditions*, to accommodate the aviation demand forecasts developed in Chapter 3, *Forecast of Aviation Demand*. The major components at the Airport include the airfield and GA terminal core area. These components were analyzed to determine the necessary facility requirements.

Typical industry requirements for general aviation demand were identified for various activity levels over the 20-year planning period to indicate required facilities. These design standards are explored in greater detail in the following sections to determine the scope necessary during **Phase 1 (2016-2020)**, **Phase 2 (2021-2025)** and **Phase 3 (2026-2035)** over the planning period. In order for the Airport to achieve system optimization the major components must be in balance. Specific facility expansion and airport development alternatives to adequately meet the projected demand are addressed in Chapter 5, *Alternatives Analysis*.

5.1 Airfield Design Standards

The Runway Design Code (RDC) is used to determine the design standards that apply to a specific runway, allowing unrestricted operations by the design aircraft under desired meteorological conditions and is based on planned development with no operational application.

The RDC is formed by the Aircraft Approach Category (AAC), Airplane Design Group (ADG), and approach visibility minimums. The first element of the RDC, represented by a letter, is the AAC which relates to the operational characteristics of the aircraft approach speed as shown in **Table 5-1**. The second element is the ADG, represented as a Roman numeral, and relates to the aircraft’s physical characteristics of the wingspan or tail height; whichever is most restrictive, as shown in **Table 5-2**.




The third and final elements are the aircraft approach visibility minimums and are represented by Runway Visual Range (RVR) values in feet. The numbers associated to the flight visibility category are provided in statute miles as shown in **Table 5-3**. For runways designed with visual approach use only, the element becomes “VIS”.

Table 5-1 Aircraft Approach Categories

| AAC | Approach Speed (knots) |
|-----|------------------------|
| A | < 91 |
| B | 91 - < 121 |
| C | 121 - < 141 |
| D | 141 - < 166 |
| E | ≥ 166 |

Source: FAA Advisory Circular, 150/5300-13A, *Airport Design*.

Table 5-2 Airplane Design Groups

| ADG | Tail Height (ft.) | Wingspan (ft.) | Example |
|-----|-------------------|----------------|--|
| I | < 20 | < 49 |  |
| II | 20 - < 30 | 49 - < 79 |  |
| III | 30 - < 45 | 79 - < 118 |  |
| IV | 45 - < 60 | 118 - < 171 |  |
| V | 60 - < 66 | 171 - < 214 |  |
| VI | 66 - < 80 | 214 - < 262 |  |

Source: FAA Advisory Circular, 150/5300-13A, *Airport Design*.

Table 5-3 Visibility Minimums

| RVR (ft.) | Flight Visibility Category (statute mile) |
|-----------|---|
| 5,000 | Not lower than 1 statute mile |
| 4,000 | $\frac{3}{4}$ - < 1 |
| 2,400 | $\frac{1}{2}$ - < $\frac{3}{4}$ |
| 1,600 | $\frac{1}{4}$ - < $\frac{1}{2}$ |
| 1,200 | < $\frac{1}{4}$ |

Source: FAA Advisory Circular, 150/5300-13A, *Airport Design*.

The existing airfield at AUN was designed for a B-I (small) aircraft, based on the most recent Airport Layout Plan (2012) and the 2007 Master Plan. As outlined in Chapter 3, the Airport has experienced growth in operations, based aircraft and fleet mix since the 2007 Master Plan. However, based on the FAA's criteria (e.g. 500 annual operations of an aircraft in a specific design group) the trends are not significant enough to change the future

critical aircraft. Therefore, it is recommended that the existing and future critical aircraft remain consistent with the Master Plan in this Airport Layout Plan Update.

As a B-I (Small) airport, the airfield components should be adequate to accommodate aircraft under 12,500 lbs. of maximum gross takeoff weight and less than 49 foot wingspans on a regular basis. Additionally, flexibility should be built in to the airfield to accommodate occasional use by larger aircraft as AUN's transient aircraft fleet does include these aircraft.

Table 5-4 and **Table 5-5** outline the design standards that the taxiways, taxilanes and aprons must meet as a result of the critical aircraft determination.

Table 5-4 Airplane Design Group Standards

| ITEM | ADG | | | | | |
|--|------|------|-----|-------|-----|-----|
| | I | II | III | IV | V | VI |
| TAXIWAY PROTECTION | | | | | | |
| TSA (ft.) | 49 | 79 | 118 | 171 | 214 | 262 |
| Taxiway OFA (ft.) | 89 | 131 | 186 | 259 | 320 | 386 |
| Taxilane OFA (ft.) | 79 | 115 | 162 | 225 | 276 | 334 |
| TAXIWAY SEPARATION | | | | | | |
| Taxiway Centerline to Parallel Taxiway/Taxilane Centerline (ft.) | 70 | 105 | 152 | 215 | 267 | 324 |
| Taxiway Centerline to Fixed or Movable Object (ft.) | 44.5 | 65.5 | 93 | 129.5 | 160 | 193 |
| Taxiway Centerline to Parallel Taxiway Centerline (ft.) | 64 | 97 | 140 | 198 | 245 | 298 |
| Taxilane Centerline to Fixed or Movable Object (ft.) | 39.5 | 57.5 | 81 | 112.5 | 138 | 167 |
| WINGTIP CLEARANCE | | | | | | |
| Taxiway Wingtip Clearance (ft.) | 20 | 26 | 34 | 44 | 53 | 62 |
| Taxilane Wingtip Clearance (ft.) | 15 | 18 | 27 | 27 | 31 | 36 |

Source: FAA Advisory Circular, 150/5300-13A, *Airport Design*

Table 5-5 Taxiway Design Group Standards

| TDG | Taxiway Width (ft.) | Taxiway Edge Safety Margin (ft.) | Taxiway Shoulder Width (ft.) | Taxiway Fillet Dimensions (ft.) |
|-----|---------------------|----------------------------------|------------------------------|---------------------------------|
| 1A | 25 | 5 | 10 | TDG 1A |
| 1B | 25 | 5 | 10 | TDG 1B |
| 2 | 35 | 7.5 | 15 | TDG 2 |
| 3 | 50 | 10 | 20 | TDG 3 |
| 4 | 50 | 10 | 20 | TDG 4 |
| 5 | 75 | 15 | 30 | TDG 5 |
| 6 | 75 | 15 | 30 | TDG 6 |
| 7 | 82 | 15 | 40 | TDG 7 |

Source: FAA Advisory Circular, 150/5300-13A, *Airport Design*

5.2 Airfield Capacity

The FAA's Airport Capacity and Delay Model (ACDM) combine information concerning runway configuration, runway usage, meteorology, operational fleet mix, and touch-and-go operations to produce an hourly capacity of the airfield. A weighted hourly capacity combines the input data to determine a base for each VFR and IFR operational runway use configuration at the airport. Each hourly capacity base is assigned a proportionate weight (based on the time each is used) to determine the weighted hourly capacity of the entire airfield.

Since many of the Airport's facility needs are related to the levels of activity during peak periods, peak month and peak hour operations were developed using the aviation demand forecast in Chapter 3, *Forecast of Aviation Demand*, and historical fuel sales provided by Airport staff. The peak period general aviation operations for AUN were calculated using the following methodology:

- **Peak Month Operations:** This level of activity is defined as the calendar month when peak aircraft operations occur. Peak month percentages at good weather airports are typically 10 percent of the annual aircraft operations.

$$\text{Peak Month Operations} = \text{Annual Operations} * 0.1$$

- **Design Day Operations:** This level of operations is defined as the average day within the peak month.

$$\text{Design Day Operations} = \text{Peak Month Operations}/30$$

- **Design Hour Operations:** This level of activity is defined as the peak hour within the design day. Typically, these operations will range between 10 and 15 percent of the design day operations. The lower the annual number of operations, the higher the design hour percentage of the design day. Considering the Airport's operational forecasts, a figure of 15 percent was used to estimate design hour operations.

$$\text{Design Hour Operations} = \text{Design Day Operations} * 0.15$$

Using this methodology, the design hour operations forecasts range from 35 in 2015 to 39 in 2035. Given the runway configuration, runway usage, meteorology and operational fleet mix, the VFR and IFR hourly capacities for AUN are estimated by FAA A/C 150/5060-5, *Airport Capacity and Delay*, to be 98 and 59 operations per hour, respectively. As shown in **Table 5-6**, the airfield will have sufficient hourly capacity to meet design hour and peak period demands for the planning period.

Table 5-6 Hourly Runway Capacity Analysis

| Year | Design Hour Operations | VFR Hourly Capacity | IFR Hourly Capacity | VFR/IFR Capacity Ratio |
|------------------|------------------------|---------------------|---------------------|------------------------|
| 2015 (Base Year) | 35 | 98 | 59 | 36%/59% |
| 2020 | 37 | 98 | 59 | 38%/63% |
| 2025 | 38 | 98 | 59 | 39%/64% |
| 2030 | 39 | 98 | 59 | 40%/66% |
| 2035 | 39 | 98 | 59 | 40%/66% |

Source: Jacobs Engineering Group, Inc., 2016.

An airport's Annual Service Volume (ASV) is defined by the FAA as "a reasonable estimate of an airport's annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time." Therefore, ASV is a function of the hourly capacity of the airfield and the annual, daily, and hourly demands placed upon it. ASV is estimated by multiplying the daily and hourly operation ratios by a weighted hourly capacity.

At AUN, the ASV is estimated to be 230,000 aircraft operations (landings and takeoffs) for present conditions. Compared to the projection of 78,750 operations by 2035, it is evident that airfield capacity is not a constraining factor to growth of the Airport. **Table 5-7** summarizes the ASV at AUN.

Table 5-7 Annual Runway Service Volume Analysis

| Year | Annual Operations | Annual Service Volume (Capacity) | Annual Capacity Ratio |
|------------------|-------------------|----------------------------------|-----------------------|
| 2015 (Base Year) | 70,000 | 230,000 | 30% |
| 2020 | 74,200 | 230,000 | 32% |
| 2025 | 75,600 | 230,000 | 33% |
| 2035 | 78,750 | 230,000 | 34% |

Source: Jacobs Engineering Group, Inc., 2016.

5.3 Airfield Requirements

5.3.1 Wind Coverage Analysis

The prevailing winds generally determine runway orientation and the need for a crosswind runway. FAA planning standards state that a runway system should provide a minimum of 95 percent of wind coverage. If a single runway direction cannot provide this level of coverage, then an additional crosswind runway(s) may be needed. Generally, the smaller the aircraft, the more it is affected by the wind, particularly crosswind components. The wind analysis for AUN was conducted for crosswind components ranging from 10.5 knots, for small aircraft, to 20 knots, for larger aircraft, due to the variety of aircraft utilizing the Airport. Given the existing and future airport reference codes for AUN, the FAA requires that an aircraft with a 10.5 knot crosswind component be accommodated 95 percent of the time.

The runway wind coverage analysis was performed using the FAA's Airport GIS wind analysis tool. Data was supplied by the National Climatic Data Center for the weather reporting station at Auburn, CA over the period of 2006-2016. Runway windroses were developed for All-Weather, Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) conditions. The results are shown in **Table 5-8**.

As shown, Runway 7/25 provides 95 percent or more wind coverage for the 10.5 knot crosswind component, as required by the FAA, during All-Weather, IFR and VFR conditions. Therefore, the current runway configuration at AUN is adequate with respect to providing sufficient wind coverage, and no additional crosswind runways are required.

Table 5-8 AUN Primary Runway Wind Coverage Analysis

| Runway 7/25 Wind Coverage | | | |
|---------------------------|------------------------|----------------|----------------|
| Crosswind Component | All-Weather Conditions | IFR Conditions | VFR Conditions |
| 10.5 knots | 98.46% | 89.56% | 98.94% |
| 13.0 knots | 99.21% | 94.29% | 99.48% |
| 16.0 knots | 99.87% | 98.98% | 99.92% |
| 20.0 knots | 99.97% | 99.80% | 99.98% |

Source: National Climate Data Center, 2016.

5.3.2 Runway Length Analysis

The methodology used to determine primary runway length at AUN is outlined in FAA AC 150/5325-4B, Runway Length Requirements for Airport Design, as follows:

- **Step #1.** Identify the list of critical design airplanes that will make regular use of the proposed runway for an established planning period of at least five years.

- **Step #2.** Identify the airplanes that will require the longest runway lengths at maximum certificated takeoff weight (MTOW). This is used to determine the method for establishing the recommended runway length. The recommended runway length is determined according to a family grouping of airplanes having similar performance characteristics and operating weights.
- **Step #3.** FAA AC 150/5325-4B, Runway Length Requirements, categorizes potential design airplanes according to their MTOWs. MTOW is used because of the significant role played by airplane operating weights in determining runway lengths. Small airplanes, defined as airplanes with MTOW of 12,500 pounds or less, are further subdivided according to approach speeds and passenger seating.
- **Step #4.** Select the recommended runway length from among the various runway lengths generated by Step #3.

The runway length calculations at AUN assumed the following design conditions:

- Mean daily maximum temperature of the hottest month: 91.7° F
- Airport Elevation: 1,539 feet

5.3.2.1 Runway 7/25 – Existing and Future Runway Length

As stated in Chapter 3 of this document, the 2010 CALTRANS General Aviation Needs Assessment Element of the California Aviation System Plan states:

Auburn Municipal Airport's runways are short of their uniquely determined minimum required runway length –...1,300 feet short ... If environmental and land use planning conditions could be satisfied, Auburn would be a strong candidate for a runway extension project. There are periods when the other airports on the Sacramento valley floor are severely constrained due to weather, namely dense fog. Quite often when fog restricts some valley airports, Auburn's elevation of 1,539 feet supports VFR conditions. A longer runway would also aid emergency firefighting aircraft such as those used in the August 2009 wildfire in Auburn that destroyed numerous homes, businesses and forest land.

The runway length analysis conducted in the 2006 Airport Master Plan states:

The standardized FAA runway length requirements analysis indicates that Auburn Municipal Airport would need a 4,280-foot runway, 580 feet longer than presently exists-in order to accommodate 100% of the small, under 10-seat, airplane fleet during hot days. Even the 95% of the fleet that can be accommodated with the present runway length could benefit from some additional runway length because of the enhanced safety that would be provided.

Given that previous studies identified the need for a runway extension, this scope of this ALP Update is to validate these previous assumptions. Therefore the updated FAA AC 150/5325-4B and its prescribed methodology was used to validate the existing and future runway length.

The Critical Aircraft used to validate the runway length included:

- Cessna 404 Titan
- Cessna Citation M2
- Beechcraft Baron

(1) 95 Percent of Fleet (existing fleet). This category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities. Also included in this category are those airports that are primarily intended to serve low-activity locations, small population communities, and remote recreational areas. Their inclusion recognizes that these airports in many cases develop into airports with higher levels of aviation activities.

- 3,700' of Primary Runway length required see Figure 4 1. The existing length of Runway 7/25 is 3,700'.

(2) 100 Percent of Fleet. This type of airport is primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population remote from a metropolitan area.

- AUN is classified as a Regional Airport within the FAA's General Aviation ASSET classification study because, the Airport is located in a metropolitan or micropolitan statistical area, has at least 10 annual domestic IFR flights over 500 miles in radius, at least 1,000 annual IFR operations, at least one based jet, or at least 100 based aircraft.
- AUN is located within the Sacramento-Roseville-Arden Arcade Metropolitan Statistical Area. As a result, the "100 Percent of Fleet" category should be considered for future development as the Sacramento metropolitan area expands and capacity of the airports within the Sacramento valley require relief. Additionally, as noted within Chapter 3, AUN is considered a good weather airport and a possible alternative, when poor visibility occurs within the Sacramento valley. Therefore, the general aviation fleet captured by the airports in the Sacramento metropolitan area should ultimately be accommodated at AUN.
- As outlined in **Figure 4-1**, this category would require a 4,300' runway length at AUN.

As a result of the above-outlined analysis, 4,300' (similar to the 4,280' outlined and analyzed in the Master Plan), is still required to accommodate 100 percent of the small general aviation fleet.

Aircraft Specific Analysis

An aircraft that falls within the small general aviation fleet outlined above and is based at AUN is the Cessna Citation M2. The Citation M2 has a Maximum Gross Takoff Weight of 10,700 lbs. and a wingspan of 47 feet (Group I). The runway length required for this aircraft to operate at the airport elevation and mean max daily temperature of the hottest month is 4,650 feet.

Figure 4-1 Small Airplanes with Fewer than 10 Passenger Seats

Temperature (mean day max hot month): 91.7° F (33° C)

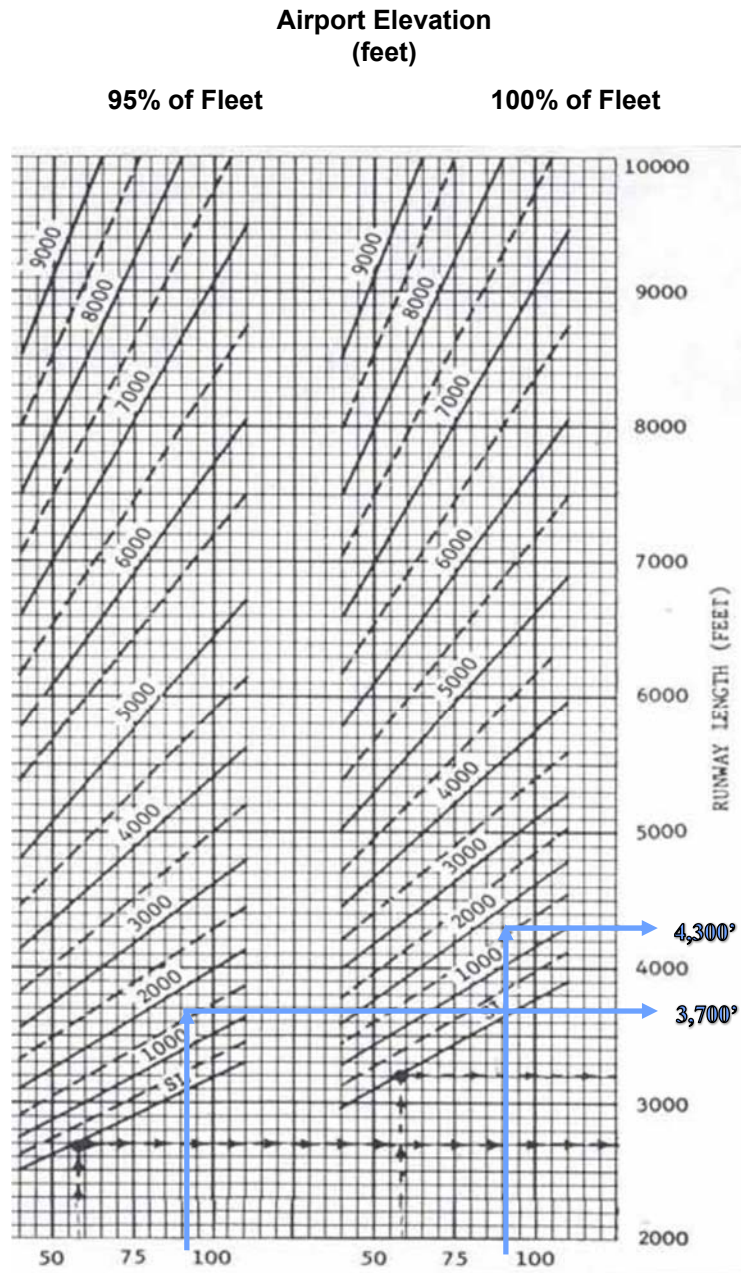
Airport Elevation: 1,539'

Note: Dashed lines shown in the table are mid values of adjacent solid lines.

Recommended Runway Length:

For 95% = 3,700 feet

For 100% = 4,300 feet



Mean Daily Maximum Temperature of the Hottest Month of Year (Degrees F)

Source: FAA Advisory Circular, 150/5325-4B, Runway Length Requirements for Airport Design, Figure 2-1.

5.3.3 Runway Dimensional Criteria

In addition to the runway length requirements outlined in the previous section, the dimensional criterion that must be met at AUN to fulfil its Runway Design Code of B-I (small) includes that outlined in **Table 5-9**.

Table 5-9 Runway Dimensional Criteria

| Runway Data | Existing (ft.) | RDC B-I Small (ft.) |
|---|----------------|---------------------|
| Length | 3,700' | 3,700' |
| Width | 75' | 60' |
| Shoulder | 10' | 10' |
| Runway Protection | | |
| Runway End 7 | | |
| Runway Safety Area (RSA) | | |
| Length Beyond Departure | 240' | 240' |
| Length Prior to Threshold | 240' | 240' |
| Width | 120' | 120' |
| Runway Object Free Area (ROFA) | | |
| Length Beyond Runway | 240' | 240' |
| Length Prior to Threshold | 240' | 240' |
| Width | 400' | 250' |
| Runway Obstacle Free Zone (ROFZ) | | |
| Length Beyond Runway | 200' | 200' |
| Length Prior to Threshold | 200' | 200' |
| Width | 120' | 120' |
| Runway Protection Zone (RPZ)/Approach | | |
| Length | 1,000' | 1,000' |
| Inner Width | 500' | 250' |
| Outer Width | 700' | 450' |
| Runway End 25 | | |
| Runway Safety Area (RSA) | | |
| Length Beyond Departure | 240' | 240' |
| Length Prior to Threshold | 240' | 240' |
| Width | 120' | 120' |
| Runway Object Free Area (ROFA) | | |
| Length Beyond Runway | 240' | 240' |
| Length Prior to Threshold | 240' | 240' |
| Width | 400' | 250' |
| Runway Obstacle Free Zone (ROFZ) | | |
| Length Beyond Runway | 200' | 200' |
| Length Prior to Threshold | 200' | 200' |
| Width | 120' | 120' |
| Runway Protection Zone (RPZ) Approach/Departure | | |
| Length | 1,000' | 1,000' |
| Inner Width | 500' | 250' |
| Outer Width | 700' | 450' |
| Runway Separation | | |
| Runway Centerline to: | | |
| Holding position | 125' | 125' |
| Parallel Taxiway/Taxilane | 158' | 150' |
| Aircraft parking area | 320' | 125' |

Source: FAA Advisory Circular, 150/5300-13A, Airport Design.

5.3.4 Taxiway Dimensional Criteria

Taxiways are required to provide efficient circulation, and must have the proper width, strength, and prescribed FAA design standards to safely accommodate the design aircraft for each system. The existing Taxiway Data specifications can be found in **Table 5-10** and **Table 5-11**.

Table 5-10 Airplane Design Group Standards

| Taxiway Data | Existing (ft.) | ADG-I (ft.) |
|------------------------------|-----------------|-------------|
| Taxiway A | | |
| Taxiway Safety Area | 49' | 49' |
| Taxiway Object Free Area | 89' | 89' |
| Taxilane Object Free Area | 71 ¹ | 79' |
| Taxiway Separation | | |
| Taxiway Centerline to: | | |
| Taxiway/Taxilane Centerline | 122' | 70' |
| Taxiway Centerline to: | | |
| Fixed or Movable Object | 44.5' | 44.5' |
| Taxilane Centerline to: | | |
| Parallel Taxilane Centerline | 111' | 64' |
| Taxilane Centerline to: | | |
| Fixed or Movable Object | 36 ¹ | 39.5' |
| Wingtip Clearance | | |
| Taxiway Wingtip Clearance | 20' | 20' |
| Taxilane Wingtip Clearance | 4 ² | 15' |

Source: FAA Advisory Circular, 150/5300-13A, Airport Design.

Red = Deficiencies

¹East Hangar Area Development

²Main AUN Apron

Table 5-11 Taxiway Design Group Standards

| Taxiway Data | Existing (ft.) | TDG-1A Existing Standard (ft.) |
|----------------------------|----------------|--------------------------------|
| Taxiway A | | |
| Taxiway Width | 30' | 25' |
| Taxiway Edge Safety Margin | 5' | 5' |
| Taxiway Shoulder Width | 10' | 10' |

Source: FAA Advisory Circular, 150/5300-13A, Airport Design.

According to FAA AC 150/5300-13A taxiways should not lead directly from the apron to the runway therefore it is suggested to shift and relocate the existing connectors B, C, D, and E to eliminate the direct access from the apron to the runway. This recommendation will be further discussed in Chapter 5, *Alternatives Analysis*.

In accordance to FAA AC 150/5300-13A, pavement fillets should be provided on turns to ensure the prescribed taxiway safety margin is maintained when the pilot guides the aircraft around turns while the cockpit is over the centerline. The existing fillets for the taxiway at AUN do not meet FAA standards as provided in FAA AC 150/5300-13A, *Airport Design*. It is recommended that these fillets be updated during the planning period.

5.3.5 Navigational Aids

Recommended navigational aids to meet FAA recommendations based on the type of operations at AUN include those outlined in **Table 5-12**.

Table 5-12 AUN Navigational Aids

| | Existing | Phase 1 (2016-2020) | Phase 2 (2021-2025) | Phase 3 (2026-2035) |
|----------------------|-----------------|------------------------|------------------------|--------------------------------|
| Runway End 7 | | | | |
| Instrument Approach | Non-Precision | Non-Precision | Non-Precision | Non-Precision |
| Approach Type | RNAV (GPS), LPV | RNAV (GPS), LPV | RNAV (GPS), LPV | RNAV (GPS), LPV |
| Approach Lighting | MIRL, PAPI | MIRL, PAPI | MIRL, PAPI | <i>MIRL, PAPI, REIL, ODALS</i> |
| Runway End 25 | | | | |
| Instrument Approach | Non-Precision | Non-Precision | Non-Precision | Non-Precision |
| Approach Type | RNAV (GPS), LPV | RNAV (GPS), LPV | RNAV (GPS), LPV | RNAV (GPS), LPV |
| Approach Lighting | MIRL, PAPI | MIRL, PAPI | MIRL, PAPI | <i>MIRL, PAPI, REIL</i> |

Source: FAA Advisory Circular, 150/5300-13A, Airport Design

5.4 Airspace Requirements

Federally obligated airports are subject to Grant Assurances 20 and 21 which require the protection of the approach and departure surfaces. The FAA reviews all Instrument Approach Procedures (IAP) on a periodic basis.

The obstruction analysis indicates that significant departure surface obstructions exist on the departure end of Runway 7. Obstacles frequently penetrate the departure surface. This often requires non-standard climb rates or minimum. However, the sponsor, to the extent practicable through mitigation or land use restrictions remove applicable obstacles.

The Airport Layout Plan set identifies each of the obstacles that penetrate approach, departure, PAPI OCS and TSS surfaces for existing and ultimate conditions.

5.5 Non-Standard Conditions

| Existing Condition | FAA Standard |
|--|--|
| Entrance/Exit end Taxiways to the Primary Runway 07/25 | Right angle taxiways provide the best visual perspective to a pilot approaching an intersection with the runway to observe aircraft in both the left and right directions. |
| Taxiway/taxilane separation distances in East hangar area, helicopter parking area, fuel island and apron. | Airplane Design Group 1 Taxiway/taxilane separation, Table 4-1. Design Standards based on Airplane Design Group (ADG) FAA AC 150/5300-13A. |
| Rickenbacker Way Taxilane separation distances | Airplane Design Group 1 Taxiway/taxilane separation, Table 4-1. Design Standards based on Airplane Design Group (ADG) FAA AC 150/5300-13A. |
| Five Point Taxiway Intersection at the intersection of Taxiway 'B' and Taxiway 'A'. | The "three-node concept" means that a pilot is presented with no more than three choices at an intersection. |

Source: FAA Advisory Circular, 150/5300-13A, Airport Design. Jacobs Analysis, 2016.

5.6 Modification to Standards (MOS)

The 2007 Airport Master Plan shows that no Modification to Standards currently exists at AUN.

5.7 General Aviation Area Requirements

5.7.1 Hangars

Hangar requirements for a general aviation facility are a function of the number of based aircraft, the type of aircraft to be accommodated, owner preferences, and area climate.

Covered facilities at the Airport primarily consist of the following:

- ▶ 40 small box hangars
- ▶ 3 conventional box hangars
- ▶ 18 executive hangars
- ▶ 41 portable hangars

Table 5-13 AUN Hangar Requirements

| Item | Existing | Phase 1 (sf) 2016-2020 | Phase 2 (sf) 2021-2025 | Phase 3 (sf) 2026-2035 |
|--------------------------|----------|---------------------------|---------------------------|---------------------------|
| Small Box | 40 | 42 | 43 | 45 |
| Square Feet Total | 99,500 | 104,475 | 106,963 | 111,938 |
| Large Box | 3 | 4 | 4 | 5 |
| Square Feet Total | 21,000 | 28,000 | 28,000 | 35,000 |
| Executive Hangars | 18 | 18 | 19 | 21 |
| Square Feet Total | 48,125 | 48,125 | 50,979 | 56,146 |
| Portable Hangars | 41 | 42 | 42 | 44 |
| Square Feet Total | 33,300 | 34,112 | 34,112 | 35,737 |
| TOTAL Hangars | 102 | 106 | 108 | 115 |
| Square Feet Total | 201,925 | 214,712 | 220,054 | 238,821 |

Source: Jacobs Analysis, 2016..

5.7.2 Helicopter Parking Areas

The planning for a helicopter parking area at AUN will require special considerations given the increase of existing helicopter operations and the impact of rotor wash on the surrounding area. A helicopter parking area is not a helipad. A helipad is used by rotorcraft for takeoff and landing operations. A helicopter parking area is not used for takeoff and landing operations, but is used for the temporary parking of helicopters. The size of the parking area depends upon the number and size of helicopters to be accommodated. The positions should be designed to accommodate a full range of helicopter size and weights expected at the facility. Transient aircraft typically use helicopter parking area, while based aircraft most often use a hangar.

As stated in the *Inventory of Existing Conditions* and the *Forecast of Aviation Demand*, helicopter operations at AUN have increased significantly. According to airport management up to nine helicopters operate at the Airport on a regular basis. The three existing helicopter parking areas located at the airport accommodate the existing operations. The existing location of the helicopter parking areas interfere with the operations performed by fixed wing aircraft and decrease overall safety in this vicinity. It's recommended to relocate these helicopter parking areas so that they do not affect fixed wing aircraft operations.

With the projected number of helicopter operations that are forecasted at AUN it's recommended to add an additional helicopter parking position when the relocated helicopter parking areas take effect.

5.7.3 Apron

The aircraft apron at Auburn Municipal Airport currently has 123 tie-down spaces with space available for both based and transient aircraft; 16 tie-downs spaces are used for itinerant aircraft and up to 107 are used for based aircraft. According to airport staff, additional itinerant tie-down space is essential to meet existing demand. The FAA's Apron size calculator estimates an additional 3,500 square yards of apron will be required to meet expected demand. Pending on overall design of additional apron space (e.g. with or without a taxilane), this can accommodate approximately four to ten Group I aircraft.

5.7.4 Terminal Building

The GA aviation terminal buildings are essential to serve general aviation pilots and the airport sponsor's needs. The existing terminal facility at AUN is in fair condition, but attracting tenants due to its age is difficult as it is at the end of its useful life. The facility appears to be dated and overall appearance is declining. It is recommended to enhance and update the existing terminal building over the planning period to help meet the airport's future needs.

A consolidation of existing on-airport facilities (restaurant, pilot shop, office, flight school, conference room, FBO, etc.) within a new terminal building will enhance the efficiency and create additional needed apron space within the constrained terminal area. Additionally, both the Airport and the local community would benefit from a new terminal building that serves as a gathering place for both aviation users and the general public. The terminal could serve as a gateway to the City, County and region.

5.8 Support Area

5.8.1 Maintenance Facilities

Airport maintenance is currently provided by the City of Auburn through the Public Works Department. It is recommended to provide a maintenance facility on-airport which can also house Aircraft Rescue and Fire Fighting (ARFF) equipment. It is recommended that the existing ARFF equipment at AUN be tested annually to ensure highest level of safety.

5.8.2 Fixed Based Operator

As stated in the *Inventory of Existing Conditions*, the City of Auburn owns fuel tanks operated by the on-airport Fixed Based Operator (FBO). The FBO is housed in a small building north east of the existing GA Terminal and Pilot Lounge. The current location of the FBO lies outside of the TOFA for B-I small aircraft. However, Group II or larger aircraft access to the Denham property is restricted due to the FBO and nearby picnic area's location.

It is recommended to move the FBO to another location so that it will remain outside of the TOFA. Additionally to become a full-service FBO facility, it's recommended a large hangar be provided. If a new GA Terminal is constructed within the GA Terminal core area a FBO can lease space within the airport-owned building and operate from there.

5.8.3 Aircraft Wash Rack

It is recommended that the aircraft wash rack can accommodate the largest Group I aircraft with wingspans up to 49 feet. The existing wash rack size is 25 feet by 25 feet. In order to accommodate Group I aircraft, the wash rack should be expanded to capture all spent fluids from aircraft washing activities.

The existing wash rack does not meet local Storm water Pollution Prevention standards and should be upgraded to meet these standards.

5.9 Security Enhancements

5.9.1 GA Guidance

According to the Government Accountability Office (GAO), the General Aviation – Security Assessments of GA Airports in 2011 identified General Aviation security measures to help airports protect against the risk of unauthorized access. General recommendations include controlling airport access points, install perimeter fencing, installing adequate lighting, establishing security procedures, and identifying airport law enforcement personnel.

A few incidents recently occurred at AUN that involved vehicles entering the airport flight line damaging aircraft. It is recommended that a complete perimeter fence be completed around the airport.

5.9.2 Perimeter Fence

Currently AUN only has a chain link fence along the southwest side, west side, and northwest side of the airfield; beyond that, it either has a three-strand barb wire fence or no fence at all. Most of the existing barbed wire fence is in severe disrepair. The existing fence system at AUN does not prevent wildlife from accessing Airport property, which poses a threat of this wildlife crossing the active runway and taxiways.

The Perimeter Fence Security (Phase 1 – Motorized Gate) was constructed in the year 2016 to help prevent wildlife and unauthorized access from entering the airfield. Enhanced access control is important to the FAA and the City. To complete full unauthorized access and wildlife onto the airfield, Perimeter Fencing (Phase 2) is planned for the year 2020 and Phase three in 2022.

5.9.3 Surveillance

Due to the incidents involving unauthorized access of vehicles, the City of Auburn had nine security cameras installed in 2016. The primary goal of the project is to monitor the fuel island, the tie-down areas, and all five airfield entrances. The cameras are intended to minimize the recent incidents that occurred at AUN and provide surveillance and security for the airport.

5.10 Access Road Improvements

Local pilots and community members have expressed interest in improving airport access visibility and signage. Options to accommodate these concerns will be evaluated in Chapter 5 *Concept Development and Evaluation*.

5.11 Parking Requirements

It is recommended that AUN provide adequate automobile parking to accommodate pilots, visitors, passengers, and employees. The existing parking lot located directly south of the GA Terminal building does not have designated vehicle parking positions, but can generally accommodate approximately 25 vehicles. It is recommended that this parking area be paved and striped to both prevent Foreign Object Debris (rocks and dirt) from migrating to adjacent aprons and taxilanes, while meeting current City parking design codes.

An additional parking area west of New Airport Road and southwest of the GA Terminal has 45 striped /paved parking positions, which is adequate to serve the business adjacent to this area.

It is recommended that as the airport expands to the east, additional auto parking be provided for efficient tenant/pilot access and to limit the number of vehicles on the aircraft apron.

5.12 Utility Requirements

5.12.1 Aviation Fuel

The fuel facility at AUN is located north of the GA Terminal and Pilot lounge on the main apron. There are three (3) below ground fuel tanks, two (2) 10,000 gallon 100-LL tanks and one (1) 10,000 gallon Jet-A that meet the existing and forecasted demand. The FBO has indicated that there have never been any capacity issues with the existing tanks. However, it is recommended that the tanks be relocated and moved above-ground to improve apron circulation, which is hampered by it's the tank's existing locations.

5.12.2 Sewer and Water

Improved sewer and water services to the east hangar development area are required in the near term (Phase I) and are currently in the City's capital improvement plan.

5.13 Land Requirements

No additional land acquisition is required.

5.14 Facility Requirements Summary

Table 5-14 AUN Facility Requirements Summary

| Facility | Existing | Future (20-year planning period) | Ultimate (Beyond 20-years) |
|-------------------------------------|--|---|---|
| Runway | | | |
| Length | 3,700' | 3,700' | 4,300' |
| Width | 75' | 75' | 75' |
| Taxiways | | | |
| Type | ADG – I, TDG – I | ADG – I, TDG – I | ADG – I, TDG – I |
| Width | 30' | 30' | 30' |
| Separation standard (Group 1) | Does not meet standard | Meet standard | Meet standard |
| Apron | | | |
| Based Aircraft Tie-downs | 107 | 113 | 113 |
| Itinerant Aircraft Tie-downs | 16 | 21 | 21 |
| Helicopter Parking Positions | 3 | 4 | 4 |
| Navigational Aids | | | |
| Automated Weather | AWOS III | AWOS III | AWOS III |
| Runway End Identifier Lights | No | No | Runway 7, Runway 25 |
| Aircraft Hangars | | | |
| Small-box Hangars | 40 | 45 | 45 |
| Large-box Hangars | 3 | 5 | 5 |
| Executive Hangars | 18 | 21 | 21 |
| Portable Hangars | 41 | 44 | 44 |
| GA Terminal Area | | | |
| Terminal Building/Pilot Lounge | 3,000 square feet | 6,000 square feet | 6,000 square feet |
| Ground Access | | | |
| Automobile Parking | 45 designated parking positions | 75 designated parking positions (paved asphalt) | 75 designated parking positions (paved asphalt) |
| Fuel | | | |
| FBO location to taxilane separation | Does not meet standard | Relocate to full-service hangar | Relocate to full-service hangar |
| Fuel island to taxilane separation | Does not meet standard | Meet standard | Meet standard |
| Security | | | |
| Perimeter Fence | Perimeter Fence (Phase 1 – Motorized Gate) | Perimeter Fence (Phase 2 – Entire Airport) | Perimeter Fence (Phase 2 – Entire Airport) |
| Surveillance | 9- CCTV | 15-CCTV | 15-CCTV |

Source: Jacobs Analysis, 2016..

6. Concept Development and Evaluation

This section describes the concepts identified for facility development at Auburn Municipal Airport (AUN) and the process used to evaluate them and arrive at the identification of a Preferred Development Plan.

Concepts were developed that would support forecasted short-, long-term and ultimate aviation demand for two primary areas — airfield and the general aviation (GA) core development area. The concepts support the goals and objectives presented in Chapter 1 of this document and satisfy the requirements outlined in Chapter 4 Facility Requirements. More specifically, the areas evaluated for future development include:

- ▶ Helicopter parking area concepts
- ▶ GA core development area
 - Terminal/FBO relocation and expansion
 - Vehicle parking expansion
 - General aviation hangars
 - General aviation apron areas
 - Denham property development
- ▶ North-side area development
- ▶ East hangar area development
 - Relocation of portable hangars
- ▶ Primary runway extension

The following sections include various development concepts evaluating the items mentioned above. The recommended concepts are a compilation of individual components of concepts that were recommended and approved by the City and the Airport’s technical advisory committee.

Future

- **GA core development area** is constrained and does not meet FAA separation requirements, as outlined in Chapter 4 of this document. To meet these standards it’s recommended to provide separation standards in this area to help provide a safe operation and the ability to accommodate Group II aircraft in the future. This concept addresses these deficiencies and enables this area to achieve optimum taxiway design standards.
- **Helicopter parking areas** are recommended to be relocated to provide standard parking areas that have proper separation from fixed wing operations. Additionally, to meet the future demand for helicopter operations it’s recommended to provide an additional helicopter parking spot.
- **East hangar area access**, where additional hangar capacity can be accommodated, is limited by both a five-point taxiway intersection at its access point and non-standard clearances along the taxiway entrance. Improved circulation in this area with FAA standard separations will enhance the safety of this area and allow for additional hangar capacity driven by increased demand

- **The GA terminal building** is dated and overall appearance is declining. In order to meet the airport's future needs it's recommended to enhance and update the existing terminal building through the creation of a grand entrance to the Airport. The recommended GA terminal building would incorporate the on-airport restaurant and FBO. The terminal could serve as a source of pride and gateway to the City, County and region.

Ultimate

- **The Runway 7/25 length** at AUN is insufficient to allow for the Airport to meet its ultimate role within the California airport system. An ultimate runway extension is evaluated in this Chapter.

6.1 Initial Future Concept Development

Initial development concepts were identified to address the airside and landside deficiencies identified in Chapter 4 *Facility Requirements*. The concepts were developed to identify reasonable and feasible means to address the following deficiencies.

6.1.1 Taxiway A – Three-node Concept

A multiple-node taxiway exists along Taxiway A, Taxiway B connector, Main-apron connector, and East hangar row taxilane. It's essential to design a safe and efficient taxiway system. The Initial Future Concept Development at AUN meets optimum taxiway design standards outlined in FAA AC 150/5300-13A:

- No direct access from the ramp to the runway
- Avoid taxiway connectors that cross over a parallel taxiway and directly onto a runway. Consider a staggered layout when taxiing from an apron onto a parallel taxiway and then onto a stub-taxiway or taxiway connector to a runway
- Wide expanses of taxiway pavement entrances should be avoided. Such large pavement expanses adjacent to an apron may cause confusion to pilots and loss of situational awareness. Wide expanses of pavement also make it difficult to locate signs and lighting where they are easily visible to pilots
- Avoid taxiway intersections that exceed "3-node" concept

This multiple-node taxiway and complex intersections increase the possibility of pilot error. According to FAA AC 150/5300-13A Airport Design, the preferred method of Taxiway Design is known as the "three-node concept", keeping taxiway intersections simple by reducing the number of taxiways intersecting at a single location allowing for proper placement of airfield markings, signage, and lighting. The "three-node concept" means that a pilot is presented with no more than three choices at an intersection – ideally, left, right, and straight ahead. This intersection as shown in **Figure 6-1** provides a recommended "three-node concept" solution to reduce the likelihood for a runway incursion to occur.

6.1.2 Aircraft Hangars - East Hangar Area

The East Hangar Area can accommodate much of the capacity required for hangar expansion. In addition, several of the existing box and portable hangars that exist near mid-field at AUN could also be relocated to this area. In order to better serve the east hangar area tenants, utilities (water and electricity) will need to be installed in this area to induce expansion.

6.1.3 Denham Property Development

The Denham property is prime land on Airport. This can be utilized for additional hangar space and taxilane access. An additional Group II taxilane would increase the marketability of this area to potential hangar tenants. The relocation of a majority of the portable hangars on the west side of the Airport to this area will allow for the

design of an additional twelve (12) tie-downs and new box hangars that would benefit from having road frontage in the portable hangars' current location.

6.1.4 GA Terminal/FBO/Restaurant

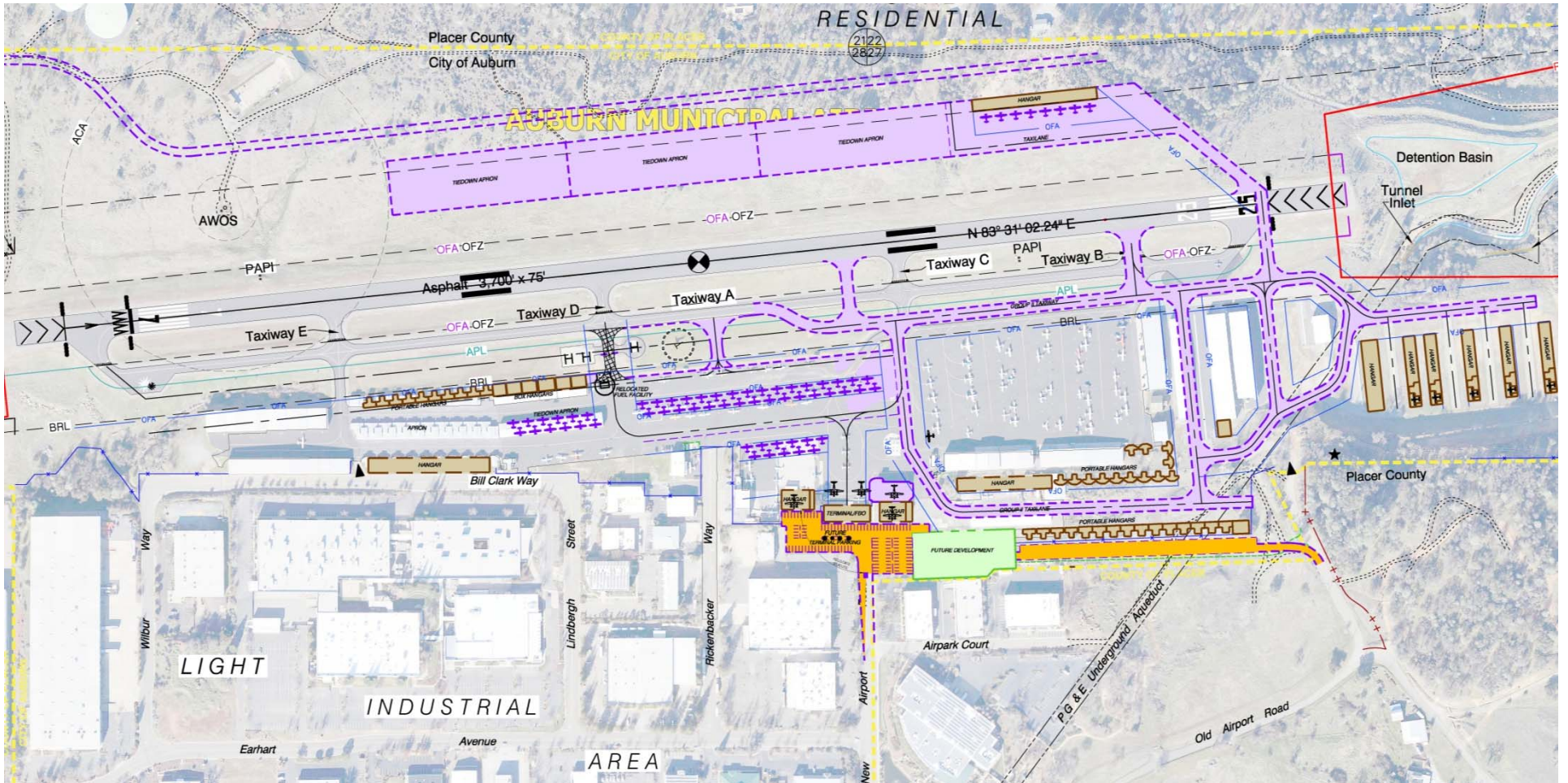
Reconstructing and relocating the existing GA Terminal will give AUN a sense and feel of a grand entrance. Arriving at the GA Terminal you will see the relocated statue and an updated GA Terminal with an FBO and Restaurant. In order to provide proper taxiway separation, it's recommended to relocate the FBO and Restaurant within the Terminal area. This GA Terminal can be a community gathering place while enhancing the overall appearance of AUN for the surrounding region's users.

Preliminary alternatives addressed the above items and resulted in the development of the following alternatives.

6.1.5 Initial Development Concept

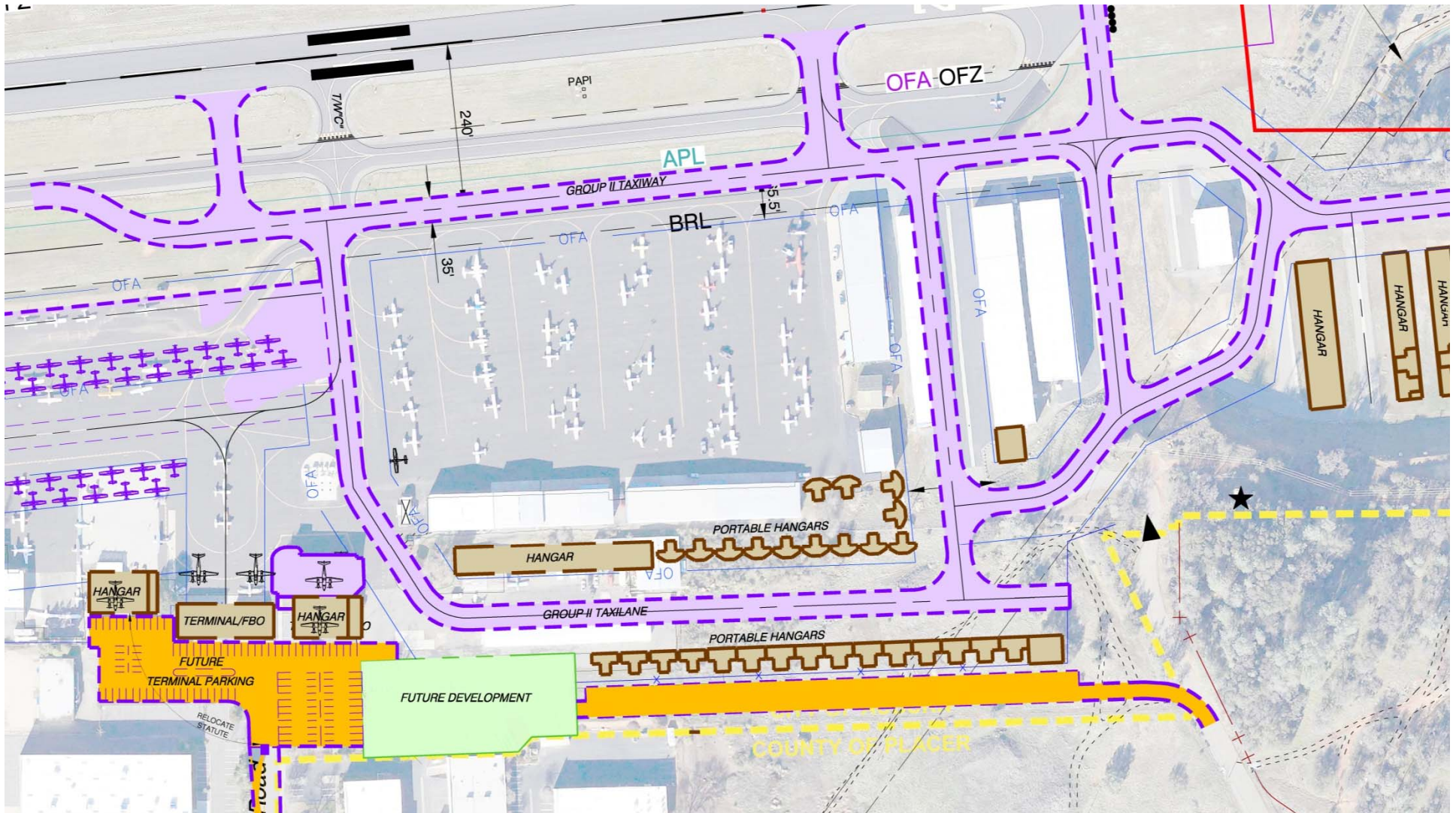
As shown in **Figure 6-1** these projects are aimed at resolving the non-standard conditions on the airfield and land use areas at the Airport.

Figure 6-1 Initial Development Concept



Source: Jacobs, 2016.

Figure 6-2 GA Terminal Area



Source: Jacobs, 2016.

6.1.6 Helicopter Parking Area

Eight helicopter parking areas were presented to the ALP Update technical advisory committee. These parking areas will meet the expected demand for helicopters over the planning period. **Figure 6-3** is a graphical representation of these alternatives and their associated components. The following concepts were developed:

A. West Helicopter Parking Area

- ▶ Easy access to Bill Clark Way
- ▶ Provides two (2) helicopter parking positions
- ▶ Provides two (2) box hangars

B. North-West Parking Area

- ▶ North-west of existing primary runway
- ▶ Provides four (4) helicopter parking positions
- ▶ Provides two (2) box hangars

C. Existing Helicopter Parking Area

- ▶ Existing area of airfield and will not resolve fixed-wing and helicopter issue
- ▶ Provides four (4) helicopter parking positions
- ▶ Provides four (4) box hangars – use existing hangars, face door north

D. East of Existing Parking Area

- ▶ East of the existing helicopter parking area that may not resolve fixed-wing and helicopter issue.
- ▶ Provides four (4) helicopter parking positions
- ▶ Provides four (4) box hangars

E. Central Small Helicopter/Training Area

- ▶ Centrally located giving great access throughout airfield
- ▶ Provides three (3) helicopter parking positions
- ▶ No hangars will be constructed near this parking area

F. North-East Parking Area

- ▶ North-east of existing primary runway and airfield
- ▶ Provides four (4) helicopter parking positions

- ▶ Provides four (4) box hangars

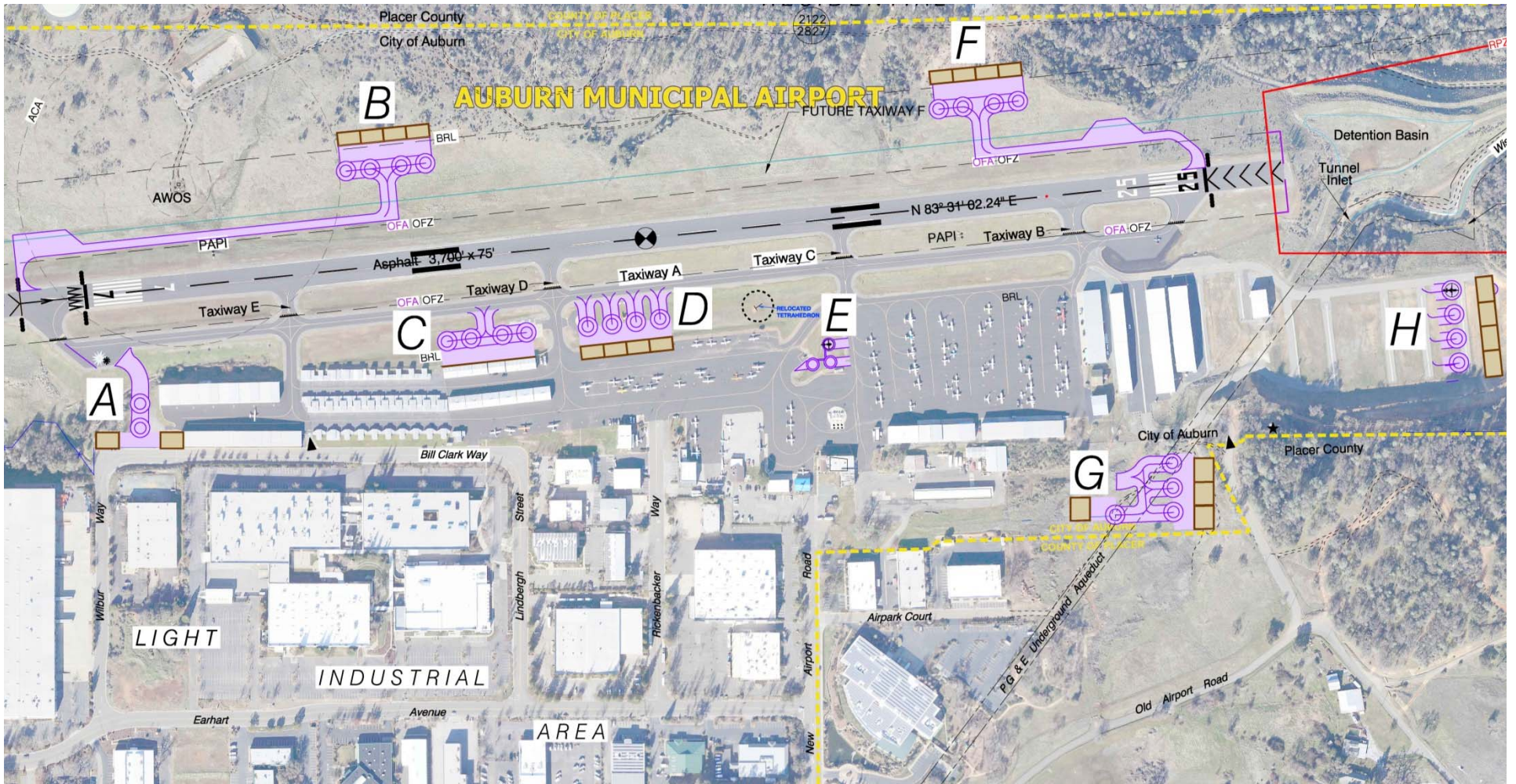
G. Denham Property East Parking Area

- ▶ East of the existing Denham property
- ▶ Provides four (4) helicopter parking positions
- ▶ Provides four (4) box hangars

H. East Hangar Parking Area

- ▶ Far row located in east hangar area near hillside
- ▶ Provides four (4) helicopter parking positions
- ▶ Provides four (4) box hangars

Figure 6-3 Initial Helicopter Parking Alternatives



Source: Jacobs, 2016.

6.1.7 Airport Advisory Committee Meeting – Stakeholder Input

In June 2016, the initial development concepts and helicopter parking area concepts were presented to the ALP Update technical advisory committee. A summary of their input is outlined in this section. The main feedback included the following:

- ▶ Include a Run-up area for Runway 25
- ▶ Increase the number of Group I Taxiways throughout Airport
 - Relocation of Taxiways/taxiways not favored - keep Group I
- ▶ Port-a-port hangars over the PG&E ROW may not work
- ▶ Terminal/Entrance
 - Improved Circulation Alternatives
 - Connect New Airport Road to Rickenbacker Way
 - Less Auto Parking
- ▶ Small Biz Jets – one (1) based and one (1) frequent Citation III
- ▶ Waiting list 55, demand is higher than Forecast indicates
- ▶ Tie-down space should be a priority
- ▶ Preferred Helicopter Parking Alternatives are A , B, C, E and F
- ▶ Runway Extension
 - OK to plan for an ultimate extension to protect the Airport for an Ultimate build-out scenario

6.2 Concept Refinement

The feedback received from the City of Auburn and the technical advisory committee, was incorporated in to the development of refined Concept A. Concept A focuses on the following:

- ▶ GA Terminal Area
- ▶ East Hangar Area
- ▶ Airfield – Taxiway/Apron
- ▶ Intersection of Taxiway ‘A’ and Taxiway ‘B’
- ▶ North Airfield Development
- ▶ Helicopter Parking Areas

6.2.1 Terminal Area Concept

This alternative would include several components for short and long term future development of the GA Terminal Area, East Hangar Area and Airfield. All concept area implementation can be phased:

GA Terminal Area

- ▶ Grand Entrance
- ▶ Relocate GA Terminal building and construct new 140 feet x 45 feet terminal with FBO/Restaurant
- ▶ Relocate historical statue
- ▶ Add 3 new Group II Tie-downs near GA Terminal Area
- ▶ Add 3 new 100 feet x 60 feet executive hangars
- ▶ Add 5 small box hangars

- ▶ Add new aircraft run-up area
- ▶ 1 acre for Future Development
- ▶ Re-locate 10 portable hangars and Add 26 new portable hangars
- ▶ Add automobile parking to accommodate approximately 100 spaces
- ▶ Relocate 3 Helicopter parking areas and add one additional parking area
- ▶ Relocate fuel farm
- ▶ Add/relocate 25 portable hangars

East Hangar Area

- ▶ Add 30 relocated portable or T-hangars
- ▶ PG & E Underground Aqueduct not affected
- ▶ Add 5 Group I Tie-downs
- ▶ Add new airport access near east motorized gate

Airfield – Taxiway/Apron

- ▶ Add apron lighting for a safe and secure operation
- ▶ Apron re-striping to meet FAA Group II separation standards
- ▶ Add 29 Group I Tie-downs
- ▶ Relocate 24 Group I Tie-downs
- ▶ Add 135 feet x 60 feet executive hangar
- ▶ Relocate 7 small box hangars
- ▶ Add 8 small box hangars
- ▶ Relocate 10 portable hangars
- ▶ Rehabilitation of the existing apron
- ▶ Removal/relocation of taxiway D connector

FAA Three Node Intersection

- ▶ New taxiway intersection on Runway 25 end with associated run-up area meeting FAA standards

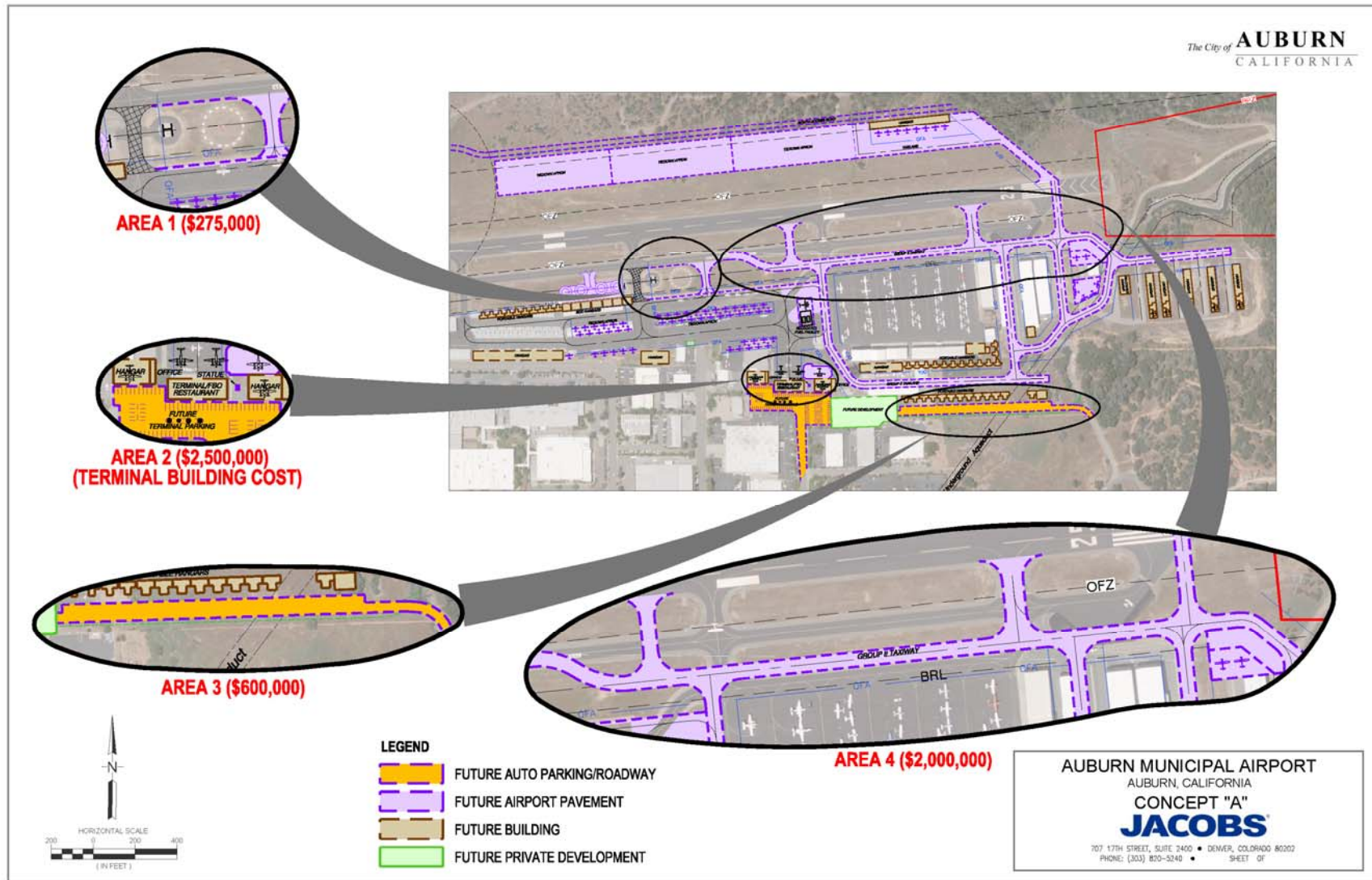
North Airfield Development

- ▶ Airport access via North access road

- ▶ Add 8 Group I tie-downs
- ▶ Additional Tie-down/apron space

Figure 6-4 is a graphical representation of this concept and its associated costs.

Figure 6-4 Concept 'A'



Source: Jacobs, 2016.

6.2.2 Helicopter Parking Area

As shown in **Figure 6-5**, after the June 2016 meeting the City of Auburn and the technical advisory committee decided to move forward with the following helicopter parking area alternatives:

- A. West Helicopter Parking Area**
- B. North-West Parking Area**
- C. Existing Helicopter Parking Area**
- E. Central Small Helicopter/Training Area**
- F. North-East Parking Area**

Table 6-1 Helicopter Parking Area Evaluation Matrix

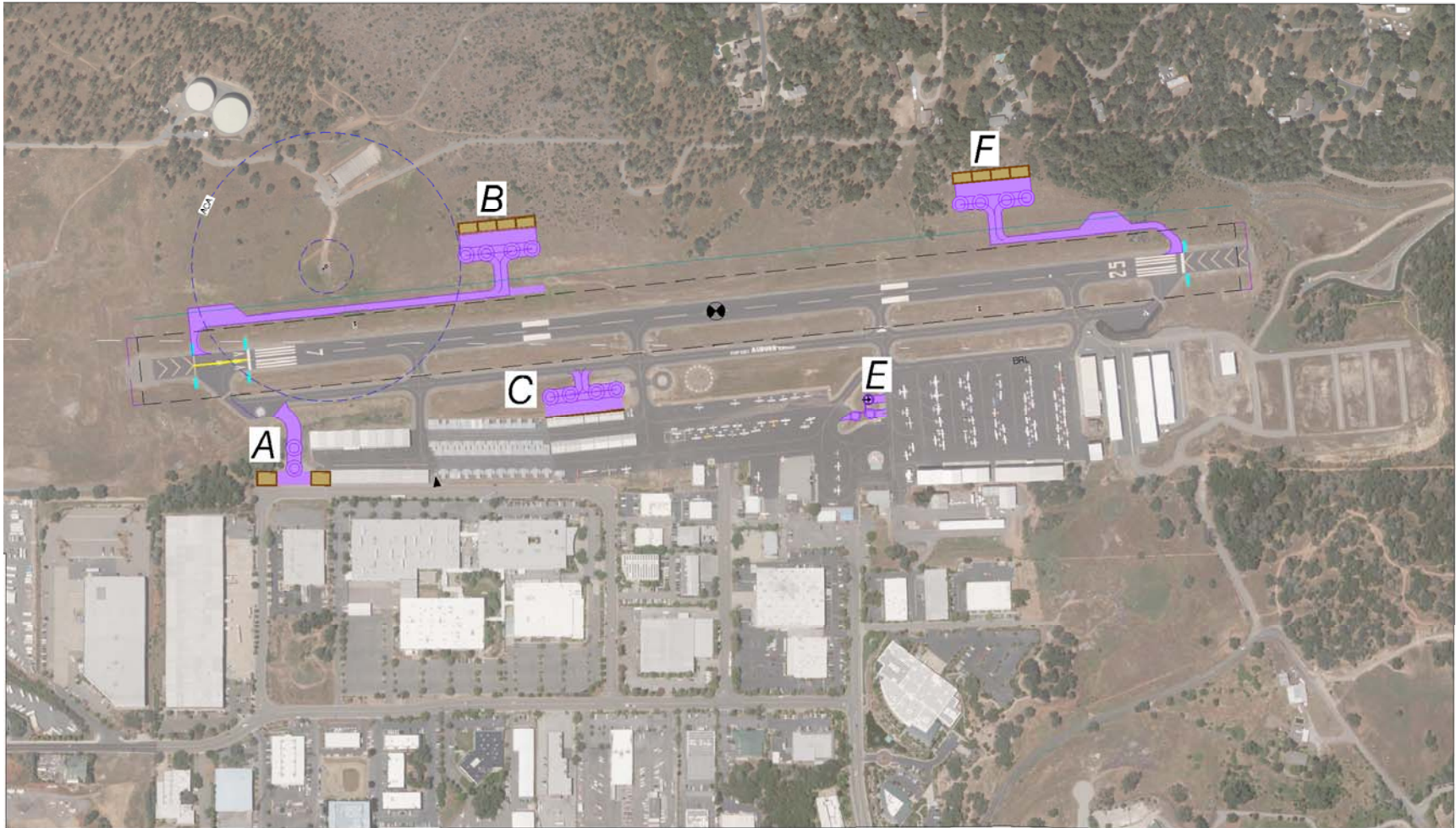
| Criteria | A | B | C | E | F |
|---|------------------|------------------|------------------|------------------|------------------|
| Meets Design Standards | 1 | 1 | 1 | 1 | 1 |
| Enhances Safety | 1 | 1 | 1 | 1 | 1 |
| Provides additional separation from fixed wind aircraft | 1 | 1 | 1 | 0 | 1 |
| Accommodates forecast demand | 0 | 1 | 1 | 0 | 1 |
| Environmental Impact | 0 | 1 | 1 | 1 | 1 |
| Existing Paved Access | 1 | 0 | 1 | 1 | 0 |
| Evaluation Total | 4 | 5 | 6 | 4 | 5 |
| Cost | \$435,000 | \$844,000 | \$506,000 | \$180,000 | \$848,000 |

G. Source: Jacobs, 2016

6.2.3 Preferred Helicopter Parking Area

Coordination with airport stakeholders and City staff resulted in the selection of Alternative C as it provides adequate capacity; separation from parked fixed wing aircraft; is easily accessible from existing facilities; and does not require significant infrastructure improvements to implement.

Figure 6-5 Preferred Helicopter Parking Areas



Source: Jacobs, 2016.

6.3 Runway Development

A typical Airport Layout Plan Update considers the Airport's needs over a 20-year planning period. However, the accuracy of the aviation demand forecasts are less certain over time as unpredicted events (e.g. new corporate headquarters located in Auburn, CA) or shift in aviation or transportation trends reduce the accuracy of identified facility requirements.

Surrounding airport land use plans and available funding have not always fostered long range strategic plans for communities that are home to airports. As a result, the City of Auburn has asked Jacobs to consider airport needs and development beyond the 20-year planning horizon. In general, which direction the Airport's future growth would occur and require strategic planning.

The vision for the growth of the airport includes the possible extension of the existing Runway 7/25 to react to potential changes in aviation demand, such as new tenants and/or potential changes in the general aviation fleet mix. It is important to note that the current FAA-approved forecasts developed and used for this Airport Layout Plan Update do not indicate future levels of aviation activity that would support the typical need for the development of the proposed runway extension within the 20-year planning time frame. In all probability, several future updates to this Airport Layout Plan will occur before aviation activity levels increase to warrant the need for the development of a runway extension. That said; however, the planning for, and the depiction of a proposed runway extension is considered prudent from a long-range airport planning consideration standpoint.

Several examples exist across the country of cases where runway extensions or in some cases, new runways, were first depicted on an Airport Layout Plan 40 years prior to their construction. However, without the foresight and prudent planning, competing land uses may have prevented these Airports from achieving their full potential and becoming the economic engines they are today. Additionally, prudent planning has allowed local jurisdictions to remain flexible and react to changing economic conditions or potential economic growth inducers (e.g. corporate headquarters located on or near Auburn Municipal Airport). It should be noted, that a potential runway extension benefits all airport users from a safety enhancement standpoint.

Information presented for ultimate airport development will require review and acceptance by local land use planners and surrounding political subdivisions.

Accordingly, this ALP Update presents these long-range and strategic planning considerations to provide meaningful information that serves to inform interested reviewers, land owners and airport stakeholders of future patterns of airport growth that may occur. To identify and conceptually address long-range planning issues that is not typically considered within a 20-year planning horizon, Jacobs has examined and attempted to validate the feasibility of a runway extension at Auburn Municipal Airport, consistent with the one examined in the airport's 2007 Master Plan Update.

6.3.1 Runway Development Concepts

The runway development concepts are derived from an analysis of the projected needs. While a 4,300 foot runway was determined to be the runway length required to accommodate long range planning at AUN, the feasibility of such an extension, including extensions to 5,000 feet as outlined in the California Aviation Needs Assessment and other possible alternative concepts are analyzed in this section.

Primary considerations for a runway extension feasibility at AUN include the following:

- Surrounding terrain
 - Terrain where construction would be required
 - Terrain obstacles in the approach path of the extended runway

- Airport ownership of the property necessary for runway construction and Runway protection zones (RPZs), or the ability to acquire it.
- Noise impacts from adjusted approach paths due to new runway end locations

The runway extension feasibility discussion is divided among the following five alternatives to achieving an ultimate runway length.

- **Alternative 1:** 1,300-foot extension to the west
- **Alternative 2:** 1,300-foot extension to the east
- **Alternative 3:** 650-foot extension to the west and 650-foot extension to the east
- **Alternative 4:** Maximize RPZs on Airport Property (4,485-foot Runway)
- **Alternative 5:** 600-foot Extension West

6.3.2 Alternative 1: 1,300-foot Extension to the West

Alternative 1 would extend the primary runway west an additional 1,300-foot. This would increase the primary runway length total to approximately 5,000-foot. This alternative takes advantage of existing airport property west over the closed landfill. The terrain directly west of Runway 7/25 at AUN is relatively flat, however, the closed sanitary landfill exists between 150-foot and 1,000-foot beyond the existing runway end. The 2007 AUN Master Plan and studies preceding the Master Plan determined that the most feasible method to extend the runway in to the area containing the closed landfill is to place earthwork associated with the extension on top of the landfill cap, but not cut in to the landfill.

The 2007 AUN Master Plan determined that the landfill cap is significantly higher to the north and would therefore require significantly more fill on the south side. In addition, in order to prevent the area north of the Runway from being an obstruction to primary and transitional surfaces, the pavement would require a 2.0 percent slope upward from the existing runway end in to the area of the extension.

The 2007 AUN Master Plan determined that approximately 80,000 cubic yards of fill material would be needed in this area to accommodate a 600-foot extension. Approximately 190,000 cubic yards of fill would be required to accommodate a 1,300-foot extension as a retaining wall along the south property line would be required for an extension of more than 600-foot to contain the fill required to support a full parallel taxiway (Taxiway "A" extension).

However, a 600-foot extension is the maximum length that can be added on the west end without placing the convalescent home (directly west of airport property) within the approach Runway Protection Zone (RPZ) of Runway 7. No residential land use is permitted by the FAA within a runway's RPZ.

The 2007 AUN Master Plan determined that a 600-foot extension to the west would total approximately \$2.5 million in 2005 dollar construction costs. An extension of 1,300-foot to the west would likely be more than double this amount in 2016 dollars for the reasons listed above, primarily those associated with the need for a retaining wall.

Figure 6-6 is a graphical representation of Alternative 1 and its associated elements.

Advantages and disadvantages of this alternative are outlined below.

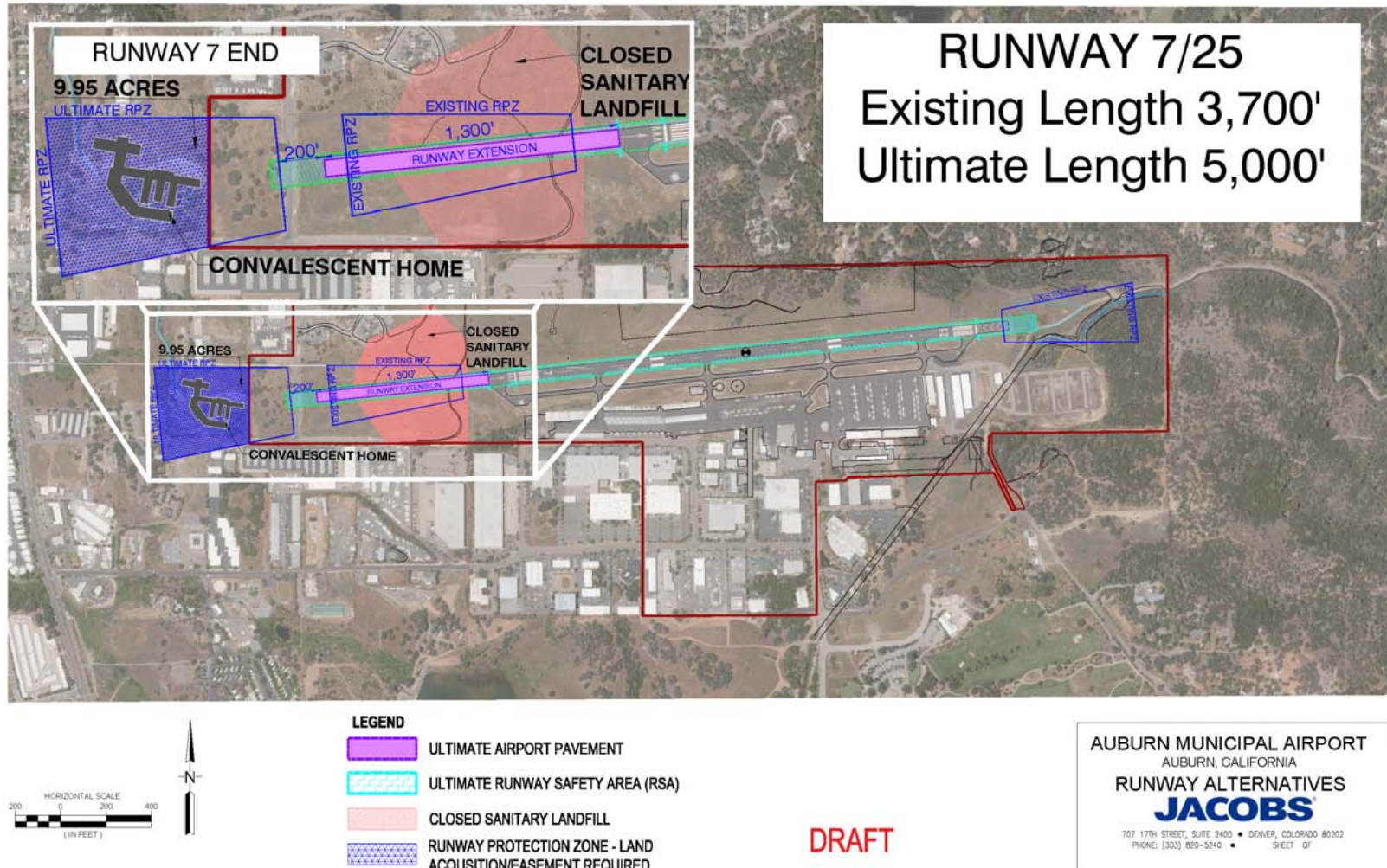
Advantages

- ▶ Provides a 5,000 feet ultimate runway length

Disadvantages

- ▶ Runway 7 end is closer to residential area on approach end to Runway 7.
- ▶ Landfill disturbed
- ▶ Property acquisition required for RPZ
- ▶ Convalescent home would require relocation
- ▶ Significant earthwork and associated cost

Figure 6-6 Alternative 1 - 1,300-foot Extension West



Source: Jacobs, 2016.

6.3.3 Alternative 2: 1,300-foot Extension to the East

Alternative 2 would extend the primary runway east an additional 1,300 feet. This would increase the primary runway length total to approximately 5,000 feet. The terrain directly east of Runway 7-25 slopes downward significantly from the Runway 25 end elevation of 1,536 feet to PG&E's Wise Canal at an elevation of 1,475 feet. The Wise Canal is only 800 feet from the Runway 25 end, constituting a 60-foot drop over this 800-foot distance.

The 2007 AUN Master Plan determined that any Runway extension to the east would require extending the tunnel through which the Wise Canal currently flows. The AUN Master Plan also determined that over 200,000 cubic yards of fill would be required for a 600-foot extension to the east. In addition, a retaining wall was determined to be required on the north side of the extension to contain the fill as well as relocation of the existing detention basin that lies directly east of the existing runway end.

The above-mentioned requirements would be even more exaggerated for a 1,300-foot extension. An extension of this length would likely require at least 500,000 cubic yards of fill, a larger retaining wall and a significant extension to the Wise Canal tunnel.

The land immediately east of the existing runway is undeveloped; however some residential land use would lie directly northeast of a 1,300-foot extension, possibly resulting in noise impact considerations. Additionally, south of a possible extension to the east, the terrain rises significantly and would penetrate FAR Part 77 obstruction surfaces, requiring removal of a portion of the hillside.

The 2007 AUN Master Plan determined that a 600-foot extension eastward would be approximately \$10 million in 2005 dollar construction costs. As a result a 1,300-foot extension would likely be at least twice as much in 2016 dollars.

Figure 6-7 is a graphical representation of Alternative 2 and its associated elements.

Advantages and disadvantages of this alternative are outlined below.

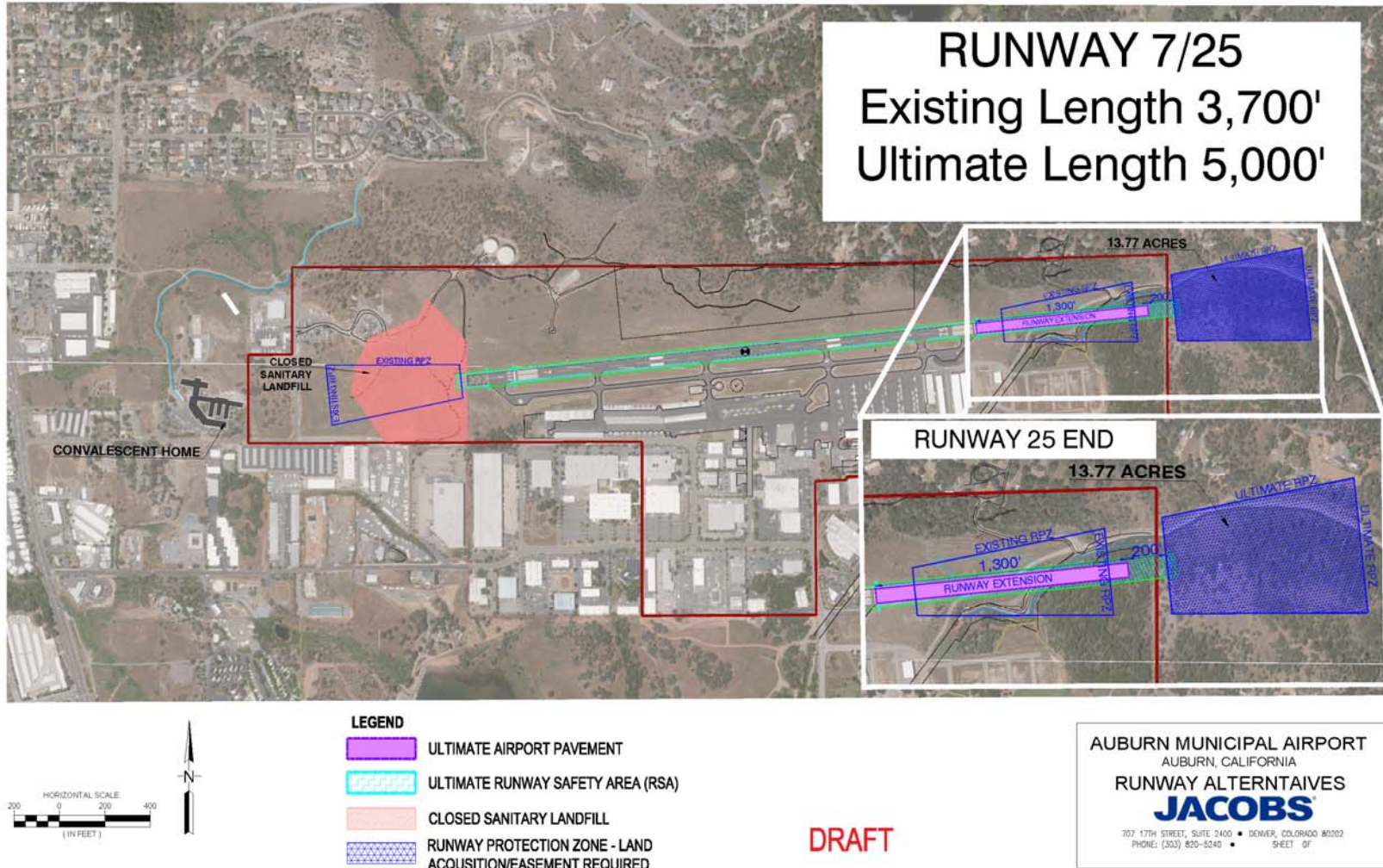
Advantages

- ▶ Provides a 5,000 feet ultimate runway length
- ▶ Landfill not disturbed

Disadvantages

- ▶ Heavy fill and earthwork
- ▶ Terrain obstructions
- ▶ Land acquisition required to accommodate Runway Safety Area and Runway Protection Zone (RPZ)
- ▶ RPZ easement required on Runway 25 end
- ▶ Construction occurs over PG&E underground aqueduct

Figure 6-7 Alternative 2 - 1,300-foot Extension East



Source: Jacobs, 2016.

6.3.4 Alternative 3: Balanced Extension

The combination of impacts discussed in the 2007 AUN Master Plan would likely be the result of a 1,300-foot runway extension at AUN that consists of a 650-foot extension to the west and a 650-foot extension to the east. This alternative would require major fill and earthwork on each end.

A runway extension as a result of Alternative 3 would be approximately \$14 million in construction costs. **Figure 6-8** is a graphical representation of Alternative 3 and its associated elements.

Advantages and disadvantages of this alternative are outlined below.

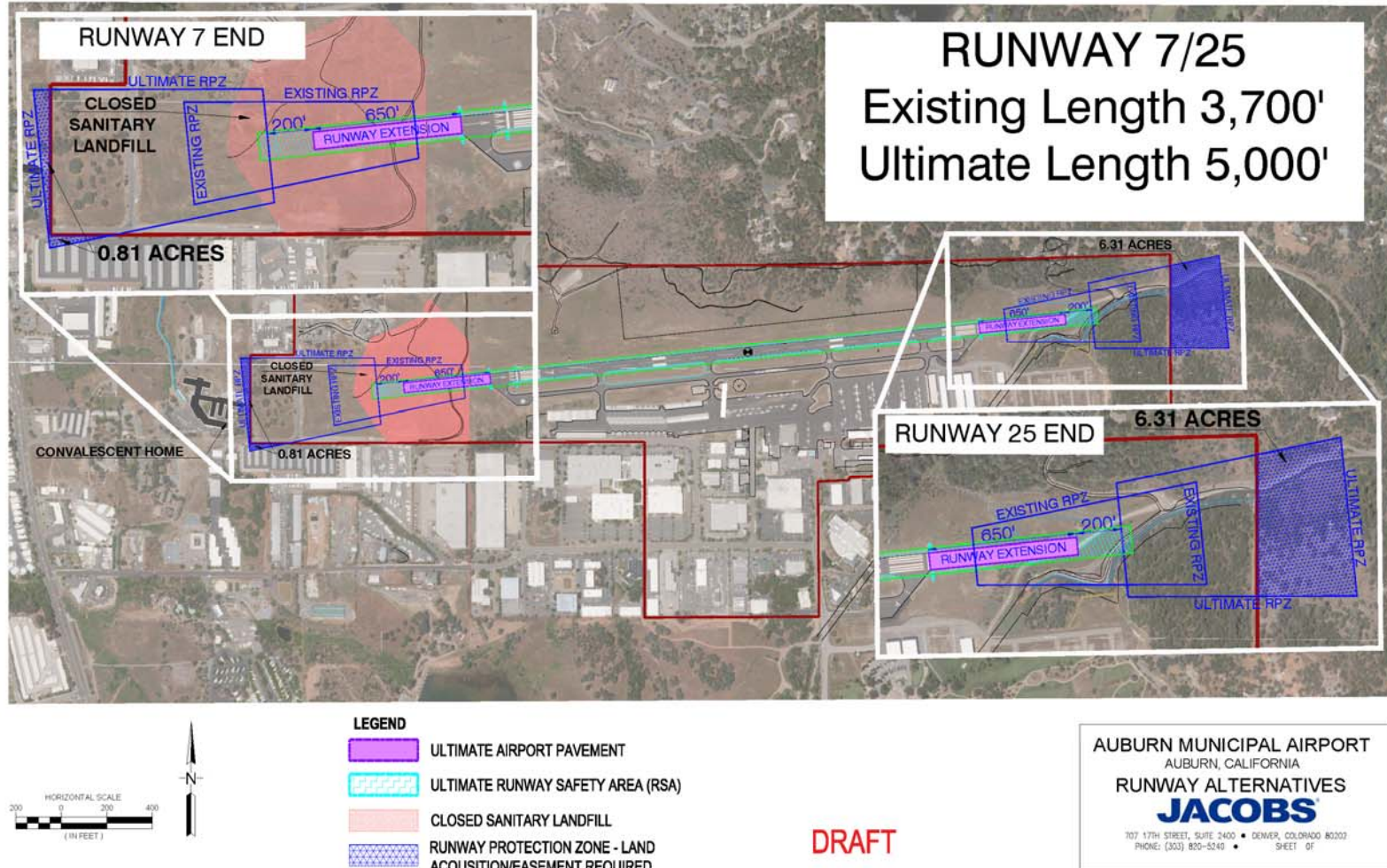
Advantages

- ▶ Provides a 5,000 feet ultimate runway length
- ▶ Runway Safety Area remains on Airport Property
- ▶ Minimal land acquisition required to accommodate Runway Protection Zone

Disadvantages

- ▶ Significant fill and earthwork
- ▶ Landfill disturbed
- ▶ Terrain obstructions
- ▶ Land acquisition required
- ▶ Construction occurs over PG&E underground aqueduct

Figure 6-8 Alternative 3: Balanced Extension



Source: Jacobs, 2016.

6.3.5 Alternative 4: Maximize RPZs on Airport Property (4,485 feet)

The development of this alternative is based on retaining and keeping the Runway Protection Zones (RPZ) on Airport property. With this in consideration, land acquisition will not be required for these proposed extensions. As shown in **Figure 6-9** the primary runway length would increase to 4,485 feet. As stated in the 2007 AUN Master Plan, due to the high cost-estimates for an eastward extension it is not financially feasible. The existing terrain would require a significant amount of cut and fill in order for this extension to occur. Additionally, the hill to the southeast of the Runway 25 end will be a terrain obstruction. The cost associated with the amount of fill on the Runway 25 End seems unrealistic and cannot be justified as a recommendation.

Figure 6-9 is a graphical representation of Alternative 4 and its associated elements.

Advantages and disadvantages of this alternative are outlined below.

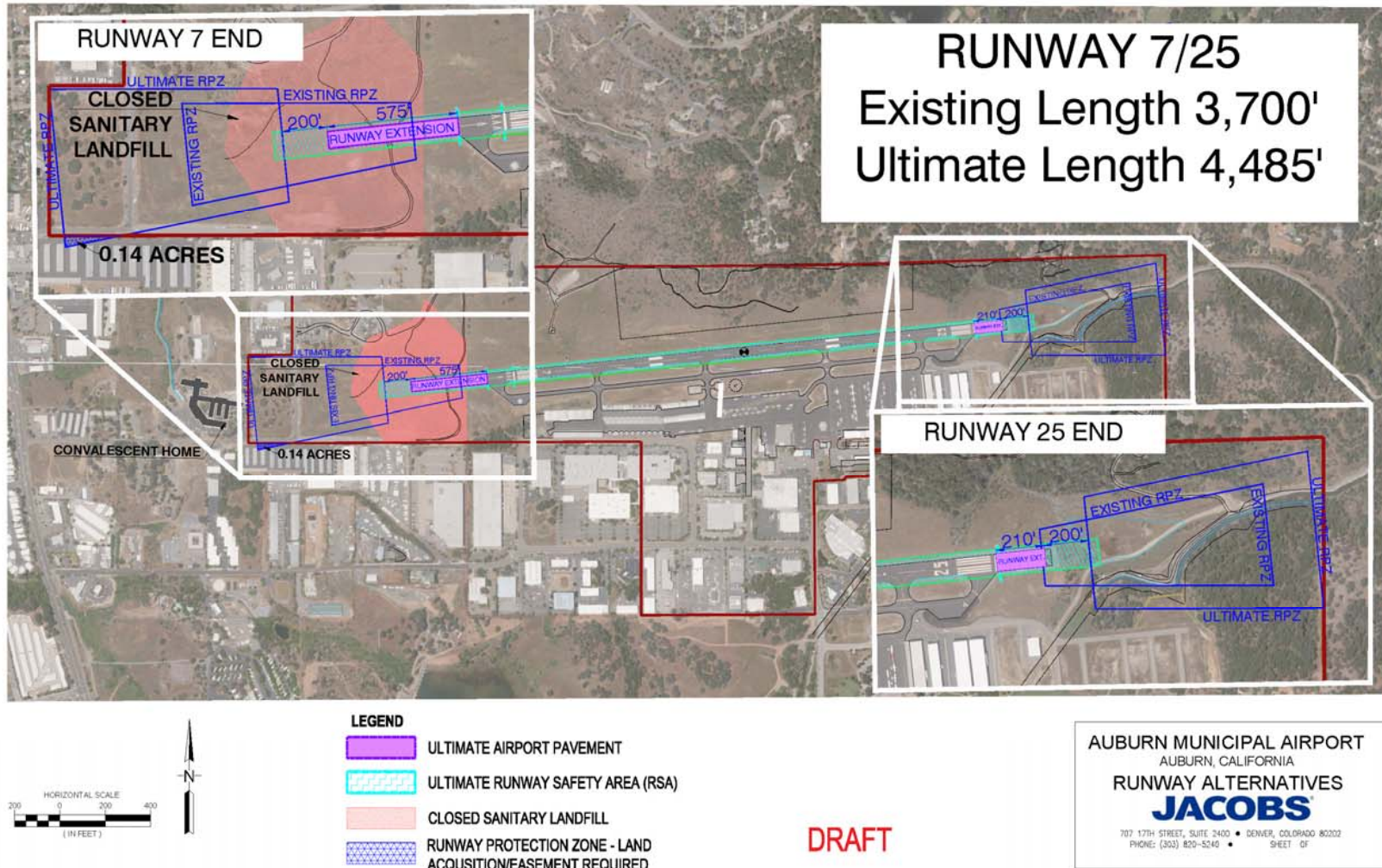
Advantages

- ▶ RPZs remain on Airport Property

Disadvantages

- ▶ Significant fill and earthwork
- ▶ Landfill disturbed
- ▶ Terrain obstructions
- ▶ Construction occurs over PG&E underground aqueduct

Figure 6-9 Alternative 4: Maximize Airport Property



Source: Jacobs, 2016.

6.3.6 Alternative 5: 600-foot West Extension (Runway Length = 4,300 feet)

Alternative 5 would extend the primary runway west an additional 600 feet. This would increase the primary runway length total to 4,300 feet. This alternative takes advantage of existing airport property west over the landfill and extends the RPZ to the edge of airport property. This alternative would likely require minimal (0.22 acres) land acquisition, as the RPZ would primarily remain on airport property.

This alternative accomplishes several goals, these include:

- A runway length that meets the length required by the FAA for airports located on the fringe of a metropolitan area, as outlined in Chapter 4.
- The additional length would allow for a displaced threshold on the Runway 25 end, removing approach obstructions that currently exist off that end
- Minimize land acquisition and surrounding land use impacts
- The use of displaced thresholds in this alternative help mitigate noise impacts yet provide increased takeoff runway distances
- Reduces the amount of fill required for a westerly extension as compared to the other runway extension alternatives
- Is consistent with the 600-foot extension recommended in the 2007 Master Plan.

The cost associated with this extension is approximately \$3.3 million. **Figure 6-10** is a graphical representation of Alternative 5 and its associated elements.

Advantages and disadvantages of this alternative are outlined below.

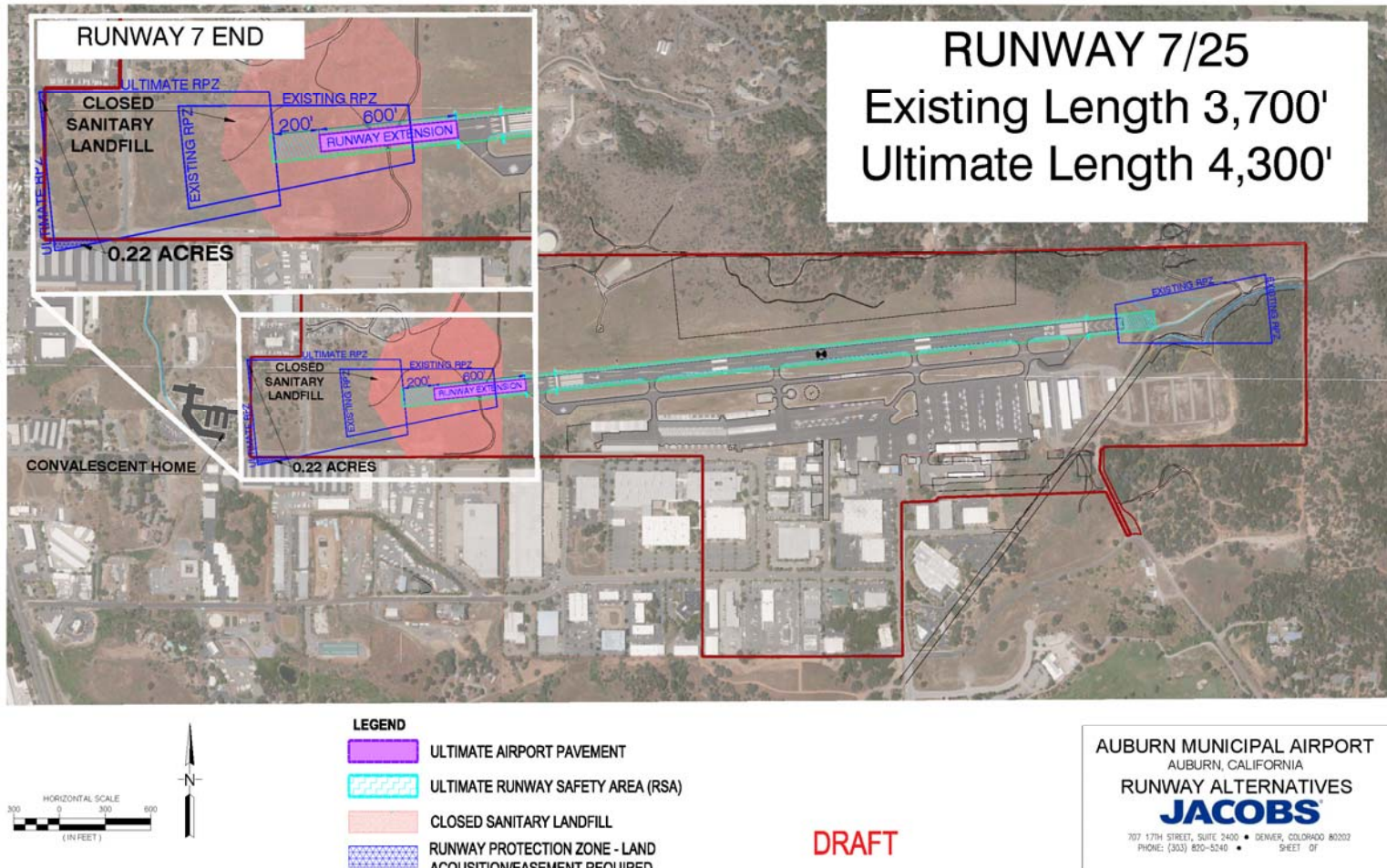
Advantages

- ▶ Maximize use of existing Airport property
- ▶ RPZ primarily remains on Airport Property
- ▶ Minimizes terrain obstructions
- ▶ Does not interfere with the PG&E underground aqueduct

Disadvantages

- ▶ Significant fill and earthwork
- ▶ Less than 5,000-foot primary runway length
- ▶ Landfill disturbed

Figure 6-10 Alternative 5: 600-foot West Extension



Source: Jacobs, 2016.

6.4 Preferred Alternative

A refined version of Alternative 4 (Alternative 4a) has been identified by the sponsor to be carried forward for further analysis to meet the required 4,300 foot runway length, see Figure 6-11.

Alternative 4a would maximize available airport property to the east of the existing Runway 7-25 by providing a 211' extension to the east. The balance of the runway extension (390 feet) required to meet the recommended runway length of 4,300 feet, would occur to the west.

This alternative results in:

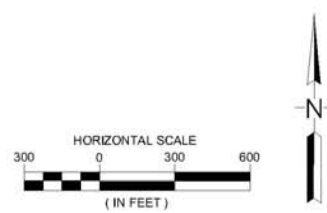
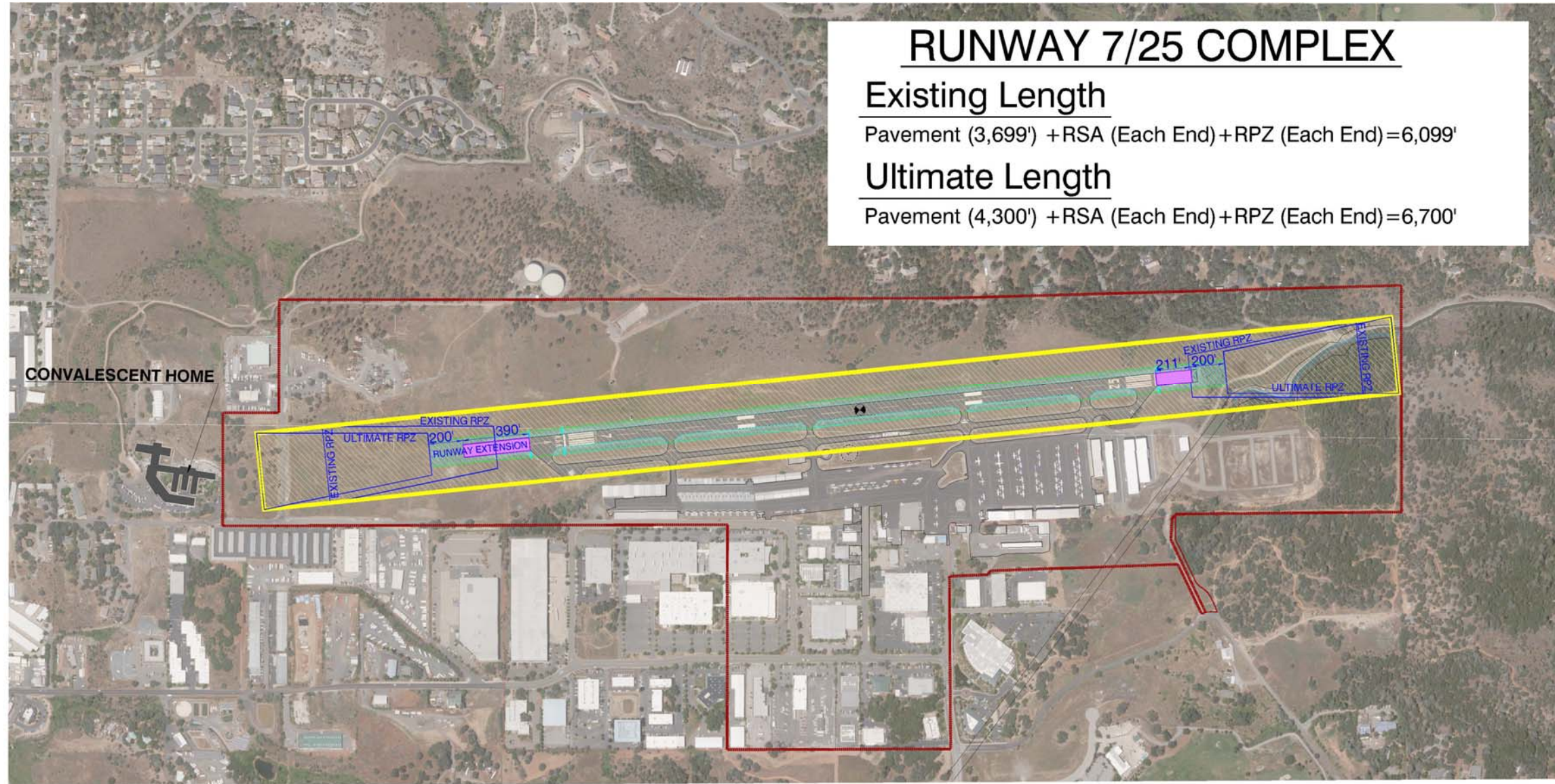
- Adequate Runway length to meet the requirements outlined in Chapter 4
- Minimizes impacts to development west of the Airport
- Limits the fill required and obstruction impacts to the east of the runway complex
- Keeps the RPZs on airport property
- Maintains a majority of the impacts associated with the extension to airport property
- Is fiscally more attainable than a majority of the other alternatives
- Maintains a similar noise footprint to the existing runway as the extension to each runway end would consist of displaced thresholds

Table 6-2 Runway Extension Cost Comparison Table

| | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 | Alternative 4 (Modified) | Alternative 5 |
|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|
| Runway Length | 5,000' | 5,000' | 5,000' | 4,485' | 4,300' | 4,300' |
| Cost | \$6 Million | \$20 Million | \$14 Million | \$13 Million | \$10 Million | \$3.3 Million |

Source: Jacobs, 2016

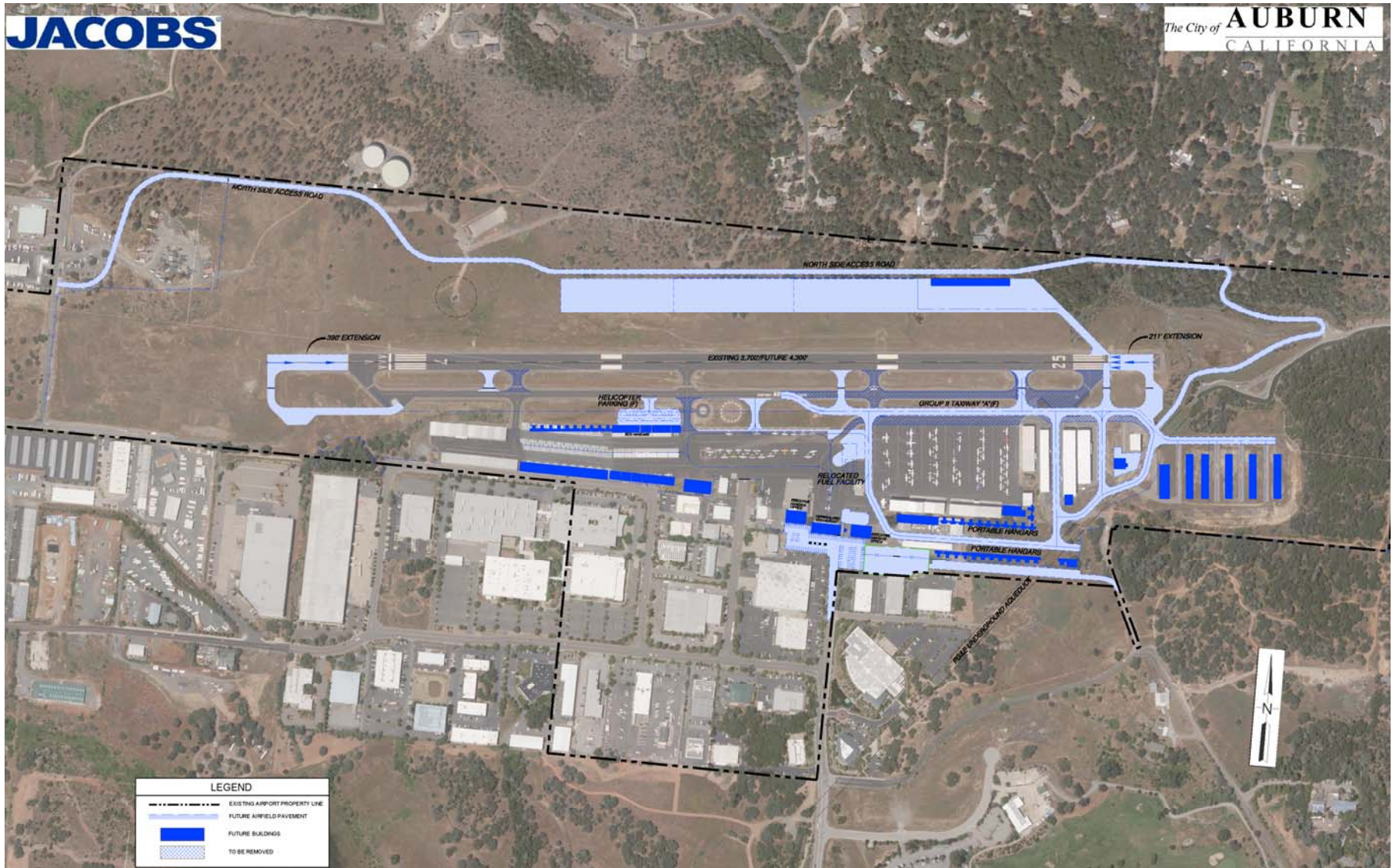
Figure 6-11 Alternative 4a - Runway 7/25 Complex 600' Extension (Balanced)



- LEGEND**
- ULTIMATE AIRPORT PAVEMENT
 - ULTIMATE RUNWAY SAFETY AREA (RSA)
 - RUNWAY PROTECTION ZONE - LAND ACQUISITION/EASEMENT REQUIRED
 - RUNWAY COMPLEX

AUBURN MUNICIPAL AIRPORT
AUBURN, CALIFORNIA
RUNWAY ALTERNATIVES
JACOBS
707 17TH STREET, SUITE 2400 • DENVER, COLORADO 80202
PHONE: (303) 820-5240 • SHEET OF

Figure 6-12 Preferred Development Plan



7. Implementation Plan

This chapter discusses the means for implementation of the recommended Airport improvements. Additionally, the list of projects that make up the Airport Capital Improvement Plan (CIP) is outlined as well as the recommended timing for planning purposes.

The outlook of airport development needs outlined in this chapter covers the 20-year term referred to throughout the document as the “planning period.” Additionally, this chapter provides projects that are expected to occur beyond the planning period, but should be planned for during this time to put the airport sponsor in a position to take advantage of opportunities as they arise, although an update to the existing Master Plan and appropriate environmental documentation would be required to implement those projects beyond the planning period. The result is a tabulated list of projects separated in to three phases:

- a) Phase 1 – Short Term (2017-2022)
- b) Phase 2 – Mid Term (2023-2027)
- c) Phase 3 – Long Term (Beyond 2027)

Each phase outlines the priority, time frame, and estimated funding sources. However, since activity rarely grows exactly as forecasted, long-term projects should be implemented dependent on the rate of growth actually experienced at Auburn Municipal Airport (AUN) and not be tied to the years outlined in the CIP. In addition, it should be understood that the ability to implement this plan is highly dependent on the FAA’s ability to provide AIP funding for eligible work.

7.1 Funding Sources

This section provides practical development guidelines for matching the amount of financial resources with the planned timing of those resources. Identifying the funding sources for each project is determined by matching it with a project’s elements and, in turn, a project’s eligibility for those funds. Airport development can be financed from several sources, described below.

In addition to the sources discussed in this section, there may be others that should be evaluated for particular projects. Public sources, such as non-aviation agencies and programs, as well as private funding and partnerships, can benefit AUN. Once projects are formulated and implemented, consideration should be given to all available funding sources.

7.1.1 FAA Airport Improvement Program (AIP) Funds

The federal Airport Improvement Program (AIP) was created by the Airport and Airway Improvement Act of 1982 (as amended), and is administered by the Federal Aviation Administration (FAA). AIP revenues are from The Airport and Airway Trust Fund, established by the Airport and Airway Revenue Act of 1970, and generated by user taxes on aviation. The trust fund concept guarantees a stable funding source whereby users pay for the services they receive.

The AIP provides grants to public agencies, and, in some cases, to private owners and entities, for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS). Statutory provisions require that some AIP funds be apportioned by formula to specific airports or types of airports. Such funds are available to airports in the year they are first apportioned and they remain available for additional fiscal years. The program also reserves a percent of the funds for various types of priority projects. Public use airports serving civil aviation are eligible for AIP funding, as are some privately owned airports, provided they are classified as relievers or have scheduled passenger service with annual enplanements over 2,500. Currently, the FAA offers AIP grants for airports the size of AUN, based on a split of

90 percent federal funding to a 10 percent local funding match basis. The AIP grants AUN is eligible for include entitlement and discretionary grants.

- **Entitlement Funds** - General aviation airports, such as AUN, qualify for \$150,000 in annual entitlement funds. These funds can be spent annually or they can be accumulated over a number of years and spent on a larger project.
- **Discretionary Funds** - are divided into two types:
 - Set-aside Funds, which are sub-divided into three categories:
 - d) **Noise and Environmental Set-Aside.** At least 35 percent of discretionary funds are for noise compatibility and clean air projects.
 - e) **Military Airport Program (MAP) Set-Aside.** At least 4 percent of discretionary funds are for MAP.
 - f) **Reliever Set-Aside.** 0.66 percent of discretionary funds are for a limited number large reliever airports meeting specific criteria.
 - Remaining Discretionary Funds are those available after the set-aside requirements have been met.
 - a) **Capacity/Safety/Security/Noise.** 75 percent of these funds are for preserving and enhancing capacity, safety, and security, and for noise compatibility planning and programs at primary and reliever airports.
 - b) **Pure Discretionary,** 25 percent of the FAA's discretionary funds can be used at any airport, and are usually distributed on a national priority system.

7.1.2 FAA Facilities & Equipment Funds

Navigational Aids (NAVAID) are facilities and equipment that support the movement of aircraft nationwide, both in the air and on the ground. They are essential to the *National Aviation System*, and are broken into federal and non-federal systems.

- Federal NAVAIDs are funded, installed, and maintained by the FAA's Facilities and Equipment (F&E) division. Most new F&E installations are earmarked in the FAA's annual appropriation bill.
- Non-federal NAVAIDs are funded, installed, and maintained by other public or private agencies or sponsors. Non-federal NAVAIDs are often funded as part of the AIP. Non-federal systems can become part of the National Aviation System if available to the public and approved by FAA. Certain NAVAIDs that may be installed, as non-federal may be considered federal if an agreement is reached with the FAA to take control after installation. A cost/benefit analysis is necessary to increase the NAVAIDs' priority in the AIP, and with the FAA. Congressional earmarking of funds is another way to secure AIP funding for NAVAIDs. Airports can apply for maintenance funding from the F&E program for Non-federal NAVAIDS.

With area wide technologies, such as GPS and ADS-B, becoming a significant tool to aircraft navigation, FAA's priority for ground-based NAVAIDs has been reduced. Instrumentation and information traditionally supplied by ground-based NAVAIDs may be better transmitted by implementation of emerging technologies, and may also be more economical. The shifting of priorities and practices may bring a change in the NAVAID funding structure as funding for NEXTGEN technologies becomes a higher priority with each FAA reauthorization.

7.1.3 California Department of Transportation – Division of Aeronautics (CALTRANS)

The CALTRANS California Aid to Airports Program (CAAP) provides funding for aviation purposes and is supported by the Aeronautics Account in the State Transportation Fund. Revenues from excise taxes on general aviation (GA) fuel are deposited in the Aeronautics Account. The Public Utilities Code (§21682-21683.2) specifies the priority for distributing funds among three funding programs:

- **Annual Credits:** \$10,000 annually for each eligible airport.

- **AIP Matching Grants:** The amount set aside for this is at the discretion of the California Transportation Commission (CTC). CTC's goal is to match every eligible, federal Airport Improvement Program (AIP) grant that benefits GA.
- **A&D Grants:** The funds remaining after Annual Credits and AIP Matching are programmed for Acquisition and Development (A&D) grants, which CTC selects from the projects that the Capital Improvement Plan (CIP) identifies.

7.1.3.1 CALTRANS Airport Loan Program

The Local Airport Loan Account is a revolving fund that was initiated with seed money from the Aeronautics Account. As principal and interest payments are returned to the Loan Account, additional loans can be provided to airports. These are discretionary State loans to eligible airports for construction and land acquisition projects that benefit an airport and/or improve its self-sufficiency.

Projects that enhance an airport's ability to provide general aviation services (hangars, GA terminals, utilities, GA fueling facilities, A&D-eligible projects, etc.) are eligible. A loan may also provide the local share for an AIP grant. Such a loan can be used in conjunction with a State-funded AIP Matching grant.

A sponsor may request a loan at any time. Aeronautics reviews the application and assesses the project's feasibility. Next, the Division conducts a public hearing on the loan. After execution of the Loan Agreement, the State issues a warrant for the loan amount.

A payback schedule is included with each Loan Agreement. Payments are annual. The interest rate is the same as for the State general obligation bonds that were sold at the time of the loan and is computed as simple interest. The maximum term is 17 years.

7.1.4 Private Third-Party/Developer Financing

Private third-party or developer financing is a good way to fund projects that are not eligible for FAA or CALTRANS funding. Projects that are typically funded this way include, but are not limited to, hangars, FBO facilities, air cargo facilities, exclusive use aircraft parking aprons, and non-aviation related on-airport commercial/industrial development. Typically, the Sponsor provides the private third-party developer with a ground-lease for the proposed facility, ensures that the proposed facility is shown on the FAA-approved airport layout plan, and complies with any FAA, CALTRANS, airport sponsor, or local building permitting authority standards. The developer funds, constructs, and uses or subleases the facility. The developer typically pays the Sponsor an annual amount for the ground lease, and at the end of the term, ownership of the facility reverts to the Sponsor.

7.1.5 Airport Revenue

The City of Auburn holds financial and jurisdictional responsibilities for the Airport. The County provides equal matching funds to support airport operations on an annual basis, based on each jurisdiction's appropriations. The Airport generates revenue from the following airport activities:

- Leases
- Rental rates
- Fuel flowage fees
- AIP and CALTRANS grants
- Transfers from City of Auburn

Operations and maintenance (O&M) expenses are the costs incurred by the City of Auburn to operate the Airport on a day-to-day basis. Typical O&M expenses for AUN include:

- Charges for utilities.
- Recurring maintenance of buildings and airfield pavements.
- Contracted services.
- Personal services.
- Purchase of supplies and equipment.
- Local matching funds for AIP and CALTRANS grants.

7.1.6 Bond Revenue

While commercial service airports can issue various types of bonds, general aviation airports typically issue only general obligation bonds.

- c) General Obligation Bonds. These are tax-exempt bonds not issued by the airport, but by the local (municipal or county) government that pledges the full faith and credit of the government as security for the bonds. General Obligation Bonds are rarely used as a financing method by airports because they are tax supported.

Bonds are typically used to finance net project costs, or the costs remaining after all other available sources of funding (airport revenue, AIP, state and local grants, etc.) have been used to offset the total project cost.

7.2 Capital Improvement Plan

The cost estimates presented in **Table 6-1** through **Table 6-4** are based on 2016 dollars and were prepared for improvements that may be required during the planning period and beyond the 20-year planning period. All costs were formulated using unit prices extended by the size of the project adjusted to conditions related to the local area and the development site. These estimates are intended to be used for planning purposes only and should not be considered as an actual construction cost. CIP projects are graphically depicted on the capital improvement drawings following each phase of the project cost estimates.

The projects identified and recommended in Phase 1 are organized by year and in a format similar to that used by the FAA and CALTRANS. Phase I projects are listed in a priority order.

Projects listed in Phases 2 through 4 are identified as placeholders without a priority designation. Not every project identified and recommended in these phases will be funded or completed. However, identifying these projects and their estimated costs does enable the Sponsor to selectively implement those that capitalize on opportunities that benefit the local area; match financial resources; and is consistent, good community planning. In addition, those projects in Phases 2 through 4 will only be implemented should the demand warrant their implementation prior to construction.

Project descriptions are provided for each major project. Because the scope for projects beyond Phase 1 may change significantly, those project descriptions are provided as overall summaries of elements included. Additionally, adequate lead time should be planned for detailed planning and environmental documentation to take place prior to each project.

7.2.1 Phase I Project Descriptions (2017-2022)

- **Bill Clark Hangar Environmental and Deconstruction**

The NEPA/CEQA project will examine whether there are any significant environmental impacts resulting from the deconstruction of the Bill Clark Hangar. The environmental process was recommended by and being coordinated with the FAA. This project also includes deconstruction of the hangar, pending the outcome of the environmental evaluation.

- Proposed Funding Allocation:
 - a) 100% Local

- **Design Sewer Line – Denham Property**

The project includes the investigation for engineering design of the sewer line to the Denham Property. Sewer line extension is being done in phases.

- Proposed Funding Allocation:
 - a) 100% Local

- **Demo Denham Hangars**

The project includes the demolition of hangars that have reached their useful life and are not located in an area consistent with the Airport’s master plan.

- Proposed Funding Allocation:
 - a) 100% Local

- **Terminal Building and Facility Improvements**

This project includes improvements to the pilot lounge flooring and frontage improvements to the facility entrance.

- Proposed Funding Allocation:
 - a) 100% Local

- **Pollution Abatement Facility**

In order to meet requirements outlined in the local Stormwater Pollution Prevention Program, improvements/replacement of the existing re-circulation system for the Pollution Abatement Facility will occur within this project.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Pavement Maintenance Plan/Design/Bidding**

The existing aircraft parking aprons were identified in the 2011 CALTRANS Airport Maintenance Management System Update as having PCI’s of 69 for tiedown apron 1 (TD1) and 68 for tiedown apron 2 (TD2). No maintenance has occurred on the tiedown apron areas since the 2011 evaluation. The 2011 evaluation also forecasted a 2016 PCI of 50 for TD1 and 49 for TD2 should no maintenance be conducted.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Runway LED Lighting Rehabilitation**

Remove existing incandescent runway lighting fixture and isolation transformer. Install LED runway edge lighting fixture and isolation transformer on existing light base.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Design/Engineer New Helicopter Parking Area**

The ALP Update will evaluate alternatives for potentially locating future helicopter parking areas in an on-airport compatible location. This project would include the design of helicopter parking areas needed to meet forecasted demand outlined in the ALP Update. The design is projected to begin in Calendar Year 2016 (FAA Fiscal Year 2017), pending FAA-approval of the updated airport layout plan.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Construct New Helicopter Parking Area**

This project will include the construction of the preferred helicopter parking area as outlined in the during design. This project could potentially be phased as demand warrants.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Design – Solar Shade Structure Tie Down Area**

This project provides an economical tie down alternative to hangar buildings.

- Proposed Funding Allocation:
 - a) 100% Local

- **Construct – Solar Shade Structure Tie Down Area**

- Proposed Funding Allocation:
 - a) 100% Local

- **Pavement Maintenance Program**

Crack Seal, Seal Coat and Repaint RWY 7/25, TWY A, B, C, D, and E and Aircraft Parking Apron. (Construction, CA)

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Construct Perimeter Fencing (Phase 2)**

The construction of the perimeter fence would be phased as federal, state and local funding becomes available and increase both on-airport security and wildlife protection. Phase II consists of the fence on the east, north and west sides of the Airport property.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Design/Engineer East End Airfield Access/Run-up Area Improvements**

The east end connector taxiway and run-up areas are in need of re-design in order to improve airfield safety, access and marketability of future hangars to be located at the east end of the Airport. Several alternatives will be evaluated during the Airport Layout Plan Update process for improving the existing conditions on the Airport's east end.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Construct East End Airfield Access/Run-up Area Improvements**

This project will include the construction of the preferred east end airfield access/run-up area alternative outlined in the Airport Layout Plan Update.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Airspace Obstruction Removal**

Airspace obstructions exist within existing and ultimate Part 77, approach and departure surfaces. This City of Auburn will work to mitigate the obstructions as funding becomes available.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Airport Land Use Compatibility Plan Update**

Airspace obstructions exist within existing and ultimate Part 77, approach and departure surfaces. This City of Auburn will work to mitigate the obstructions as funding becomes available.

- Proposed Funding Allocation:
 - a) 90% State, 10% Local

Table 7-1 Phase I Projects (2017-2022)

| Project # | Project | Federal | | State | Local | Total | Proposed Funding Allocations | | |
|----------------------|---|--------------------|------------------|------------------|------------------|--------------------|------------------------------|--------|---------|
| | | Entitlements | Discretionary | | | | Federal% | State% | Local % |
| I-1 | Pollution Abatement Facility | \$13,500 | | \$675 | \$825 | \$15,000 | 90% | 4.5% | 5.5% |
| I-2 | Pavement Maintenance Plan/Design/Bidding | \$27,000 | | \$1,350 | \$1,650 | \$30,000 | 90% | 4.5% | 5.5% |
| I-3 | Runway LED Lighting Rehabilitation | \$184,500 | | \$9,225 | \$11,275 | \$205,000 | 90% | 4.5% | 5.5% |
| I-4 | Design/Engineer New Helicopter Parking Area | \$67,500 | | \$3,375 | \$4,125 | \$75,000 | 90% | 4.5% | 5.5% |
| I-5 | Construct New Helicopter Parking Area | \$558,000 | | \$27,900 | \$34,100 | \$620,000 | 90% | 4.5% | 5.5% |
| I-6 | Design - Solar Shade Structure Tie Down Area | | | | \$10,000 | \$10,000 | - | - | 100% |
| I-7 | Construct - Solar Shade Structure Tie Down Area | | | | \$190,000 | \$190,000 | - | - | 100% |
| I-8 | Pavement Maintenance Program | | \$531,000 | \$26,550 | \$32,450 | \$590,000 | 90% | 4.5% | 5.5% |
| I-9 | Construct Perimeter Fencing (Phase 2) | \$104,700 | \$151,800 | \$12,825 | \$15,675 | \$285,000 | 90% | 4.5% | 5.5% |
| I-10 | Design/Engineer East End Airfield Access/Run-up Area Improvements | \$49,500 | | \$2,475 | \$3,025 | \$55,000 | 90% | 4.5% | 5.5% |
| I-11 | Construct East End Airfield Access/Run-up Area Improvements | \$225,000 | | \$11,250 | \$13,750 | \$250,000 | 90% | 4.5% | 5.5% |
| I-12 | Airspace Obstruction Removal | \$90,000 | | \$4,500 | \$5,500 | \$100,000 | 90% | 4.5% | 5.5% |
| I-13 | Airport Land Use Compatibility Plan | | | \$135,000 | \$15,000 | \$150,000 | - | 90% | 10% |
| Phase 1 Total | | \$1,319,700 | \$682,800 | \$235,125 | \$337,375 | \$2,520,000 | | | |

Figure 7-1 Phase I Projects (2017-2022)



7.2.2 Phase II Project Descriptions (2023-2027)

- **Access Road to the Former Denham Property**

The project includes the engineering design of a general aviation aircraft apron and taxiway in the previously acquired Denham property. This will also include the access roads to the Denham Property improve access for potential tenants.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Design Runway 7/25 Resurfacing**

A periodic re-evaluation of the airfield pavement is required to ensure it is properly maintained. This design project will include an evaluation of the runway pavement's condition and provide a recommendation as to the proper re-surfacing needed to extend its useful life. The project's location on this list will allow for it to occur at approximately the right time from the Runway's previous rehabilitation project.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Construction Runway 7/25 Resurfacing**

This project will be programmed to include partial pavement removal by "level milling" pavement to eliminate any high spots on the runway. The pavement will then be overlaid using a 2" inch asphalt overlay and re-painted with FAA standard airfield surface markings.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Construct Perimeter Fencing (Phase 3)**

The construction of the perimeter fence would be phased as federal, state and local funding becomes available. The ability to accommodate any future access gates if demand is appropriate, needed or necessary on the Airport's south side would be determined prior to construction of the Phase III fencing project.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Airspace Obstruction Removal**

Airspace obstructions exist within existing and ultimate Part 77, approach and departure surfaces. This City of Auburn will work to mitigate the obstructions as funding becomes available.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

Table 7-2 Phase II Projects (2023-2027)

| Project # | Project | Federal | | State | Local | Total | Proposed Funding Allocations | | |
|----------------------|---|------------------|--------------------|------------------|-----------------|--------------------|------------------------------|--------|---------|
| | | Entitlements | Discretionary | | | | Federal% | State% | Local % |
| II-1 | Access Road to the Former Denham Property | \$180,000 | | \$9,000 | \$11,000 | \$200,000 | 90% | 4.5% | 5.5% |
| II-2 | Design Runway 7/25 Resurfacing | \$150,000 | | \$7,500 | \$9,167 | \$166,667 | 90% | 4.5% | 5.5% |
| II-3 | Construct Runway 7/25 Resurfacing | \$150,000 | \$1,406,100 | \$77,805 | \$4,095 | \$1,638,000 | 90% | 4.5% | 5.5% |
| II-4 | Construct Perimeter Fencing Phase 3 | \$247,500 | | \$12,375 | \$15,125 | \$275,000 | 90% | 4.5% | 5.5% |
| II-5 | Airspace Obstruction Removal | \$90,000 | | \$4,500 | \$5,500 | \$100,000 | 90% | 4.5% | 5.5% |
| Phase 2 Total | | \$817,500 | \$1,406,100 | \$111,180 | \$44,887 | \$2,379,667 | | | |

Source: Jacobs Analysis, 2016..

Figure 7-2 Phase II Projects (2023-2027)



7.2.3 Phase III Project Descriptions (2028-2037)

- **Airport Master Plan Update**

It is recommended that the Master Plan be updated every seven (7) to ten (10) years. This Master Plan should further investigate/validate the runway length requirements for AUN.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **New GA Terminal Building**

The existing GA terminal building has reached its useful life, portions are not economically viable to lease out and is located in an area that restricts future expansion of the apron and taxilanes. This project includes the demolition of the existing terminal building and construction of a new terminal building that is capable of housing Fixed Base Operator (FBO) facilities, conference rooms and a restaurant.

- Proposed Funding Allocation:
 - a) 50% State (Loan), 50% Local

- **Re-develop the Core Development Area**

Alongside the new terminal building, a complete redesign of the airport's grand entrance will include new hangars, new on-apron circulation, new/relocated above-ground fuel tanks and new roadway circulation. This project will both improve the sense of place, apron usability, auto parking capacity and serve as a true gateway to the City of Auburn.

- Proposed Funding Allocation:
 - a) 50% State (Loan), 50% Local

- **Relocate Taxiway "D" and "E"**

Existing Taxiway "D" and "E" provide direct access from the apron to runway areas. Current FAA guidance requires Airport's to address these deficiencies when the taxiway pavement requires rehabilitation or if serious runway incursion mitigation issues resulting from the existing taxiway locations are identified. There are no known runway incursions at AUN as a result of these taxiway locations, therefore it is recommended that they be relocated when the pavement reaches its useful life.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Airspace Obstruction Removal**

Airspace obstructions exist within existing and ultimate Part 77, approach and departure surfaces. This City of Auburn will work to mitigate the obstructions as funding becomes available.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Environmental Assessment - Runway 7/25 Extension**

NEPA assessment to evaluate potential impacts of an extension to Runway 7/25

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

- **Extend Runway 7-25**

This project would extend Runway 7-25 to 4,300 feet to business aircraft over the long term. The asphalt extension would include a 390-foot extension to the west and a 211-foot extension to the east. Parallel Taxiway "A" would be extended to the future Runway 7 and 25 ends.

The existing Runway 7 and 25 thresholds would remain in their current locations due to potential noise and obstruction issues. The hill side southeast of the airport would require additional tree clearing to clear the departure surface.

- Proposed Funding Allocation:
 - a) 90% Federal, 4.5% State, 5.5% Local

Table 7-3 Phase III Projects (Beyond 2027)

| Project # | Project | Federal | | State | Local | Total | Proposed Funding Allocations | | |
|----------------------|--|--------------------|---------------------|--------------------|--------------------|---------------------|------------------------------|--------|---------|
| | | Entitlements | Discretionary | | | | Federal% | State% | Local % |
| III-1 | Airport Master Plan Update/CEQA* | \$300,000 | | \$15,000 | \$185,000 | \$500,000 | 60% | 3% | 37% |
| III-2 | New GA Terminal Building | | | \$1,250,000 | \$1,250,000 | \$2,500,000 | | 50% | 50% |
| III-3 | Redevelop Core Development Area | | | \$500,000 | \$500,000 | \$1,000,000 | | 50% | 50% |
| III-4 | Relocate Taxiway "D" and "E" | \$495,000 | | \$24,750 | \$30,250 | \$550,000 | 90% | 4.5% | 5.5% |
| III-5 | Runway 7/25 Extension Environmental Assessment | \$150,000 | | \$7,500 | \$9,167 | \$166,667 | 90% | 4.5% | 5.5% |
| III-6 | Airspace Obstruction Removal | \$90,000 | | \$4,500 | \$5,500 | \$100,000 | 90% | 4.5% | 5.5% |
| III-7 | Runway 7/25 Extension | \$600,000 | \$8,400,000 | \$450,000 | \$550,000 | \$10,000,000 | 90% | 4.5% | 5.5% |
| Phase 3 Total | | \$1,635,000 | \$ 8,400,000 | \$2,251,750 | \$2,529,917 | \$14,816,667 | | | |

*CEQA for Airport Master Plan is not eligible for Federal Funds

Source: Jacobs Analysis, 2016..

Figure 7-3 Phase III Projects (Beyond 2027)



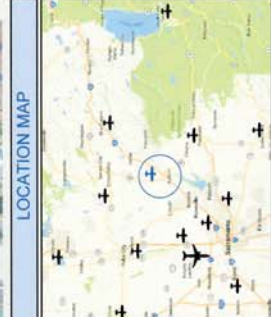
8. Airport Layout Plan Drawing Set

This document has outlined the future development needs of the Auburn Municipal Airport (AUN or the Airport). In this chapter, the various elements of the implementation plan required to meet the forecast demand are graphically depicted.. These drawings form the Airport Layout Plan (ALP) set and are summarized in the ALP drawing, which is reviewed and approved by the airport Sponsor and the Federal Aviation Administration (FAA). For ease of reference, these plans are provided in a reduced-size set of drawings. Full-size scale drawings should be referred to when analyzing any specific development issues. The complete ALP set includes the following:

| Exhibit # | Sheet Title |
|-----------|--|
| 1 | Cover Sheet |
| 2 | Airport Layout Plan (ALP) |
| 3 | Technical Data Sheet |
| 4 | Terminal/Building Area Plan |
| 5 | General Aviation Development Plan |
| 6 | Airport Airspace Drawing (FAR Part 77 Surface) |
| 7 | Departure/Approach Surface Drawing – Runway 7 |
| 8 | Departure/Approach Surface Drawing – Runway 25 |
| 9 | Obstruction Data Sheet |
| 10 | Obstruction Data Sheet |
| 11 | Airport Land Use |
| 12 | Exhibit 'A' Airport Property Map |

AUBURN MUNICIPAL AIRPORT AUBURN, CALIFORNIA

AIP GRANT NUMBER 3-06-0012-012-2015



The City of **AUBURN**
CALIFORNIA

JACOBS
707 17TH STREET
SUITE 2400
DENVER, COLORADO 80202
PHONE (303) 820-5240



AIRPORT LAYOUT PLAN DRAWING SET

| NO. | BY | DATE | ISSUE RECORD | DESCRIPTION |
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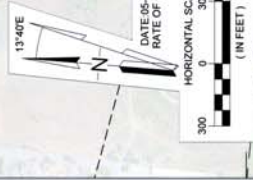
SPONSOR APPROVAL

NAME: Paul S. Smith TITLE: Manager of Air Services

CITY OF AUBURN: Auburn, California

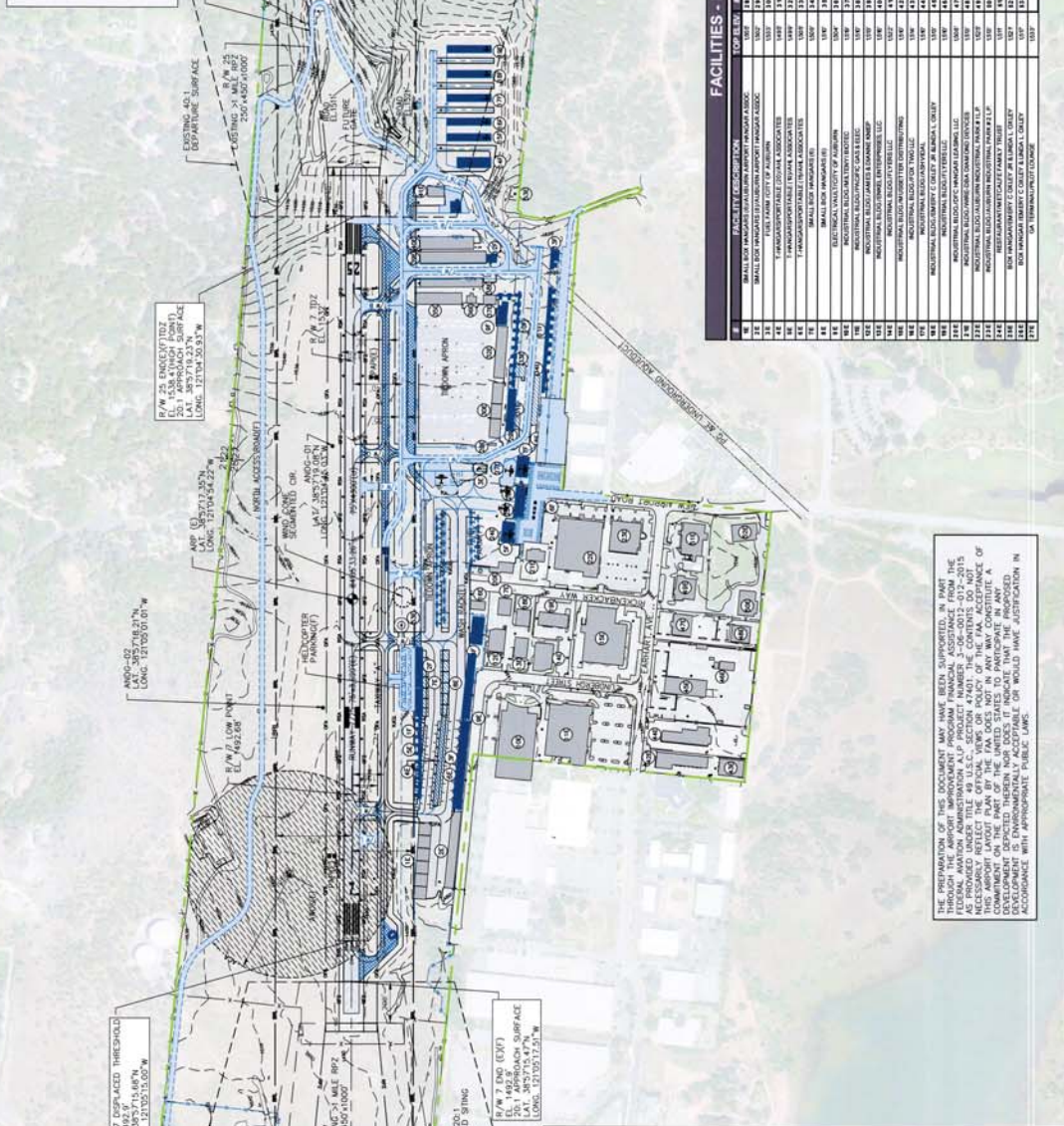
DATED: 10/12/18 DAY/MONTH/YEAR

| AIRPORT LAYOUT PLAN EXHIBITS | | REVISION DATE |
|------------------------------|--|---------------|
| SHEET NO. | TITLE | DATE |
| 1 | COVER SHEET | |
| 2 | AIRPORT LAYOUT PLAN | |
| 3 | ULTIMATE AIRPORT LAYOUT PLAN | |
| 4 | TECHNICAL DATA SHEET | |
| 5 | TERMINAL BUILDING AREA PLAN | |
| 6 | GENERAL AVIATION DEVELOPMENT PLAN | |
| 7 | AIRPORT AIRSPACE DRAWING (FAR PART 77 SURFACE) | |
| 8 | DEPARTURE/APPROACH SURFACE DRAWING, RUNWAY 7 | |
| 9 | DEPARTURE/APPROACH SURFACE DRAWING, RUNWAY 25 | |
| 10 | OBSTRUCTION DATA SHEET | |
| 11 | OBSTRUCTION DATA SHEET | |
| 12 | AIRPORT LAND USE | |
| 13 | EXHIBIT 'A' AIRPORT PROPERTY MAP | |



NOTES:

1. RUNWAY ESCARMENTS SHOWN ARE EXISTING CONDITIONS. ESCARMENTS SHALL BE VERIFIED PRIOR TO ANY RUNWAY PROJECT AND ALTERED IF REQUIRED AS A PART OF THE PROJECT.
2. DATE OF AERIAL: 05/24/2016
3. NAD 83/NAVD 88 SURVEY DATA WAS PROVIDED BY: ANDREWS DEMATICS.
4. THE PROPOSED RUNWAY EXTENSION FOR 7-25 IS FOR LONG-TERM CONSIDERATION. THE RUNWAY EXTENSION SHALL BE UNDERGONE WITHOUT PROJECT NEPA ENVIRONMENTAL PROCESSING APPROVAL OF AVIATION ACTIVITY FORECAST, CRITICAL INCIDENT AND RUNWAY LENGTH DETERMINATION.



| # | FACILITY DESCRIPTION | TO BE |
|-----|-------------------------|-------|
| 1 | TRAMPOLINE FACILITY | 1507 |
| 2 | SMALL BLDG HANGAR 10 | 1507 |
| 3 | SMALL BLDG HANGAR 11 | 1507 |
| 4 | EXECUTIVE HANGAR | 1507 |
| 5 | EXECUTIVE HANGAR | 1507 |
| 6 | EXECUTIVE HANGAR | 1507 |
| 7 | SMALL BLDG HANGAR 12 | 1507 |
| 8 | SMALL BLDG HANGAR 13 | 1507 |
| 9 | TRAMPOLINE FACILITY (2) | 1507 |
| 10 | SMALL BLDG HANGAR 14 | 1507 |
| 11 | SMALL BLDG HANGAR 15 | 1507 |
| 12 | SMALL BLDG HANGAR 16 | 1507 |
| 13 | SMALL BLDG HANGAR 17 | 1507 |
| 14 | SMALL BLDG HANGAR 18 | 1507 |
| 15 | SMALL BLDG HANGAR 19 | 1507 |
| 16 | SMALL BLDG HANGAR 20 | 1507 |
| 17 | SMALL BLDG HANGAR 21 | 1507 |
| 18 | SMALL BLDG HANGAR 22 | 1507 |
| 19 | SMALL BLDG HANGAR 23 | 1507 |
| 20 | SMALL BLDG HANGAR 24 | 1507 |
| 21 | SMALL BLDG HANGAR 25 | 1507 |
| 22 | SMALL BLDG HANGAR 26 | 1507 |
| 23 | SMALL BLDG HANGAR 27 | 1507 |
| 24 | SMALL BLDG HANGAR 28 | 1507 |
| 25 | SMALL BLDG HANGAR 29 | 1507 |
| 26 | SMALL BLDG HANGAR 30 | 1507 |
| 27 | SMALL BLDG HANGAR 31 | 1507 |
| 28 | SMALL BLDG HANGAR 32 | 1507 |
| 29 | SMALL BLDG HANGAR 33 | 1507 |
| 30 | SMALL BLDG HANGAR 34 | 1507 |
| 31 | SMALL BLDG HANGAR 35 | 1507 |
| 32 | SMALL BLDG HANGAR 36 | 1507 |
| 33 | SMALL BLDG HANGAR 37 | 1507 |
| 34 | SMALL BLDG HANGAR 38 | 1507 |
| 35 | SMALL BLDG HANGAR 39 | 1507 |
| 36 | SMALL BLDG HANGAR 40 | 1507 |
| 37 | SMALL BLDG HANGAR 41 | 1507 |
| 38 | SMALL BLDG HANGAR 42 | 1507 |
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| 40 | SMALL BLDG HANGAR 44 | 1507 |
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| LEGEND | | EXISTING | FUTURE |
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| AIRPORT PROPERTY LINE | --- | --- | --- |
| EASEMENTS | --- | --- | --- |
| ASPHALTED PAVEMENT | --- | --- | --- |
| BUILDINGS | --- | --- | --- |
| BUILDING RESTRICTION LINES | --- | --- | --- |
| RUNWAY SAFETY AREA | --- | --- | --- |
| RUNWAY OBJECT FREE AREA | --- | --- | --- |
| RUNWAY OBSTACLE FREE ZONE | --- | --- | --- |
| RUNWAY PROTECTION ZONE | --- | --- | --- |
| TAXIWAY OBJECT FREE AREA | --- | --- | --- |
| PRECISION OBJECT FREE AREA | --- | --- | --- |
| HAZARD CRITICAL AREA | --- | --- | --- |
| SECTION CORNER | --- | --- | --- |
| ROADS AND PARKING AREAS | --- | --- | --- |
| GROUND CONTOURS | --- | --- | --- |
| POND, LAKES, STREAMS, ETC | --- | --- | --- |
| FENCE LINE | --- | --- | --- |
| AIRPORT BEACON | --- | --- | --- |
| AIRPORT REFERENCE POINT | --- | --- | --- |
| RUNWAY EDGE LIGHT | --- | --- | --- |
| SUPPLEMENTAL WIND CONE | --- | --- | --- |
| HEEL | --- | --- | --- |
| MAP | --- | --- | --- |
| SURVEY CONTROL POINT | --- | --- | --- |
| PAVEMENT TO BE REMOVED | --- | --- | --- |

NOTES:
 1. RUNWAY DESIGNATIONS SHOWN ARE EXISTING CONDITIONS. RECONSTRUCTION, RECONFIGURATION, RELOCATION, REPAIRS, OR MARKING PROJECT AND ALTERED IF REQUIRED AS A PART OF THE PROJECT.
 2. DATE OF AEP/ADP: 05/24/2016
 3. NAD 83/NAVD 88 SURVEY DATA WAS PROVIDED BY: ANDREWS GEOMETRICS.

| APN | GRANTEE | PURPOSE OF ACQUISITION | TYPE OF INSTRUMENT | DATE OF INSTRUMENT | ISSUE NUMBER | FAA GRANT YEAR |
|-------------|--|------------------------|--------------------|--------------------------|--|----------------|
| 025-000-027 | AUBURN DISPOSAL SERVICE INC. | AIRPORT | WARRANTY DEED | 06/20/2012 | ADP 1975 | |
| 025-000-028 | STATE OF JAMES P. KEENA | AIRPORT | WARRANTY DEED | 06/20/2012 | ADP 1987 | |
| 025-000-029 | D. ROBINSON & ELIZABETH ROBINSON | AIRPORT | RESOLUTION | 09/27/2012 | FAA 1986 | |
| 025-000-030 | JOHN B. MCCLEARY & GENEVIEVE L. MCCLEARY TRUST P. PEPERAYO & JAMARIE R. PEPERAYO, HECTOR G. MONTALVO & VIRGINIA Z. MONTALVO, JAYCE L. ERI | AIRPORT | QUITCLAIM DEED | 2009/06/05 2009/04/28 | ADP 1982 | |
| 025-190-005 | AUBURN BUSINESS CENTER ASSOCIATES | AIRPORT | WARRANTY DEED | 02/04/12 | FAA 3-06-0012-07 / 2004 FAA 3-06-0012-08 / 2004 | |
| 025-190-000 | EMMANUEL STALDENGER, ET AL. | AIRPORT | WARRANTY DEED | 12/05/2018 | ADP 1978 | |

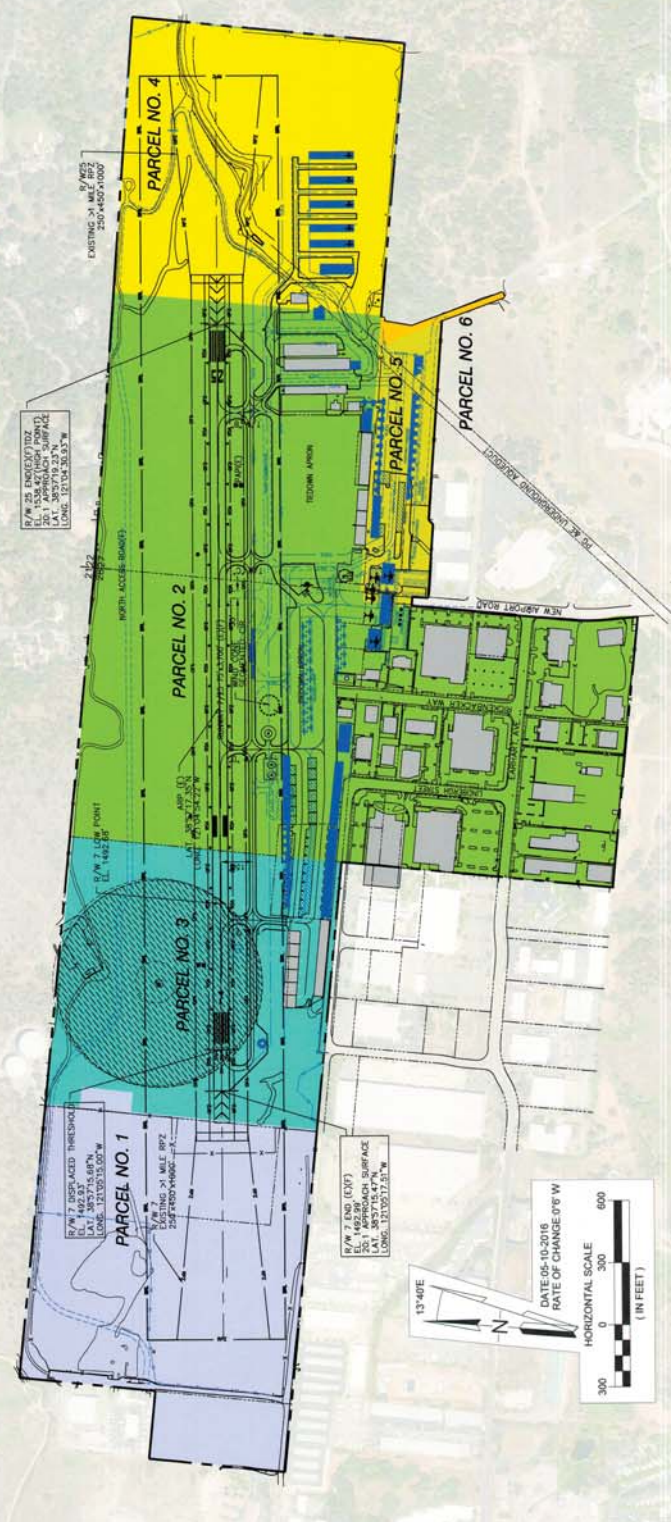


EXHIBIT "A"
AIRPORT PROPERTY MAP

SHEET 13 OF 13

800-400 Acceptance of Exhibit "A" Airport Property Map
 Approved by *[Signature]* Date: *11/14/18*
[Signature] Project Manager - SDB-ALB

| NO. | BY | DATE | DESCRIPTION | CKD |
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| AP PROJECT NUMBER | REV. | DATE |
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| 3-06-0012-012-2015 | | 02/01/18 |
| JACOBS PROJECT NUMBER | | |
| WXXXX306 | | |
| DESIGNED BY | | |
| DRAWN BY | | |
| CHECKED BY | | |
| DATE | | |

SPONSOR APPROVAL
[Signature]
 CITY OF AUBURN
 DATED: 11/14/18

The City of AUBURN CALIFORNIA

JACOBS
 707 17TH STREET
 SUITE 2400
 DENVER, COLORADO 80202
 PHONE (303) 820-5240

Appendix A. ALP and Narrative Report Public Outreach

Kickoff Meeting with 5AC/Public

707 17th Street Suite 2400
Denver, CO 80202
T (303)820

| | | | |
|---------------------|--|--------------------|---------------------------|
| Purpose | Airport Layout Plan Update/Narrative Report Kick-Off Meeting | | |
| Project | Auburn Municipal Airport (KAUN) ALP Update | Project No. | WXXX2306 |
| Prepared by | Joshua Schust | Phone No. | (303) 820-4816 |
| Location | Auburn Municipal Airport Conference Room | Date/Time | October 1, 2015 @ 6:00 PM |
| Participants | See Appendix I | Apologies | Jasmine Evains |
| Distribution | Bernie Schroeder, Director of Public Works Edgar Medina, Assistant Civil Engineer | | |

-
- 1 **Agenda: Airport Layout Plan Update/Narrative Report Kick-Off Meeting Presentation –**
Kenny Maenpa, Justin Ritter, Joshua Schust and Don Castellano, *see appendix II*
- Introductions
 - ◆ Jacobs
 - Kenny Maenpa – Aviation Group Leader – Project Executive
 - Justin Ritter – Project Manager
 - Joshua Schust – Airport Planner/AGIS Task Leader
 - Don Castellano – Airport Planner/ALP Task Leader
 - ◆ Andregg Geomatics
 - ◆ FAA Planner – Jasmine Evains
 - Why Conduct an ALP Update?
 - ◆ Meet FAA requirements to maintain current:
 - Airport Layout Plan (ALP)
 - Exhibit 'A' Property Map
 - ◆ Eligible for FAA/CALTRANS funding
 - ◆ Changes in FAA design criteria
 - ◆ Address issues
 - Land Use Compatibility, Helicopter Parking, Etc.
 - ALP Update/Narrative Report Process
 - Airport Geographic Information Systems Workflow
 - Deliverables
 - ◆ Technical Report
 - Inventory of Existing Conditions
 - Forecast of Aviation Demand
 - Identify Design Aircraft
 - Near and Long Term Preferred Development
 - Preliminary Environmental Review
 - Realistic CIP/Implementation Plan
 - ◆ Paper ALP Set
 - ALP Drawing – Preferred Development Plan
 - Exhibit 'A' Drawing
 - Land Use Plan
 - ◆ AGIS Survey/eALP
 - Aerial and Topography
 - Schedule
 - Existing Airport Layout
 - Airport Statistics

- Goals and Objectives – Open Discussion
 - ◆ Stakeholder Goals and Objectives of ALP Update
 - Helicopter Parking Area
 - Runway Length Analysis
 - Aircraft Storage – Capacity
 - Transient Aircraft Parking
 - Core Development
 - ALUCP Funding
 - Commercial Space Needs
- Next Steps
 - ◆ Incorporate your goals and objectives in to the documentation
 - ◆ AGIS Survey Initiation (Andregg)
 - ◆ Development of Working Paper #1
 - Initiate Inventory of Existing Conditions
 - Initiate Forecast of Aviation Demand

5AC Meeting Attendees
September 29th, 2015

| | | |
|---------------------|------------------------|--|
| Wayne Mooneyham | 530.878.0434 | waynemooneyham@cebridge.net |
| Joanie Mooneyham | 530.878.0434 | joaniemooneyham@cebridge.net |
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| Larry Adair | 530.878.8409 | l.adair@juno.com |
| Deborah/Alan Casner | No information | No information |

5AC MEETING
September 29th, 2015

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| Tim PINKNEY | 916 719-0630 | Tim.Pinkney@me.com |

5AC MEETING
September 29th, 2015

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Dryce

* Larry Adair



Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Team Introductions

- **JACOBS**
 - Kenny Maenpa (Project Executive)
 - Justin Ritter (Project Manager)
 - Joshua Schust (Airport Planner/AGIS Task Leader)
 - Don Castellano (Airport Planner/ALP Task Leader)
- **Andregg Geomatics**
- **FAA Planner – Jasmine Evains**

JACOBS

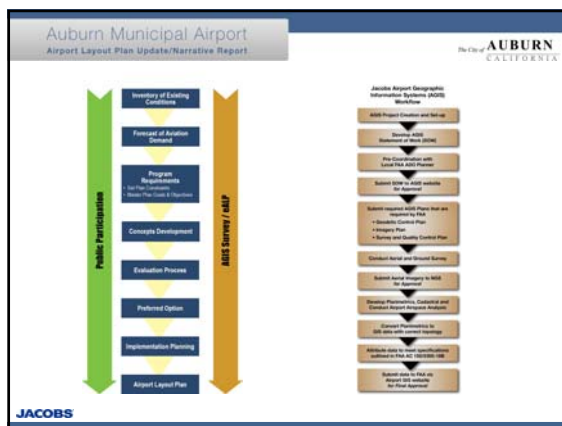
Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Why Conduct an ALP Update?

- Meet FAA requirements to maintain current:
 - Airport Layout Plan (ALP)
 - Exhibit 'A' Property Map
- Eligible for FAA/CALTRANS funding
- Changes in FAA design criteria
- Address issues
 - Land Use Compatibility, Helicopter Parking, Etc.

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Deliverables

- **Technical Report**
 - Inventory of Existing Conditions
 - Forecast of Aviation Demand
 - Identify Design Aircraft
 - Near and Long Term Preferred Development
 - Preliminary Environmental Review
 - Realistic CIP/Implementation Plan

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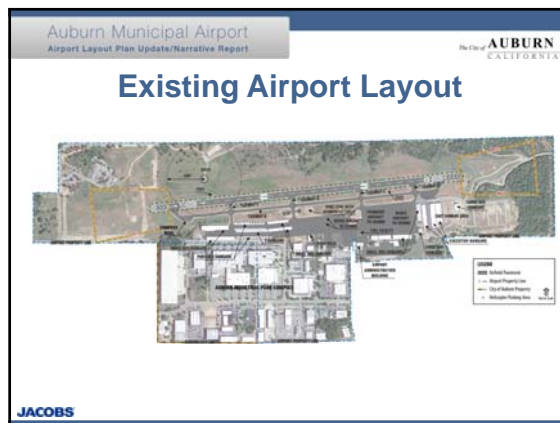
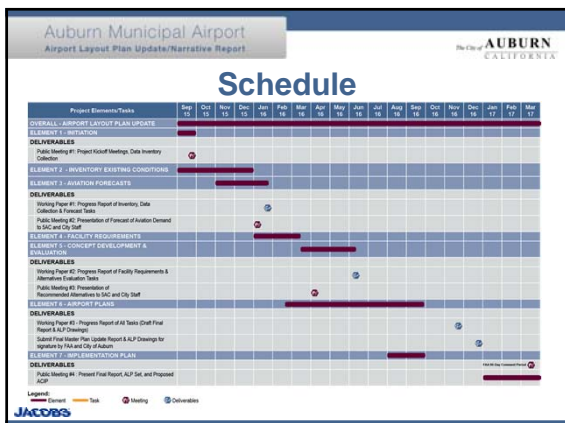
Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Deliverables, Cont.

- **Paper ALP Set**
 - ALP Drawing – Preferred Development Plan
 - Exhibit 'A' Drawing
 - Land Use Plan
- **AGIS Survey/eALP**
 - Aerial and Topography

JACOBS



Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

Airport Statistics

| General Airport Information | |
|---|--|
| Name and Identifier | Auburn Municipal Airport (AUN) |
| Ownership | City of Auburn California |
| Airport Field Elevation | 1,539 feet |
| Airport Reference Code | 8-1 (small) |
| Airport Reference Point | Lat: 38° 57' 17.3000" N; Long: 121° 04' 54.2000" W |
| Runway Data | |
| Width | 7/25 |
| Length | 79 feet |
| Length | 3,700 feet |
| Pavement Strength (pounds) | 5W-30,000 |
| Type (Condition) | Asphalt (Good) |
| Graders | 4,836 |
| Markings (Condition) | Non-Precision (Fair) |
| Lighting | MRL |
| Taxiway Data | |
| Width | Alpha |
| Type (Condition) | Asphalt (Good) |
| Lighting | MTL |
| Navigational Aids | |
| Airport Beacon, Segmented Circle with Lighted Wind Cone, PAPI, Compass Rose, AWOS | |

Interesting Fact: AUN began in the early 1930s when Civil Aviation Authority leased 160 acres of land from local ranchers to develop a refueling stop for planes flying mail on the Salt Lake City to San Francisco Airway.

- ### Auburn Municipal Airport Airport Layout Plan Update/Narrative Report
-
- ## Goals and Objectives
- Open Discussion
 - Stakeholder Goals and Objectives of ALP Update
-

- ### Auburn Municipal Airport Airport Layout Plan Update/Narrative Report
-
- ## Next Steps
- Incorporate your goals and objectives in to the documentation
 - AGIS Survey Initiation (Andregg)
 - Development of Working Paper #1
 - Initiate Inventory of Existing Conditions
 - Initiate Forecast of Aviation Demand
- THANK YOU!
-

Kick-off Meeting with Auburn City Council



Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Project Team

- **Jacobs**
 - Kenny Maenpa (Project Executive)
 - Justin Ritter (Project Manager)
- **Andregg Geomatics**
- **FAA Planner – Jasmine Evains**

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Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Why Conduct an ALP Update?

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Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
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Deliverables

- **Technical Report**
 - Inventory of Existing Conditions
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JACOBS

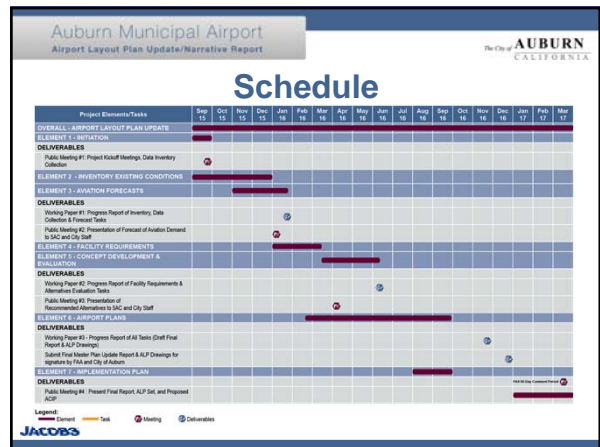
Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
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Deliverables, Cont.

- **Paper ALP Set**
 - ALP Drawing – Preferred Development Plan
 - Exhibit 'A' Drawing
 - Land Use Plan
- **AGIS Survey/eALP**
 - Aerial and Topography

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

5 AC Committee Goals and Objectives

- Helicopter parking area alternatives
- Runway length analysis
- Aircraft storage – capacity
- Transient aircraft parking – capacity
- Core development
- Airport land use compatibility planning

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Next Steps

- Incorporate your goals and objectives in to the documentation
- AGIS Survey Initiation (Andregg)
- Development of Working Paper #1
 - Complete Inventory of Existing Conditions
 - Complete Forecast of Aviation Demand

THANK YOU!

JACOBS



5AC/Public Meeting #2

707 17th Street Suite 2400
Denver, CO 80202
T (303)820-4816

| | | | |
|---------------------|--|--------------------|-----------------|
| Purpose | Airport Layout Plan Update/Narrative Report – Public Meeting #2 | | |
| Project | Auburn Municipal Airport (KAUN) ALP Update | Project No. | WXXX2306 |
| Prepared by | Joshua Schust | Phone No. | (303) 820-4816 |
| Location | Auburn Municipal Airport Conference Room | Date/Time | June 2016 @ 6PM |
| Participants | See Appendix | Apologies | Jasmine Evains |
| Distribution | Bernie Schroeder, Director of Public Works Edgar Medina, Assistant Civil Engineer | | |

-
- 1 **Agenda: Airport Layout Plan Update/Narrative Report Public Meeting #2 Meeting Presentation** – Kenny Maenpa, Justin Ritter, *see appendix*
- In June 2016, the initial development concepts and helicopter parking area concepts were presented to the ALP Update technical advisory committee. A summary of their input is outlined in this section. The main feedback included the following:
- ▶ Include a Run-up area for Runway 25
 - ▶ Increase the number of Group I Taxilanes throughout Airport
 - Relocation of Taxilanes/taxiways not favored - keep Group I
 - ▶ Port-a-port hangars over the PG&E ROW may not work
 - ▶ Terminal/Entrance
 - Improved Circulation Alternatives
 - Connect New Airport Road to Rickenbacker Way
 - Less Auto Parking
 - ▶ Small Biz Jets – one (1) based and one (1) frequent Citation III
 - ▶ Waiting list 55, demand is higher than Forecast indicates
 - ▶ Tie-down space should be a priority
 - ▶ Preferred Helicopter Parking Alternatives are A , B, C, E and F
 - ▶ Runway Extension
 - OK to plan for an ultimate extension to protect the Airport for an Ultimate build-out scenario



Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN** CALIFORNIA

Team Introductions

- **Jacobs**
 - Kenny Maenpa (Aviation Group Leader)
 - Justin Ritter (Project Manager)
- **Andregg Geomatics**
- **FAA Planner – Jasmine Evains**

JACOBS

Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN** CALIFORNIA

Why Conduct an ALP Update?

- Meet FAA requirements to maintain current:
 - Airport Layout Plan (ALP)
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 - Land Use Compatibility, Helicopter Parking, Etc.

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Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN** CALIFORNIA

Forecast of Aviation Demand

| Description | Projected | | | | | Average Annual Growth Rate | | | |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|-------------|-------------|--|
| | 2015 | 2020 | 2025 | 2030 | 2035 | 2015-2020 | 2021-2025 | 2015-2035 | |
| OPERATIONS | | | | | | | | | |
| General Aviation | | | | | | | | | |
| General Aviation | 34,300 | 36,358 | 37,044 | 37,901 | 38,547 | 1.2% | 0.8% | 0.6% | |
| Local | | | | | | | | | |
| General Aviation | 35,700 | 37,842 | 38,556 | 39,449 | 40,143 | 1.2% | 0.8% | 0.6% | |
| TOTAL OPERATIONS | 70,000 | 74,200 | 75,600 | 77,350 | 78,750 | 1.2% | 0.8% | 0.6% | |
| BASED AIRCRAFT | | | | | | | | | |
| Single Engine | 187 | 189 | 189 | 191 | 191 | 0.2% | 0.1% | 0.1% | |
| Multi Engine | 15 | 15 | 15 | 15 | 16 | 0.0% | 0.0% | 0.3% | |
| Jet | 0 | 0 | 1 | 2 | 3 | 0.0% | 100.0% | 100.0% | |
| Helicopter | 5 | 6 | 7 | 8 | 9 | 3.7% | 3.4% | 3.0% | |
| Other | 2 | 2 | 4 | 5 | 6 | 0.0% | 7.2% | 5.6% | |
| TOTAL BASED AIRCRAFT | 208 | 212 | 216 | 221 | 225 | 0.4% | 0.4% | 0.4% | |
| OPA | 337 | 350 | 350 | 350 | 350 | | | | |

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

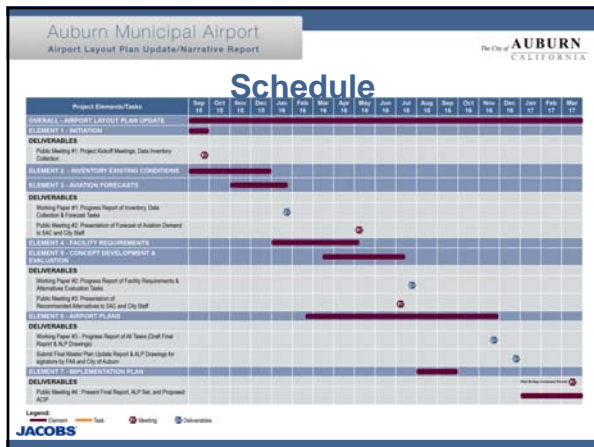
Facility Requirements

| Facility | Existing | Recommended |
|--|--|---|
| Runway | | |
| Length | 3,700' | 3,700 Current/5,050' Ultimate |
| Width | 75' | 75' |
| Taxiway | | |
| Type | ADG - I, TDG - I | ADG - I, TDG - I |
| Width | 30' | 25' |
| Separation standard (Group 1) | Does not meet standard | Meet standard |
| Apron | | |
| Based Aircraft Tie-downs | 107 | 113 |
| Non-based Aircraft Tie-downs | 16 | 21 |
| Helicopter Parking Positions | 3 | 4 |
| Inspection | | |
| Automated Weather | AWOS III | AWOS III P/T |
| Runway End Identifier Lights | No | Runway 7, Runway 25 |
| Aircraft Services | | |
| Small box Hangars | 40 | 45 |
| Large box Hangars | 3 | 5 |
| Executive Hangars | 18 | 21 |
| Portable Hangars | 41 | 44 |
| City Development | | |
| Terminal Building/Pilot Lounge | 3,000 square feet | TBD |
| Aircraft Rescue and Fire Fighting | On-site | On-site |
| Ground Access | | |
| Automobile Parking | 45 designated parking positions | 75 designated parking positions (Speed asphalt) |
| Fuel | | |
| ATIS location - to facilitate separation | Does not meet standard | Relocates to terminal |
| Fuel Island to facilitate separation | Does not meet standard | Meet standard |
| Security | | |
| Perimeter Fence | Perimeter Fence (Phase 1 - Motorload Gate) | Perimeter Fence (Phase 2 - Entire Airport) |
| Surveillance | 9 - CCTV | 15 - CCTV |

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- Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report
- The City of **AUBURN**
CALIFORNIA
- ### Next Steps
- Develop Concepts
 - Develop Cost Estimates
 - Present Recommended Concepts to the City and 5AC Committee
 - Determine Preferred Development Concept
- JACOBS



5AC/Public Meeting #3



Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN** CALIFORNIA

Team Introductions

- **Jacobs**
 - Kenny Maenpa (Aviation Group Leader)
 - Justin Ritter (Project Manager)
- **Andregg Geomatics**
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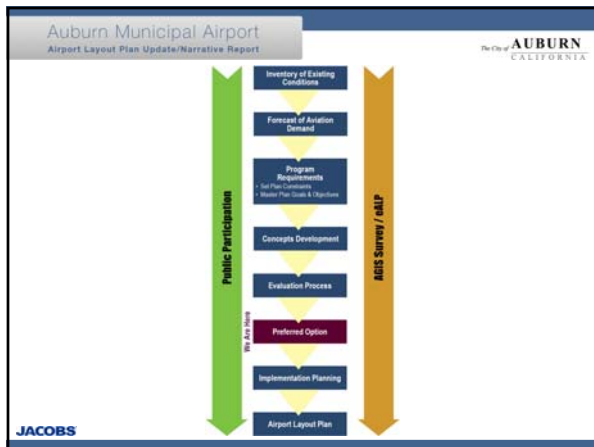
Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN** CALIFORNIA

Why Conduct an ALP Update?

- Meet FAA requirements to maintain current:
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- Changes in FAA design criteria
- Address issues
 - Land Use Compatibility, Helicopter Parking, Runway Length

JACOBS



Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN** CALIFORNIA

Forecast of Aviation Demand

| Description | Projected | | | | | Average Annual Growth Rate | | | |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|-------------|-------------|--|
| | 2015 | 2020 | 2025 | 2030 | 2035 | 2015-2020 | 2021-2025 | 2015-2035 | |
| OPERATIONS | | | | | | | | | |
| General Aviation | | | | | | | | | |
| General Aviation | 34,300 | 36,358 | 37,044 | 37,901 | 38,547 | 1.2% | 0.8% | 0.6% | |
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| BASED AIRCRAFT | | | | | | | | | |
| Single Engine | 187 | 189 | 189 | 191 | 191 | 0.2% | 0.1% | 0.1% | |
| Multi Engine | 15 | 15 | 15 | 15 | 16 | 0.0% | 0.0% | 0.3% | |
| Jet | 0 | 0 | 1 | 2 | 3 | 0.0% | 100.0% | 100.0% | |
| Helicopter | 5 | 6 | 7 | 8 | 9 | 3.7% | 3.4% | 3.0% | |
| Other | 2 | 2 | 4 | 5 | 6 | 0.0% | 7.2% | 5.6% | |
| TOTAL BASED AIRCRAFT | 208 | 212 | 216 | 221 | 225 | 0.4% | 0.4% | 0.4% | |
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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

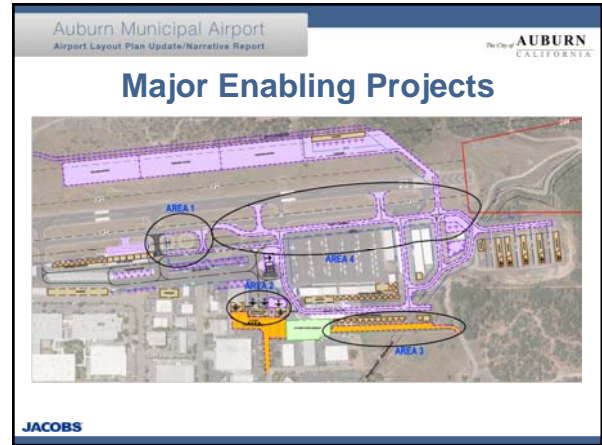
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CALIFORNIA

Facility Requirements

| Facility | Existing | Recommended |
|------------------------------------|--|--|
| Runway | | |
| Length | 3,700' | 3,700 Current/5,050' Ultimate |
| Width | 75' | 75' |
| Taxiways | | |
| Type | ADG = I, TDG = I | ADG = I, TDG = I |
| Width | 30' | 25' |
| Separation standard (Group 1) | Does not meet standard | Meet standard |
| Aprons | | |
| Based Aircraft Tie-downs | 107 | 113 |
| Minor Aircraft Tie-downs | 16 | 21 |
| Helicopter Parking Positions | 3 | 4 |
| Instrumentation | | |
| Automated Weather | AWOS III | AWOS III P/T |
| Runway End Identifier Lights | No | Runway 7, Runway 25 |
| Aircraft Services | | |
| Small box Hangars | 40 | 45 |
| Large box Hangars | 3 | 5 |
| Executive Hangars | 18 | 21 |
| Portable Hangars | 41 | 44 |
| CAA Elements of Service | | |
| Terminal Building/Pilot Lounge | 3,000 square feet | TBD |
| Aircraft Rescue and Fire Fighting | One/1 | One/1 |
| Ground Access | | |
| Automobile Parking | 45 designated parking positions | 75 designated parking positions (spread asphalt) |
| Fuel | | |
| FRD location: 15 minute separation | Does not meet standard | Relocates to terminal |
| Fuel Island to taxiway separation | Does not meet standard | Meet standard |
| Security | | |
| Perimeter Fence | Perimeter Fence (Phase 1 - Motorload Gate) | Perimeter Fence (Phase 2 - Entire Airport) |
| Surveillance | 9 - CCTV | 15 - CCTV |

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- Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report
- The City of **AUBURN**
CALIFORNIA
- ### Core Development Area Concepts
- Previous Committee Input
 - Add run-up area
 - Prefer group I aircraft taxiways
 - Remove hangars from PG&E ROW
 - Less auto parking and improved circulation
 - Demand is higher for hangars than forecast indicates
 - Increase tie-down spaces
- JACOBS



Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Cost Estimates

Cost = \$2,500,000 (Terminal Building)

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Cost Estimates

Cost = \$600,000

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Helicopter Parking Areas

| Criteria | A | B | C | E | F |
|---|-----------|-----------|-----------|-----------|-----------|
| Meets Design Standards | 1 | 1 | 1 | 1 | 1 |
| Enhances Safety | 1 | 1 | 1 | 1 | 1 |
| Provides additional separation from fixed wing aircraft | 1 | 1 | 1 | 0 | 1 |
| Accommodates forecast demand | 0 | 1 | 1 | 0 | 1 |
| Environmental Impact | 0 | 1 | 1 | 1 | 1 |
| Existing Paved Access | 1 | 0 | 1 | 1 | 0 |
| Evaluation Total | 4 | 5 | 6 | 4 | 5 |
| Cost | \$435,000 | \$844,000 | \$506,000 | \$180,000 | \$848,000 |

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Runway Alternatives

- Previous Committee Input
 - OK to plan for an ultimate extension to protect the Airport for an ultimate build-out scenario

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Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Runway Alternative 1

RUNWAY 7/25
Existing Length 3,700'
Ultimate Length 5,000'

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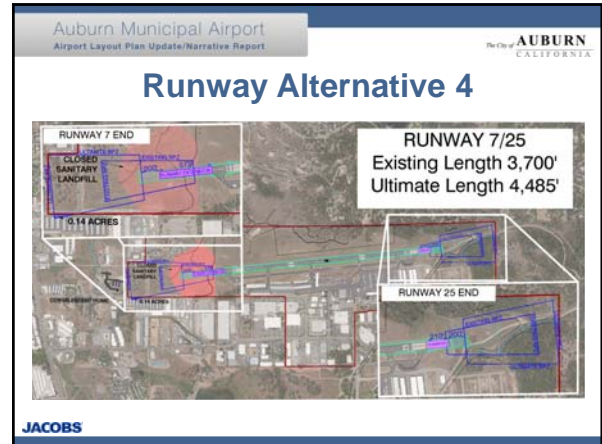
Auburn Municipal Airport
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Runway Alternative 2

RUNWAY 7/25
Existing Length 3,700'
Ultimate Length 5,000'

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- ### Next Steps
- Determine Preferred Development Alternative
 - Finalize Airport Layout Plan
 - Submit Airport Layout Plan to FAA
 - Public Open House

ALP Update Presentation with City Council and Placer County



COUNTY OF PLACER
NORTH AUBURN
MUNICIPAL ADVISORY COUNCIL
175 Fulweiler Avenue ▪ Auburn, CA 95603
County Contact ▪ Leah Rosasco ▪ (530) 889-4010

MINUTES -

NA MAC REGULAR MEETING - Tuesday, March 14, 2017

Community Development Resource Agency, Planning Commission Hearing Room
3091 County Center Drive, Auburn 95603

1. Call to Order & Pledge of Allegiance – 6:00 PM

2. Welcome & Introduction of Members:

PRESENT: Dave Hungerford, Larry Farinha, Jackie Flecklin, Patti Flashman, Greg Wilbur

ABSENT: Chair Mark Watts, Vice Chair Steve Nichols

Staff Present: Supervisors Montgomery and Holmes, Jocelyn Maddux, District 5 Director, Leah Rosasco, District 3 Aide, Shari Teal, NA MAC Secretary

3. Approve March 14, 2017 Agenda

MOTION: Flecklin/Farinha/Unanimous/5/0

4. Approve February 14, 2017 Minutes:

MOTION: Farinha/Flecklin/Unanimous/5/0

5. Public Comment:

Chris Sheridan commented on his arrest experience for marijuana possession. He felt that he was falsely charged.

6. Reports:

A. Local Government

Supervisor Montgomery: None

Supervisor Holmes: None

7. Public Safety

a. Placer County Sheriff's Office: Deputy Mike Beggs provided the monthly call report for North Auburn; 164 total of which 123 were transient related.

b. California Highway Patrol: None

c. CAL FIRE. – None.

8. North Auburn MAC Reports

- a. **Chair Report/Correspondence** – None
- b. **Transportation Committee** – None
- c. **Ad Hoc Committee on Homeless Issues and Solutions** –

***Note: The following Action Item was moved to 11B**

Action Item: Ad Hoc Committee on Homeless Issues and Solutions –

The final report and recommendations from the committee on proposed items to include in a letter to the Board of Supervisors, Health & Human Services and the Planning Dept. regarding the Conditions of Approval and Site Access Agreement for the proposed Homeless Shelter in North Auburn.

9. North Auburn Development Update – None

10. Information Items:

A. Auburn Municipal Airport – Airport Layout Plan w/ Narrative Report

Edgar Medina, City of Auburn Public Works Department, Justin Ritter, Jacobs Engineering Group, City of Auburn, provided a high level presentation for the 20 year outlook for the airport. Presenters were available for questions and comments from the public and the NA MAC members. Tom Dwelle offered comments in support of the airport plans.

B. Placer County (DeWitt) Government Center Master Plan Update

Paul Breckenridge, Placer County Department of Public Works and Facilities and Jack Paddon, Williams + Paddon Architects + Planners presented the current progress, including a recommended master plan layout. The NA MAC provided comments.

11. Action Item:

A. Emergency Shelter Conditional Use Permit

Nikki Streegan, Planning Services Division, Placer County Department of Public Works and Facilities requested approval of a Conditional Use Permit (“CUP”) to allow an emergency shelter for homeless individuals to operate in place of a temporary emergency shelter that is currently operating in Building 303A/B at 11442 E Avenue in Auburn. The MAC is being asked to make a recommendation to the Planning Commission on the proposed CUP.

*B. Ad Hoc Committee on Homeless Issues and Solutions

The final report and recommendations from the committee on proposed items to include in a letter to the Board of Supervisors, Health & Human Services and the Planning Dept. regarding the Conditions of Approval and Site Access Agreement for the proposed Homeless Shelter in North Auburn was presented by Richard Strasser.

(See attachment)

Susan Fox inquired as to who is responsible for enforcing the CUP.

Jason Smith – VOS voiced his appreciation for the Ad Hoc Committee on Homeless Issues and Solutions participating in a productive manner.

MOTION: North Auburn Municipal Advisory Council (NAMAC) is in support of staff's request and unanimously recommends approval of the CUP as presented, with the exception of adding a recommended requirement of an annual review of shelter operations. The MAC also requested that the Planning Commission forward the North Auburn Ad Hoc Committee for Homelessness & Public Safety recommendations for the operations of the shelter (Attachment A) to the Board of Supervisors. A complete update of the issues presented at the NAMAC will be reported on during the staff presentation to the Planning Commission.

FARINHA/FLECKLIN/UNANIMOUS/5/0
ABSENT: WATTS, NICHOLS

12. **Adjourned** at 7:45 PM to the next regular meeting on April 11, 2017 at the Community Development Resource Agency, Planning Commission Hearing Room, 3091 County Center Drive, Auburn 95603.

Attachments: NAACHPS Recommendations for Shelter Operating Agreement

Email – Subject: CUP/Shelter – Scott Holbrook, March 14, 2017



NAACHPS
Recommendations t

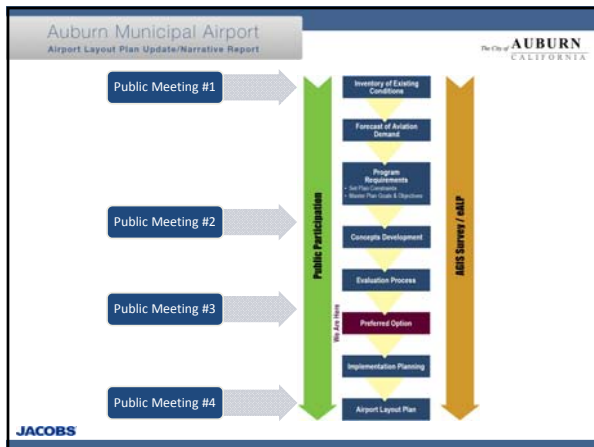


FW Amended - Re CUP Shelter.msg

Minutes recorded and transcribed by Shari Teal, NA MAC Secretary



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 - Land Use Compatibility, Helicopter Parking, Etc.



Forecast of Aviation Demand

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|---------------------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|-------------|-------------|
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| OPERATIONS | | | | | | | | |
| aircraft | | | | | | | | |
| General Aviation | 34,300 | 36,358 | 37,044 | 37,901 | 38,587 | 1.2% | 0.8% | 0.6% |
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| BASED AIRCRAFT | | | | | | | | |
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| Helicopter | 5 | 6 | 7 | 8 | 9 | 3.7% | 3.4% | 3.0% |
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| TOTAL BASED AIRCRAFT | 208 | 212 | 216 | 221 | 225 | 0.4% | 0.4% | 0.4% |
| Operations Per Based A/C | 337 | 350 | 350 | 350 | 350 | | | |

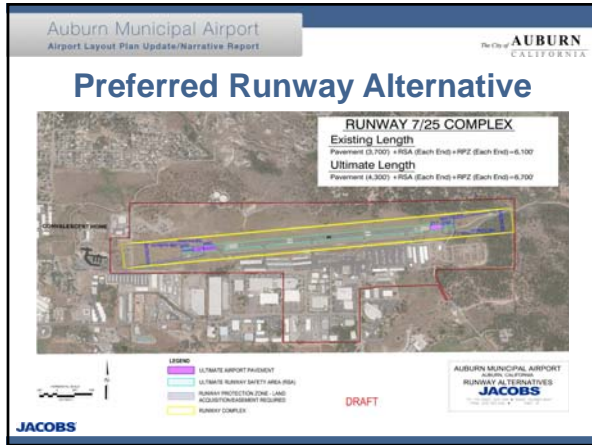
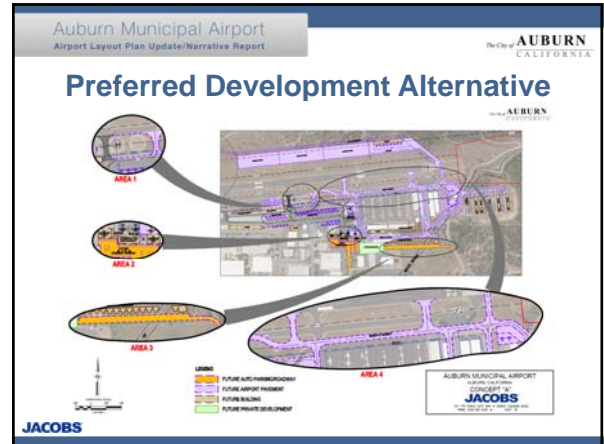
Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Facility Requirements

| Facility | Existing | Recommended |
|------------------------------------|--|--|
| Runway | | |
| Length | 3,700' | 4,300' |
| Width | 75' | 75' |
| Taxiways | | |
| Type | ADG -1, TDG -1 | ADG -1, TDG -1 |
| Width | 30' | 25' |
| Separation standard (Group 1) | Does not meet standard | Meet standard |
| GA Terminal Area | | |
| Terminal Building/Wait Lounge | 3,000 square feet | 6,000 square feet |
| Aircraft Rescue and Fire Fighting | Onsite | Onsite |
| Ground Access | | |
| Automobile Parking | 45 designated parking positions | 75 designated parking positions (paved asphalt) |
| Fuel | | |
| FBO location to taxiway separation | Does not meet standard | Relocate to above ground |
| Fuel island to taxiway separation | Does not meet standard | Meet standard |
| Fencing | | |
| Perimeter Fence | Perimeter Fence (Phase 1 - Motorized Gate) | Perimeter Fence (Phase 2/Phase 3 - Entire Airport) |
| Surveillance | 9 CCTV | 15 CCTV |

JACOBS



Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Phase 1 (2017-2022) Projects

| Project # | Project | Federal | | | | State | Local | Total | Proposed Funding Allocations | | | |
|----------------------|---|--------------------|------------------|-----------------|------------------|--------------------|-----------|-------|------------------------------|---------|---------|--|
| | | Entitlements | Discretionary | | | | | | Federal % | State % | Local % | |
| 11 | McC Clark Hangar Environmental | | | | | \$65,000 | \$65,000 | - | - | 100% | | |
| 12 | Design Sewer Line - Denham Property | | | \$- | \$- | \$10,000 | \$10,000 | - | - | 100% | | |
| 13 | Demo Denham Hangars | | | \$- | \$- | \$25,000 | \$25,000 | - | - | 100% | | |
| 14 | Terminal Building and Facility Improvements | | | \$- | \$- | \$25,000 | \$25,000 | - | - | 100% | | |
| 15 | Pollution Abatement Facility | \$13,500 | | \$676 | \$625 | \$15,000 | \$15,000 | 90% | 4.5% | 5.5% | | |
| 16 | Pavement Maintenance Plan/Design/Bidding | \$27,000 | | \$1,350 | \$1,650 | \$30,000 | \$30,000 | 90% | 4.5% | 5.5% | | |
| 17 | Runway LED Lighting Rehabilitation | \$184,500 | | \$9,225 | \$11,225 | \$205,000 | \$205,000 | 90% | 4.5% | 5.5% | | |
| 18 | Design/Engineer New Helicopter Parking Area | \$67,500 | | \$3,375 | \$4,125 | \$75,000 | \$75,000 | 90% | 4.5% | 5.5% | | |
| 19 | Construct New Helicopter Parking Area | \$558,000 | | \$27,900 | \$34,100 | \$620,000 | \$620,000 | 90% | 4.5% | 5.5% | | |
| 110 | Design - Solar Shade Structure Tie Down Area | | | | | \$10,000 | \$10,000 | - | - | 100% | | |
| 111 | Construct - Solar Shade Structure Tie Down Area | | | | | \$160,000 | \$160,000 | - | - | 100% | | |
| 112 | Pavement Maintenance Program | | \$531,000 | \$26,550 | \$32,450 | \$590,000 | \$590,000 | 90% | 4.5% | 5.5% | | |
| 113 | Construct Perimeter Fencing (Phase 2) | \$104,700 | | \$151,800 | \$12,625 | \$151,675 | \$288,000 | 90% | 4.5% | 5.5% | | |
| 114 | Design/Engineer East End Airfield Access/Run-up Area Improvements | \$49,500 | | \$2,475 | \$3,025 | \$55,000 | \$55,000 | 90% | 4.5% | 5.5% | | |
| 115 | Construct East End Airfield Access/Run-up Area Improvements | \$225,000 | | \$11,250 | \$13,750 | \$250,000 | \$250,000 | 90% | 4.5% | 5.5% | | |
| Phase 1 Total | | \$1,228,700 | \$662,800 | \$65,625 | \$441,875 | \$2,498,000 | | | | | | |

JACOBS

Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Phase II (2023-2027) Projects

| Project # | Project | Federal | | | | State | Local | Total | Proposed Funding Allocations | | | |
|----------------------|---|------------------|--------------------|------------------|-----------------|--------------------|-------------|-------|------------------------------|---------|---------|--|
| | | Entitlements | Discretionary | | | | | | Federal % | State % | Local % | |
| 111 | Access Road to the Former Denham Property | \$180,000 | | \$9,000 | \$11,000 | \$200,000 | \$200,000 | 90% | 4.5% | 5.5% | | |
| 112 | Design Runway 7/25 Resurfacing | \$150,000 | | \$7,500 | \$9,167 | \$166,667 | \$166,667 | 90% | 4.5% | 5.5% | | |
| 113 | Construct Runway 7/25 Resurfacing | \$150,000 | \$1,406,100 | \$73,895 | \$4,095 | \$1,634,090 | \$1,634,090 | 90% | 4.5% | 5.5% | | |
| 114 | Construct Perimeter Fencing Phase 3 | \$247,500 | | \$12,375 | \$15,125 | \$275,000 | \$275,000 | 90% | 4.5% | 5.5% | | |
| Phase 2 Total | | \$727,500 | \$1,406,100 | \$106,880 | \$39,387 | \$2,279,667 | | | | | | |

JACOBS

Auburn Municipal Airport Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

Phase III (Beyond 2028)

| Project # | Project | Federal | | | | State | Local | Total | Proposed Funding Allocations | | | |
|----------------------|-----------------------------------|--------------------|---------------------|--------------------|--------------------|---------------------|-------------|-------|------------------------------|---------|---------|--|
| | | Entitlements | Discretionary | | | | | | Federal % | State % | Local % | |
| 111 | New GA Terminal Building | | | \$1,250,000 | \$2,500,000 | \$2,500,000 | \$2,500,000 | 50% | 50% | | | |
| 112 | Reliability Core Development Area | | | \$500,000 | \$500,000 | \$1,000,000 | \$1,000,000 | 50% | 50% | | | |
| 113 | Relocate Taxiway 7" and 11" | \$495,000 | | \$24,750 | \$30,250 | \$550,000 | \$550,000 | 90% | 4.5% | 5.5% | | |
| 114 | Runway 7/25 Extension | \$600,000 | | \$30,000 | \$36,000 | \$636,000 | \$636,000 | 90% | 4.5% | 5.5% | | |
| Phase 3 Total | | \$1,095,000 | \$ 8,400,000 | \$2,224,750 | \$2,330,250 | \$14,950,000 | | | | | | |

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-
- Next Steps**
- Determine Preferred Development Alternative
 - Continue Public Outreach
 - City Approval of Plan
 - FAA Approval of Plan
 - ALUCP Update
- JACOBS

ALP Update Work Session with City Council

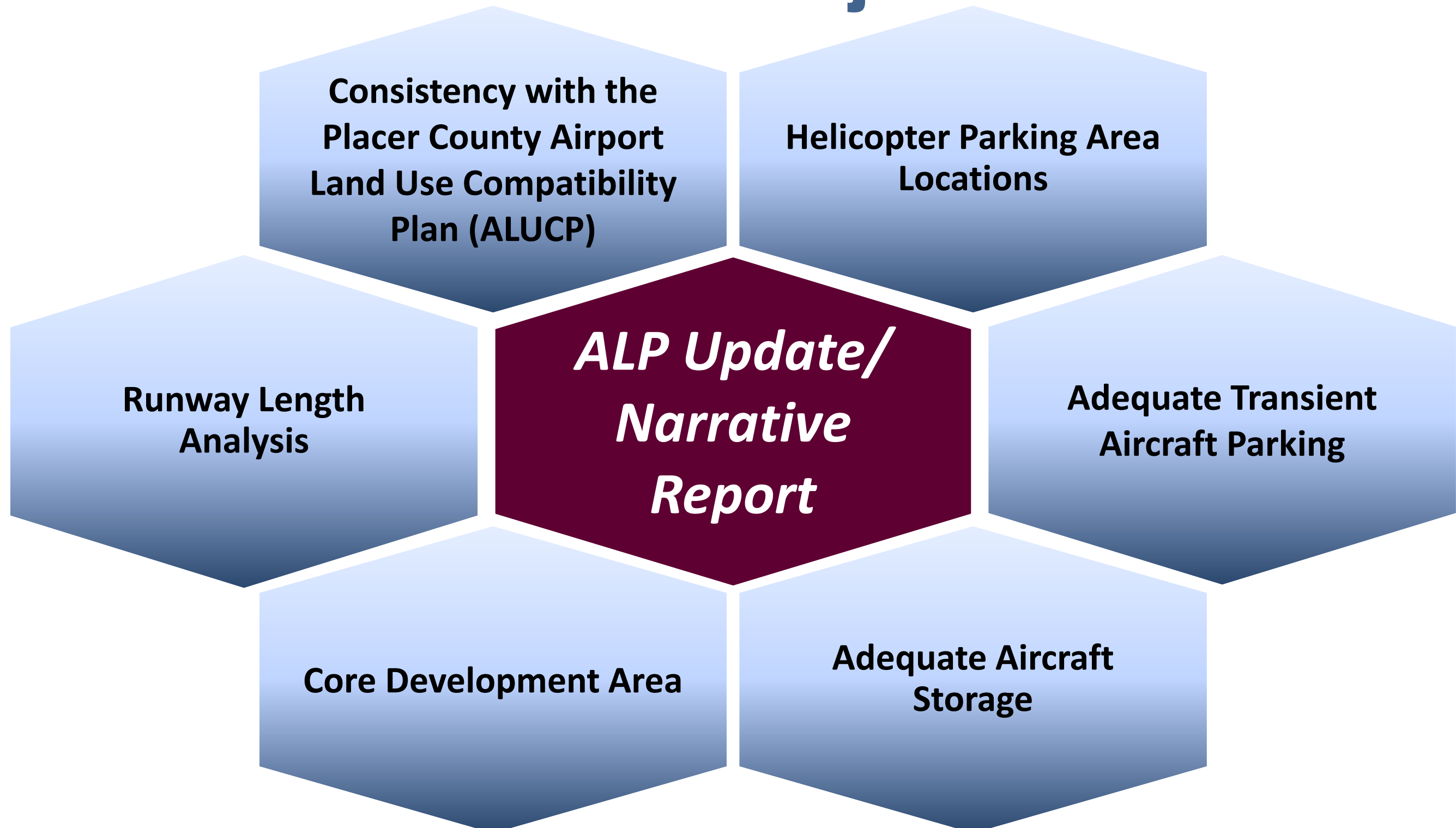
Auburn Municipal Airport

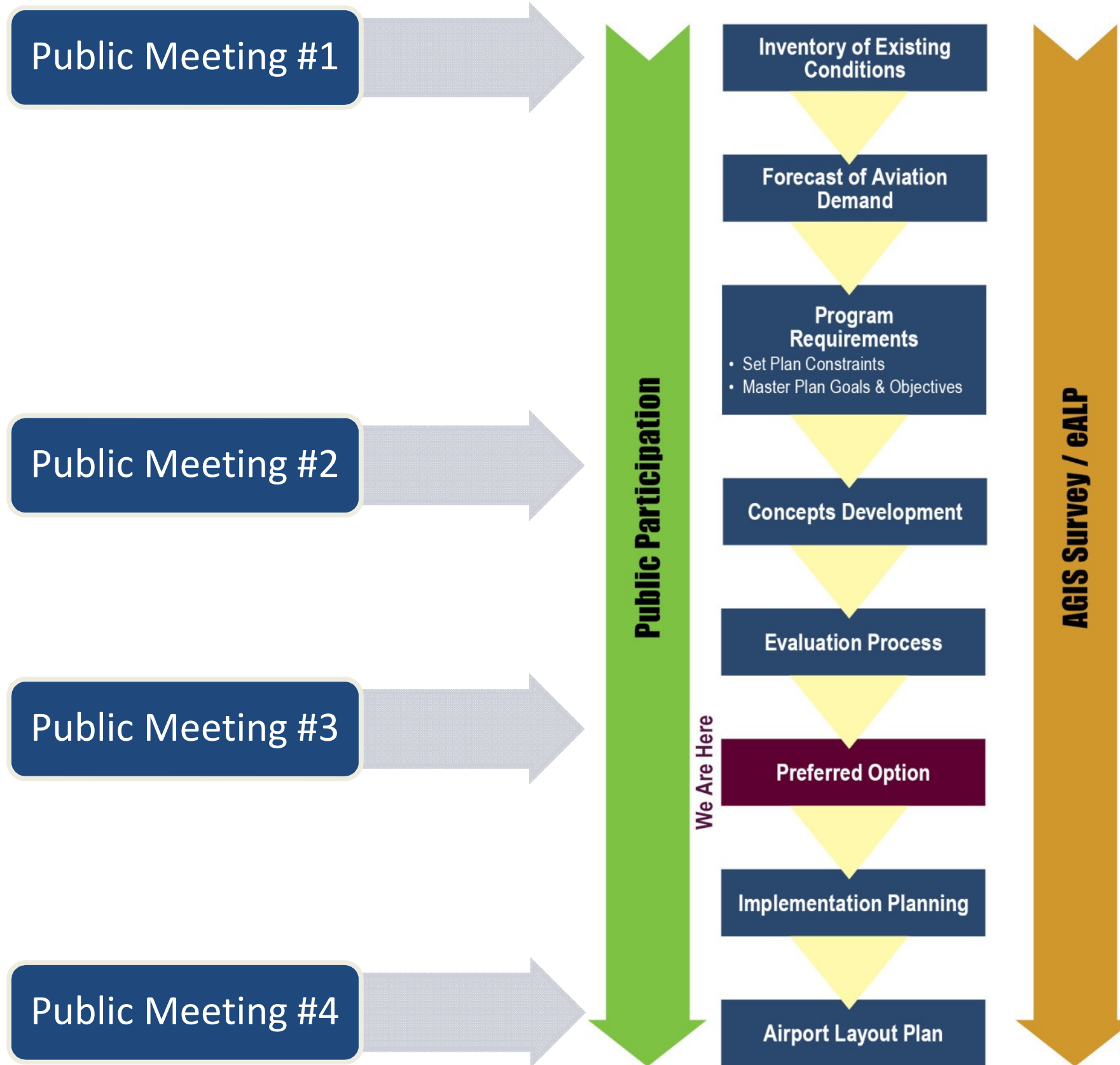
Airport Layout Plan Update/Narrative Report

The City of **AUBURN**
CALIFORNIA

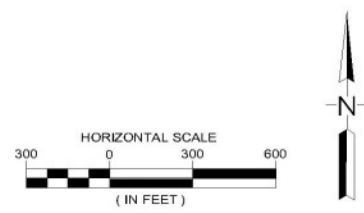
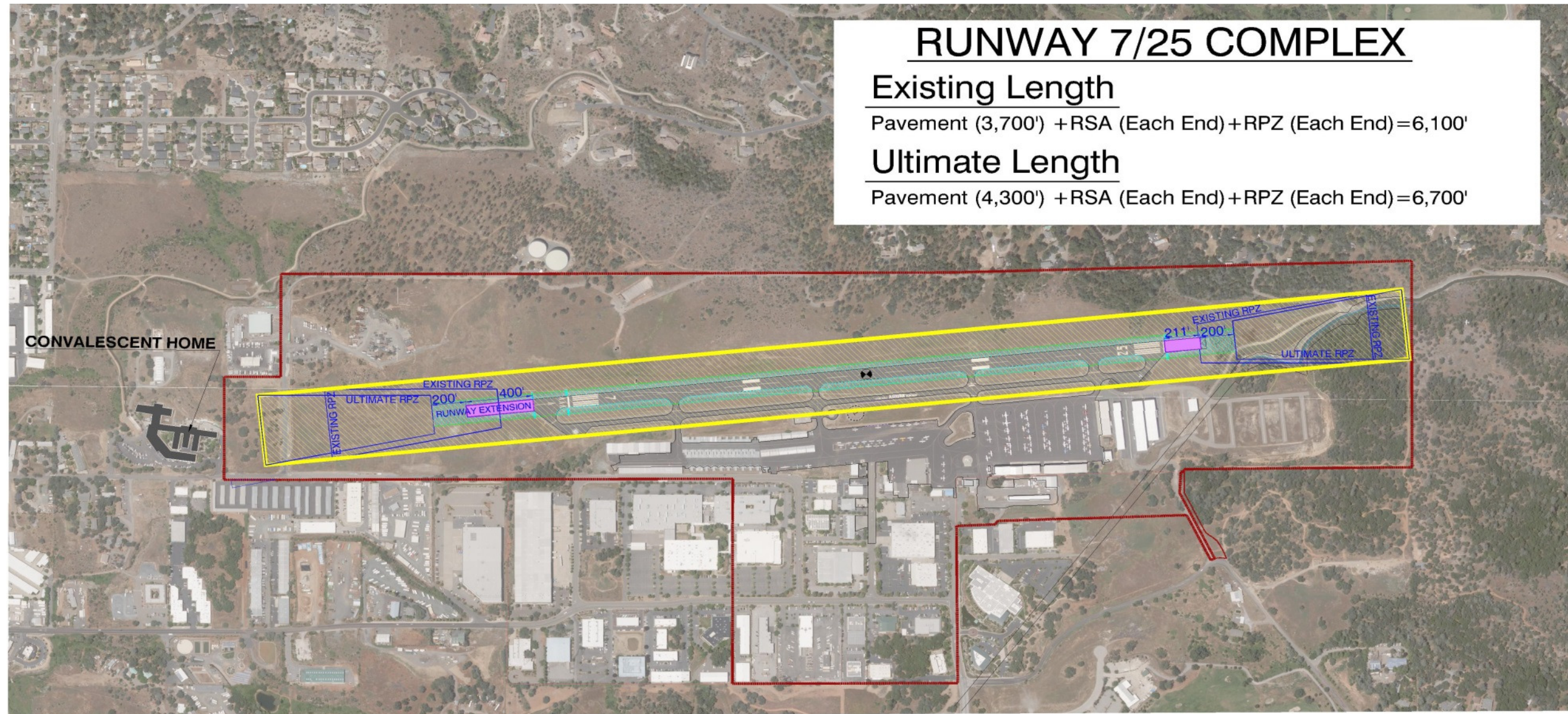


Goals and Objectives





Preferred Runway Alternative



- LEGEND**
- ULTIMATE AIRPORT PAVEMENT
 - ULTIMATE RUNWAY SAFETY AREA (RSA)
 - RUNWAY PROTECTION ZONE - LAND ACQUISITION/EASEMENT REQUIRED
 - RUNWAY COMPLEX

DRAFT

AUBURN MUNICIPAL AIRPORT
 AUBURN, CALIFORNIA
 RUNWAY ALTERNATIVES
JACOBS
707 17TH STREET, SUITE 2400 • DENVER, COLORADO 80202
 PHONE: (303) 820-5240 • SHEET OF

Phase 1 (2017-2022) Projects

| Project # | Project | Federal | | State | Local | Total | Proposed Funding Allocations | | |
|----------------------|---|--------------------|------------------|-----------------|------------------|--------------------|------------------------------|--------|---------|
| | | Entitlements | Discretionary | | | | Federal% | State% | Local % |
| I-1 | Bill Clark Hangar Environmental | | | | \$65,000 | \$65,000 | - | - | 100% |
| I-2 | Design Sewer Line - Denham Property | | | \$ - | \$10,000 | \$10,000 | - | - | 100% |
| I-3 | Demo Denham Hangars | | | \$- | \$25,000 | \$25,000 | - | - | 100% |
| I-4 | Terminal Building and Facility Improvements | | | \$- | \$25,000 | \$25,000 | - | - | 100% |
| I-5 | Pollution Abatement Facility | \$13,500 | | \$675 | \$825 | \$15,000 | 90% | 4.5% | 5.5% |
| I-6 | Pavement Maintenance Plan/Design/Bidding | \$27,000 | | \$1,350 | \$1,650 | \$30,000 | 90% | 4.5% | 5.5% |
| I-7 | Runway LED Lighting Rehabilitation | \$184,500 | | \$9,225 | \$11,275 | \$205,000 | 90% | 4.5% | 5.5% |
| I-8 | Design/Engineer New Helicopter Parking Area | \$67,500 | | \$3,375 | \$4,125 | \$75,000 | 90% | 4.5% | 5.5% |
| I-9 | Construct New Helicopter Parking Area | \$558,000 | | \$27,900 | \$34,100 | \$620,000 | 90% | 4.5% | 5.5% |
| I-10 | Design - Solar Shade Structure Tie Down Area | | | | \$10,000 | \$10,000 | - | - | 100% |
| I-11 | Construct - Solar Shade Structure Tie Down Area | | | | \$190,000 | \$190,000 | - | - | 100% |
| I-12 | Pavement Maintenance Program | | \$531,000 | \$26,550 | \$32,450 | \$590,000 | 90% | 4.5% | 5.5% |
| I-13 | Construct Perimeter Fencing (Phase 2) | \$104,700 | \$151,800 | \$12,825 | \$15,675 | \$285,000 | 90% | 4.5% | 5.5% |
| I-14 | Design/Engineer East End Airfield Access/Run-up Area Improvements | \$49,500 | | \$2,475 | \$3,025 | \$55,000 | 90% | 4.5% | 5.5% |
| I-15 | Construct East End Airfield Access/Run-up Area Improvements | \$225,000 | | \$11,250 | \$13,750 | \$250,000 | 90% | 4.5% | 5.5% |
| Phase 1 Total | | \$1,229,700 | \$682,800 | \$95,625 | \$441,875 | \$2,450,000 | | | |

 = Completed or On-going

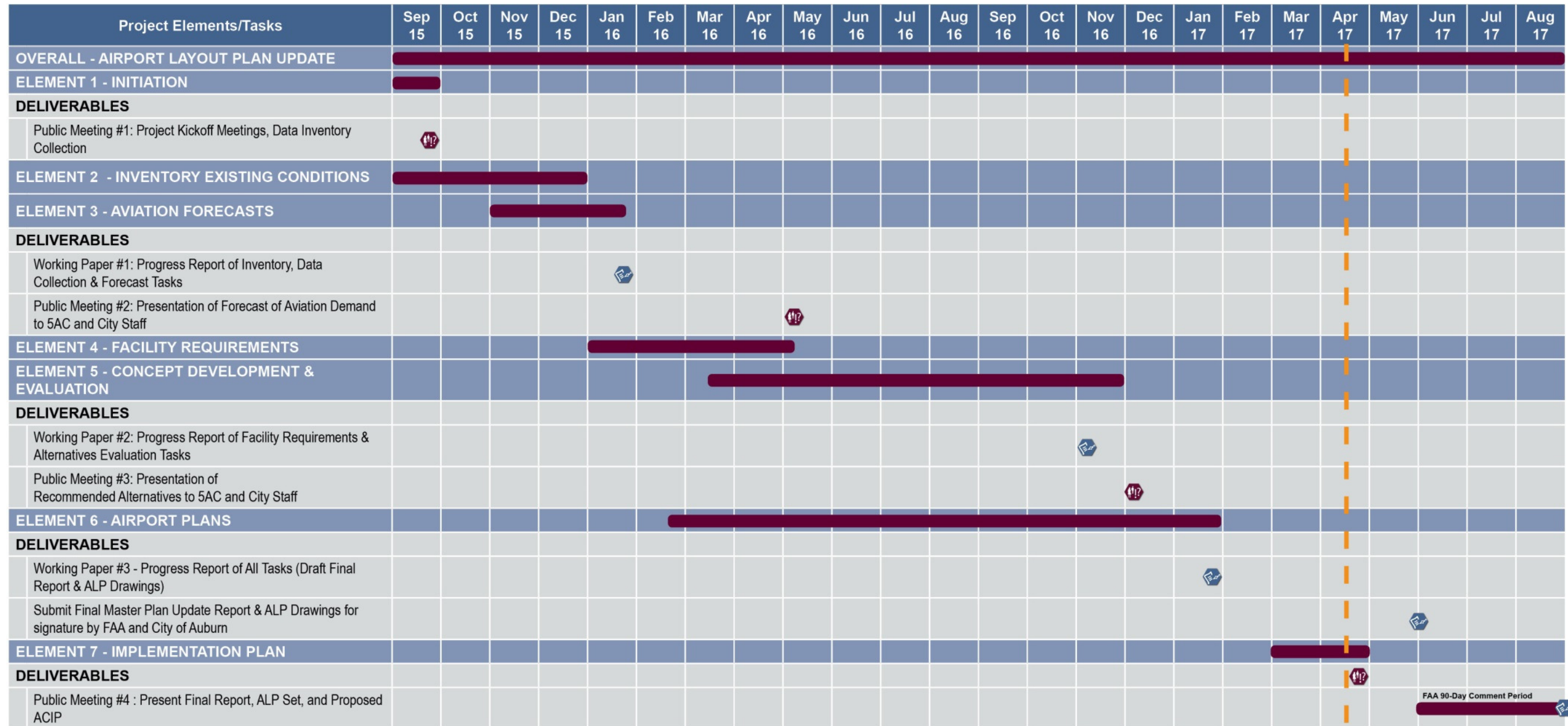
Phase II (2023-2027) Projects

| Project # | Project | Federal | | State | Local | Total | Proposed Funding Allocations | | |
|----------------------|---|------------------|--------------------|------------------|-----------------|--------------------|------------------------------|--------|---------|
| | | Entitlements | Discretionary | | | | Federal% | State% | Local % |
| II-1 | Access Road to the Former Denham Property | \$180,000 | | \$9,000 | \$11,000 | \$200,000 | 90% | 4.5% | 5.5% |
| II-2 | Design Runway 7/25 Resurfacing | \$150,000 | | \$7,500 | \$9,167 | \$166,667 | 90% | 4.5% | 5.5% |
| II-3 | Construct Runway 7/25 Resurfacing | \$150,000 | \$1,406,100 | \$77,805 | \$4,095 | \$1,638,000 | 90% | 4.5% | 5.5% |
| II-4 | Construct Perimeter Fencing Phase 3 | \$247,500 | | \$12,375 | \$15,125 | \$275,000 | 90% | 4.5% | 5.5% |
| Phase 2 Total | | \$727,500 | \$1,406,100 | \$106,680 | \$39,387 | \$2,279,667 | | | |

Phase III (Beyond 2028)

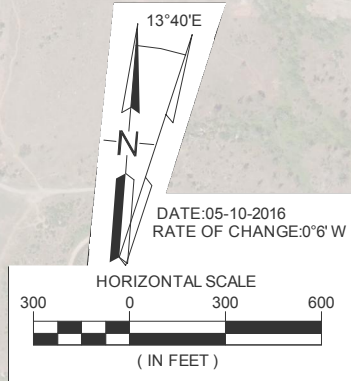
| Project # | Project | Federal | | State | Local | Total | Proposed Funding Allocations | | |
|----------------------|---------------------------------|--------------|---------------|-------------|-------------|--------------|------------------------------|---------|---------|
| | | Entitlements | Discretionary | | | | Federal % | State % | Local % |
| III-1 | New GA Terminal Building | | | \$1,250,000 | \$1,250,000 | \$2,500,000 | | 50% | 50% |
| III-2 | Redevelop Core Development Area | | | \$500,000 | \$500,000 | \$1,000,000 | | 50% | 50% |
| III-3 | Relocate Taxiway "D" and "E" | \$495,000 | | \$24,750 | \$30,250 | \$550,000 | 90% | 4.5% | 5.5% |
| III-4 | Runway 7/25 Extension | \$600,000 | \$8,400,000 | \$450,000 | \$550,000 | \$10,000,000 | 90% | 4.5% | 5.5% |
| Phase 3 Total | | \$1,095,000 | \$ 8,400,000 | \$2,224,750 | \$2,330,250 | \$14,050,000 | | | |

Schedule



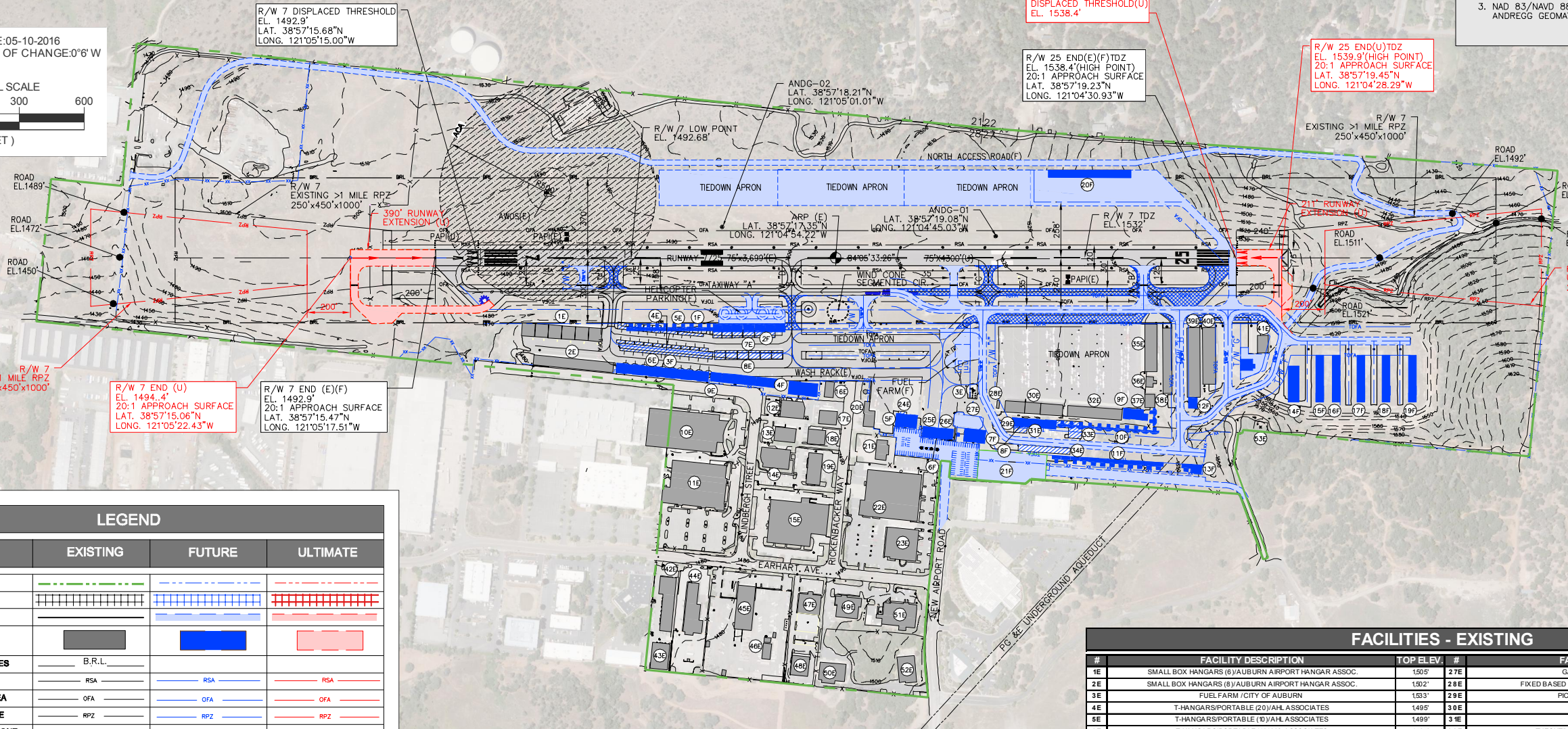
Legend:
 Element
 Task
 Meeting
 Deliverables


 We Are Here



NOTES:

1. RUNWAY DESIGNATIONS SHOWN ARE EXISTING CONDITIONS. DESIGNATIONS SHALL BE VERIFIED PRIOR TO ANY RUNWAY RECONSTRUCTION, REHABILITATION, RESURFACING OR MARKING PROJECT AND ALTERED IF REQUIRED AS A PART OF THE PROJECT.
2. DATE OF AERIAL: 05/26/2016
3. NAD 83/NAVD 88 SURVEY DATA WAS PROVIDED BY: ANDREGG GEOMATICS.



| FACILITIES - FUTURE | | |
|---------------------|---------------------------|-----------|
| # | FACILITY DESCRIPTION | TOP ELEV. |
| 1F | T-HANGARS/PORTABLE (10) | 1499' |
| 2F | SMALL BOX HANGARS (7) | 1509' |
| 3F | SMALL BOX HANGARS (10) | 1505' |
| 4F | EXECUTIVE HANGAR | 1514' |
| 5F | EXECUTIVE HANGAR | 1511' |
| 6F | GA TERMINAL/PILOT LOUNGE | 1540' |
| 7F | EXECUTIVE HANGAR | 1528' |
| 8F | SMALL BOX HANGARS (3) | 1528' |
| 9F | SMALL BOX HANGAR | 1545' |
| 10F | T-HANGARS/PORTABLE (13) | 1530' |
| 11F | T-HANGARS/PORTABLE (12) | 1525' |
| 12F | SMALL BOX HANGAR | 1542' |
| 13F | SMALL BOX HANGAR/T-HANGAR | 1545' |
| 14F | SMALL BOX HANGAR (5) | 1535' |
| 15F | SMALL BOX HANGAR (5) | 1535' |
| 16F | SMALL BOX HANGAR (5) | 1535' |
| 17F | SMALL BOX HANGAR (5) | 1535' |
| 18F | SMALL BOX HANGAR (5) | 1535' |
| 19F | SMALL BOX HANGAR (5) | 1535' |
| 20F | SMALL BOX HANGAR (6) | 1535' |

| LEGEND | | | |
|------------------------------|--------------|--------|----------|
| | EXISTING | FUTURE | ULTIMATE |
| AIRPORT PROPERTY LINE | --- | --- | --- |
| EASEMENTS | | | |
| AIRFIELD PAVEMENT | --- | --- | --- |
| BUILDINGS | ■ | ■ | ■ |
| BUILDING RESTRICTION LINES | B.R.L. | | |
| RUNWAY SAFETY AREA | --- | --- | --- |
| RUNWAY OBJECT FREE AREA | --- | --- | --- |
| RUNWAY PROTECTION ZONE | --- | --- | --- |
| PRECISION OBJECT FREE ZONE | --- | --- | --- |
| NAVAID CRITICAL AREA | | | |
| SECTION CORNER | 1423 1522 | | |
| ROADS AND PARKING AREAS | --- | --- | --- |
| GROUND CONTOURS | --- | --- | --- |
| PONDS, LAKES, STREAMS, ETC | --- | --- | --- |
| FENCE LINE | X | XX | X |
| AIRPORT BEACON | * | * | * |
| AIRPORT REFERENCE POINT | + | + | + |
| SEGMENTED CIRCLE & WIND CONE | ○ | ○ | ○ |
| SUPPLEMENTAL WIND CONE | └ | └ | └ |
| REIL | ← | ← | ← |
| PAPI | ⋮ | ⋮ | ⋮ |
| POWER POLE | ⊙ | ⊙ | ⊙ |

| FACILITIES - EXISTING | | | | | |
|-----------------------|--|-----------|-----|---|-----------|
| # | FACILITY DESCRIPTION | TOP ELEV. | # | FACILITY DESCRIPTION | TOP ELEV. |
| 1E | SMALL BOX HANGARS (6)/AUBURN AIRPORT HANGAR ASSOC. | 1505' | 27E | GA TERMINAL/PILOT LOUNGE | 1533' |
| 2E | SMALL BOX HANGARS (8)/AUBURN AIRPORT HANGAR ASSOC. | 1502' | 28E | FIXED BASED OPERATOR/THRESHOLD TECHNOLOGIES | 1525' |
| 3E | FUEL FARM /CITY OF AUBURN | 1533' | 29E | PICNIC AREA/CITY OF AUBURN | 1528' |
| 4E | T-HANGARS/PORTABLE (20)/AHL ASSOCIATES | 1495' | 30E | BOX HANGAR (4) | 1542' |
| 5E | T-HANGARS/PORTABLE (10)/AHL ASSOCIATES | 1499' | 31E | BOX HANGAR | 1528' |
| 6E | T-HANGARS/PORTABLE (10)/AHL ASSOCIATES | 1505' | 32E | EXECUTIVE HANGARS (9)/EAA HANGAR, INC. | 1541' |
| 7E | SMALL BOX HANGARS (6) | 1509' | 33E | BOX HANGAR/ARBOGAST TECH BODY & PAINT | 1530' |
| 8E | SMALL BOX HANGARS (6) | 1510' | 34E | SMALL BOX HANGARS (7)/CITY OF AUBURN | 1525' |
| 9E | ELECTRICAL VAULT/CITY OF AUBURN | 1504' | 35E | SMALL BOX HANGARS (5)/EAST END HANGARS, INC. | 1542' |
| 10E | INDUSTRIAL BLDG./MILITARY BIOTEC | 1519' | 36E | T-HANGAR/CITY OF AUBURN | 1536' |
| 11E | INDUSTRIAL BLDG./PACIFIC GAS & ELEC. | 1510' | 37E | BOX HANGAR/DOUG VAN HOWD | 1545' |
| 12E | INDUSTRIAL BLDG./JAMES & DIANNE KNIP | 1513' | 38E | EXECUTIVE HANGARS (7) | 1542' |
| 13E | INDUSTRIAL BLDG./ENKEL ENTERPRISES, LLC. | 1516' | 39E | EXECUTIVE HANGARS (5)/JAMES A HANSON ATTORNEY, PC, INC. | 1553' |
| 14E | INDUSTRIAL BLDG./FLYERS LLC | 1522' | 40E | EXECUTIVE HANGARS (4)/ROW CHARLE OWNERS AUBURN EAST HANGAR | 1553' |
| 15E | INDUSTRIAL BLDG./MUSSETTER DISTRIBUTING | 1510' | 41E | LARGE BOX HANGAR/BICKFORD AND WOLFE FAMILY TRUSTS | 1550' |
| 16E | INDUSTRIAL BLDG./FOX TWO LLC | 1514' | 42E | INDUSTRIAL BLDG./G. WRAY CRAWFORD | 1496' |
| 17E | INDUSTRIAL BLDG./ASHVIDAL | 1510' | 43E | INDUSTRIAL BLDG./G. WRAY CRAWFORD | 1494' |
| 18E | INDUSTRIAL BLDG./EMERY C OXLEY JR & LONDA L OXLEY | 1513' | 44E | INDUSTRIAL BLDG./PRESERVATION WOOD PRODUCTS/JUDITH EDINBURG | 1504' |
| 19E | INDUSTRIAL BLDG./FLYERS LLC | 1510' | 45E | INDUSTRIAL BLDG./AT&T SERVICES | 1499' |
| 20E | INDUSTRIAL BLDG./DFC HANGAR LEASING, LLC. | 1508' | 46E | INDUSTRIAL BLDG. | 1502' |
| 21E | INDUSTRIAL BLDG./WIRE-DBA DIAMOND DEVICES | 1513' | 47E | INDUSTRIAL BLDG./PREMIER HOLDINGS, LLC. | 1513' |
| 22E | INDUSTRIAL BLDG./AUBURN INDUSTRIAL PARK# 1 L.P. | 1525' | 48E | INDUSTRIAL BLDG./PREMIER HOLDINGS, LLC. | 1507' |
| 23E | INDUSTRIAL BLDG./AUBURN INDUSTRIAL PARK# 2 L.P. | 1513' | 49E | INDUSTRIAL BLDG./PIMMERRILL & BRAD WESTIN | 1512' |
| 24E | RESTAURANT/METCALFE FAMILY TRUST | 1511' | 50E | INDUSTRIAL BLDG./DOUGLAS & NANCY VAN HOWD | 1514' |
| 25E | BOX HANGAR/EMERY C OXLEY JR & LONDA L OXLEY | 1521' | 51E | INDUSTRIAL BLDG./PRICE INDUSTRIES | 1512' |
| 26E | BOX HANGAR | 1517' | 52E | INDUSTRIAL BLDG./DOUGLAS & NANCY VAN HOWD | 1513' |

THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION A.I.P. PROJECT NUMBER 3-06-0012-012-2015 AS PROVIDED UNDER TITLE 49 U.S.C., SECTION 47401. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS AIRPORT LAYOUT PLAN BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE OR WOULD HAVE JUSTIFICATION IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

JACOBS
707 17TH STREET
SUITE 2400
DENVER, COLORADO 80202
PHONE (303) 820-5240

The City of **AUBURN**
CALIFORNIA

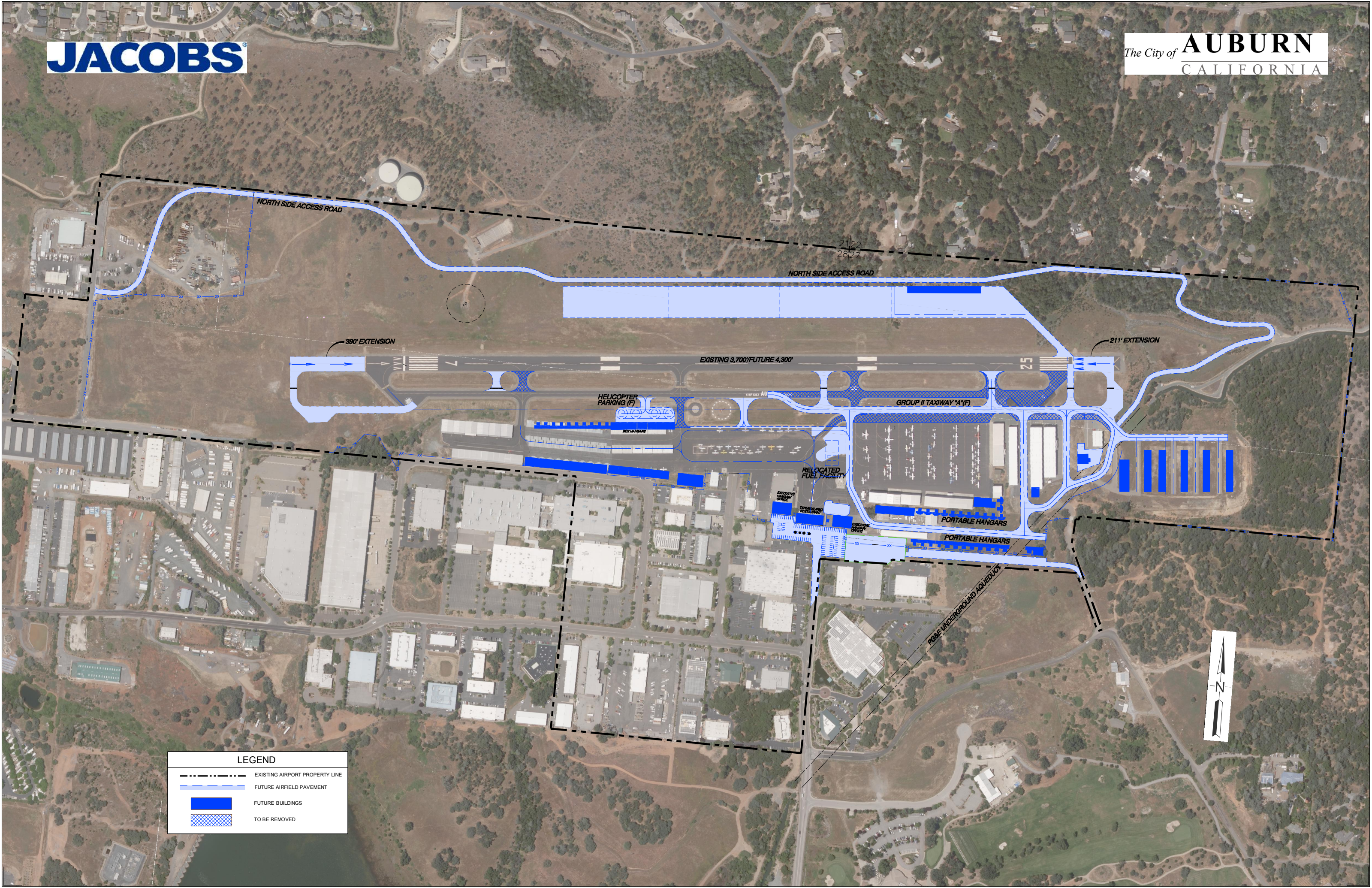
SPONSOR APPROVAL
CITY OF AUBURN
DATED: _____

AIP PROJECT NUMBER: 3-06-0012-012-2015
REV: _____
JACOBS PROJECT NUMBER: WXXXXXX
DATE: XX/XX/17
DESIGNED: _____ DRAWN: _____ CHECKED: _____ APPROVED: _____
DRAWING PATH NAME: J:\AUN\Planning\XXX\Plans\
REFERENCE DRAWING PATH NAME: J:\AUN\Planning\XXX-ALP\Xrefs\

| ISSUE RECORD | | | | |
|--------------|----|------|-------------|-----|
| NO. | BY | DATE | DESCRIPTION | CKD |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

FAA CONDITIONAL APPROVAL
SUBJECT TO LETTER DATED: _____
FEDERAL AVIATION ADMINISTRATION
DATED: _____
CASE NO: _____

AIRPORT LAYOUT PLAN
SHEET 2 OF 10
DRAFT



LEGEND

- EXISTING AIRPORT PROPERTY LINE
- FUTURE AIRFIELD PAVEMENT
- FUTURE BUILDINGS
- ▨ TO BE REMOVED



| LEGEND | |
|--------|--------------------------------|
| | EXISTING AIRPORT PROPERTY LINE |
| | FUTURE AIRFIELD PAVEMENT |
| | FUTURE BUILDINGS |
| | TO BE REMOVED |

