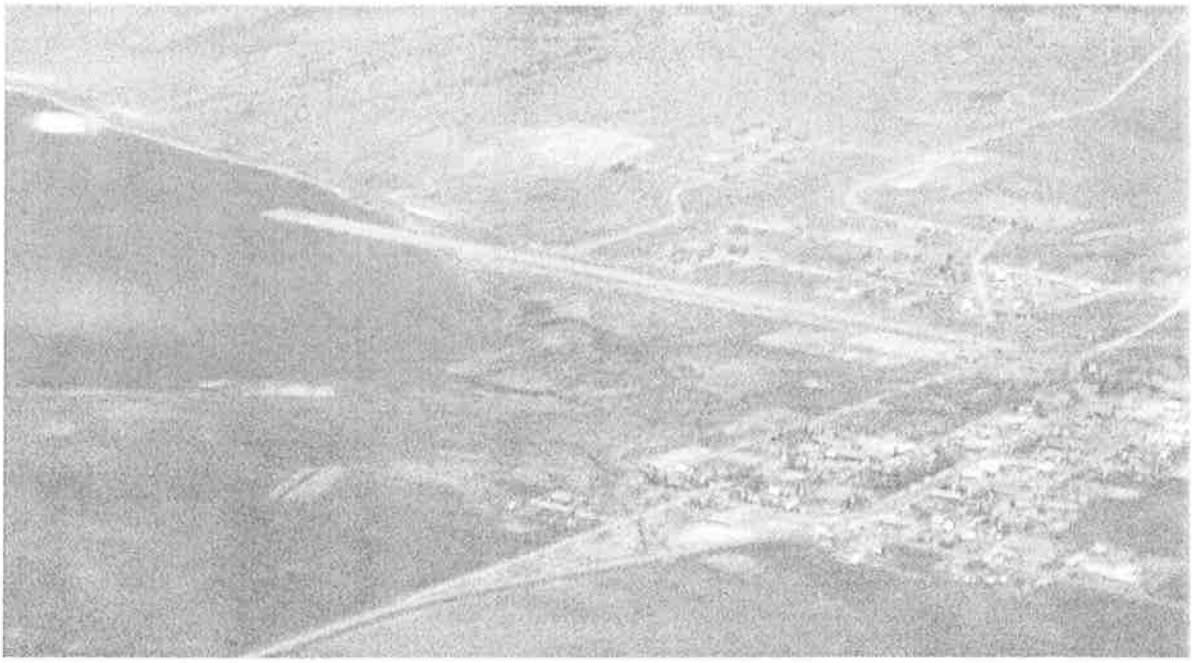
BRYANT FIELD AIRPORT

MASTER PLAN / 2020



A COUNTY OF MONO AVIATION FACILITY

OCTOBER 2002

WADELL ENGINEERING CORPORATION

AIRPORT PLANNING □ ENGINEERING □ MANAGEMENT CONSULTANTS

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1. SUMMARY

Mono County, California contracted with Wadell Engineering Corporation to prepare a general aviation airport master plan study for Bryant Field Airport in Bridgeport, California. The basic intent of the study is to evaluate existing airport facilities, to assess airport demand, and to prepare an airport master plan to accommodate the demand through the year 2020. This summary presents the objectives of the study, the approach utilized in the master planning process, the results of the analyses performed, and the recommendations for prudent and proper protection and development of the Bryant Field Airport. This report is intended to be a useful technical document to allow the elected county officials, county staff, FAA, and California Aeronautics Program staff to properly develop and protect the airport while enhancing its usefulness to the traveling public.

Study Objectives

Specific objectives of the study are to:

- Determine, in concert with statewide planning criteria, a set of forecasts and facility requirements for the development of the airport.
- Provide concise and descriptive planning information. The impact and logic of the recommendations can then be clearly understood by the community and public agencies charged with the approval and development of this plan.

Study Approach

This Master Plan covers the planning period of 2000-2020 and includes the following major components:

- Inventory of airport facilities.
- Forecasts of aviation demand, including the number of operations, aircraft types, and aircraft mix.
- Determination of facilities and improvements required to satisfy the forecast demand.
- Estimation of the cost of airport development and operations.
- Recommendation of a plan for the ultimate development of the airport in accordance with community goals and increases in aviation demand.

This study becomes effective only after it has been evaluated, adopted, and implemented. The plan has been designed to accommodate changes in community goals and aviation trends as they develop, imparting flexibility into the planning process. Agencies contacted during the course of the study include representatives of Mono County, California Aeronautics Program, and the Federal Aviation Administration. Valuable points of view regarding the future of aviation in the area were generated through these contacts and are reflected in the study.

Findings

The Bryant Field Airport is located in Bridgeport, California, just east of the town center. It is a small general aviation facility occupying 49.34 acres with one paved runway serving single and twin-engine aircraft, as well as occasional turboprops and small turbine-powered business jets.

Presently, one aircraft is based at the airport. The total is expected to increase to 4 by the year 2020. Growth will occur in single engine piston aircraft and in transient operations. Runway operations will increase from 3,375 to 4,500 by the year 2020, all of which will be general aviation.

To meet increasing aviation demand, additional facilities and reconstruction of existing facilities will be necessary throughout the planning period. The existing 4,239-foot runway adequately handles the small aircraft. While a runway extension to 5,500-feet total length is desirable to meet FAA standards, the cost is prohibitive due to the proximity of Bridgeport Reservoir.

Airport plans depicting the airfield area, terminal area, and approaches to the airport and stage development plans depicting the capital improvement program were prepared and are presented in the back of this document. The plans explain how the needs of Bryant Field Airport can be met through the year 2020.

Stage I

The objectives of the first stage of development, 0-5 years, are (1) land acquisition and obstruction removal, (2) perimeter fencing and card access control gate, (3) paved overruns, (4) replacement of runway lighting, new lighted distance remaining and airfield signs, exit lighting and supplemental wind cones, (5) runway end identifier lights and precision approach path indicators, (6) automatic weather observation system, (7) runway, taxiway and apron pavement overlays with markings.

The Capital Improvement Program Cost Summary Table shows that the most significant expenditures during the 20-year capital improvement program occur in Stage I. These expenditures are needed for the runway and taxiway pavement and lighting rehabilitation.

Stage II

The second stage of development, 6-10 years, includes (1) additional hangars, (2) pavement maintenance, and (3) airport master plan update.

Stage III

The third stage of development, 11-20 years, primarily concerns pavement overlays.

The capital improvement program cost summary associated with the three stages of development is shown in the following table.

Capital Improvement Program Cost Summary
Bryant Field Airport
(In 2001 $)

Stage I (2000-2005)	$1,689,000
Stage II (2006-2010)	$195,000
Stage III (2011-2020)	$495,000
Total	$2,379,000
FAA/State Funds	$2,191,455
Local Funds	$187,545
Total	$2,379,000

Source: Wadell Engineering Corporation

The FAA grant program provides 90% grant funding for eligible projects and state aeronautics offers a 5% match to the FAA grant. The projects that are not eligible are auto parking, hangar construction, and private facilities such as fixed base operators, hangars, and fueling systems.

A 20-year cash flow analysis was prepared to model the income and expense. The resulting operating profit or loss was combined with the local share of funds to match FAA and State grants for development and construction of non-eligible facilities.

Recommendations

It is recommended that Mono County adopt the Bryant Field Airport Master Plan, 2000-2020, and undertake the following steps:

- Use the Master Plan as County policy for development on and adjacent to Bryant Field Airport.
- Apply to the Federal Aviation Administration and the State of California for construction grants for facility expansion at the Bryant Field Airport.
- Implement the development program at the Bryant Field Airport.
- Apply for State of California aviation fund loans or municipal leasing funds for hangars, and develop revenue-producing aviation facilities at the airport to generate matching funds for future airport development and maintenance grants.
- Adopt new height zoning ordinances and zoning protection for the Bryant Field Airport in accordance with its role described in the Master Plan.

2. INVENTORY

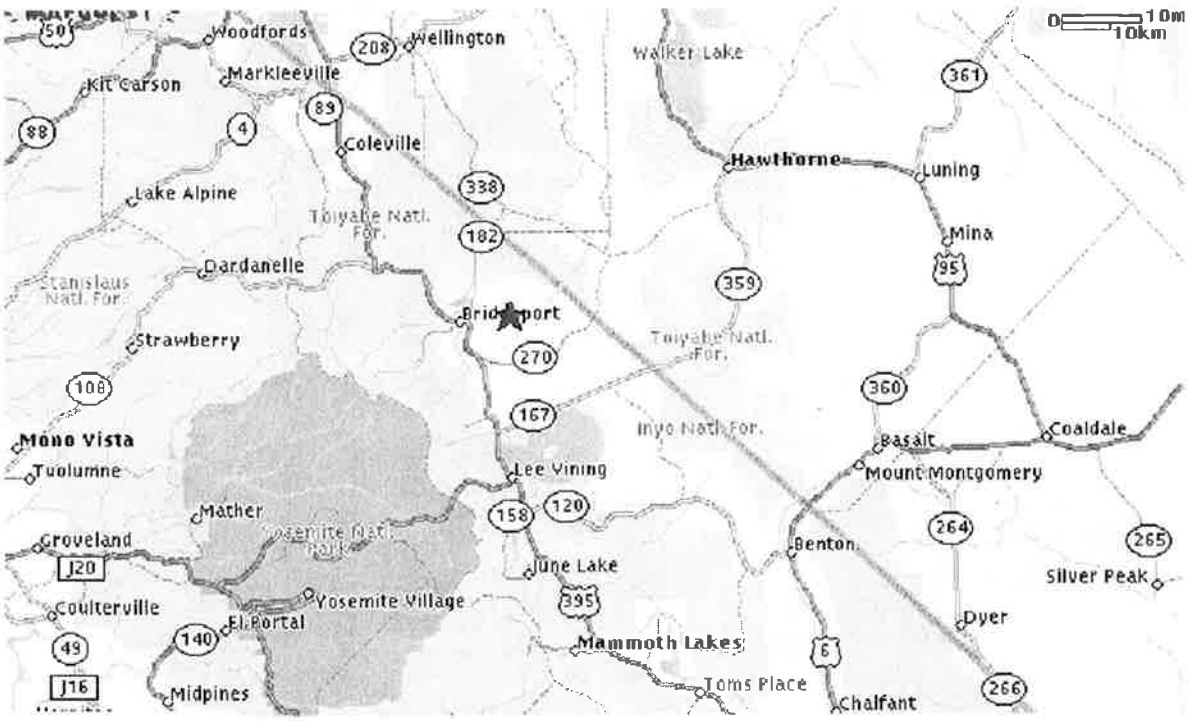
The inventory is prepared to provide a description of the airport location and setting, the history of the airport and the existing facilities.

Location and Setting

Mono County is located approximately 300 miles north of Los Angeles along the east slope of the Sierra Nevada mountain range. Mono County is bordered by Inyo County to the south, Alpine County to the north, Tuolumne, Mariposa, and Madera Counties to the west, and the state of Nevada abuts the majority of Mono County's eastern border. The topography ranges from high mountainous peaks in the western part of the County to deserts of sagebrush and pinion pine to the east. The County is 3,103 square miles in size with approximately 5, 750 people living in the unincorporated area, and approximately 7,100 people living in the only incorporated town in the County, the Town of Mammoth Lakes, which encompasses approximately twenty-five square miles. Data obtained from the State of California Department of Finance indicates an annual population growth rate of around 2% for the County over a nine-year period from 1990-1999.

Bryant Field is located at the easterly edge of downtown Bridgeport and is bordered by the Bridgeport Reservoir to the north and west, Stock Drive to the south, and State Highway 182 to the east. Bridgeport is the County seat of Mono County.

Exhibit 1: Location Map
Bryant Field Airport



Airport History

In 1922 the first plane to land at what was later to be known as "Bryant Field" was a French made, rotary engine powered biplane. By 1940, discussions were undertaken with the Walker River Irrigation District to purchase a parcel of land 150' x 3100' as a landing field. Livestock often grazed on the area, which was covered with native grass and sagebrush. In 1942 Mono County acquired this land for $41 per acre. The field was officially designated "Bryant Field" in 1944. Sporadic attempts were made to render it more usable. In 1950, power lines at the south end were placed underground and fencing was completed.

Because of increased use during the 1960's, another parcel 150' x 1300' was purchased from the Walker River Irrigation District for $150 per acre. That land was cleared and an oiled strip 40' x 3100' was constructed. The runway was extended north to a length of 4400' feet. A portion of this runway required considerable fill when extended into Bridgeport Lake. Minimal fueling facilities and a telephone were installed at the field.

Mono County acquired additional acreage in 1968 from the Walker River Irrigation District for taxiways, hangar space, fueling facilities and parking aprons. In 1970, the County adopted a general plan for County airports, completed zoning, and established a snow removal policy. Threshold and runway lighting systems were installed in 1972. In 1976 additional land was acquired at the south end and a new access road with perimeter fencing was constructed.

On June 7, 1977 the County adopted the Bryant Field Airport Master Plan prepared by Wadell Engineering Corporation. Shortly thereafter new airfield lighting, rotating beacon and apron projects were funded and completed. This master plan provides for updating of key information to take Bryant Field into the new millennium. The "Interagency Helibase and Aviation Facility" comprised of a helibase building, helipad and rappel tower was completed in the summer of 1996.

Aviation Facilities

Aviation facilities inventoried include the airfield area, the terminal area, and the airspace / navigational facilities.

Airfield Area

The existing Bridgeport Airport is comprised of 49.34 acres of land and 6.88 acres of avigation easement with one paved runway. The runway and the runway approaches are described below.

Runways

The existing airfield at the airport consists of the following runway:

Table 1
Runway Characteristics
Bryant Field Airport

Runway	Orientation	Dimensions	Effective Gradient	Composition
16-34	N-S	4,239' x 60'	0.182%	Asphalt

Source: FAA Airport Master Record #5010 for the Bryant Field Airport, December 1999.

The terminal and hangar areas are located at the southwest end of the airport. Runway 16-34 has medium intensity edge lights. The runway, taxiway, and apron pavements are rated "good to fair." The estimated runway pavement gross weight strengths for aircraft with various landing gear configurations as follows:

Table 2
Pavement Strength
Bryant Field Airport

Runway	Single Wheel	Dual Wheel	Dual Tandem Wheel
16-34	30,000 lbs.	N/A	N/A

Source: FAA Airport Master Record #5010 for the Bryant Field Airport, December 1999.

Runway Approaches and Obstructions

The existing approach slope ratios (horizontal: vertical) for each runway end are as follows:

Table 3
Runway Approach Slopes
Bryant Field Airport

Runway End	Approach Slope
16	50+:1
34	0:1

Source: FAA Airport Master Record #5010 for the Bryant Field Airport, December 1999.

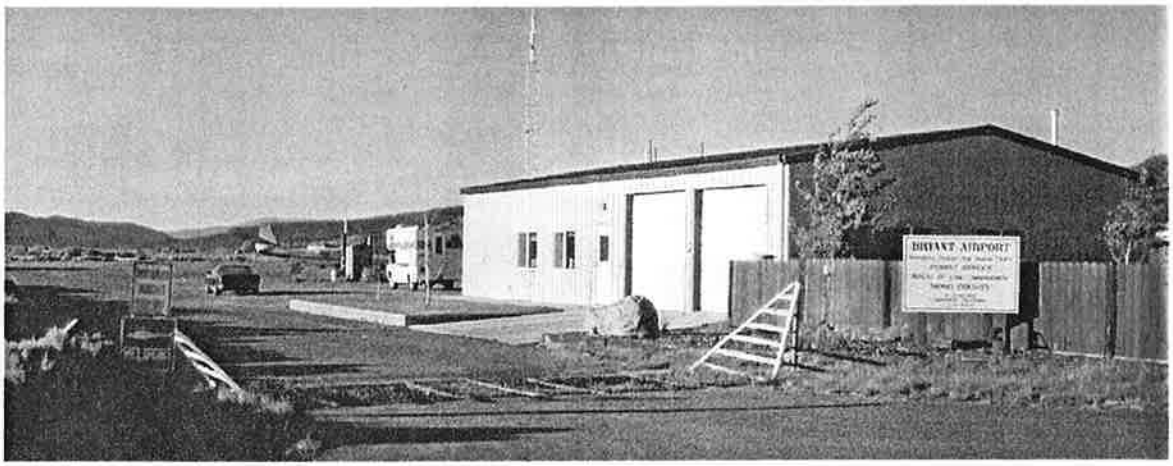
Exhibit 2: Airport Photomap
Bryant Field Airport

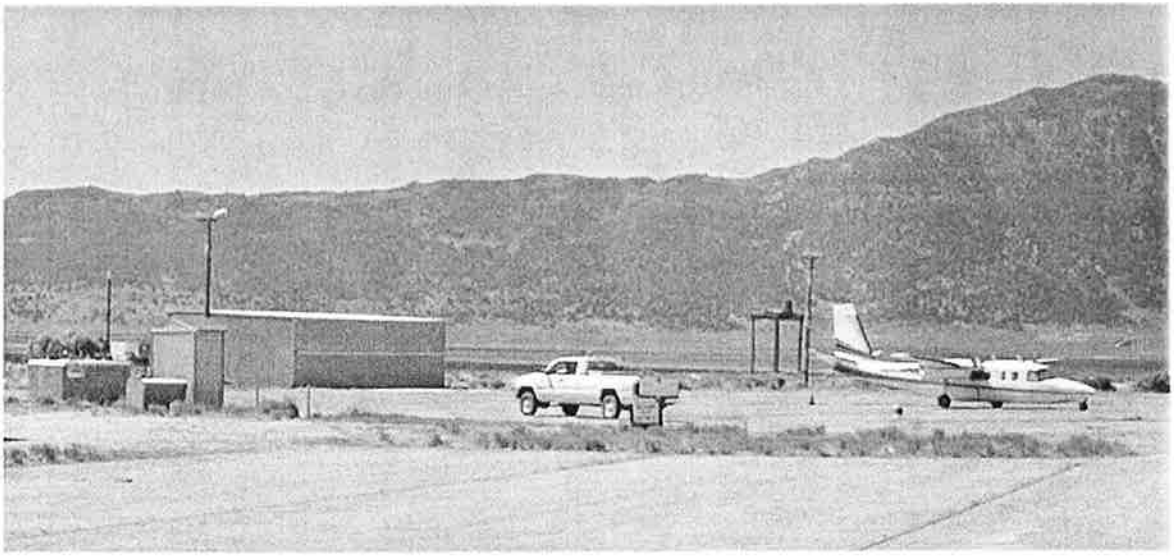
Source: Wadell Engineering Corporation May 2000 Photomapping

Terminal Area

The general aviation area, located at the southwest end of the airport, consists of U.S. Forest Service heliport and support building and county owned hangar building and fueling facilities. An aircraft parking apron accommodating 20 tiedown spaces is located in the terminal area.

Exhibit 3: Terminal Area Photographs
Bryant Field Airport





Source: Wadell Engineering Corporation

Airspace/Navigational Facilities

The airport has visual approaches and utilizes a standard left-hand pattern to runway 34 and a non-standard right hand pattern to runway 16. The patterns altitude is set at 7,168 feet MSL (700 feet AGL). The traffic pattern should be raised to 1,000 feet above the airport, or 7,468 feet MSL.

Runway 34 has a 389 foot displaced threshold to clear the road in the approach. The airport has no instrument approach procedures. There are no on-site navigational aids.

3. AVIATION FORECASTS

The area served by Bryant Field Airport is designated in this report as the airport service area. Geographical boundaries for airport service areas consist of a city, county, or other governmental subdivision. Trends in aviation demand correspond with local growth trends in the governmental entity containing the main concentration of population served by an airport. Bryant Field Airport is strategically located to serve general aviation demand in Bridgeport, the county seat, and the surrounding parts of Mono County. This area represents the airport service area for Bryant Field.

Aviation Trends

General aviation flying can be divided into four major categories:

- Business: The use of an aircraft for executive or business transportation. This category includes (1) aircraft used by a corporation or other organization and operated by professional pilots to transport its employees/property (not for compensation or hire), and (2) aircraft used by an individual for transportation required by a business in which he is engaged.

- Commercial: The use of an aircraft for commercial purposes (other than the certificated air carriers) in three types of activity: (1) air taxi, involving any use of an aircraft by the holder of an air taxi operating certificate; (2) aerial application, such as the distribution of chemicals (cropdusting); and (3) industrial special, such as pipeline patrol survey, advertising, and photography.

- Instructional: The use of an aircraft for flight training under an instructor's supervision.

- Personal: The use of an aircraft for personal reasons similar to the utilization of an automobile.

At the outset of the forecasting process, it is important to recognize the overall impact of general aviation on the nation's economy as well as anticipated growth in general aviation through future years. FAA statistics of current activity as well as forecasts through 2012 identify an increasing trend in general aviation growth.

General aviation includes a multitude of diverse and growing uses of aircraft, ranging from flying for sheer enjoyment to transportation of personnel by business firms in privately owned aircraft to highly specialized uses such as cropdusting, patrol, and aerial photography.

Aircraft Activity

General observation of the activity at Bryant Field indicates that it is not busy, except on some summer weekends. However, as with most non-towered airports, aircraft operations have not been counted.

It is estimated that 12% of current operations are local and 88% itinerant. The vast majority of operations are by single-engine aircraft at Bryant Field Airport, although some are by turboprops and light jets as shown in the terminal photographs.

Table 4
National Active General Aviation Aircraft
By Type of Aircraft
FY 2001 - FY 2012
(In Thousands)

	2001	2012
Fixed Wing		
Piston		
Single Engine	152.9	164.8
Multi-Engine	21.2	21.2
Subtotal	174.1	186.0
Turbine		
Turboprop	5.8	6.6
Turbojet	7.8	12.3
Subtotal	13.6	18.9
Rotary Wing	7.9	9.5
Experimental	21.0	21.4
Other	6.9	7.5
Total	223.5	246.0

Source: FAA Forecasts, Fiscal Years 2001-2012, March 2001. Rounding by Wadell Engineering Corporation.

Based Aircraft

An airport plan is primarily developed from aviation demand forecasts. The California Aeronautics Program and the FAA through the National Plan of Integrated Airports System (NPIAS) provide information. To receive federal aid, airports must be in the NPIAS. The 1999 NPIAS shows that there are 3 aircraft based at Bridgeport. The state forecasts show 4 based aircraft and 4,500 total operations in the year 2020.

Aviation Forecasts

For purposes of this study, forecasts were prepared for based aircraft and annual operations from 2000 through the year 2020. The forecast, as presented in Table 5, provides detailed information concerning the determination of mix for runway capacity analyses, the types of based aircraft for future apron and hangar parking requirements, the number of instrument operations for determination of instrument approach capabilities and needs, and the aircraft operations by type for use in airport noise analyses.

All of the based aircraft will be single engine. It is expected that occasional business jet and turboprop aircraft would make transient flights to Bridgeport for business and tourism reasons.

The forecast of aircraft operations is by type of operation, type of aircraft, and type of user. The local aircraft movements include touch-and-go training activity as well as flights in the immediate airport environs. The remaining aircraft movements are classified as itinerant, which includes flights that have origins and/or destinations away from the airport.

Table 5
Aircraft and Operations Forecast
Bryant Field Airport
2000-2020

	2000	2005	2010	2015	2020
Based Aircraft:					
Single Engine	1	3	4	4	4
Multi Engine	0	0	0	0	0
Helicopter	0	0	0	0	0
Turboprop	0	0	0	0	0
Turbine	0	0	0	0	0
Total	1	3	4	4	4
Annual Aircraft Operations:					
By Type of Operation					
Local	375	375	500	500	500
Itinerant	3,000	3,000	4,000	4,000	4,000
Total	3,375	3,375	4,500	4,500	4,500
By Type of Aircraft					
Single-engine prop.	3,375	3,375	4,500	4,500	4,500
Multi-engine prop.	0	0	0	0	0
Helicopter	0	0	0	0	0
Turboprop	0	0	0	0	0
Turbine	0	0	0	0	0
Total	3,375	3,375	4,500	4,500	4,500
By Type of User					
Military	0	0	0	0	0
Air Taxi	0	0	0	0	0
General Aviation	3,375	3,375	4,500	4,500	4,500
Total	3,375	3,375	4,500	4,500	4,500
Aircraft Operations Distribution					
Peak Month	510	510	680	680	680
Peak Week	130	130	170	170	170
Average Day of Peak Month	17	17	23	23	23
Peak Hour of Average Day of Peak Month	3	3	3	3	3
Instrument Operations Demand	150	150	200	200	200
Approach Demand	40	40	50	50	50

Source: Wadell Engineering Corporation

The instrument operations noted in Table 5 include instrument approaches (when aircraft arrive at the airport under instrument conditions using navigational aids) and instrument departures, which are the primary portion of the instrument operations.

Typically there are more instrument departures than instrument approaches at general aviation airports since the instrument approach is a more precise operation and usually occurs when arriving at a destination where it is necessary to let down to the airfield through cloud conditions or fog. Instrument departures most often involve a climb-out from the airport during instrument conditions when visual flight rule conditions exist on top of the clouds. There are currently no published instrument approach procedures for the Bryant Field Airport, therefore the numbers reflect potential demand, not actual operations.

4. AVIATION REQUIREMENTS

Demand/capacity analysis and facility requirements are based on guidelines established in FAA Advisory Circulars, FAA Regulations, and good planning and engineering judgment. Facility requirements are matched with the forecast of aviation demand to provide for the safe, efficient, and convenient utilization of the airport without unreasonable delays. It should be recognized that on the basis of demand, this chapter merely identifies items and quantities for input to the Airport Plans section of the report (Chapter 5). Actual recommended development is identified in the Implementation Plans section (Chapter 6), where all of the physical and financial aspects of the proposed development are brought together.

Aircraft/Airport Classifications

Airports are planned and developed to serve certain categories of existing and future user aircraft. In order to select appropriate dimensional standards, it is necessary to identify the various categories and design groups of aircraft.

Aircraft Approach Category

An aircraft approach category is a grouping of aircraft based on an approach speed of 1.3 V_{so}. V_{so} is the aircraft stall speed at the maximum certificated landing weight. V_{so} and the maximum certificated landing weight are established for the aircraft by the certificating authority of the country of registry. The aircraft approach categories are presented in Table 6.

Table 6
Aircraft Approach Category

Category	Approach Speed
A	Less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

Airplane Design Groups

The airplane design groups table categorizes airplanes by wingspan and is presented below.

Table 7
Airplane Design Groups

Group	Wingspan
I	Up to but not including 49 feet (15 m)
II	49 feet (15 m) up to but not including 79 feet (24 m)
III	79 feet (24 m) up to but not including 118 feet (36 m)
IV	118 feet (36 m) up to but not including 171 feet (52 m)
V	171 feet (52 m) up to but not including 214 feet (65 m)
VI	214 feet (65 m) up to but not including 262 feet (80 m)

Source: FAA Advisory Circular 150/5300-13.

Airport Types

Airport types describe the operational and physical characteristics of the airplanes intended to operate at an airport. The airport reference code (ARC) is a system developed by the FAA which utilizes aircraft approach category and airplane design group components to assist in the design of critical airport elements meeting the requirements of the airplanes anticipated to use the aviation facilities.

Transport airports are designed, constructed, and maintained to serve airplanes in aircraft approach categories C and D, while utility airports serve the smaller airplanes in aircraft approach categories A and B. The latter airplanes are commonly used for personal and business flying, and for commuter and air taxi operations. The airport types are presented in Table 8.

Bryant Field Airport serves mostly A-I aircraft and occasional B-1 aircraft. It is a basic utility stage I facility.

Table 8
Airport Types

Type	Description
Basic Utility--Stage I	This type of airport serves about 75 percent of the single-engine and small twin-engine airplanes used for personal and business purposes. Precision approach operations are not usually anticipated. This airport is designed for small airplanes in airport reference code B-I.
Basic Utility--Stage II	This type of airport serves all the airplanes of Stage I, plus some small business and air taxi-type twin-engine airplanes. Precision approach operations are not usually anticipated. This airport is also designed for small airplanes in airport reference code B-I.
General Utility--Stage I	This type of airport serves all small airplanes. Precision approach operations are not usually anticipated. This airport is also designed for airplanes in airport reference code B-II.
General Utility--Stage II	This type of airport serves large airplanes in aircraft approach category A and B and usually has the capability for precision approach operations. This airport is normally designed for airplanes in airport reference code B-III.
Transport	This type of airport serves all large airplanes in aircraft approach categories C and D.

Source: FAA Advisory Circular 150/5300-13.

Airport Service Role

Bryant Field Airport is classified in the NPIAS as a basic utility general aviation airport, which serves aircraft with approach speeds up to but not including 91 knots (Category A). On occasion the airport receives transient turboprops and business jets. The airport should continue to be developed as a basic utility stage I airport handling A-I aircraft.

Airfield Capacity

Airfield facilities were evaluated for their ability to satisfy forecast aviation demand at the airport. Hourly runway capacities and annual service volume were estimated. Hourly runway capacity is defined as the maximum number of aircraft operations that can take place in one hour for given conditions. Annual service volume is a measure of annual aircraft operations that can be used as a reference in preliminary airfield planning.

The aviation forecasts along with the operations levels were evaluated. The airfield layout and operational use was determined from the Airport Layout Plan and observations of airfield operations.

Runway Use

Runway use encompasses the number, location, and orientation of active runways, as well as the directions and types of operations using each runway. Runway use depends primarily on wind direction and wind speed, but also depends on other factors such as air traffic control rules and noise abatement procedures, runway instrumentation, taxiing distance, and runway length. It is estimated that Runway 34 is used 90% of the time, and Runway 16 is used 10% of the time.

Airspace and Air Traffic Control

Bryant Field Airport has no on-airport navaids. Oakland Center has been delegated responsibility for control of instrument flight rules (IFR) aircraft within this area. The overall airspace of Bryant Field Airport is unrestricted. There is no need for an on-site air traffic control facility.

The two types of flight rules for specific weather conditions are visual flight rules (VFR) and instrument flight rules (IFR). The definitions of these conditions are:

VFR: Ceiling is at least 1,000 feet and visibility is at least 3 miles
IFR: Ceiling is below 1,000 feet and/or visibility is below 3 miles

There is no weather data to establish the percentage of VFR versus IFR conditions.

Aircraft Mix

Aircraft mix is composed of four aircraft classifications: A, B, C, and D. Class A includes small single-engine aircraft (weighing 12,500 pounds or less); Class B includes small twin-engine aircraft (weighing 12,500 pounds or less); Class C includes large aircraft weighing more than 12,500 pounds and up to 300,000 pounds; and Class D includes heavy aircraft weighing more than 300,000 pounds. No Class C and D aircraft utilize Bryant Field Airport.

Hourly Runway Capacity

Hourly runway capacity is the maximum number of aircraft operations that can take place in one hour for given conditions. Factors that affect hourly runway capacity include:

- Runway use
- Airspace and air traffic control
- Ceiling and visibility conditions
- Aircraft mix

Estimated hourly runway capacities, together with peak hour demand for the planning period, are as follows:

Table 9
Hourly Runway Capacity
Bryant Field Airport

	2000	2010	2020
VFR peak hourly demand	2	3	3
VFR peak hourly capacity	60	60	60
IFR peak hourly demand	0	0	0
IFR peak hourly capacity	0	0	0

Source: Wadell Engineering Corporation

Annual Service Volume

Annual service volume is based on hourly capacities for the airfield operating conditions that occur throughout the year and on monthly, daily, and hourly variations in aircraft operations. The estimated annual service volume and the forecast annual demand levels are as follows:

Table 10
Annual Service Volume
Bryant Field Airport

Year	Annual Service Volume	Annual Demand
2000	215,000	3,375
2010	215,000	4,500
2020	215,000	4,500

Source: Wadell Engineering Corporation

Bryant Field Airport capacity exceeds aviation demand throughout the planning period.

Facility Requirements

An airport is composed of major elements, which contribute to its overall size and shape. The principal components include:

- AIRFIELD
  - Runways
  - Taxiways
  - Visual Aids/Lighting
- TERMINAL AREA
  - Airplane Parking and Tiedown
  - Buildings and Hangars
  - Roads and Auto Parking
  - Support Facilities
- LAND AREA REQUIREMENTS

This section discusses the facilities required to accommodate the forecast aviation demand. Each of the major facility requirement categories noted above is described separately. The facility requirements are summarized in tabular form at the end of this chapter.

Airfield

The airfield requirements analysis is prepared to determine future needs for the runway, taxiway, and visual aids/lighting systems. These requirements relate the extent and type of development necessary to accommodate the forecast demand and the capacity required of the airfield system.

Runways

Analysis of the runway system involves a determination as to necessary runway length, strength, orientation, and markings.

Runway Length

Runway length is determined analytically by evaluating the elevation of the airport above mean sea level and the design temperature, which is the mean of the maximum temperature during the hottest month of the year. The design elevation is 6,467 feet. An assumed critical temperature of 84 degrees F was used to prepare the runway length requirements table.

The Transport or business jet runway length requirements are based on aircraft size and useful load carried. The 75 percent level of business jet fleet includes all business jets weighing up to 30,000 pounds, typically the smaller business jets. The 100 percent fleet includes the largest planes up to 90,000 pounds, such as the Gulfstream V.

Table 11
Runway Length and Strength Requirements
Bryant Field Airport

Airport Classification	Runway Length	Runway Strength*
Existing Airport		
Runway 16-34	4,239 ft.	30,000 # S
Basic Utility Stage I	5,500 ft.	8,000 # S
Basic Utility Stage II	7,750 ft.	8,000 # S
General Utility Stage I	7,750 ft.	12,500 # S
General Utility Stage II	7,750 ft.	30,000 # S
Transport**		
75%/60%	7,250 ft.	30,000 # S
75%/90%	8,680 ft.	30,000 # S
100%/60%	11,080 ft.	60,000 # D
100%/90%	11,080 ft.	60,000 # D

* "S" is pounds of single wheel gear configuration load; "D" is pounds of dual wheel load.
** First percent is aircraft size within business jet fleet; second percent is amount of useful load carried.

Source: Wadell Engineering Corporation

The majority of activity involves single-engine aircraft and light twin-engine aircraft. A preferred runway length would be 5,500 feet, yet the site is limited to the existing length without further filling of the reservoir.

Runway Strength

The runway strength requirement is determined by the airport runway category and type of aircraft anticipated to operate at the airport. The runway pavement strength of runway 16-34 is 30,000 pounds single wheel gear configuration, which more than adequately meets the standards required for the type of operation expected at the airport.

Runway Orientation

The configuration of the airport is determined by the number and orientation of the runways. The primary factors related to the number of runways required are airfield capacity and demand.

One of the primary factors influencing runway orientation is wind. FAA criteria for a utility airport specify that a crosswind runway is required if the primary runway is oriented so that the crosswind on it exceeds 12 miles per hour (10.5 knots) more than 5 percent of the time (thus providing less than 95 percent wind coverage). Where a single runway orientation does not provide this usability factor of at least 95 percent, the airport system should include a crosswind runway. For a business jet or transport type runway, the criteria is 15 miles per hour (13 knots).

There is no site-specific FAA approved wind data for Bryant Field Airport. There are strong winds from the west, yet due to the relatively small volume of traffic, only a single runway is practical for meeting demand.

Runway/Taxiway Markings

For paved runways, white runway numbers and centerline stripes are recommended. Non-precision and precision runways have additional threshold and edge markings. Yellow taxiway markings along the centerline and a transverse holding line a specified distance from the runway centerline are recommended. The proper distances are found in the Airport Plans chapter and depicted on the Airport Layout Plan.

Taxiways

The addition of taxiways increases the airport operational efficiency and the runway capacity potential. Exit taxiways should be located at frequent intervals along a runway to serve each type of aircraft operating under variable landing conditions. They should provide for a free flow of aircraft to a point where the aircraft is clear of the runway, thereby ensuring continuous flow and maximum capacity. Parallel taxiways are recommended to enhance airport operational flexibility efficiency. Based on the taxiway analysis, the addition of an angled exit taxiway serving landings on Runway 16 is desirable to promptly clear traffic of the runway and improve access to the apron. The existing parallel taxiway is a "partial" parallel in that it does not extend to the Runway 16 threshold. There is not sufficient land available to make the extension.

Visual Aids/Lighting

The following visual aids and lighting are considered to be the minimum necessary at a well-planned, public, general aviation airport:

Basic runway markings
Segmented circle
Lighted wind cone
Rotating beacon
Medium Intensity Runway Lights (MIRL)
Precision Approach Path Indicator System (PAPI)

In addition to the above visual aids and lighting, airports with precision or non-precision approaches and larger aircraft have some of the following:

Runway End Identifier Lights (REIL)
High Intensity Runway Lights (HIRL)
Runway distance marker signs
Approach light systems with sequence flashing lights
Non-precision or precision runway markings

The Bryant Field Airport has a visual runway with medium intensity edge lighting. Additions for Runway 16-34 include reconstruction and placement in conduit for the runway edge lighting system, runway distance marker signs, PAPI, and REIL. All lighting should be radio controlled by pilots. Additions to the lighting systems will be incorporated in the capital improvement program.

Terminal Area

Terminal area requirements include airplane parking and tiedown aprons, buildings and hangars, roads and auto parking. The Facility Requirements table at the end of this chapter presents the summary of necessary facilities.

Airplane Parking and Tiedown Aprons

The currently available apron tiedown positions are adequate to meet demand through the forecast period. The apron area configuration provides good parking and spacing for aircraft including occasional large transients.

The facility requirements for airplane parking and tiedown aprons were determined by relating existing and planned apron tiedown positions with projected demand by aircraft type. The Facilities Requirements Summary table identifies the demand for aircraft parking by type.

Future based aircraft tiedown space requirements reflect the assumption of hangar demand and the ability to satisfy hangar demands. If adequate hangar facilities are not available, the requirements for based tiedown positions will increase.

Buildings and Hangars

The number of hangars depends upon local demand and climate. Presently, the number of hangar spaces available at the airport is just one. The severe weather requires a hangar for each based aircraft. Hangar demand is estimated at 4 in 2020.

Airport buildings should be constructed to fulfill specific needs. In the event an airport business chooses to locate at Bryant Field, the building should provide space for repair and maintenance, air charter, shops, sales and administrative buildings accommodating the public including pilots, passengers, and visitors. It is desirable to have a fixed base operator aircraft maintenance hangar, since there are currently no hangars on the airport suitable for an aircraft maintenance operation. The building could be multifunction to meet additional county needs.

Roads and Auto Parking

Access to the airport is important to provide a safe method of travel within the airport clear of aircraft activity. The two lane roadway has sufficient capacity to accommodate airport generated vehicular traffic demands throughout the forecast period.

Presently there are various unmarked random spaces available in the parking lot adjacent to the fueling facilities. Based on the forecasts, auto parking for the year 2020 is estimated to be 3 spaces (see Table 12).

Support Facilities

Support facilities for the airport include communications, fuel storage and distribution, electric power, water supplies, wastewater disposal, and storm water collection and disposal. Availability of these facilities is essential to the operation of the airport. All of these are adequate to meet future needs.

Land Area Requirements

The initial step in any airport development is the determination of sufficient land to ensure that (1) the airport can accommodate the long-term air traffic requirements, and (2) the land area contains airport operational areas under appropriate control to ensure compatibility of land use around the airport. The amount of land needed can vary considerably in size depending on landing area (e.g., length, number, and layout of runways and taxiways), approach areas (e.g., runway protection

zones), and building area (e.g., T-hangars, aircraft tiedowns, buildings, auto parking). Specific land area requirements are subject to siting and layout and, therefore, are discussed in Chapter Five, Airport Plans.

Table 12
Facility Requirements Summary
Bryant Field Airport

	2000	2005	2010	2015	2020
Demand					
Based Aircraft	1	3	4	4	4
Aircraft Operations	3,375	3,375	4,500	4,500	4,500
Airfield Facilities					
Runways - Number	1	1	1	1	1
Longest Length (Feet)	4,239	5,500	5,500	5,500	5,500
Width (Feet)	60	60	60	60	60
Strength (Pounds - Single)	30,000	12,500	12,500	12,500	12,500
Terminal Facilities					
Airport Business Tenants	0	0	0	0	0
Acres	0.00	0.00	0.00	0.00	0.00
Auto Parking - Spaces	1	2	3	3	3
Acres	0.01	0.02	0.03	0.03	0.03
Hangars - Spaces	1	3	4	4	4
Acres	0.10	0.30	0.40	0.40	0.40
Open Tiedown Spaces					
Based	0	0	0	0	0
Transient	6	7	8	9	10
Open Tiedown Acres					
Based	0.0	0.0	0.0	0.0	0.0
Transient	0.70	0.80	0.90	1.00	1.10
Total Terminal Area Acres	0.81	1.12	1.33	1.43	1.53
Access					
Access Road Lanes	2	2	2	2	2
Daily Vehicle Trips	5	15	20	20	20
Peak Hour Trips	1	2	2	2	2

NOTE: Acreage requirements will vary depending on specific layout and geometrics.

Source: Wadell Engineering Corporation

The foregoing comments about facilities required during the planning period are directly input to the Airport Plans chapter and are used in developing physical layouts. Once the layouts are prepared, quantities and cost estimates for development are determined and presented in Chapter Six, Implementation Plans.

5. AIRPORT PLANS

The Airport Plans represent the end-result of considering alternative configurations of facilities, the location and alignment of hangars, the aircraft parking aprons, and the construction of the runway and taxiway system. Incorporated in the Airport Plans are the recommended development items for the three major airport components: the airfield, the airport terminal area, and the access and parking system. Chapter 6, Implementation Plans, discusses the stage development program for these airport improvements, as well as their cost and the economic/financial impacts of undertaking their development.

The specific objectives of the Airport Plans are to provide:

- A safe airfield system with adequate runway length, strength, and clearances for small aircraft use.
- Terminal facilities for general aviation aircraft, pilots, and passengers with adequate and convenient aircraft basing area, buildings, auto parking, and access.
- A flexible development plan with space and use relationships that will enhance service and provide user and community benefits.
- An economical plan that will provide suitable facilities and generate revenues necessary for proper operation, management and development of the airport.

Airport Layout Plan

The Airport Layout Plan (located in Appendix B) depicts the airfield system and terminal area. It includes the runway, taxiways, lighting, on-airport navaids, and the runway protection zones. The existing runway is 4,239 feet long by 60 feet wide. The runway is adequate for the limited current and future use, but does not have sufficient length for design day temperatures for aircraft carrying higher useful loads.

Runway 16-34 cannot be extended to the north due to the presence of Bridgeport Reservoir. It can not be extended to the south due to the state highway and local roads.

The existing parallel taxiway serving Runway 16-34 is 20 feet wide. As such, it is 5 feet narrower than required to meet current FAA standards. The existing taxiway is 150 feet from the runway centerline. The offset was standard at the time of construction and is still acceptable for airports handling only "small" aircraft. Since the airport is not heavily used, the current separation is adequate. A new exit taxiway favoring Runway 16 arrivals should be constructed to connect with the apron.

Usually holding aprons are constructed at both ends of the runway to provide an area clear of taxiway traffic for aircraft to park while the "before-takeoff-check" is performed and IFR departure clearance is obtained. Construction of holding aprons minimizes delays to departing aircraft by providing bypass capability. Yet the relatively low activity level at Bridgeport does not warrant the expenditure for holding aprons.

The airfield lighting at Bridgeport consists of runway 16/34 medium intensity runway edge lighting, some taxiway exit lighting, a lighted windcone and airport rotating beacon. The runway edge lighting system was constructed decades ago and is stake mounted with direct burial cable. The lighting system should be replaced in conduit with new fixtures. Improved taxiway exit lighting is needed. New retroreflective taxiway edge markers should be installed on all taxiways.

The plan calls for a new PAPI serving both ends of runway 16-34. Runway end identifier lights should be installed on both ends to enhance pilot recognition of the runway at night or hazy conditions. The addition of distance remaining signs will enhance aircraft operation safety, especially because of the relatively short runway.

Airfield signing needs to be updated. New lighted signs would serve runway 16-34. Taxiways that have edge reflectors instead of lights would be signed with reflective signs since power is not available.

The airport lighting vault is original and needs to be replaced to meet code and provide expanded space for lighting components. A freestanding metal building should be constructed adjacent to the existing structure. This allows for minimal relocation of service and limited downtime during construction.

Table 13 identifies the runway setback requirements for Bryant Field Airport. These requirements have been adjusted to properly accommodate the layout and development of the runway and taxiway system and adjacent aircraft parking and building areas. The criteria identified in Table 13 meet or exceed the FAA standards. Runway setback requirements are indicated on the Airport Layout Plan. For Bryant Field Airport, the runway safety area (RSA) is centered on the runway and has a width of 120 feet. In this area, no object may penetrate the volume of space above this zone except for necessary lighting and frangible-mounted navaids.

The building setback line (BSL) identifies the closest point to the runway that any building may be constructed. The minimum BSL is set back from the apron edge to allow for unconstrained movements and building development areas. Buildings should be restricted from the runway protection zones. In practice, a building's height must be considered before siting its location, and the requirements of Federal Aviation Regulations Part 77 must be satisfied regarding obstructions to navigable airspace. The BSL is designed to not only meet setback requirements, but also prevent buildings or permanent objects from being placed inside the ROFA. Furthermore, the BSL is set back far enough to prevent aircraft operational aprons from being blocked by unintentional placement of structures.

The runway obstacle free area (ROFA) is also shown. The following table summarizes the setback requirements for the runways.

Table 13
Runway Setback Requirements
Bryant Field Airport

	Lateral Distance from Runway CL		
Runway	BSL	RSA	ROFA
16-34	Varies	60'	125'

Source: Wadell Engineering Corporation

Table 14 summarizes detailed FAA criteria and design standards that apply to Bryant Field Airport. The table is based on approach category A design group 1 aircraft with visual approaches to both ends of the runway.

Table 14: Airport Design Criteria
Bryant Field Airport

AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category	A
Airplane Design Group	I (Small Airplanes Exclusively)
Airplane wingspan	48.99 feet
Primary runway end approach visibility minimums are	visual exclusively
Other runway end approach visibility minimums are	visual exclusively
Airplane undercarriage width (1.15 x main gear track)	16.00 feet

RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS

	Airplane Group / ARC
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is not treated as a factor:	
VFR operations with no intervening taxiway	700 feet
VFR operations with one intervening taxiway	700 feet
VFR operations with two intervening taxiways	700 feet
IFR approach and departure with approach to near threshold 100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet.	2500 feet less
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is treated as a factor:	
VFR operations	2500 feet
IFR departures	2500 feet
IFR approach and departure with approach to near threshold	2500 feet
IFR approach and departure with approach to far threshold 100 feet for each 500 feet of threshold stagger.	2500 feet plus
IFR approaches	3400 feet
Runway centerline to parallel taxiway/taxilane centerline	149.5 150 feet
Runway centerline to edge of aircraft parking	125.0 125 feet
Runway width	60 feet
Runway shoulder width	10 feet
Runway blast pad width	80 feet
Runway blast pad length	60 feet
Runway safety area width	120 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater	240 feet
Runway object free area width	250 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater	240 feet
Clearway width	500 feet
Stopway width	60 feet
Obstacle free zone (OFZ):	
Runway OFZ width	250 feet
Runway OFZ length beyond each runway end	200 feet
Inner-approach OFZ width	250 feet
Inner-approach OFZ length beyond approach light system	200 feet
Inner-approach OFZ slope from 200 feet beyond threshold	50:1
Inner-transitional OFZ slope	0:1

Table 14: Airport Design Criteria (Continued)

Runway protection zone at the primary runway end:	
Width 200 feet from runway end	250 feet
Width 1200 feet from runway end	450 feet
Length	1000 feet
Runway protection zone at other runway end:	
Width 200 feet from runway end	250 feet
Width 1200 feet from runway end	450 feet
Length	1000 feet
Departure runway protection zone:	
Width 200 feet from the far end of TORA	250 feet
Width 1200 feet from the far end of TORA	450 feet
Length	1000 feet
Threshold surface at primary runway end:	
Distance out from threshold to start of surface	0 feet
Width of surface at start of trapezoidal section	250 feet
Width of surface at end of trapezoidal section	700 feet
Length of trapezoidal section	2250 feet
Length of rectangular section	2750 feet
Slope of surface	20:1
Threshold surface at other runway end:	
Distance out from threshold to start of surface	0 feet
Width of surface at start of trapezoidal section	250 feet
Width of surface at end of trapezoidal section	700 feet
Length of trapezoidal section	2250 feet
Length of rectangular section	2750 feet
Slope of surface	20:1

	Airplane Group / ARC
Taxiway centerline to parallel taxiway/taxilane centerline	68.8 69 feet
Taxiway centerline to fixed or movable object	44.3 44.5 feet
Taxilane centerline to parallel taxilane centerline	63.9 64 feet
Taxilane centerline to fixed or movable object	39.4 39.5 feet
Taxiway width	26.0 26 feet
Taxiway shoulder width	10 feet
Taxiway safety area width	49.0 49 feet
Taxiway object free area width	88.6 89 feet
Taxilane object free area width	78.8 79 feet
Taxiway edge safety margin	5 feet
Taxiway wingtip clearance	19.8 20 feet
Taxilane wingtip clearance	14.9 15 feet

Based on FAA AC 150/5300-13, Airport Design.

Source: Wadell Engineering Corporation

The Airport Layout Plan shows the future fencing program necessary for proper operation of the airport. The purpose of a properly prepared fencing program is to minimize hazards to pedestrians

and ground vehicles by separating them from aircraft as a safety measure. Furthermore, fencing allows for better definition of airport property and areas under lease to airport tenants. The fencing as shown generally reflects perimeter fencing of the airport property, but also identifies fencing necessary in the terminal areas to separate aeronautical from ground base activities. In addition, fencing should be provided to keep out non-airport activities unless a suitable lease agreement and ingress/egress permit is established.

Approach and Runway Protection Zone Plan

An Approach and Runway Protection Zone Plan, presented in the Appendix, was prepared for Bryant Field Airport. This provides plan view information for the runway approach areas.

A key function of this drawing is (1) to provide a basis for height zoning in the airport environs, and (2) to identify obstructions in the vicinity of the airport, which may have an impact on the use of the runways and adjacent airspace. The drawing was prepared using criteria contained in Federal Aviation Regulations, Part 77, "Objects Affecting Navigable Airspace."

At Bryant Field, the FAR Part 77 dimensional standards applied for runway 16-34 are those relating to "visual" runways. The plan shows imaginary primary, approach, transitional, horizontal, and conical surfaces. The primary surface surrounds the runway and extends 200 feet beyond the thresholds. The width of the primary surface is 250 feet. The elevation of the primary surface is the same as the runway centerline.

The approach surfaces rise from the ends of the primary surfaces. The slope of the surface is 20:1 with a length of 5,000 feet. The approach surface flares from an inner width equal to the primary surface to an outer width equal to 1,250 feet.

The transitional surfaces are sloped at 7:1 from the primary surface and approach surfaces until intersecting the horizontal surface. The horizontal surface is 150 feet above the airport elevation and extends 5,000 feet from the primary surface of runway 16-34. At the limit of the horizontal surface, a conical surface of 20:1 slope and a 4,000-foot width completes the required protection surfaces for this airport.

The Approach and Runway Protection Zone Plan in the Appendix indicates that the terrain east of the airport penetrates the conical and portions of the horizontal surface. It is appropriate that the aircraft traffic pattern is west of the runway.

6. IMPLEMENTATION PLANS

The Implementation Plans chapter contains information concerning the capital improvement program, the financial program, and the implementation schedule. The Implementation Plans are prepared based upon (1) the facilities required to accommodate forecast demand, and (2) the development of those facilities as discussed in Chapter 5, Airport Plans.

Capital Improvement Program

The Capital Improvement Program is comprised of (1) stages of development, and (2) cost estimates of improvements proposed in this Master Plan study. The development program is presented in three stages so that all projects can be undertaken when demand justifies development. The cost estimates are prepared in current dollars, and are to be used for planning purposes only.

Stage Development

The objectives of the first stage of development, 0-5 years, are (1) land acquisition and obstruction removal, (2) perimeter fencing and card access control gate, (3) paved overruns, (4) replacement of runway lighting, new lighted distance remaining and airfield signs, exit lighting and supplemental wind cones, (5) runway end identifier lights and precision approach path indicators, (6) automatic weather observation system, (7) runway, taxiway and apron pavement overlays with markings.

The Capital Improvement Program Cost Summary Table shows that the most significant expenditures during the 20-year capital improvement program occur in Stage I. These expenditures are needed for the runway and taxiway pavement and lighting rehabilitation.

The second stage of development, 6-10 years, includes (1) additional hangars with taxiways, (2) pavement maintenance, and (3) airport master plan update. The third stage of development, 11-20 years, primarily concerns pavement overlays.

Cost Estimates

The following Capital Improvement Program Cost Summary, Table 15, indicates the costs for each stage of development for the airport. Table 16 identifies projects within each time frame. Order of magnitude costs are indicated for planning purposes only. The project costs are separated as to FAA share and local share. The FAA portion is based on 90 percent funding. Items presently not eligible for FAA funds include revenue producing auto parking, hangar and FBO buildings, fueling systems, and utilities serving ineligible facilities.

Table 15
Capital Improvement Program Cost Summary
Bryant Field Airport
(In 2001 $)

Stage I (2000-2005)	$1,689,000
Stage II (2006-2010)	$195,000
Stage III (2011-2020)	$495,000
Total	$2,379,000
FAA/State Funds	$2,191,455
Local Funds	$187,545
Total	$2,379,000

Source: Wadell Engineering Corporation

Table 16
Capital Improvement Program Cost Estimates
Bryant Field Airport Development
(In 2001 $)

YEAR	STAGE/PROJECT DESCRIPTION	TOTAL COSTS	FAA & STATE FUNDS	LOCAL FUNDS
	STAGE 1			
2002	Land Acquisition	$ 500,000	$ 472,500	$ 27,500
2002	Perimeter Fencing with Signs	$ 20,000	$ 18,900	$ 1,100
2002	Obstruction Removal - Runway 34 Approach	$ 10,000	$ 9,450	$ 550
2002	Paved Overruns (60'x240') With Marking	$ 95,000	$ 89,775	$ 5,225
2003	Lighted Runway Distance Remaining Signs	$ 15,000	$ 14,175	$ 825
2003	Lighted Airport Signs	$ 10,000	$ 9,450	$ 550
2003	Lighted Supplemental Wind Cone - Runway 34	$ 4,000	$ 3,780	$ 220
2003	Runway End Identifier Lights (REIL)	$ 20,000	$ 18,900	$ 1,100
2003	Precision Approach Path Indicators (PAPI) - Runway 16/34	$ 115,000	$ 108,675	$ 6,325
2003	Automatic Weather Observation System (AWOS) With Telephone	$ 100,000	$ 94,500	$ 5,500
2003	Lighting Vault Renovations	$ 40,000	$ 37,800	$ 2,200
2004	Runway Exit With Lights	$ 28,000	$ 26,460	$ 1,540
2004	Parallel Taxiway - Overlay and Widen 5' With Shoulders & Reflectors	$ 140,000	$ 132,300	$ 7,700
2004	Apron Overlay & Marking	$ 112,000	$ 105,840	$ 6,160
2004	Runway Overlay & Marking with Shoulders	$ 330,000	$ 311,850	$ 18,150
2005	Card Access Control Gate	$ 15,000	$ 14,175	$ 825
2005	Reconstruct Medium Intensity Runway Lights With Duct	$ 135,000	$ 127,575	$ 7,425
	TOTAL STAGE 1	$ 1,689,000	$ 1,596,105	$ 92,895
	STAGE 2			
2009	Pavement Sealcoats & Marking	$ 70,000	$ 66,150	$ 3,850
2009	Aircraft Hangars (3)	$ 60,000	$ -	$ 60,000
2009	Airport Master Plan Update	$ 65,000	$ 61,425	$ 3,575
	TOTAL STAGE 2	$ 195,000	$ 127,575	$ 67,425
	STAGE 3			
2019	Parallel Taxiway Overlay & Marking	$ 80,000	$ 75,600	$ 4,400
2019	Apron Overlay & Marking	$ 90,000	$ 85,050	$ 4,950
2019	Runway Overlay & Marking	$ 325,000	$ 307,125	$ 17,875
	TOTAL STAGE 3	$ 495,000	$ 467,775	$ 27,225
	GRAND TOTALS	$ 2,379,000	$ 2,191,455	$ 187,545

NOTE: ASSUMES 90% FAA COMBINED WITH 4.5% STATE GRANTS.

Source: Wadell Engineering Corporation

Financial Program

A sound financial program is instrumental to the successful development of the airport. Proper planning, design, and feasibility studies are efforts spent in vain unless an adequate financing program can be developed to accomplish the improvements indicated. The goals of airport financial planning are to (1) achieve a sound economic operation, (2) provide an adequate level of public facilities, and (3) avoid taxpayer burdens by developing a reasonable financial return from the airport facility. The desirability of future airport development depends on the ability of an airport to achieve a self-supporting status and, within a reasonable time, to cover local development costs. Estimated revenues must be sufficient to help offset annual cost of capital investment and operations.

While the primary responsibility for financing proposed facility development rests with the sponsor, there are many ways that airport development funds can be supplemented. Money for capital improvements may come from a number of sources and may be used singly or in combination to accomplish airport development. Sources available during recent years for financing airport facilities include the FAA's Airport Improvement Program (AIP), the State of California, private donations, leasebacks, direct revenue loans, certificates of participation, and revenue and general obligation bonds. Also, capital improvements can be financed from general funds that are provided by annual operating and tax revenues. The more likely sources of funds are described below.

Federal Aviation Administration funds for airport development are derived from user taxes and are available for land acquisition, construction, alteration, fire fighting, and rescue vehicles and facilities, as well as for establishing and improving air navigation facilities. Both publicly-owned and privately owned public use airports are eligible for such aid provided the proposed project is included in the National Plan of Integrated Airport Systems (NPIAS). The airport is in the NPIAS. Presently, the Federal share of these projects in California is 90 percent of eligible costs.

California State Aeronautics Program funds for airport development are comprised of 90% pure state grants and also 5% grants for matching the FAA grants. The capital projects list presented above assumed that FAA would fund 90% and the state fund 5% of the FAA amount which results in the local share being 5.5% of eligible projects. In addition, each year the state gives a $10,000 annual grant to eligible public airports for operations and maintenance. For revenue producing projects such as hangar and fuel farm development the state has a low interest loan program with interest rates in the 5% range.

Certificate of Participation (COP) is a long-term financing technique using either a lease purchase or installment sale arrangement. While usually used for long-term financing of major facilities such as city or county administration, public safety, courthouse, jail, and parking garage buildings, it has also been used to finance equipment over a 3 to 10 year period. The parties of the transaction include (1) the lessee, which is the public body; (2) the lessor, which can be a non-profit or private leasing corporation or a public agency; (3) the trustee, who holds the security for the payments of the lease; (4) the paying agent (who may be the same as the trustee), who disburses the lease payments to (5) the investors, who purchase the COPs. The funds to meet the lease payments are raised on an annual appropriation basis and non-appropriation may mean the return of the asset financed or action at law or in equity. As further security for the lease payments, insurance or a third-party guarantee may be used or project revenues may be used to make lease payments if the facility is revenue producing.

Municipal Lease Purchase Financing (tax-exempt leasing) is an alternative method for financing public use and acquisition of equipment or facilities otherwise too expensive to be included in annual budgets. Leasing permits political subdivisions to enter into installment sale or lease purchase contracts with principal and tax-free interest increments payable over time. Tax-exempt lease contracts have two requirements: (1) the governmental body must pay the purchase price plus interest over a period of years, and (2) it must have the right to purchase the property for a nominal price at the end of the contract term. The funds to pay the contract installments can come from any source available to the public body. The appropriation is put in the annual budget. Should the appropriation not take place, the balance due on the contract is accelerated and the investor either receives back the asset for which the funds were spent or otherwise seeks relief.

Financing airport improvements directly from the airport enterprise fund is the most economical method of all, since there are no interest payments. Airport improvements financed by this approach could place constraints on money available from the airport fund to meet normal operating and other expenses.

For Mono County funding from the FAA and State combined with revenues from the airport fund is the most cost effective and practical method of airport development. State loans are the best sources of funding for airport hangars and fueling facilities with repayment from the airport fund.

Cash Flow Analysis

Pricing of airport services and facilities is a sensitive issue and subject to controversy. Each party may have a different perspective and motivation. While a public entity may seek a yearly return equal to yearly expenditures, private business may seek to maximize profits, and some airport users feel that a facility supported by public funds should be willing to charge less and even sometimes operate at a deficit. Local governments have to cover costs, or must accept a deficit with the view that other community revenues are increased adequately to warrant a deficit.

Many airports seek to attain a high degree of self-sufficiency and have rates and charges commensurate with the operating costs and capital improvement expenses. At other airports, local conditions and circumstances preclude charging full actual costs and a public entity may choose to absorb some of the financial burden and not pass it on to the user.

The preceding section on financing considerations indicates some of the mechanisms typically used for financing the local share for airport projects. An early determination should be made as to the most desirable and feasible approach to initiate implementation. The only long-term satisfactory way to resolve concerns regarding financing is through a strong statement of airport financial policy and aggressive implementation of that policy. For this reason, it is essential that a financial policy and program be established and monitored regularly. It should be recognized that the fees and charges levied would be less than possible with private facilities because public agencies can receive Federal funding for facility development.

The estimated Bryant Field Airport Financial Analysis, presented on the Cash Flow Analysis Table 17, is a key element of this study. Through this analysis, the capital improvement program and the projection of annual operating income and expenses are brought together to establish an estimate of the future financial condition over the twenty-year planning period for the airport.

Table 17
Cash Flow Analysis
Bryant Field Airport
(In 000's of 2001 $)

	YEAR	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
INCOME																					
Based Aircraft Tiedowns		0.0	0.0	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transient Aircraft Tiedowns		0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Hangars - Old		0.4	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Hangars - New		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Fuel Net Revenue		0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
	Total	1.1	2.5	2.9	2.9	3.4	3.4	3.4	3.4	3.5	12.6	12.6	12.6	12.6	12.7	12.7	12.7	12.8	12.8	12.8	12.8
EXPENSE																					
Salaries		0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Airport Maintenance		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Supplies		3.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Insurance		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Utilities		2.7	2.7	2.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Miscellaneous Expenses		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Total	20.5	20.5	20.5	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3
ANNUAL STATE ALLOCATION		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
OPERATING PROFIT (LOSS)		-9.4	-8.0	-7.5	-8.4	-7.9	-7.9	-7.9	-7.9	-7.8	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5
CAPITAL IMPROVEMENT PROGRAM																					
Total Project Cost		0.0	625.0	304.0	610.0	150.0	0.0	0.0	0.0	195.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	495.0	0.0
FAA / State Share		0.0	590.6	287.3	576.5	141.8	0.0	0.0	0.0	127.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	467.8	0.0
Local Share		0.0	34.4	16.7	33.6	8.3	0.0	0.0	0.0	67.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2	0.0
ANNUAL CASHFLOW		-9.4	-42.4	-24.3	-41.9	-16.2	-7.9	-7.9	-7.9	-75.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.5	-25.7	1.5
ACCUMULATIVE CASHFLOW		-9.4	-51.7	-76.0	-117.9	-134.1	-142.0	-149.8	-157.7	-232.9	-231.7	-230.4	-229.1	-227.8	-226.4	-225.0	-223.6	-222.2	-220.7	-246.4	-244.8

Source: Wadell Engineering Corporation

The Cash Flow Analysis is stated in terms of constant 2001 dollars and is based on several components:

- Operating income
- Operating expense
- Operating profit/loss
- Capital requirements
- Annual cash flow
- Accumulative cash flow

A philosophy and fee schedule must be established in order to assure that adequate operating income is collected. It is necessary to generate significant revenue at the airports to provide for matching of FAA and state grants in order to implement the capital improvement program. The underlying assumption for the income schedule is that the local pilots and other users sincerely desire development of new airfield and terminal facilities, and are willing to pay appropriate fees.

Bryant Field Airport competes with other airports in the region for receiving Federal and State aid. Only airports with available grant matching funds can receive grants. Revenue must be generated on the airport with the intent that it will be returned to users in the form of grants for airport improvements.

The Bryant Field Airport is an important asset to the County. In order to achieve full potential, the airport needs to generate some revenues. Sound lease policies and rate structures must be established with the goal of providing sufficient revenues so that the airport can meet its housekeeping responsibilities and develop a reserve for future expansion.

Table 18
Major Revenue Assumptions
Bryant Field Airport

Tiedowns: Based $35/month
Tiedowns: Transient $5/night
Hangars:
New $275/month
Old $150/month

Source: Wadell Engineering Corporation

The operating income is comprised mostly of based aircraft tiedowns, transient aircraft parking fees, new hangars, old hangars, and fuel flowage fees. New prevailing rates and charges were assumed to be established based on adjustments to lease rates currently in effect.

New hangar construction is planned for the airport during the planning period. New hangar revenue will be a good source of income for the County. Lease rates on these hangars should be set so that the revenue produced will offset the cost of construction and provide a capital recovery fund.

The operating expenses for the airport are comprised primarily of salaries, maintenance labor and supplies, insurance, utilities, and miscellaneous. It is assumed that there will be minor salary

charges to the airport by county staff. Salaries related to capital projects would be part of the capital cost and would be reimbursable under FAA grants.

Airport maintenance related labor is expended as necessary. It is assumed that there would be no increase in both maintenance labor and materials because the airport is being maintained and reconstructed with FAA and state funded overlay, sealcoat and lighting projects. While it might be expected that maintenance costs would increase rapidly due to aging facilities, the capital improvement program provides for reconstruction of eligible airport paving and lighting systems thereby precluding the expense of major maintenance programs. However, supplies will increase as more light bulbs are replaced and additional visitors use the facilities.

Utilities will increase primarily for electricity related to additional lighting at the airport when the runway and taxiway system is expanded. Miscellaneous costs include attendance by airport staff at state and FAA meetings and special community related activities. The major expense assumptions and their increases are listed in the following table.

Table 19
Major Expense Assumptions
Bryant Field Airport

Salaries	$800/year.
Airport Maintenance	$12,000/year, no increase.
Supplies	$3,000/year, increasing to $3,500 in 2004.
Insurance	$1,500/year, no increase.
Utilities	$2,700/year, increasing to $3,000/year in 2004.
Miscellaneous Expenses	$500/year, no increase.

Source: Wadell Engineering Corporation

Based on the revenue and expense assumptions, the annual income and expenses were combined to determine the operating profit (loss). When the operating profit (loss) is coupled with the local share of new capital requirements, the cash flow results. Even with the state's annual $10,000 allocation, the airport generates negative results half of the years through the year 2020. New hangar revenue increases the annual cash flow significantly.

When combined with the County share of new capital to match grants for capital improvements, there is a negative accumulative cashflow. The cash flow analysis utilizes current dollars and airport operations on a "cash basis."

Sources of financing have not been applied, such as loans for hangar development. Yet during the 20 year planning period the airport will have been reconstructed, expanded, and new revenue-producing county owned hangars developed. After the planning period, there would not be any significant FAA/State and local capital requirements other than maintenance and repair of facilities as they age.

Two vital assumptions used in the Cash Flow Analysis tables are (1) the willingness and cooperation of the based aircraft owners and visitors to pay new fees to the airport fund and (2) the FAA and state funding will occur and will be 94.5 percent of all eligible items.

Implementation Schedule

The efforts in the planning process are brought to fruition through acceptance of the Master Plan, followed by implementation steps that include incorporation into the general plan, updating of zoning, and seeking grant funds. The Airport Layout Plan approval occurs after completion of the FAA review and coordination among the divisions of the FAA.

The implementation schedule for the Stage I capital improvements is shown in the following table. The Stage I capital improvements recommended in the Stage Development Program are to be implemented (1) as requirements for facilities arise, and (2) in a manner consistent with the financial capabilities of the County.

Table 20
Implementation Schedule
Bryant Field Airport

STAGE I ACTIVITIES	INITIATION DATE
FAA Grant Applications	Spring 2002
FAA Stage 1 Funding	Spring 2003
Surveying, Design and Bidding	Winter & Spring 2003
Construction	Summer 2003

Source: Wadell Engineering Corporation

APPENDICES

A. Glossary A1
B. Airport Plans B1
- Airport Layout Plan
- Approach and Runway Protection Zone Plan
- Stage Development Plan
- Airport Land Use Plan

APPENDIX A
GLOSSARY
BRYANT FIELD AIRPORT

Aircraft Approach Category. A grouping of aircraft based on 1.3 times stall speed in a landing configuration at maximum certificated landing weight. The categories are A, B, C, D, and E.

Airplane Design Group (ADG). A grouping of airplanes based on wingspan. The groups are I, II, III, IV, V, and VI.

Airport Elevation. The highest point on an airport's usable runway expressed in feet above mean sea level (MSL).

Airport Layout Plan (ALP). The plan of an airport showing the layout of existing and proposed airport facilities. All development must be in accordance with the FAA approved ALP.

Airport Reference Code (ARC). A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. The code has two components relating to the airport design aircraft. The first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed. The second component, depicted by a Roman numeral, is the airplane design group and relates to airplane wingspan.

Airport Reference Point (ARP). The latitude and longitude of the approximate center of the airport.

Blast Fence. A barrier used to divert or dissipate jet blast or propeller wash.

Building Restriction Line (BRL). A line which identifies suitable building area locations on airports.

Clearway (CWY). A defined rectangular area beyond the end of a runway cleared or suitable for use in lieu of runway to satisfy takeoff distance requirements.

Compass Calibration Pad. An airport facility used for calibrating an aircraft compass.

Declared Distances. The distances are:

Takeoff run available (TORA) - the runway length available for takeoff.

Takeoff distance available (TODA) - the runway length available for takeoff plus the length of available clearway (CWY).

Accelerate-stop distance available (ASDA) - the runway length available for takeoff plus the length of available stopway (SWY).

Landing distance available (LDA) - the runway length available for landing.

Hazard to Air Navigation. An object that the FAA determines will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft, operation of air navigation facilities, or existing or potential airport capacity.

Large Airplane. An airplane weighing more than 12,500 pounds (5,700 kg) maximum certificated takeoff weight.

Master Plan. An airport planning study to identify existing facilities, to determine facilities required to meet future needs and to prepare graphics and a capital improvement program depicting future facilities and development. The Airport Layout Plan is the primary document that results from the master plan.

Object. Includes, but is not limited to above ground structures, NAVAIDs, people, equipment, vehicles, natural growth, terrain, and parked aircraft.

Object Free Area (OFA). A two-dimensional ground area surrounding runways, taxiways, and taxilanes which is clear of objects except for objects whose location is fixed by function.

Obstacle Free Zone (OFZ). The airspace defined by the runway OFZ and, as appropriate, the inner-approach OFZ and the inner-transitional OFZ, which is clear of object penetrations other than frangible NAVAIDs.

Runway OFZ - The airspace above a surface centered on the runway centerline.

Inner-approach OFZ - The airspace above a surface centered on the extended runway centerline. It applies to runways with an approach lighting system.

Inner-transitional OFZ - The airspace above the surfaces located on the outer edges of the runway OFZ and the inner-approach OFZ. It applies to precision instrument runways.

Obstruction to Air Navigation. An object of greater height than any of the heights or surfaces presented in Subpart C of FAR Part 77. Obstructions to air navigation are presumed to be hazards to air navigation until an FAA study has determined otherwise.

Runway (RW). A defined rectangular surface on an airport prepared or suitable for the landing or takeoff of airplanes.

Runway Blast Pad. A surface adjacent to the ends of runways provided to reduce the erosive effect of jet blast and propeller wash.

Runway Protection Zone (RPZ). An area, formerly the clear zone, used to enhance the safety of aircraft operations. It is at ground level beyond the runway end.

Runway Safety Area (RSA). A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Runway Type. A runway use classification related to its associated aircraft approach procedure. The runway types are:

> **Visual runway** - A runway without an existing or planned straight-in instrument approach procedure.

Nonprecision instrument runway - A runway with an approved or planned straight-in instrument approach procedure which has no existing or planned precision instrument approach procedure.

Precision instrument runway - A runway with an existing or planned precision instrument approach procedure.

Shoulder. An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface, support for aircraft running off the pavement, enhanced drainage, and blast protection.

Small Airplane. An airplane weighing 12,500 pounds (5,700 kg) or less maximum certificated takeoff weight.

Stopway (SWY). A defined rectangular surface beyond the end of a runway prepared or suitable for use in lieu of runway to support an airplane, without causing structural damage to the airplane, during an aborted takeoff.

Taxilane (TL). The portion of the aircraft parking area used to access taxiways and aircraft parking positions.

Taxiway (TW). A defined path established for the taxiing of aircraft from one part of an airport to another.

Taxiway Safety Area (TSA). A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

Threshold (TH). The beginning of that portion of the runway available for landing. When the threshold is located at a point other than at the beginning of the pavement, it is referred to as either a displaced or a relocated threshold depending on how the pavement behind the threshold is used.

Displaced threshold - the portion of pavement behind a displaced threshold is available for takeoffs in either direction and landings from the opposite direction.

Relocated threshold - the portion of pavement behind a relocated threshold is not available for takeoff or landing. It may be available for taxiing of aircraft.

Transport Airport. An airport designed, constructed, and maintained to serve airplanes in Aircraft Approach Category C and D.

Utility Airport. An airport designed, constructed, and maintained to serve airplanes in Aircraft - Approach Category A and B.

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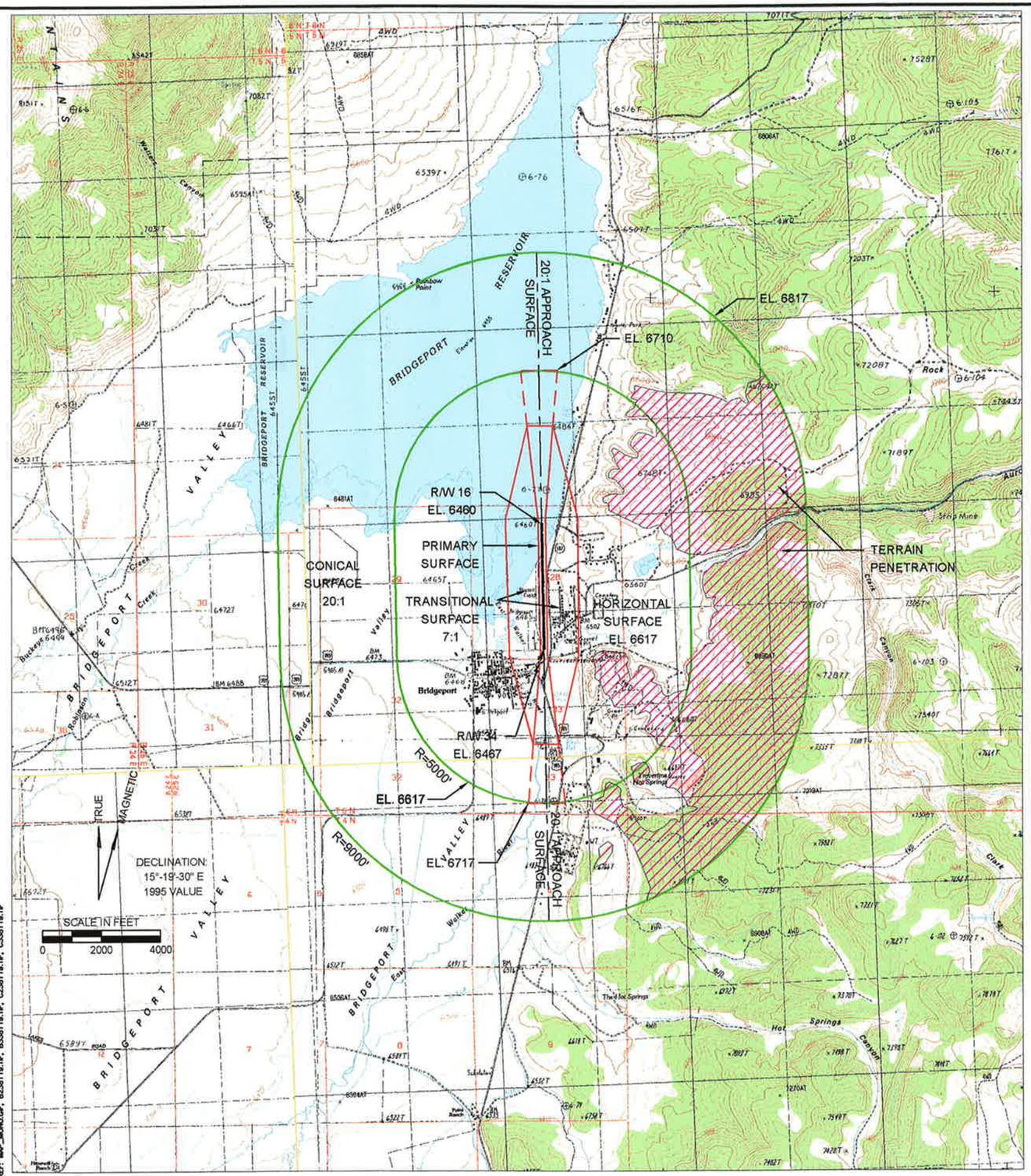
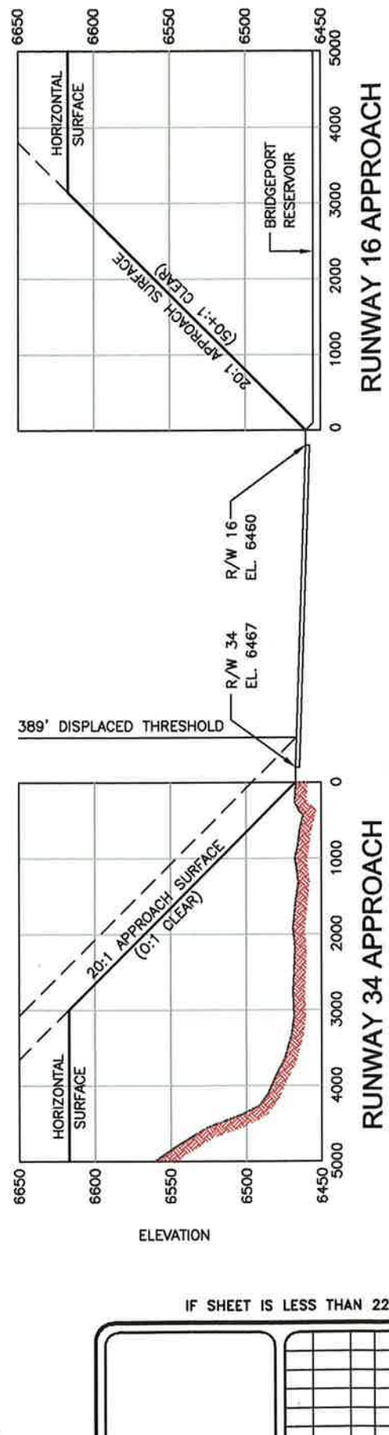
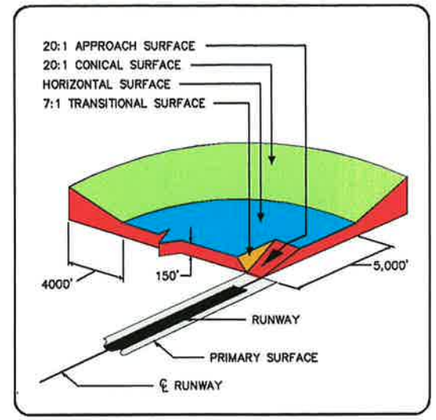




ISOMETRIC VIEW



NOTES:

1. HEIGHT RESTRICTION ZONING IS PRESENTLY IN EFFECT.
2. THIS PLAN IS INTENDED TO PRESERVE AND PROTECT FOR A 4239' BASIC UTILITY RUNWAY WITH VISUAL APPROACHES.
3. PENETRATIONS OF THE APPROACH, TRANSITIONAL, AND CONICAL SURFACES ARE AS PRESENTED AND TABULATED.
4. PROFILES REPRESENT A COMPOSITE OF THE HIGHEST TERRAIN IN THE APPROACH SURFACES.
5. ROAD ELEVATIONS INCLUDE 15' FOR CLEARANCE REQUIREMENTS.
6. RUNWAY 34 HAS A 389' THRESHOLD DISPLACEMENT.
7. INFORMATION SOURCE: CURRENT U.S.G.S. BASE MAPS, TOPOGRAPHIC SURVEY OF MAY 2000.
8. AIRPORT ELEVATION IS 6467' MSL. AIRPORT REFERENCE POINT COORDINATES ARE AS FOLLOWS:

	EXISTING	FUTURE
LATITUDE	38°15'50.85"	SAME
LONGITUDE	119°13'21.80"	SAME

SUMMARY OF APPROACH CRITERIA

RUNWAY 16-34	EXISTING	FUTURE
NAVAIDS	NONE	NONE
TYPE	VISUAL	VISUAL
APPROACH SURFACE		
LENGTH	5000'	5000'
SLOPE	20:1	20:1
CLEAR ZONE		
INNER WIDTH	250'	250'
OUTER WIDTH	1250'	1250'
LENGTH	5000'	5000'

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BRYANT FIELD AIRPORT
A COUNTY OF MONO AVIATION FACILITY
BRIDGEPORT CALIFORNIA

APPROACH AND RUNWAY
PROTECTION ZONE PLAN

DRAWING 1 / OF 1
SCALE AS SHOWN
DATE OCT 2002
JOB NUMBER 1302
DRAWING NUMBER 1302-BFRPZ

WADELL ENGINEERING CORPORATION AIRPORT PLANNING • ENGINEERING • MANAGEMENT san francisco bay area

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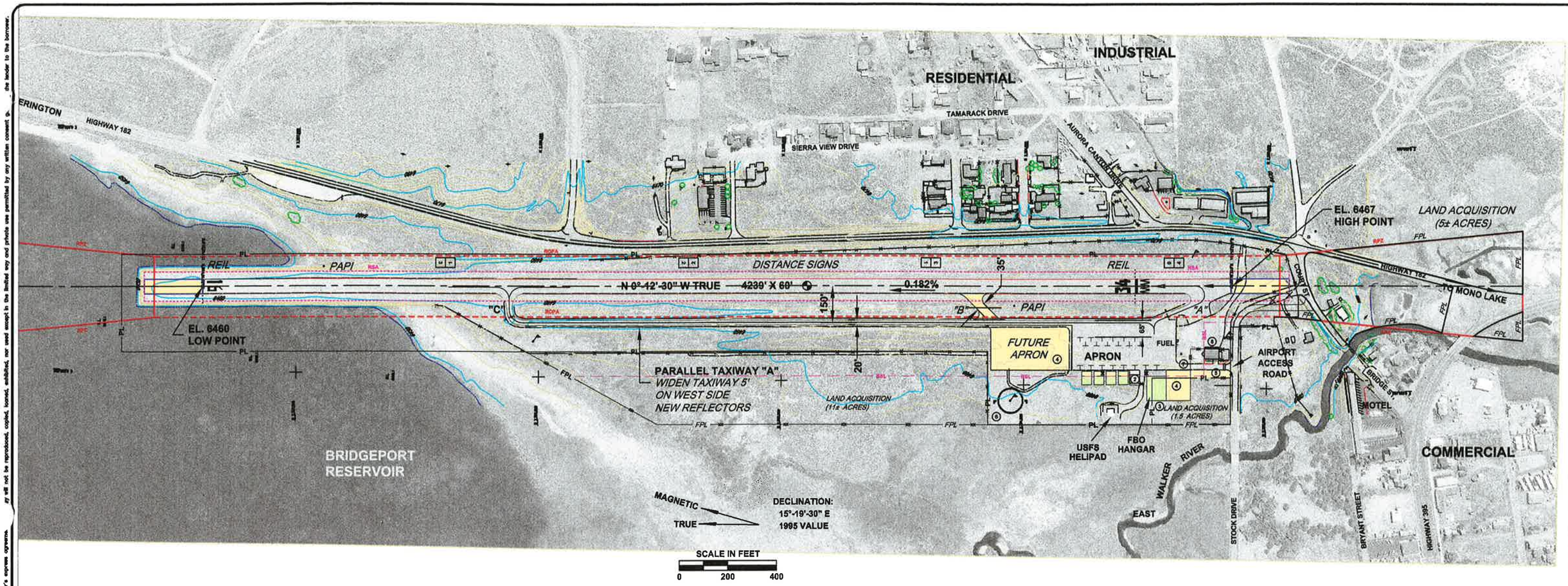
* Title dr.



LEGEND

	EXISTING	FUTURE
AIRPORT REFERENCE POINT		SAME
AIRPORT PROPERTY LINE	PL	FPL
AVIGATION EASEMENT		
BUILDING SETBACK LINE	BSL	SAME
RUNWAY SAFETY AREA	RSA	SAME
RUNWAY PROTECTION ZONES	RPZ	SAME
BUILDINGS		
DRAINAGE		
FACILITIES		
FACILITY TO BE REMOVED	N/A	
FENCE		
LIGHTING		
WIND CONE		

FACILITY DATA

1	AIRPORT BEACON (ON SOUTHEAST HILL)
2	HANGARS
3	*FBO SITES*
4	APRON
5	*AUTO PARKING*
6	*AUTOMATED WEATHER OBSERVATION SYSTEM*
7	*FUTURE CARD ACCESS GATE*
8	USFS OFFICE / SHOP

AIRPORT DATA

		EXISTING	FUTURE
AIRPORT REFERENCE CODE CATEGORY		A-I	SAME
ELEVATION (MSL)		6467'	SAME
TEMPERATURE (MEAN MAX. OF HOTTEST MONTH)		84°F	SAME
REFERENCE POINT COORDINATES (NAD 83)	LATITUDE	N 38°-15'-50.85"	SAME
	LONGITUDE	W 119°-13'-21.60"	SAME
NAVIGATIONAL AIDS		NONE	GPS
ACREAGE	FEE TITLE	48.34	61.84
	AVIGATION EASEMENT	6.98	SAME
BASED AIRCRAFT PARKING DEMAND	TIEDOWNS	2	0
	HANGARS/SHELTERS	1	4
	TOTAL	3	4
TRANSIENT AIRCRAFT TIEDOWN DEMAND		5	10
AIRPORT RESCUE & FIRE FIGHTING INDEX (ARFF)		N/A	N/A

TAXIWAY DATA

T/W	TYPE	PAVEMENT SURFACE	PAVEMENT WIDTH		STRENGTH (1000#) SINGLE GEAR		SIGNING/ LIGHTING	
			EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
A	PARALLEL	ASPHALT	20'	25'	12.5	SAME	REFLECTORS	SAME
B	EXIT	ASPHALT	N/A	35'	N/A	12.5	N/A	REFLECTORS
C	EXIT	ASPHALT	20'	25'	12.5	SAME	REFLECTORS	SAME

RUNWAY DATA

			RUNWAY 16-34	
			EXISTING	FUTURE
RUNWAY CATEGORY			A-I	SAME
RUNWAY CLASSIFICATION			UTILITY	SAME
PHYSICAL LENGTH, WIDTH, AND SURFACE			4239' x 60', ASPHALT	SAME
THRESHOLD DISPLACEMENT (D) OR RELOCATION (R)			NONE / 389(D)	SAME
EFFECTIVE GRADIENT (%)			0.182	SAME
PAVEMENT STRENGTH (1000#) SINGLE GEAR			30	12.5
LIGHTING AND VISUAL AIDS			MIRL / SIGNS	+PAPI / REIL
MARKING			BASIC	SAME
CRITICAL DESIGN AIRCRAFT	RUNWAY LENGTH		C-182	SAME
	PAVEMENT STRENGTH		MU-2	SAME
	WINGSPAN		C-182	SAME
INSTRUMENT APPROACH TYPE/ RUNWAY FAR PART 77 CATEGORY	16		VISUAL	NON-PRECISION
	34		VISUAL	NON-PRECISION
APPROACH SLOPE: REQUIRED/CLEAR	16		20:1 / 50+:1	SAME
	34		20:1 / 0:1	SAME
APPROACH & LANDING AIDS	16		NONE	GPS
	34		NONE	GPS
RUNWAY END COORDINATES (NAD 83)	16	LAT.	N 38°-16'-11.8"	SAME
		LONG.	W 119°-13'-21.8"	SAME
	34	LAT.	N 38°-16'-29.8"	SAME
		LONG.	W 119°-13'-21.7"	SAME
RUNWAY SAFETY AREA DIMENSIONS:	WIDTH		120'	SAME
	LENGTH (240' BEYOND END)		4719'	SAME
RUNWAY PROTECTION ZONE DIMENSIONS: (INNER/OUTER/LENGTH)	16		250/450/1000	SAME
	34		250/450/1000	SAME
RUNWAY OBSTACLE FREE ZONE AIRCRAFT			SMALL	SAME
WIND COVERAGE (%)	12 MPH ALL WEATHER		N/A	SAME
	15 MPH ALL WEATHER		N/A	SAME

FAA APPROVAL

COUNTY OF MONO

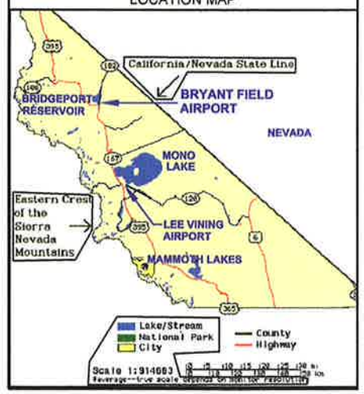
By: _____ Date: _____
Richard Boardman

Title: Director of Public Works

NOTES

1. ALL AIRFIELD PAVEMENTS ARE ASPHALTIC CONCRETE.
2. SITING OF NAVAIDS AND LIGHTING AIDS SUBJECT TO FAA REVIEW AND DESIGN
3. TOPOGRAPHY SOURCE MAY 12, 2000 PHOTOMAPPING.
4. THE AIRPORT IS NOT SUBJECT TO FLOODING.
5. AN AIRPORT HEIGHT ZONING ORDINANCE IS IN EFFECT.
6. CLEAR SLOPES ARE BASED ON FAA 5010 DATA.
7. RUNWAY 34 IS 27:1 TO DISPLACED THRESHOLD.
8. NO SITE SPECIFIC WIND DATA IS AVAILABLE.
9. DISPLACED THRESHOLD COORDINATES ARE:
   N 37°-57'-12.8" W 119°-06'-14.6" ELEVATION: 6467'

LOCATION MAP



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A COUNTY OF MONO AVIATION FACILITY
BRIDGEPORT CALIFORNIA

AIRPORT LAYOUT PLAN

JOB NUMBER 1302 | DRAWING NUMBER 1302-BFALD

DRAWING 1 / OF 1

SCALE AS SHOWN

DATE OCT 2002

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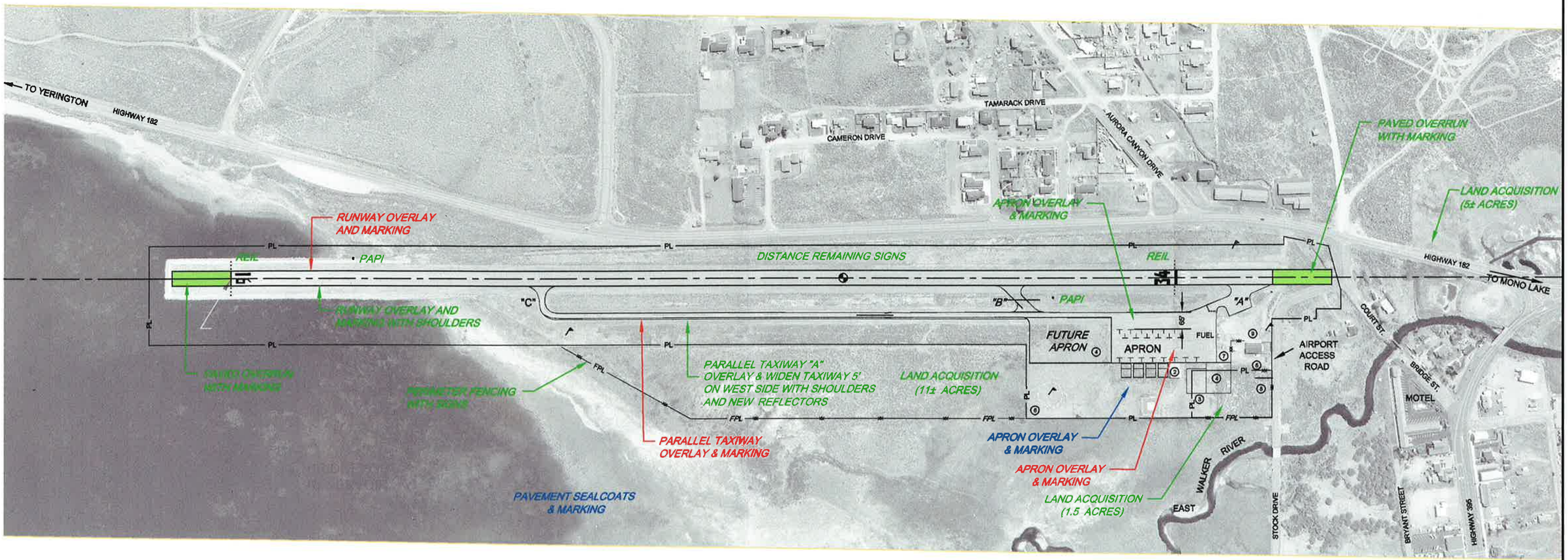

MAGNETIC
TRUE
DECLINATION:
15°-19'-30" E
1995 VALUE

SCALE IN FEET
0 200 400

STAGE 1	2000 TO 2005
STAGE 2	2006 TO 2010
STAGE 3	2011 TO 2020

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BRYANT FIELD AIRPORT

A COUNTY OF MONO AVIATION FACILITY

BRIDGEPORT CALIFORNIA

STAGE DEVELOPMENT PLAN

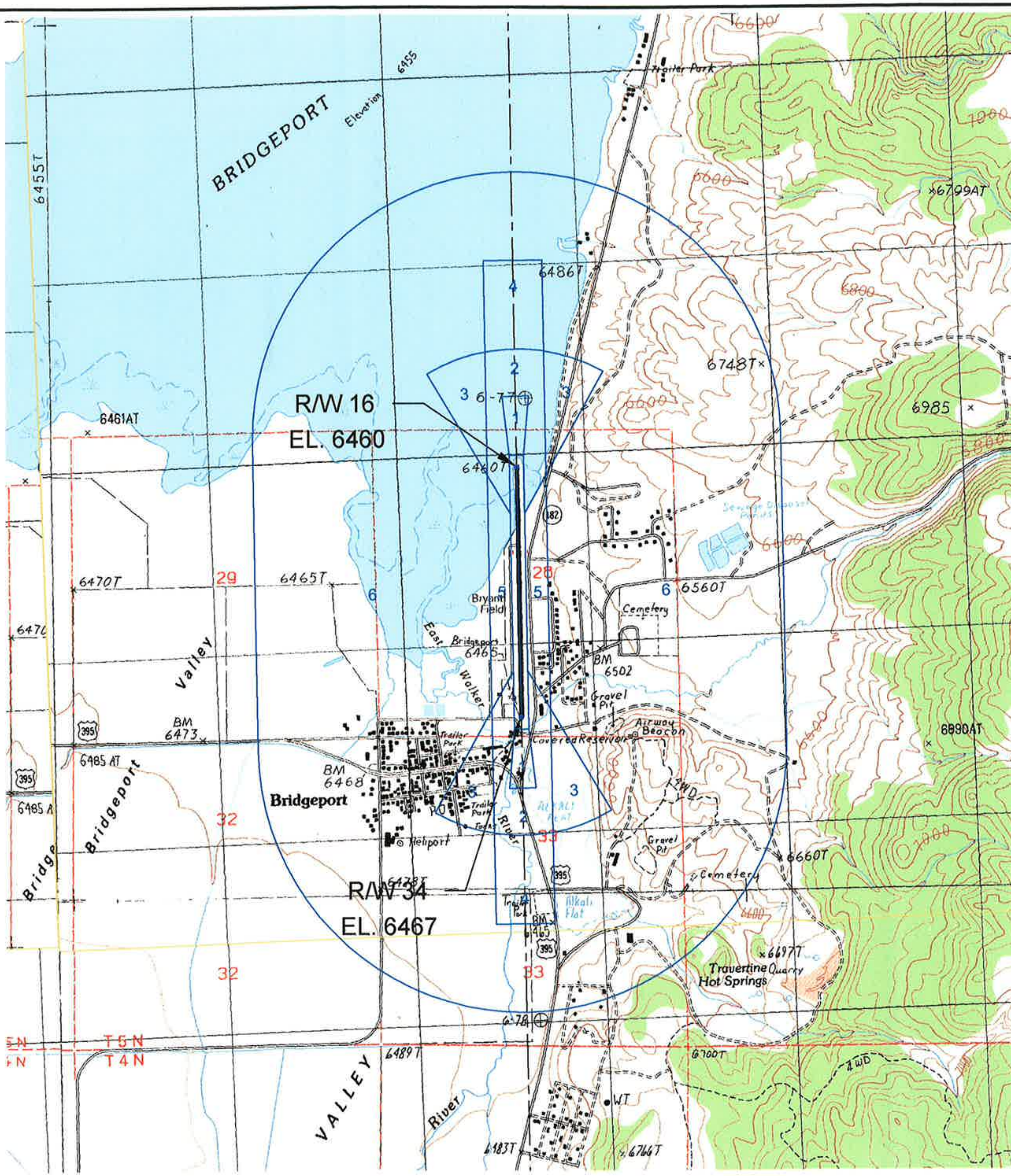
DRAWING 1 / OF 1

NO.	DATE	BY	REVISIONS

DRAWN DLH | CHECKED | DESIGNED REV | JOB NUMBER 1302 | DRAWING NUMBER 1302-BFSDP | SCALE AS SHOWN | DATE OCT 2002

WADELL ENGINEERING CORPORATION AIRPORT PLANNING · ENGINEERING · MANAGEMENT san francisco bay area

1302-BFSDP 10-01-02 (1=1) XREF: X-BRDR, 79127B REF: BRIDGEPORT.TIF, MAP_MONO.GIF



LEGEND:

1 RUNWAY PROTECTION ZONE
2 INNER APPROACH/DEPARTURE ZONE
3 INNER TURNING ZONE
4 OUTER APPROACH/DEPARTURE ZONE
5 SIDELINE ZONE
6 TRAFFIC PATTERN ZONE

TRUE
MAGNETIC
DECLINATION:
15°-19'-30" E
1995 VALUE

SCALE IN FEET
0 1000 2000

NOTE: SEE CALTRANS AIRPORT LAND USE MANUAL FOR DISCUSSION.

IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT – SCALE REDUCED ACCORDINGLY

1302-BFALUP 09-30-02 (1=1) XREF: X-BRDR, USGS-B2-B3-C2-C3
REF: B238119.TIF, B338119.TIF, C238119.TIF, C338119.TIF

NO.	DATE	BY	REVISIONS
DRAWN DLH	CHECKED		DESIGNED REV

BRYANT FIELD AIRPORT
A COUNTY OF MONO AVIATION FACILITY
BRIDGEPORT CALIFORNIA

AIRPORT LAND USE PLAN

JOB NUMBER 1302 | DRAWING NUMBER 1302–BFALUP

DRAWING 1 OF 1
SCALE AS SHOWN
DATE OCT 2002

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