

An aerial photograph showing a mix of agricultural fields, a residential neighborhood, and an airport. The airport is centrally located, with runways and taxiways visible. To the south and west, there is a dense residential area with many houses and winding roads. The surrounding landscape is mostly flat with various shades of green and brown, indicating different types of crops or land use. The text is overlaid on the image in white, bold, sans-serif font.

**RIO VISTA MUNICIPAL AIRPORT
MASTER PLAN UPDATE**

CITY OF RIO VISTA

June 2007

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MASTER PLAN UPDATE**

Prepared for

CITY OF RIO VISTA

The preparation of this report was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official view or policy of the FAA. Acceptance of this report 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 in accordance with appropriate laws.

Prepared by

**ARIES CONSULTANTS LTD.
Morgan Hill, California**

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Chapter 1

EXECUTIVE SUMMARY

1.1 INTRODUCTION

In 2003, the City of Rio Vista (the City) initiated an Airport Master Plan Update for the Rio Vista Municipal Airport (Baumann Field) also referred to as the Airport throughout this report. The purpose of the study was to determine the type and extent of aviation facilities needed at the Airport through the year 2025 and to prepare an Airport Master Plan Update to accommodate the required development.

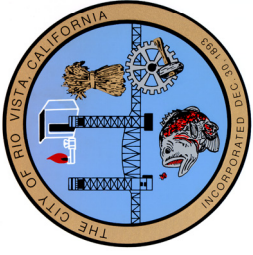
Rio Vista Municipal Airport (Baumann Field) is geographically located 3 statute miles north of the center of the business district of the City of Rio Vista in Solano County, California. The Airport is located on about 273 acres of land at an elevation of 20 feet above mean sea level (MSL). The Airport is classified as a General Aviation Airport in the *National Plan of Integrated Airport Systems* (NPIAS) prepared by the Federal Aviation Administration (FAA). The Airport is classified as a Regional Airport in the *California Aviation System Plan* (CASP) prepared by the State of California, Department of Transportation (Caltrans), Division of Aeronautics. The location of the Airport with respect to nearby communities and other airports in the area is illustrated on Figure 1-1.

The Airport Master Plan Update was prepared by Aries Consultants Ltd. of Morgan Hill, California, and coordinated with the City, FAA, Caltrans and other State and local organizations.

1.2 HISTORY OF THE AIRPORT

In 1984 the City adopted the *Rio Vista Airport Site Selection and Master Plan Study* and certified the *Environmental Impact Report and Environmental Assessment* to relocate the Rio Vista Municipal Airport to a new site. The study was funded in part through an Airport Improvement Program grant from the Federal Aviation Administration with the overall objective of preparing a comprehensive review and evaluation of the existing and future requirements for an airport to serve the Rio Vista area and be a general aviation reliever airport for the air carrier airports in the northeast San Francisco Bay Area and the Sacramento Area.

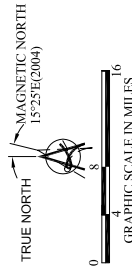
The new Rio Vista Municipal Airport site was selected at the corner of Airport Road and Baumann Road and beginning in 1985 the City received several FAA Airport Improvement Program grants to develop the new airport. The Rio Vista Public



RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

LOCATION MAP

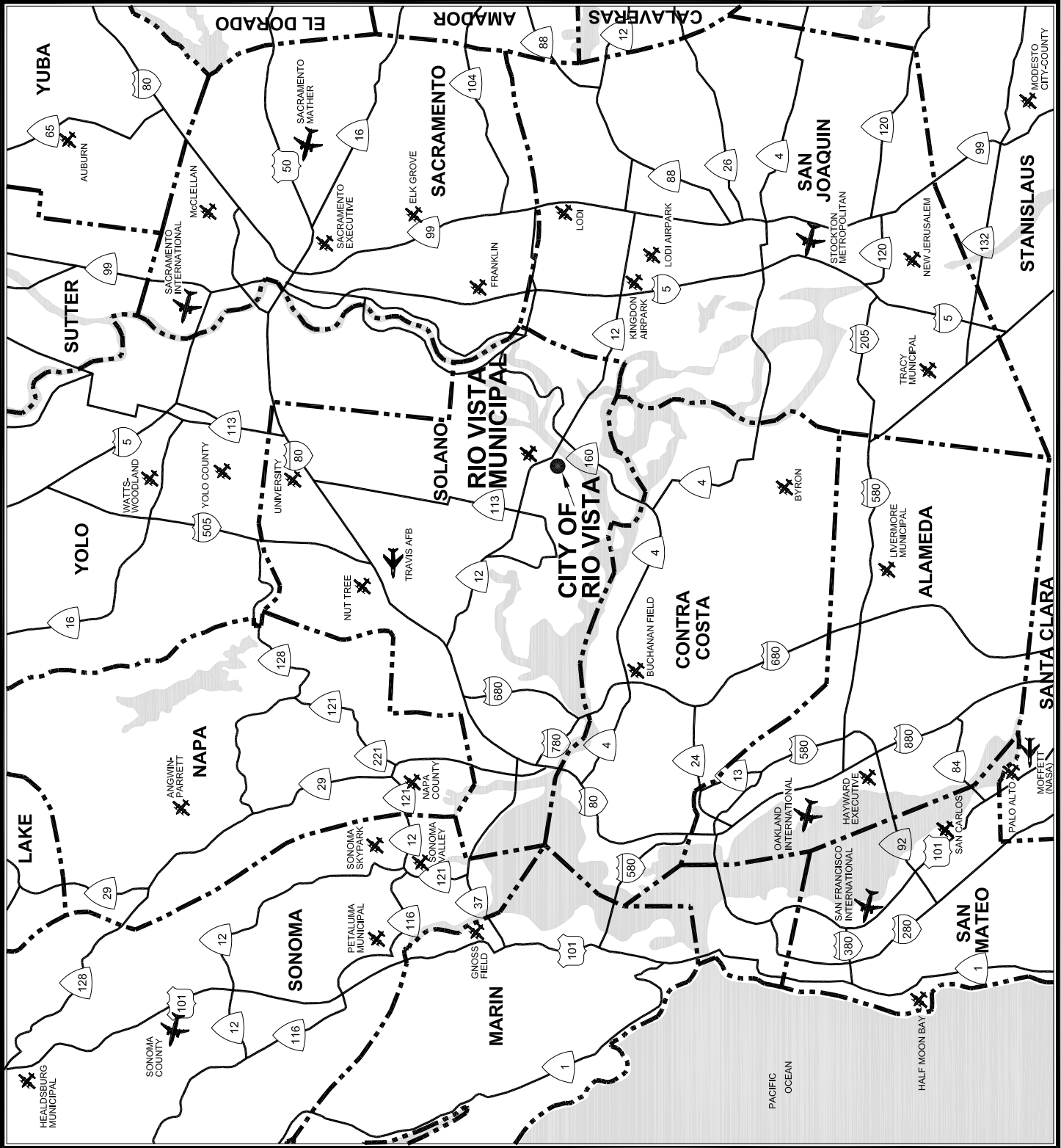
LEGEND	
	AIR CARRIER AIRPORT
	GENERAL AVIATION AIRPORT
	MILITARY AIRPORT
	HELIPORT
	INTERSTATE HIGHWAY
	FEDERAL HIGHWAY
	CALIFORNIA STATE HIGHWAY



NOTE: THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

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RIO VISTA MUNICIPAL AIRPORT	FIGURE
SOLANO COUNTY, CALIFORNIA	1-1
NAME: R/V-A-01-11-01	DATE: JUN 11, 2007
TIME: 9:59 AM	PILOT SCALE: 1"=137,280'



Financing Authority loaned money to the Airport Enterprise Fund to close the airport at its old location and provide the local matching funds for the FAA grants to develop the new Airport. The Airport officially opened on May 2, 1994.

Several airport development projects occurred in the late 1990s including construction of a new exit taxiway for Runway 7-25 and a water pollution abatement facility. The projects also included a new airport terminal/administration building and storm drainage, water, sewer, electrical and telephone utilities to the Airport Industrial Park. These projects were funded through grants from the U.S. Department of Commerce, Economic Development Administration; State of California Department of Housing and Community Development; California Aid to Airports Program; and the Federal Aviation Administration. The City of Rio Vista also contributed to funding the projects.

1.3 CITY OF RIO VISTA'S GOALS, OBJECTIVES AND ISSUES

The City recognizes that the Airport is a valuable public facility and can be a catalyst for economic development. An Airport Master Plan has not been prepared for the Airport since the *Rio Vista Airport Site Selection and Master Plan Study* was prepared in 1984. The overall goal of the City in preparing the Airport Master Plan Update is to identify the facilities and services that will be required by the aviation community and develop a plan that will provide the necessary guidance to the City for continuous development of the Airport through a 20-year planning horizon.

The goal of the City for the Rio Vista Municipal Airport is to continue to develop and maintain a viable public airport. The objectives in achieving this goal are presented in the *City of Rio Vista General Plan 2001* as follows:

- *The City shall operate the Airport in a safe and cost-effective manner, consistent with the needs of the public and Federal Aviation Administration regulations.*
- *The City shall ensure that the Airport operations remain compatible with adjacent land uses.*
- *The City shall direct growth away from areas containing land uses that are incompatible with future development.*

This Airport Master Plan Update was prepared for the Rio Vista Municipal Airport, and through the coordination and public participation process, identified the issues and concerns to be addressed during the planning process.

1.4 AIRPORT MASTER PLAN UPDATE FINDINGS AND RECOMMENDATIONS

The Airport Master Plan Update (the Plan) integrates long-term airfield and terminal area requirements with current and forecast aviation needs. It represents a guide for airport development through the year 2025 planning period and indicates possible developments beyond the year 2025 for which land should be reserved at this time. The principal findings and recommendations of the Plan are summarized below.

1.4.1 Aviation Demand Forecasts

- The FAA forecasts general aviation and air taxi aircraft to increase by an estimated 18,500 aircraft over the short-term 12-year period (through 2014), an average annual increase of 0.7 percent.
- The California Aviation System Plan predicts that based aircraft in the San Francisco Bay Area will increase within a range of 1.2 and 1.3 percent through 2010, and annual general aviation aircraft operations will increase within a range of 1.4 and 2.3 percent through 2010.
- The number of based aircraft at the Rio Vista Municipal Airport is forecast to increase from 56 aircraft in 2003 to 80 aircraft by 2025, an average annual increase of 1.6 percent.
- The number of annual aircraft operations at the Rio Vista Municipal Airport is forecast to increase from an estimated 35,100 annual operations in 2003 to 52,500 annual operations by 2025, an average annual increase of 1.8 percent.

1.4.2 Potential Demand for Commuter Airline Service

- The potential demand for commuter airline service at the Rio Vista Municipal Airport was analyzed to determine the potential for this type of service at the Airport.
- The airline and commuter service already established at the Metropolitan Oakland International and Sacramento International Airports would offer significant competition to any scheduled commuter airline service at the Rio Vista Municipal Airport. Therefore, it is unlikely that commuter service would be initiated at the Rio Vista Municipal Airport in the future.

1.4.3 Airport Property

- It is recommended that the City acquire certain lands outside the present Airport property line for future Airport development and protection as follows:

- Acquire 74 acres to the east for the extension of Runway 7-25 and associated runway protection zone from the State of California, Department of Water Resources/State Reclamation Board.
- Acquire 35 acres of privately-owned land to the north of Runway 7-25 for development of future aviation uses.

1.4.4 Airfield

- Runway 7-25 is planned as an ultimate 5,900-foot runway with a width of 75 feet to handle business jet and large propeller aircraft (e.g., Beech King Air and Cessna Citation III) in airport reference code (ARC) B-II of over 12,500 pounds expected to use the Airport during the planning period. It is recommended that Runway 7-25 be extended 1,700 feet to the east.
- Medium intensity runway lighting (MIRL) is planned along the runway extension. The existing runway end identification lights (REIL) and precision approach path indicators (PAPI-2) at the existing end of Runway 25 will need to be relocated along with the runway extension. Nonprecision instrument markings should be painted on both ends of Runway 7-25 from the future thresholds to the midpoint of the runway.
- The existing pavement strength is adequate for the aircraft presently using and expected to use the Airport in the future, including some business jets. However, the runway pavement would need strengthening if regularly used by aircraft, heavier than 30,000 pounds or 60,000 pounds single or dual-wheel configuration, respectively, in the future.
- The Plan provides for the extension of the existing parallel Taxiway A for a full-length parallel taxiway south of Runway 7-25, and for a new partial parallel taxiway to the north of Runway 7-25. Other new portions of the planned taxiway system include entry/exit taxiways at the new end of Runway 25 and two intermediate taxiways to the north of Runway 7-25. Additionally, new taxiways are provided for access to future aviation uses on the land to be acquired to the north of Runway 7-25 and the existing Airport boundary. Medium intensity taxiway lighting should be installed along any new parallel taxiway extension, entry/exit taxiways and other taxiways.
- Runway 14-32 is retained in the Plan at the current 2,200 foot length and as a crosswind runway to accommodate aircraft in ARC A-I/B-I (e.g. Cessna 150 or Beech Bonanza A36) when crosswind components exceed 10.5 knots (12 statute miles per hour) on Runway 7-25.

- The existing pavement strength of 12,500 pounds for single-wheel gear configuration is adequate to accommodate the aircraft in ARC A-I/B-I that are expected to regularly use Runway 14-32. Medium intensity runway lighting should be installed along the entire length of the short parallel taxiway and entrance and exit taxiways on the west side of the Runway.
- The Plan retains the existing heliport located south of Runway 7-25 and east of the main aircraft parking apron with its existing configuration, including a landing and takeoff heliport and two adjacent helicopter parking positions. Consideration could be given in the future to not designating an official heliport on the Airport in which case helicopters would land and takeoff on the runways and hover taxi to the helicopter parking positions.

1.4.5 Avigation

- Recent advancements suggest a nonprecision area navigation (RNAV) global positioning system (GPS) instrument flight rules (IFR) approach procedure with vertical guidance down to approximately 250 to 300 feet above ground level (AGL) would enhance the capabilities and increase the utility of the Airport.
- The FAA is proposing to cancel the existing very high frequency omnidirectional radio range (VOR-A) nonprecision instrument approach to the Airport in the near future. The City should request FAA develop additional GPS approach procedures for the Airport.
- The Plan provides facilities with adequate capacity to accommodate forecast demand and does not create any additional airspace interactions in relation to other airports in the area.
- The Plan provides for future approach slope surface ratios of 34:1 for both ends of Runway 7-25 and retains approach slope surface ratios of 20:1 for both ends of Runway 14-32. Runways 14 and 25 have no penetration to their respective Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, approach surfaces. Runways 7 and 32 have road penetrations to their respective FAR Part 77 approach surfaces; however, both runway ends meet FAA criteria and no displacements or relocations are required.
- The building restriction line for a 20-foot high building is set at 390 feet and for a 35-foot high building is set at 500 feet from the Runway 7-25 centerline. For Runway 14-32 the existing building restriction lines are set at 500 feet on both sides of the runway. The building restriction line to the west is relocated to approximately 330 feet from the Runway 14-32 centerline to allow for future hangar development on the existing aircraft parking apron.

- There are no existing or planned obstructions to the required clear line of sight for the runway visibility zone between Runways 25 and 32 with the recommended extension of Runway 7-25 to the east.
- The runway protection zones for all four existing runway ends provide for visual and not lower than 1-mile visibility instrument approaches. All of the existing runway protection zones are adequate for future operations. The runway protection zone for Runway 25 will need to be relocated when the runway is extended to the east.
- An automated weather observing system (AWOS) is planned approximately 250 feet to the east of the existing heliport, near the end of Runway 25, and below the heliport approach surface ratio of 8:1. An AWOS would facilitate IFR approaches and provide pilots with current meteorological data when departing from or arriving at the Airport.

1.4.6 General Aviation

- The general aviation facilities are proposed to remain primarily south of Runway 7-25. Additional space is reserved north of Runway 7-25, on land to be acquired, and west of Runway 14-32. Approximately 30 acres have been retained in the Plan for general aviation uses such as hangars, tiedowns, fixed base operators and other commercial aviation service operators in these areas within the existing airport property.
- An aircraft parking apron area for itinerant aircraft and based aircraft tiedowns is retained in the present general aviation area south of Runway 7-25 and north and west of the terminal building.
- It is recommended that hangars continue to be consolidated on the south side of the terminal area. Over 10 acres are provided that can be developed to accommodate over 80 hangar spaces. Space is reserved for development of corporate/executive hangars on existing concrete pads at the north end of the existing terminal area hangar development.
- Space is reserved for future commercial aviation lease lots between the existing Airport access road (Baumann Road) and the aircraft parking apron and also east of the terminal building. About 8 acres west of Runway 14-32 could potentially be developed for commercial aviation lease lots.
- An approximate 25 acre area to the north of Runway 7-25 is reserved for future aviation uses that could include commercial aviation lease lots and hangar development.

- The Plan calls for the conversion to hangar facilities of an underutilized aircraft parking apron area to the west of Runway 14-32 with space for up to 20 hangars.
- The Plan calls for the terminal building to continue to be utilized by aviation related businesses and activities. This would include commercial aviation/fixed base operator, pilots' lounge and airport administration.
- The Travis Aero Club will lease a parcel east of the terminal building and install a 15,000 square foot hangar facility. They will also lease the adjacent vehicular parking lot. In the future, the Travis Aero Club may relocate their office space from the terminal building to their new hangar facility.
- An aircraft pollution abatement facility (wash rack) is proposed south of the existing hangar buildings near Baumann Road that would meet current environmental regulations. With appropriate fencing the facility could be expanded to be used for washing City owned vehicles.
- An aircraft parking apron for agricultural aircraft to load on is proposed at the south end of the aircraft parking apron west of Runway 14-32. The apron would have a concrete berm around it to contain any spills together with a separator and filter, and drainage system.

1.4.7 Airport Access and Parking

- The present Baumann Road access road onto the Airport, off Airport Road, is adequate to serve the south side of the Airport through the planning period. An extension of Baumann Road will be required to the east and around the extension of Runway 7-25 to provide future public access to aviation related development on the north side of the Airport. Alternatively, a new public access road to the north side of the Airport could be developed off Liberty Island Road.
- Access to the west side of the Airport will continue to be provided off Airport Road.
- Controlled access gate(s) will be needed off Baumann Road at the south end of the Airport.
- An extended perimeter service road is proposed around the south, east and north sides of the Airport around the extension of Runway 7-25.
- Vehicular parking spaces should be retained in the area by the terminal building, for public and employee parking. Parking for visitors and employees should also be provided within individual lease lot boundaries.

1.4.8 Airport Support Facilities

- The City should continue to have a written procedural agreement with the City of Rio Vista Fire Department to guarantee response in any emergency.
- Airport management offices will continue to be located in the terminal building. Space for a City maintenance baseyard is proposed in the area adjacent to the proposed aircraft pollution abatement facility on the south side of the Airport off Baumann Road.
- A new 12,000-gallon above-ground tank with appropriate containment system is recommended to store Jet A fuel that would increase aviation activity and revenues at the Airport, e.g., from fuel sales, and based and transient turboprop jet aircraft, including the new very light jets.
- Standard 6-foot high chain link and barbed wire perimeter fencing should be installed along the expanded airport perimeter and also around any future aviation-related development on the south and north sides of the Airport. The existing 4-foot high chain link fence in the terminal area and 4-foot barbed wire around the Airport should be replaced with standard 6-foot high chain link fencing.
- Additional security lighting should be installed along the aircraft parking apron and hangar area. A card reader access control system should be installed for existing and future vehicle access control gates. A security camera system should be installed on the Airport.
- The water infrastructure should be extended to provide domestic service to all future airport businesses. Additionally, installation of fire hydrants at strategic locations throughout the Airport in accordance with City Fire Department spacing requirements would be prudent.
- The City's municipal sewer system should be extended from the Airport to the new wastewater treatment plant recently built across Baumann Road from the Airport. At that time sewer improvements should be designed to specifically serve future aviation businesses including development on the west and north sides of the Airport.
- Electrical and telephone extensions will be required to serve the recommended aviation development on the south side of the Airport as well as the recommended airfield improvements and any development on the north and west sides of the Airport.

- An emergency generator should be installed for the airfield lighting, airport rotating beacon and other airport facilities, and the old emergency generator from the Trilogy Development relocated to the Airport next to the terminal building.
- Future development of the Airport will require modifications to the drainage system that surrounds the Airport. Bridges or culverts will be required under the expanded airfield (runway and taxiways) and access and perimeter roads.

1.4.9 Other Areas

- The Plan recommends that about 12 acres west of Runway 14-32 be retained for future nonaviation commercial/industrial uses in an area that has already been partially developed for these uses. Consideration could be given to using the undeveloped 8 acres of this parcel for commercial aviation lease lots.
- Continued agricultural use of a portion of the Airport north of Runway 14-32 and the Watson Hollow Creek should be consistent with FAA guidance for agricultural activities on Airports in FAA Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants On or Near Airports*.
- There are plans for gas exploration and the drilling of at least one gas well on the Airport. The proposed drilling site is southeast of the end of Runway 14-32.

1.4.10 Off-Airport Land Use

- The Airport Master Plan and City General Plan need to be coordinated to maximize compatible land uses in the Airport vicinity. This is particularly important as a longer Runway 7-25 is recommended in the Airport Master Plan. This runway extension could impact, and be impacted by, development to the west of the Airport.
- The Airport Master Plan Update was submitted to the Solano County Airport Land Use Commission for a consistency determination prior to adoption of the Airport Master Plan Update by the City. The Commission reviewed the Plan for consistency on May 10, 2007 and determined that the Plan was inconsistent with the current Airport Land Use Compatibility Plan because of the recommended extension of Runway 7-25. The Commission voted to update their Airport Land Use Commission Plan contingent on funding being available.
- It is recommended that the City continue to require aviation easements for any development within the Airport Influence Area defined in the Airport Land Use

Compatibility Plan. The aircraft traffic patterns are to the north of Runway 7-25 and east of Runway 14-32 to minimize aircraft overflights and noise impacts on surrounding development.

- The land to the east of the Airport is owned by the State of California, Department of Water Resources/State Reclamation Board and under the jurisdiction of the Delta Protection Commission (DPC). The Plan was provided to the DPC for their review and comments. The DPC responded that it appeared that the proposed 35-acre land acquisition to the north is not subject to the Delta Protection Act. It appeared that the proposed 74-acre land acquisition to the east is within the purview of the Delta Protection Act and is, therefore, subject to consistency with the Management Plan pursuant to the Delta Protection Act. The City has responded to the DPC comments.

1.4.11 Environmental Evaluation

- An Initial Study/Mitigation Negative Declaration has been prepared for adoption of the Airport Master Plan Update and has been provided to the City as a separate document.

1.5 PHASED DEVELOPMENT AND CAPITAL IMPROVEMENT PROGRAM

A three-phase prioritized Capital Improvement Program has been developed as a guide for future development to meet estimated short-range (Phase I, 2006 through 2010), intermediate-range (Phase II, 2011 through 2015), and long-range (Phase III, 2016 through 2025) Airport requirements. The Phase I projects listed below are considered to be the highest priority items and should be implemented as soon as practicable.

- ***Land Acquisition***
 - Acquire 74 acres to the east for the extension of Runway 7-25 and associated runway protection zone from the State of California, Department of Water Resources/State Reclamation Board.
- ***Airfield***
 - Prepare Environmental Assessment/Environmental Impact Report for runway and taxiway extensions
 - Design and construct Runway 7-25 and parallel taxiway extensions of 800 feet to the east to a length of 5,000 feet
 - Slurry seal runways and taxiways
 - Develop Pavement Maintenance Plan

- ***Navigational Aids***
 - Extend medium intensity runway lights
 - Extend medium intensity taxiway lights
 - Rehabilitate signage and beacon
 - Relocate PAPI-2 and REIL on Runway 25
 - Conduct obstacle survey

- ***Terminal Area***
 - Install additional apron lighting
 - Construct new corporate hangars
 - Install surveillance video cameras
 - Develop Aviation Park
 - Install privately-owned hangars on west apron

- ***Infrastructure***
 - Replace west side perimeter fence
 - Install automated vehicle access gate
 - Install two pedestrian access gates
 - Install Jet A fuel system
 - Construct drainage improvements
 - Grade and recompact perimeter road
 - Design and construct pollution abatement facility
 - Design and construct agricultural aircraft parking apron

- Phase I of the Capital Improvement Program identifies \$5.8 million in development projects at the Airport. Of the \$5.8 million, projects totaling \$3.3 million will be eligible for FAA Airport Improvement Program grants for 95 percent of the total project. Caltrans grants fund 2.5 percent of the FAA grant (2.4 percent of the total project; and the City's requirement for local match for these grant funds totals 2.6 percent, or an estimated \$85,000 for Phase I projects. The installation of surveillance video cameras and the Jet A fuel system and the development of Aviation Park are assumed to be funded entirely by the City. The \$2.3 million estimated to construct up to 16 corporate hangars west of the terminal building and 20 T-hangars on the west apron is assumed to be funded privately.

- The FAA has indicated that strong justification from the City will be required for FAA funding for a runway extension in Phase I. The Rio Vista Municipal Airport is competing with other airports, not only in Solano County and the San Francisco Bay Area, but also in the State, for FAA funding for runway extensions.

- In 1985 FAA funded land acquisition for the new airport totaling 273.86 acres that were acquired by the City. There were several conditions of the 1988-1989 Airport Purchase and Relocation Agreement with private landowners that have not

yet been followed through on and finalized by the City and landowners. These include a 49-year lease for one-half of a parcel along Airport Road, referred to as the Airport Business Park. As of 2007, the lease agreement has not been entered into. As a condition of the acquisition of 24.81 acres of land on the northwest portion of the Airport property, the City agreed to a 49-year lease if the City did not use the property for airport-related purposes. As of 2007, there is no lease agreement for use of the 24.81 acres. The City should take the appropriate steps required to resolve the conditions of the original Airport Purchase and Relocation Agreement as soon as practicable to be able to certify clear title to the Airport property to the FAA.

1.6 FINANCIAL PLAN

The financial feasibility analysis summarized the annual historical operating results of the Airport Proprietary Fund to provide a basis for assessing the ability of the Fund to meet the requirements for funding future capital improvement projects from operating sources. Alternative sources and uses of funds for future Airport development were identified.

1.6.1 Historical Revenues and Expenses

The historical revenues and expenses of the Airport Proprietary Fund from fiscal years 2003 through 2006 were reviewed. Historically, the major source of operating revenues from airport operations has been from the rental of City-owned Airport hangars and fuel sales.

- Historically the operating revenues and expenses resulted in a net operating surplus averaging \$4,500 annually from fiscal year 2003 to fiscal year 2005. A net operating loss of over \$56,000 was expected in fiscal year 2006.
- Based on the projected operating results of the Airport Proprietary Fund, the City can operate with close to a \$30,000 average annual surplus beginning in fiscal year 2009, providing no unforeseen major capital outlay expenses are incurred.

1.6.2 Sources and Uses of Funds

Based on the financial analysis, the Airport Proprietary Fund will not realize sufficient surplus revenues to fund the Phase I projects. The City will need to identify sources of funds to provide the local matching share for FAA grants and initiate other City projects.

- ***Federal Aviation Administration***

The most recent reauthorization legislation for use of Airport Improvement Program funds is entitled Vision 100—The Century of Aviation Reauthorization Act (Vision 100). Vision 100 provides Federal funding for 95 percent of an eligible project with a requirement for a 5 percent local (City and/or Caltrans) match. It should be noted that the Reauthorization of the Airport Improvement Program will require reauthorization beyond September 30, 2007, the end of the Federal fiscal year.

The Vision 100 legislation provides for general aviation airport entitlement grants with a maximum of \$150,000 annually for fiscal years in which the total amount of FAA Airport Improvement Program funding is \$3.2 billion or more. Based on the Vision 100 legislation, greater than \$3.2 billion has been authorized through Fiscal Year 2007. The Rio Vista Municipal Airport is eligible for the \$150,000 annual entitlement funds and can compete for additional airport discretionary funds.

The Airport has received FAA grant awards beginning in 1983 with the most recent grant award of \$181,500 received in 2005.

- ***State of California***

The State of California provides four financial assistance programs. (1) the State of California, Department of Transportation, Division of Aeronautics annual grant of \$10,000; (2) allows the California Transportation Commission (CTC) to allocate funds to match FAA Airport Improvement Program grants for airport and aviation purposes; (3) the acquisition and development grants administered by the State Transportation Improvement Program (STIP); and (4) the Airport Loan Program.

The City receives the \$10,000 annual grant from Caltrans and the 2.5 percent Caltrans matching share of FAA Airport Improvement Program grants.

- ***City of Rio Vista General Fund***

Financing airport improvements through a short-term loan from the City's general fund may be the most realistic method of financing development not eligible for FAA Airport Improvement Program grants or for matching the City requirement for grants.

The City has loaned monies from the water and sewer funds to the Airport Proprietary Fund in the past.

- ***Private Financing***

The importance of the Airport to local economic development is enhanced with active involvement on the part of both public officials and the private business community. Private financing places the burden of financing on the tenant while increasing the value of the Airport, which will, in turn, add to its economic attractiveness.

- ***Other Sources of Funds***

There are other potential sources of grants and loans that the City could consider for financing airport development projects, including grants from the Federal Public Works Program of the Economic Development Administration. There are several grant and loan programs under the U.S. Department of Agriculture Rural Development Programs including Community Facilities Direct Loans, Rural Business Enterprise Grants and Rural Business Opportunity Grant Programs.

The State of California, Economic Development Administration provides grants and loans through the Department of Housing and Community Development and the Trade and Commerce Agency.

In 1998, the City combined funds from the Federal Aviation Administration, Economic Development Administration, Community Development Block Program, Caltrans, and the City to fund development projects at the Airport totaling \$1.8 million.

1.7 STRATEGIC BUSINESS PLAN

The Strategic Business Plan explores potential actions the City could consider to promote and increase the economic viability of the Airport.

1.7.1 Objectives and Strategies

- The objectives are clear and specific performance measures to target over the initial five-year period.
 - Increase the financial viability of the Airport.
 - Increase the utilization of the Airport.
 - Increase the number of aircraft based at the Airport.
 - Increase the total number of aircraft operations.
 - Increase the number of aviation businesses on the Airport.

- Strategy statements are presented to accomplish the desired objectives.
 - Implement the recommendations of this Airport Master Plan Update and develop facilities and services to the maximum extent possible.
 - Develop and/or keep current the major documents for future use of the Airport, e.g., Airport Minimum Standards, Airport Rules and Regulations, Lease Policy Guidelines, Airport Fee Schedule.
 - Maximize use of Federal Aviation Administration (FAA) Airport Improvement Program grants and State of California Department of Transportation (Caltrans), Division of Aeronautics matching grants by submitting the annual request for the Airport Capital Improvement Plan.
 - Promote the development of hangars on the Airport to attract additional based aircraft and airport users.

1.7.2 Airport Facilities and Services

- The Airport is classified as a General Aviation Airport in the FAA *National Plan of Integrated Airport Systems* and as a Regional Airport in the Caltrans *California Aviation System Plan*. As defined in the CASP, a Regional Airport provides access to other regions and states; may provide international access; is located in an area serving a number of cities or counties; serve recreational flying, training, and local emergencies with a high concentration of business and corporate flying; accommodate most business, multiengine and jet aircraft; provide most services for pilots and aircraft including aviation fuel; has a published instrument approach, and may have a control tower.
- Based on the CASP, the existing 4,200-foot Runway 7-25 at the Airport does not meet the minimum standard runway length of 4,600 feet, or recommended 5,400 feet. The Airport also does not have 24-hour on-field weather services.
- The Airport Master Plan Update provides for an ultimate extension of Runway 7-25 to the east from 4,200 feet to 5,900 feet with an 800-foot extension in the short-term (2006-2010) and an additional 900-foot extension in the mid-term (2011-2015). The installation of an airport weather observing system (AWOS) and the 800-foot extension of Runway 7-25 in the short-term will satisfy the requirements of a Regional Airport in the California Aviation System Plan.

1.7.3 Airport Property Development

- The Airport Master Plan Update presents the future land uses at the Rio Vista Municipal Airport. Specific priorities were given to the most critical aviation needs of the Airport as part of the airport master planning process. These included the airfield and runway protection zones, and those areas reserved for future public-use facilities including the terminal building, hangar facilities, aircraft

parking apron, future commercial aviation facilities, and access and vehicular parking.

- At the present time, there are no long-term leases for Airport property. There are several parcels available for long-term aviation/commercial leases within the existing Airport property. These include several small parcels in the vicinity of the terminal building and along Baumann Road. A 12-acre Airport Industrial Park along Airport Road that, while owned by the City and on Airport property, clear title to the land is the subject of negotiations between the City and the former landowner.
- The acquisition of 35 acres of property on the north side of the Airport is recommended as part of the Airport Master Plan Update. These 35 acres were originally recommended to be part of the Airport property, however, because of insufficient funds being available, the City did not acquire this property when the Airport was constructed. These 35 acres have been reserved for future commercial aviation uses.
- The City, FAA and airport users have already made substantial investments in the Rio Vista Municipal Airport, and the Airport Master Plan Update provides for the acquisition of land to accommodate the extension of Runway 7-25 and enhance the revenue-generating capabilities through long-term land leases thereby protecting these investments. The City should actively pursue the land acquisition as soon as practicable to provide for the future development of the Airport.

1.7.4 Existing Rates and Charges

- No two airports are identical in terms of what can be considered reasonable rates and charges. There are a number of variables that apply to rates and charges at individual airports including services available, runway and taxiway system, land available for lease, the economic characteristics of the area in which an airport is located, market demand and numerous other considerations. Rates and charges for use of an airport are established based on all of these considerations, including the fair market value of the airport and its facilities, and therefore are not directly comparable to rates and charges for use of the Rio Vista Municipal Airport.
- It is recommended that the City establish fair rates and charges by appraisal, and incorporate the results of this appraisal into the methodology for establishing rates and charges presented in this report.

1.7.5 Overall Business Issues

- The overall business issues challenging the Rio Vista Municipal Airport will be the attraction of additional airport users and new aviation development to the Airport within a changing business environment and competition from surrounding airport facilities.
- Planning for the future in an uncertain environment is a concern for airport sponsors Nationwide and within the San Francisco Bay Area. While there was a general slowdown in demand for aviation activity nationwide following the events of September 11, 2001, FAA has predicted that a growth area for general aviation is in the business/corporate segment of the industry where increased growth in fractional ownership, corporate flying, and on-demand charter flights provide viable alternatives to travel on scheduled commercial flights.
- With the increase in the business/corporate aircraft, these activities will continue to require additional facilities and services at the airports in the San Francisco Bay Area. The growth of these types of activities will have an effect on the types of general aviation facilities and services planned for in the future.
- The FAA expects that the introduction of the very-light jets into the transportation system may redefine “on-demand” air taxi services by providing on-demand air transportation services between smaller communities. As the demand for these types of services increase, the City has expressed a desire to attract these types of services to the Airport. Discussions with providers of these on-demand services have been initiated by the City and should be continued.

1.7.6 Available Resources

- The Airport Master Plan Update demonstrates that the Airport could play a significant role in the continuing development of the City of Rio Vista and the surrounding area. The Airport has the capability to accommodate the forecast aviation demand and contribute to the City’s continued economic growth and stability in the future.
- While the direct generation of revenue for the maintenance, operation and development of the Airport is of primary importance, the ability to attract larger and more sophisticated aircraft within an environmentally compatible environment also will be of great importance in the future.

1.7.7 Aviation Related Businesses

- The Airport currently has a fixed-base operator that primarily restores antique

aircraft and provides a number of other services for aircraft and pilots. At a minimum, a full service fixed-base operator should provide repair and maintenance of general aviation aircraft, aircraft engines and parts; tiedown, storage and hangar space for general aviation aircraft and all aircraft other than those operated by commercial airlines and the military; be open for services to airport users at all times the Airport is reasonably open for their use; aircraft rental; maintain adequate numbers of engines, parts, and supplies to conduct the maintenance, repair, and servicing of general aviation aircraft.

- The impact of accommodating increases in corporate/business aircraft has been felt at airports in the major metropolitan areas in Northern and Southern California, particularly at the commercial air carrier airports. The attraction of the smaller (12,500 pounds and less) corporate/business aircraft to the Airport after the development projects are complete, e.g., hangar construction and the runway extension could be considered in the longer-term. The attraction of these types of aircraft to the Airport would provide the City with real property leases, fuel flowage fees and employment opportunities.

1.7.8 Revenue-Producing Facilities

- Revenues from hangar leases provide a significant source of revenue for many general aviation airports in California and other locations. Although the City's operating revenues could be increased significantly through direct hangar rents instead of real property leased for hangar development by private investment, the requirement for capital expenditures and maintenance would also be significant.
- The City has received several proposals for hangar construction on the Airport including new hangars financed by the City and privately-owned hangars constructed on airport property. The Airport Master Plan Update provides for erection of the privately-owned hangars west of the terminal building in the initial phase (five years).
- The City should also consider a lease agreement for erection of the hangars on the west apron. The availability of additional hangars will attract new users to the Airport that will in turn increase aviation activity.
- The loan for the existing City-owned hangars will be retired in fiscal year 2008. At that time the City could consider obtaining a Caltrans loan for new hangar construction as provided for in the Airport Master Plan Update.

1.7.9 Strategic Planning Issues

- Strategic planning issues were prepared for City consideration for the future administration and management of the Airport including the major administrative documents for future administration of the Airport and recommendations for establishing rates and charges for future use of the Airport.
- ***Lease Policy Guidelines***

The City should consider preparing Lease Policy Guidelines for future use of the Airport. Lease Policy Guidelines state the policies of the City in negotiating new or renegotiating existing leases and agreements for the use of the Airport. The guidelines would be specific in addressing City policies for maintenance provisions and remedies, hazardous materials, relocation of improvements, disposal of tenant improvements, the requirement for performance bonds, and other issues and covenants of a lease or agreement for use of the Airport. The guidelines would provide a solid framework of covenants and issues the City can use as the basis for entering into lease negotiations with a prospective tenant.

- ***Minimum Standards***

The preparation of minimum standards is highly recommended by the FAA for all airports that must comply with Federal Grant Assurances as a condition of accepting Federal grant assistance in order to ensure fair and equal opportunities for all users of the Airport. Minimum standards should detail the requirements for each type of tenant to ensure that future airport development will be compatible with all other land uses on the Airport by performance, appearance and general operating characteristics. Minimum standards should be enforced uniformly among all tenants. The Airport Advisory Commission has been developing minimum standards for the Airport and should continue to finalize these for City Council approval.

1.7.10 Methodology for Establishing Rates and Charges

- The principle underlying the establishment of rates and charges is that each tenant on the airport and each user of the airfield should pay an appropriate rate or fee for such tenancy or use. At a minimum, Airport use fees and facility rentals should be based on actual, fully-allocated costs of providing, operating, and maintaining the facilities occupied and used, including reasonable interest charges.
- An Airport Fee Schedule should be prepared for various uses of the Airport. The Airport Fee Schedule is typically changed from time-to-time by City Ordinance so any changes are applied consistently to all tenants at the same time through lease

and use agreements. The methodology for establishing rates and charges for use of the Airport include the following.

- Terminal Building
- Airfield Use
- Ground Rental Rates
- Pollution Abatement Facility

1.7.11 Marketing and Promotion

- The Airport Master Plan Update provides for the future development of the Airport within this fast-growing area, and the new and expanded airport facilities can be used as a catalyst for economic development. The Airport is planned to have facilities and services to be highly competitive with other airports in the area. The City will need to develop a marketing program and continue to promote the increased use of the Airport.
- The marketing and promotion of the Rio Vista Municipal Airport should be continued in coordination with the City of Rio Vista. City staff is fully apprised of the area reserved for industrial development on the Airport and should be appraised of other available properties on the Airport, e.g., the small parcels along Airport Road reserved for aviation development.
- The City should consider developing a web site specifically for the Airport, or alternatively, the Airport could be developed as a specific site under the overall web site for the City of Rio Vista. The initial research for the potential location of a company, activity, and/or other uses is frequently through a search of available web sites.

1.7.12 Strategic Position of the Rio Vista Municipal Airport

- The City recognizes the strategic location of the Rio Vista Municipal Airport and the part the Airport could play in the event of a catastrophic disaster, e.g., earthquake, flood, fire. Discussions were held with the Federal Emergency Management Administration (FEMA) for the potential funding for a runway extension to provide a base of operations for FEMA in the event of a levee break as the Airport is on higher ground. These discussions also included the potential construction of hangars for shelters and emergency storage facilities.
- The City could consider exploring these discussions further and designate the Airport as the place to assemble in the event of a catastrophic event. The Airport has the basic infrastructure in its runways and taxiways to accommodate incoming

rescue personnel and supplies and to meet outgoing evacuation requirements, e.g., residents, medevac and air ambulance.

- By establishing the Airport as the point-of-contact in an emergency, the City can then initiate establishing the Airport as an important community resource to the residents and businesses within the City.

1.7.13 Community Resource

- The Rio Vista Municipal Airport is a valuable community resource and greater recognition of this resource should be promoted by the City. There are a number of activities that could benefit community recognition of the Airport beginning with the concept of establishing the Airport as an emergency response center. Other activities to promote the importance of the Airport to the community include newsletters, airshows and fly-ins, community events and press releases on special Airport activities or events. The City should consider taking an active approach to promoting the benefits and attributes of the Rio Vista Municipal Airport, and this could be accomplished using the Airport Advisory Commission.

1.7.14 Financial Implications

- The Airport operates as a proprietary enterprise fund of the City of Rio Vista without tax support from the general fund, and its objective in financial management is to assure full financial self-sufficiency. Airport resources finance the maintenance of the grounds and facilities and provide the local matching share of FAA Airport Improvement Program funds. Since 1983 the Airport has received over \$8.7 million in FAA Airport Improvement Program grants. State grants, Economic Development Administration, and Community Development Block Program grants have also been received over time for various development projects at the Airport. The City needs to recognize the significant investments that have already been made in the Airport and take the necessary steps to ensure that these investments are protected.
- Increased revenues to the Airport enterprise fund as a result of new development will necessarily be dependent on the type of facilities and development the City decides to pursue. Leasing property for the development of hangars in the short-term will increase revenues through new ground leases. Based on the hangar amortization schedule presented in the report, surplus revenues from the construction of hangars by the City would not be realized until year 13 under the assumptions analyzed, however, the impact of higher rental rates for hangars could be evaluated. In addition, there will be maintenance costs to the City associated with owning hangars on the Airport.

- The merits and potential of further development on the Rio Vista Municipal Airport have been discussed previously; however, it should be emphasized that an aggressive and organized promotional program could form the keystone for the future development of the Airport. The benefits that could be realized relate, not only to the Airport, but also to the community as a whole. The intent should be to use the Airport as a tool to attract additional aviation activity and commercial/industrial uses to the City.

1.7.15 Airport Management

- The cornerstone to the successful implementation of the recommendations of this Airport Master Plan Update will be the retention of an airport manager who will be responsible for the operation of the Airport. The airport manager plays a key role in the economic viability of an airport. The airport manager is responsible for the safe and efficient operation of the airport and all of its facilities regardless of size. It would be advisable for the City to retain the services of an experienced airport manager as funds are expended to develop the Airport and new facilities and services become available. The long-term success of the Airport will be dependent on the management and coordination of development of the Airport in the short-term through FAA and Caltrans grants and loans, long-term lease agreements, community involvement, and keeping cognizant of aviation needs and requirements in a changing business environment.

Chapter 2

HISTORICAL AND FORECAST AVIATION ACTIVITY

2.1 INTRODUCTION

Aviation activity accommodated at an airport is a function of the population and economic characteristics of the area served by the airport – referred to as the “Airport Service Area.” An understanding of the present and likely future population and economy of the airport service area is therefore critical to the development of aviation activity forecasts.

This Chapter defines the airport service area of the Rio Vista Municipal Airport (the Airport) and presents the historical and forecast population and economic indicators that will have an effect on forecast aviation activity. Historical aviation activity at the Airport is presented including based aircraft and aircraft operations. The aviation activity forecasts for the Airport through 2025 are also presented.

2.2 POPULATION AND ECONOMY OF THE AIRPORT SERVICE AREA

The geographic area served by any airport is designated as the airport service area. Typically, the airport service area includes a densely-populated urban area (such as a city and its environs) within a larger, less densely-populated area that is usually defined (or limited) by the existence of other airports.

Although the airport service area can seldom be precisely identified in terms of political boundaries, usually a city, county, or political region (such as a Standard Metropolitan Statistical Area) is selected to represent the airport service area because relevant population and economic data are readily available for such areas. Furthermore, trends in aviation demand typically correspond closely with general growth trends in the political subdivision containing the main concentration of population served by a given airport.

The Rio Vista Municipal Airport serves the City of Rio Vista and those parts of the surrounding areas for which it is the most convenient airport. Since the majority of the people served by the Airport reside in the City, the City was designated as the airport service area.

2.2.1 Population

Historical and forecast population data for the City and the County of Solano (the County) are presented in Table 2-1. A comparison is made with historical and forecast population data for the State of California and the United States as a whole.

The population of the City increased from 3,135 in 1970 to 5,100 in 2000, an average annual increase of 1.6 percent. The average annual growth rate of the City increased at a faster rate of 3.8 percent from a population of 3,496 in 1990 to 5,100 in 2000. Based on the *City of Rio Vista General Plan 2001* (General Plan), the high rate of growth in the City from a population of 5,100 in 2000 to a forecast population of 14,200 in 2015 is attributed to the annexation of approximately 2,500 acres into the City in the early 1990s.

The General Plan assumed that, based on economic conditions and available land use, the growth rate in the City will exceed the growth rate experienced between 1990 and 2000 and estimates the population of the City will reach 22,200 by 2020. While the estimated projections of population, housing and retail/commercial and industrial development within the City assumed full build out within the City limits by 2020, these projections may be optimistic for several reasons including the City's location away from the major transportation corridors of Interstate Highways 80, 505, 5 and 680 and the location and growth of other cities within the County; e.g., Suisun City, Fairfield and Vacaville and their locations closer to the major transportation corridors.

The population of the County increased faster than the City from 172,500 in 1970 to 400,300 in 2000, an average annual increase of 2.8 percent. By comparison, the population of the State increased from 19,953,134 in 1970 to 34,480,300 in 2000, an average annual increase of 1.8 percent while the population of the United States as a whole increased at an average annual increase of 1.0 percent over the same 30-year period. The General Plan states that, over the 20-year forecast period, the County will have the largest percentage of jobs growth of any county in the Bay Area.

Based on forecasts prepared by the State Department of Finance, the population in the County is forecast to increase at an average annual rate of 1.6 percent from a population of 400,300 in 2000 to a population of 589,270 in 2025 while the population in the State is forecast to increase from 34 million in 2000 to a population of 48 million in 2025, an average annual increase of 1.4 percent. Overall population growth on the National basis is projected to increase at less than 1.0 percent annually over the 25-year forecast period.

Table 2-1

HISTORICAL AND FORECAST POPULATION TRENDS
City of Rio Vista, County of Solano
State of California and United States
1970-2025

	Historical				Base Year			Forecast		
	1970	1980	1990	2000	2002	2005	2010	2015	2020	2025
City of Rio Vista	3,135 ¹	3,142 ¹	3,496 ¹	5,100 ²	5,325 ¹	9,500 ²	14,200 ²	18,300 ²	22,200 ²	27,500 ³
County of Solano ¹	172,500	235,203	339,471	400,300	405,600	450,300	485,500	521,200	559,500	589,270
State of California ¹	19,953,134	23,667,902	29,760,021	34,480,300	35,802,238	37,473,500	40,262,400	42,711,200	45,821,900	47,900,000
United States ⁴	203,211,926	226,545,805	248,709,873	281,421,906	280,306,000	285,981,000	299,862,000	312,268,000	324,927,000	337,815,000
Average Annual Percentage Change										
	1970-1990	1990-2000	2000-2010	2010-2015	2015-2020	2020-2025				
City of Rio Vista	0.5	3.8	10.8	4.6	4.5	4.4				
County of Solano	3.4	1.5	1.9	1.4	1.4	1.0				
State of California	2.0	1.3	1.7	1.2	1.4	1.4				
United States	1.0	1.0	0.9	0.8	0.8	0.8				

1. State of California, Department of Finance
2. *City of Rio Vista General Plan 2001*
3. Extrapolated by Aries Consultants Ltd.
4. U.S. Department of Commerce, Bureau of the Census

2.2.2 Economic Considerations

Historically, the economic base of the City has revolved around the natural gas industry and gas exploration according to the City's General Plan. Deregulation and changes in the energy sector in the 1980s forced some small, local firms in the City serving local and regional markets to close. The General Plan cited limited population and employment growth and lack of large parcels of land suitable for industrial and heavy commercial uses hindered the City's ability to attract firms serving regional, or larger, market areas. The guiding principles of the City's General Plan were to preserve the City's sense of community and small-town characteristics by strengthening the downtown, waterfront and historic places within the City and create and maintain economic vitality by providing new opportunities to live, work and shop in the City. Today, the City's primary industries include agriculture, tourism, gas and oil-well maintenance, land and marine construction, dredging, trucking and consumer-oriented services.

The City initiated an *Industrial Development Marketing Strategy and Implementation Plan* (Plan) in 2003 to assess Rio Vista's readiness to recruit new businesses and develop a marketing strategy and implementation plan to effectively market the City's industrial parks to local expanding business and external target businesses. The Plan identified goals, activities and materials and provided the tools required for the City to effectively manage a marketing program. The Plan included specific implementation measures designed to leverage the resources and efforts of the Solano County Economic Development Corporation Strategic Marketing Campaign for the County. The Plan identified target markets that could realistically be attracted to the fully-developed Rio Vista Airport Industrial Park, located on the west side of the Rio Vista Municipal Airport, and the Rio Vista Business Park, located on the former airport site. The Plan noted that the City could offer an alternative location for companies wanting to stay in California based on the City's proximity to the San Francisco Bay Area, quality of life, and lower housing costs, compared to other communities, and lower overall operating costs.

The location of the City on a large river delta that affords recreation access, the small town atmosphere and the support of the local community to enhance economic vitality contribute to a positive economic outlook for the City.

2.3 HISTORICAL AIR TRAFFIC ACTIVITY

Historical data on general aviation activity at the Rio Vista Municipal Airport are limited, as is the case at most airports without air traffic control towers. Therefore, available data from the Federal Aviation Administration (FAA); State of California, Department of Transportation (Caltrans), Division of Aeronautics; and the City,

supplemented by conversations with persons knowledgeable of the Airport, were used to form the basis for preparing the aviation activity forecasts presented later in this Chapter. The historical aviation activity is presented in terms of based aircraft and aircraft operations.

2.3.1 General Aviation

General aviation is defined as all civil aviation not classified as air carrier or commuter/air taxi. It includes a multitude of diverse and growing uses of aircraft, ranging from flying for enjoyment and the transportation of personnel or cargo by business firms and individuals in privately-owned aircraft, to highly specialized uses such as agricultural applications, pipeline patrol and aerial advertising. It includes agricultural, industrial and business/corporate aviation, using an aircraft for flight training, the aviation of Federal, State and local governments and miscellaneous other aviation uses.

2.3.1.1 Based Aircraft

Based aircraft are those aircraft that are hangared or are on tiedowns at the Airport and include those aircraft based on leaseholder sites. The number of aircraft based at an airport is a function of many factors, including the number of active aircraft registered in the Airport's service area, aircraft registered elsewhere but used in the area (e.g., corporate or government aircraft), and the existence and location of other airports in the area. Although transient aircraft are not considered based aircraft, their needs for tiedown and hangar space must be considered at any public airport.

Table 2-2 presents historical data on based aircraft at the Rio Vista Municipal Airport based on data obtained from the 1984 *Rio Vista Airport Site Selection and Master Plan Study*, the *California Aviation System Plan* and Airport Management records. As the new Rio Vista Municipal Airport, located at the corner of Airport Road and Baumann Road, became operational in 1994, the prior years of 1984 and 1990 represented based aircraft at the previous airport site. The number of based aircraft increased from 50 aircraft in 1984 to 56 aircraft in 2003, an average annual increase of 0.6 percent. It is assumed that, based on the number of based aircraft, the majority of based aircraft owners relocated to the new airport. Single-engine aircraft increased slightly from 48 aircraft to 51 aircraft from 1984 to 2003 while multiengine aircraft increased from two to five aircraft over the 19-year historical period.

Historical based aircraft at the new Rio Vista Municipal Airport were included in the 1998 Inventory Element of the *California Aviation System Plan (CASP)*. According to the CASP, there were 57 aircraft based at the Airport including 51 single-engine aircraft, five multiengine aircraft and one helicopter.

Table 2-2

**HISTORICAL BASED AIRCRAFT
Rio Vista Municipal Airport
Selected Years: 1984-2003**

Year	Single-Engine	Multi-Engine	Jet	Heli-copter	Other	Total
1984 ¹	48	2	0	0	0	50
1990 ²	49	4	0	1	0	54
1998 ³	51	5	0	1	0	57
2003 ⁴	51	5	0	0	0	56

1. *Rio Vista Airport Site Selection and Master Plan Study, 1984*
2. *The California Aviation System Plan, 1999 Statewide Forecasts*
3. *The California Aviation System Plan, 1998 Inventory Element*
4. Airport Management Records

2.3.1.2 Distribution of Based Aircraft Owners

An analysis of the geographic distribution of based aircraft owners at the Airport was made based on information obtained from the Solano County Tax Assessor. This information is presented in Table 2-3 for 2002. Close to 55 percent of the 33 aircraft reported at the Airport are registered to owners in Solano County with 24 percent within the City of Rio Vista.

Another 30 percent of the aircraft are registered to owners in Contra Costa County, and the remaining 15 percent are registered to various owners in Alameda, Colusa, Sacramento and San Joaquin Counties.

2.3.2 Aircraft Operations

Historical data on aircraft operations at nontowered airports are limited. Annual aircraft operations at the new Rio Vista Municipal Airport were estimated based on several sources, including the FAA Form 5010-1, *Airport Master Record*; Caltrans estimated annual aircraft operations based on data collected through the State acoustical counter program; and discussions with persons knowledgeable of the Airport and its activity. The aircraft operations at the Airport were estimated to total 35,100 operations in 2003.

Of the total estimated 35,100 annual aircraft operations in 2003, 22,600 operations (64 percent) are estimated to be local operations and 12,500 operations (36 percent) are estimated to be itinerant operations. The general aviation operations are categorized as follows.

Local Operations. Local operations are performed by aircraft operating in the local traffic pattern and aircraft departing for, or arriving from, local practice areas. These operations include training operations (referred to as touch-and-goes) by both aircraft based at the Airport and aircraft from other airports in nearby areas. The local operations include those aircraft operations from nearby training facilities including Japan Airlines from the Napa County Airport, Korean Airlines from the Livermore Municipal Airport, as well as training flights from the Metropolitan Oakland International Airport and helicopter training flights from the Sacramento Executive Airport and the Buchanan Field Airport in Concord. Local operations also include training operations by the California Department of Forestry.

Itinerant Operations. Itinerant operations are conducted by aircraft that take off at one airport and land at another airport. They include the operations of aircraft based at the Airport and flights of other aircraft to and from the Airport. Itinerant operations

Table 2-3

**DISTRIBUTION OF BASED AIRCRAFT OWNERS
Rio Vista Municipal Airport
2002**

<u>Location</u>	<u>Aircraft</u>	<u>Location</u>	<u>Aircraft</u>
<u>Solano County</u>		<u>Contra Costa County</u>	
Rio Vista	8	Bethel Island	2
Walnut Grove	4	Martinez	2
Fairfield	3	Oakley	2
Suisun City	2	Antioch	1
Isleton	<u>1</u>	Lafayette	1
Subtotal	18	Pittsburg	1
		Walnut Creek	<u>1</u>
		Subtotal	10
<u>Alameda County</u>		<u>Colusa County</u>	
Oakland	<u>1</u>	Arbuckle	<u>1</u>
Subtotal	1	Subtotal	1
<u>Sacramento County</u>		<u>San Joaquin County</u>	
Folsom	1	Stockton	<u>1</u>
Courtland	<u>1</u>	Subtotal	1
Subtotal	2		
		GRAND TOTAL	<u><u>33</u></u>

SOURCE: Solano County Tax Assessor

include the refueling operations by the California Department of Forestry and the operations of the agricultural aircraft in the area. Other itinerant operations are conducted by the occasional medevac helicopters and small jet aircraft that use the Airport.

2.4 REVIEW OF AVIATION ACTIVITY TRENDS AND FORECASTS

A review of historical and forecast trends in aviation activity on the National, State and local levels was made. This review included historical data and forecast trends on the National level prepared by the FAA and the *1999 Statewide Forecasts* prepared by Caltrans as part of the State's continuous aviation system planning process. Aviation forecasts prepared for the 1984 *Rio Vista Airport Site Selection and Master Plan Study* prepared for the new Rio Vista Municipal Airport were also reviewed.

2.4.1 Federal Aviation Administration

Historical and forecast general aviation trends on a National level are published annually by the FAA to meet the budget and planning needs of the FAA and to provide information that can be used by State and local entities, the aviation industry and the general public. At the time of this report, the most recent edition was published in March 2003 and is entitled *FAA Aerospace Forecasts, Fiscal Years 2003-2014*.

The FAA forecasts general aviation and air taxi aircraft to increase by an estimated 18,500 aircraft over the short-term 12-year period (through (2014), as presented in Table 2-4. This increase represents an average increase of 0.7 percent annually. Of the 18,500 total increase in aircraft, 28 percent (5,100) will be single-engine aircraft, 5 percent (1,000) will be multi-engine propeller and turboprop aircraft, 23 percent (4,300) will be turbojet aircraft, 3 percent (500) will be rotorcraft aircraft, 6 percent (1,100) will be experimental aircraft, and 35 percent (6,400) will be all other aircraft types. It should be noted that the increase of 6,400 aircraft in the "other type of aircraft" is attributed to a new category of light sport aircraft expected to enter the active aircraft fleet and will include an estimated 2,000 existing aircraft that are not currently included in the FAA aircraft registered count.

2.4.2 California Aviation System Plan

The *1999 Statewide Forecasts* were prepared by Caltrans as part of the State's continuous airport system planning process to identify the aviation facilities required to meet the air transportation needs of the State. The aviation forecasts were prepared by using a combination of forecasts from the FAA's Terminal Area Forecasts, the forecasts of the Regional Transportation Planning Agencies in the major metropolitan areas including the Southern California Association of Governments, the Metropolitan

Table 2-4

**ESTIMATED ACTIVE GENERAL AVIATION AND AIR TAXI AIRCRAFT
BY TYPE OF AIRCRAFT (thousands)
1997 - 2014**

Historical	Total	Fixed Wing			Rotorcraft			Balloons/ Dirigibles/ Gliders	
		Single- engine	Multi- engine	Turboprop	Turbojet	Piston	Turbine		Experi- mental
Historical									
1997	192.4	140.0	16.0	5.6	5.2	2.3	4.5	14.7	4.1
1998	204.7	144.2	18.7	6.2	6.1	2.5	4.9	16.5	5.6
1999	219.5	150.9	21.0	5.7	7.1	2.6	4.9	20.5	6.8
2000	217.5	149.4	21.1	5.8	7.0	2.7	4.5	20.4	6.7
2001	211.4	145.0	18.3	6.6	7.8	2.3	4.5	20.4	6.5
2002E	211.0	144.5	18.2	6.6	8.0	2.5	4.4	20.4	6.5
Forecast									
2003	211.4	144.6	18.2	6.7	8.2	2.5	4.4	20.4	6.5
2004	213.1	144.9	18.2	6.8	8.4	2.5	4.4	20.5	7.5
2005	215.5	145.4	18.1	6.9	8.7	2.5	4.4	20.6	8.8
2006	217.1	146.0	18.1	7.1	9.1	2.6	4.4	20.7	9.2
2007	218.8	146.6	18.1	7.2	9.5	2.6	4.4	20.8	9.7
2008	220.6	147.2	18.0	7.3	9.9	2.6	4.5	20.9	10.2
2009	222.2	147.6	18.0	7.5	10.3	2.7	4.5	21.0	10.7
2010	223.7	148.0	18.0	7.6	10.7	2.7	4.5	21.1	11.2
2011	225.2	148.4	17.9	7.7	11.1	2.7	4.5	21.2	11.7
2012	226.6	148.8	17.9	7.8	11.5	2.7	4.6	21.3	12.1
2013	228.1	149.2	17.9	7.9	11.9	2.8	4.6	21.4	12.5
2014	229.5	149.6	17.8	8.0	12.3	2.8	4.6	21.5	12.9

NOTE: Detail may not add to total because of independent rounding

SOURCE: FAA Aerospace Forecasts, Fiscal Years 2003-2014

Transportation Commission and the San Diego Association of Governments, and included forecasts prepared by local planning agencies areas outside the major metropolitan areas.

The CASP predicted that, following years of stagnant (or negative) growth, general aviation based aircraft and annual aircraft operations would increase slightly over 1.0 percent annually from the base year 1995 through 2020 on a statewide basis and grouped aviation activity forecasts within planning regions within the State. The Rio Vista Municipal Airport is within the nine-county San Francisco Bay Area Metropolitan Transportation Commission (MTC) planning area, and the forecasts prepared by MTC for the 1994 *Regional Airport System Plan Update* were included in the CASP. It should be noted that the MTC forecasts only extended to 2010.

According to the CASP, based aircraft in the San Francisco Bay Area were forecast to increase from 6,137 based aircraft in the base year 1990 to a range of 7,803 aircraft to 7,948 aircraft in 2010, an average annual growth rate of 1.2 and 1.3 percent, respectively. Annual general aviation operations in the Bay Area were forecast to increase from 3,018,000 operations in the base year 1990 to a range of 4,014,000 to 4,743,000 operations in 2010, an average annual growth rate of 1.4 and 2.3 percent, respectively. Aviation activity forecasts prepared for the Rio Vista Municipal Airport as part of the CASP forecast that by 2010, the Airport would have between 68 and 79 based aircraft and accommodate between 23,000 and 30,000 annual aircraft operations. It should be noted, however, that while these forecasts specifically refer to the old Rio Vista Municipal Airport, the forecasts are considered representative of aviation activity in the Rio Vista area as it is assumed the majority of the based aircraft owners from the old airport relocated to the new Rio Vista Municipal Airport as noted earlier. These forecasts are graphically illustrated later in this Chapter.

2.4.3 1984 Rio Vista Airport Site Selection and Master Plan Study

The 1984 *Rio Vista Airport Site Selection and Master Plan Study* was also reviewed. The 1984 Study was prepared prior to construction and opening of the new airport in 1994 and forecast that up to 105 aircraft would be based at a new airport by 2004. Aircraft operations were forecast to be up to 160,000 operations annually by 2004 based on the new airport accommodating an estimated 100,000 annual aircraft training operations from other San Francisco Bay Area and Sacramento Area airports.

2.5 AVIATION ACTIVITY FORECASTS

To assess existing facilities and to determine future requirements at the Rio Vista Municipal Airport, it is necessary to forecast the demand for facilities expected to be generated by future air traffic activity. Such demand is created by general aviation and

air taxi activity and may be stated in terms of aircraft operations, aircraft basing demand and related components. In turn, the air traffic generated at the Airport relates directly to the population and economy of the area, to general aviation trends and forecasts on the National, State and local levels, and the aviation demand and airport facilities and services provided at other airports in the surrounding area.

The aviation demand forecasts presented in this section have been developed based on a review of the population and economic trends for the City of Rio Vista; an analysis of the available historical air traffic activity at the Airport; and an assessment of aviation trends on the National, State and local levels that have, or may have, a potential effect on aviation activity at the Airport. Discussions with persons knowledgeable of the Airport, including representatives of the City, have provided valuable insight into the preparation of the aviation activity forecasts.

2.5.1 General Assumptions

The following general assumptions are used in the preparation of the forecasts:

- These forecasts are demand-based and are, therefore, unconstrained by facility limitations or policy considerations.
- No policies that would constrain aviation growth will be imposed on the Airport by any governmental entity.
- The population and economic analyses and forecasts presented in Section 2.2 are satisfactory for purposes of aviation demand forecasting.
- The historical aviation activity data presented in Section 2.3 form an adequate basis for the forecasts presented in this Chapter.

These forecasts were prepared on the basis of the information and assumptions set forth above. Although the information and assumptions used constitute a reasonable basis for preparing the forecasts, the achievement of any such forecast may be affected by fluctuating conditions and is dependent upon the occurrence of future events that cannot be assured. Therefore, the actual results achieved may vary from the forecasts, and such variations could be material.

The aviation activity forecasts are presented in Table 2-5 and are discussed below. On December 27, 2005, the FAA concurred with the aviation activity forecasts and found them acceptable as the basis for the preparation of the Airport Master Plan Update.

Table 2-5
AVIATION ACTIVITY FORECASTS
Rio Vista Municipal Airport
2003-2025

	Base Year ¹ 2003	Forecasts			
		2010	2015	2020	2025
GENERAL AVIATION BASED AIRCRAFT					
Single-engine	51	55	58	61	64
Multiengine-propeller	5	7	7	8	10
Turbojet	0	1	2	3	4
Helicopter	0	0	1	1	2
Total	56	63	68	73	80
AIRCRAFT OPERATIONS					
Air Taxi	0	100	200	300	400
General Aviation					
Local	22,600	25,600	27,300	29,000	31,300
Itinerant	12,500	15,000	16,800	18,600	20,800
Subtotal	35,100	40,600	44,100	47,600	52,100
Military	0	0	0	0	0
Total Operations	35,100	40,700	44,300	47,900	52,500
OPERATIONS PER BASED AIRCRAFT					
	626	644	648	652	656
PEAK HOUR AIRCRAFT OPERATIONS					
(Average Day, Peak Month)	23	26	29	31	34

1. Airport Management Records
SOURCE: Aries Consultants Ltd.

2.5.2 Based Aircraft

The number of based aircraft at the Rio Vista Municipal Airport is forecast to increase from 56 aircraft in 2003 to 80 aircraft by 2025 as presented in Table 2-5, an average annual increase of 1.6 percent. The growth in forecast based aircraft at the Airport is due in part to the forecast population increases in the City, and the City's economic development program to expand existing business and attract new businesses to the industrial and commercial areas of the City.

Single-engine aircraft are forecast to increase from 51 aircraft in 2003 to 64 aircraft by 2025, an average annual increase of 1.3 percent over the 22-year planning period but will decrease as a percent of the total based aircraft from 91 percent in 2003 to 80 percent by 2025. Multi-engine propeller aircraft are forecast to be 10 aircraft by 2025, and account for 13 percent of the total based aircraft. Turbojet aircraft are forecast to be 4 aircraft by 2025 and account for 5 percent of the total based aircraft. The increase in multiengine aircraft is a reflection of the expected increased use of the Airport for corporate and business aviation.

The forecast for helicopters to be based at the Airport by 2025 reflects the increased use of helicopters for business and agricultural uses over recent years. It is estimated that by 2025, up to two helicopters could be based at the Airport and account for 3 percent of the total based aircraft.

2.5.3 Aircraft Operations

The number of annual aircraft operations at the Rio Vista Municipal Airport, as presented in Table 2-5, is forecast to increase from an estimated 35,100 annual operations in 2003 to 52,500 annual operations by 2025, an average annual increase of 1.8 percent.

2.5.3.1 Air Taxi

Air taxi operations include the unscheduled operations of "for hire" air taxis carrying passengers and any operations by bank couriers or other small package carriers. The potential exists for air taxi operations at the Airport to serve persons accessing the growing population of the area and the increased use of the Airport by businesses and industries in the area. Air taxi operations are forecast to increase from an estimated 100 annual operations by 2010 to 400 annual operations by 2025 and account for one percent of the total annual aircraft operations.

2.5.3.2 General Aviation

General aviation aircraft operations are forecast to continue to account for the largest share of total operations at the Airport. General aviation operations are forecast to increase from an estimated 35,100 annual operations in 2003 to 52,100 annual operations by 2025.

Local Operations. Local operations are forecast to account for the largest share of general aviation operations but will decrease slightly as a percent of total operations from 64 percent (22,600 operations) in 2003 to 60 percent (31,300 operations) by 2025. The local operations will continue to be the training operations by those who are based at the Airport and the training activities by aircraft from other San Francisco Bay Area and Sacramento Area airports.

Itinerant Operations. Itinerant operations are forecast to account for an increasing share of total general aviation aircraft operations from 36 percent (12,500 operations) in 2003 to 39 percent (20,800 operations) by 2025 reflecting the increased use of the Airport for business in the area during the forecast period. The itinerant operations include the business jets that occasionally use the Airport and use of the Airport by the California Department of Forestry during firefighting seasons.

2.5.3.3 Military

There were no military aircraft operations at the Airport in 2003, and no military activity is forecast over the 22-year planning period. (The aircraft operations of the Travis Aero Club and civil Air Patrol are general aviation aircraft operations.)

2.5.3.4 Operations Per Based Aircraft

Operations per based aircraft is a useful guide to estimate the number and types of aircraft operations at a non-towered airport. Operations per based aircraft include the number of operations by visiting itinerant aircraft as well as those based at the facility. The numbers also include training operations. Operations per based aircraft are forecast to increase from an estimated 626 annual operations in 2003 to 656 annual operations by 2025 reflecting a greater utilization of existing aircraft.

2.5.3.5 Peak Period Aviation Activity

Key forecasts that affect airfield, general aviation, access and automobile parking planning are those indicating the levels of activity during the average day of the peak month. The peak hour forecasts are intended for use in the demand/capacity analysis and determining requirements for future Airport facilities. Peak hour aviation activity forecasts for aircraft operations during the average day of the peak month for the Rio Vista Municipal Airport are presented in Table 2-5.

The peak month typically accounts for approximately 10 percent of the annual aircraft operations. The peak hour of an average day in the peak month typically accounts for approximately 20 percent of the total daily operations. The total peak hour aircraft operations are forecast to increase from 23 operations in the peak hour of an average day in the peak month in 2003 to 26 operations in 2010; to 29 operations in 2015; to 31 operations in 2020; and to 34 operations in 2025.

2.6 COMPARISON OF AVIATION ACTIVITY FORECASTS

A comparison of the forecasts of aviation activity for the Rio Vista Municipal Airport, as discussed previously in this Chapter, are graphically illustrated on Figures 2-1 and 2-2. Forecasts of based aircraft prepared for the FAA Terminal Area Forecasts, *1999 Statewide Forecasts* by Caltrans Division of Aeronautics, and the 1984 *Rio Vista Airport Site Selection and Master Plan* are graphically illustrated on Figure 2-1. Forecasts of annual aircraft operations are graphically illustrated on Figure 2-2. It should be noted that the forecasts were prepared at different times based on variations in both economic and aviation activity conditions.

2.7 POTENTIAL DEMAND FOR COMMUTER AIRLINE SERVICE

The potential demand for commuter airline service at the Rio Vista Municipal Airport was analyzed to determine the potential for this type of service at the Airport.

There were significant changes in the airline industry beginning in the early 1990s as the commuter airlines began a significant growth period by replacing major airlines in the short-haul markets and by providing connecting service at hub airports as partners with the major airlines. As an example, scheduled airline and commuter passenger services to the Buchanan Field Airport in nearby Concord were terminated in the early 1990s and have not been reinstated since that time. As a result of the overall declining economy beginning in mid-2001, commuter airline services to other smaller airports began to decline. The September 11, 2001 events had further significant impacts on the airline industry as a whole, and air carrier and commuter airline service has been reduced by between 20 and 30 percent at airports across the Nation.

In order for a commuter airline to consider providing service to a new market; e.g., Rio Vista, the airline must weigh initiating new service against expanding service in an existing market. There currently exists a multiple air carrier airport system available to residents and businesses in the Rio Vista area including the Metropolitan

HISTORICAL AND FORECAST BASED AIRCRAFT Rio Vista Municipal Airport 2000-2025

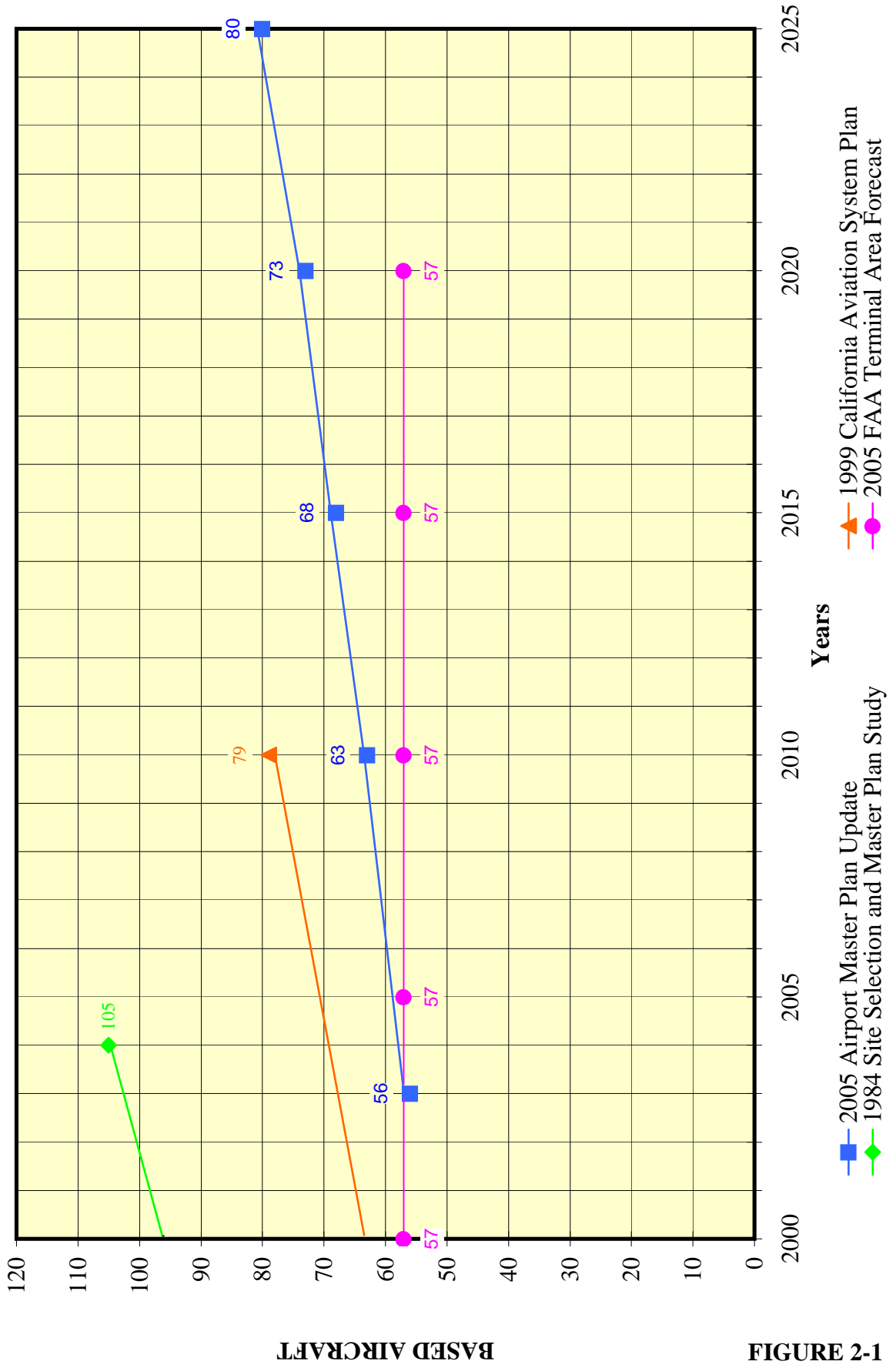


FIGURE 2-1

HISTORICAL AND FORECAST AIRCRAFT OPERATIONS Rio Vista Municipal Airport 2000-2025

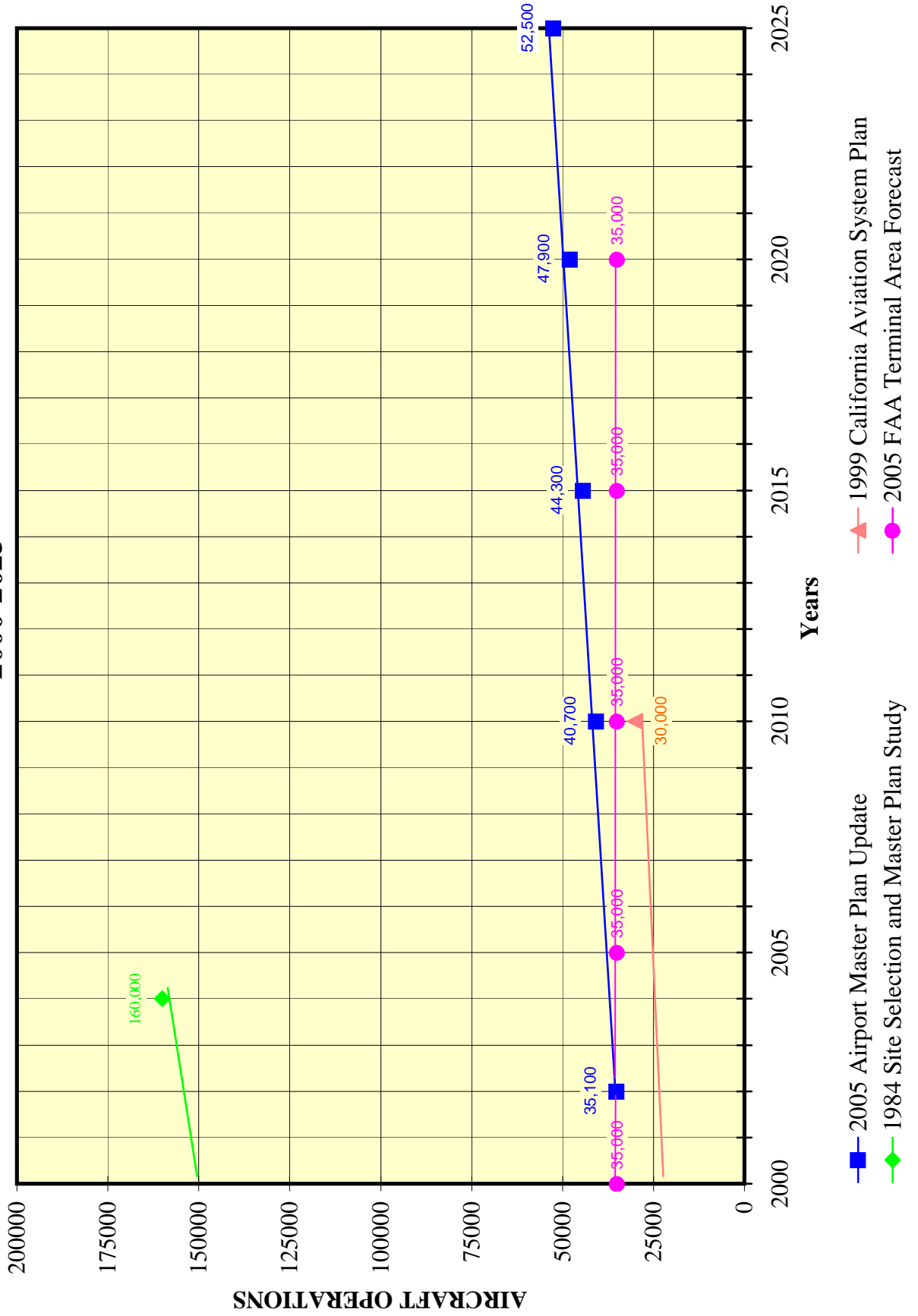


FIGURE 2-2

Oakland International and Sacramento International Airports. Located almost equidistance from Rio Vista, hundreds of scheduled airline flights are scheduled out of these two airports on a daily basis providing either direct service to a desired destination or connecting service to virtually any destination worldwide. Based on conversations with residents in the area, oftentimes it is preferable to fly out of Sacramento International Airport thereby avoiding the traffic and other congestion at Metropolitan Oakland International Airport.

It appears that at present the airline and commuter service already established at the Metropolitan Oakland International and Sacramento International Airports would offer significant competition to any scheduled commuter airline service at the Rio Vista Municipal Airport. Therefore, it is unlikely that commuter service would be initiated at the Rio Vista Municipal Airport in the future.

Chapter 3

EXISTING AIRPORT FACILITIES

3.1 INTRODUCTION

Rio Vista Municipal Airport (Baumann Field) is geographically located 3 statute miles north of the center of the business district of the City of Rio Vista in Solano County. The Airport is located on about 273 acres of land at an elevation of 20 feet above mean sea level (MSL). The Airport is classified as a General Aviation Airport in the National Plan of Integrated Airport Systems (NPIAS) prepared by the Federal Aviation Administration (FAA). The Airport is classified as a Regional Airport in the California Aviation System Plan (CASP) prepared by State of California, Department of Transportation (Caltrans), Division of Aeronautics.

The existing facilities and conditions at the Airport that are important in the master planning process are the airfield, aviation, general aviation, airport access and parking, airport support and other areas. Existing facilities at the Airport are shown on Figures 3-1 and 3-2.

3.2 AIRFIELD

The airfield consists of two runways (7-25 and 14-32) and a heliport. Each runway has a full-length parallel taxiway. The parallel taxiway for Runway 7-25 is located on the south side of the runway with four entry/exit taxiways. The parallel taxiway for Runway 14-32 is on the east side of the runway with three entry/exit taxiways. There is a partial parallel taxiway that serves an aircraft parking apron on the west side of Runway 14-32. The runways, helipad, taxiways, pavement conditions, drainage conditions and runway markings and lighting on the Airport are described below.

3.2.1 Runways and Taxiways

Runway orientation, physical dimensions and effective gradient of the runway are as follows:

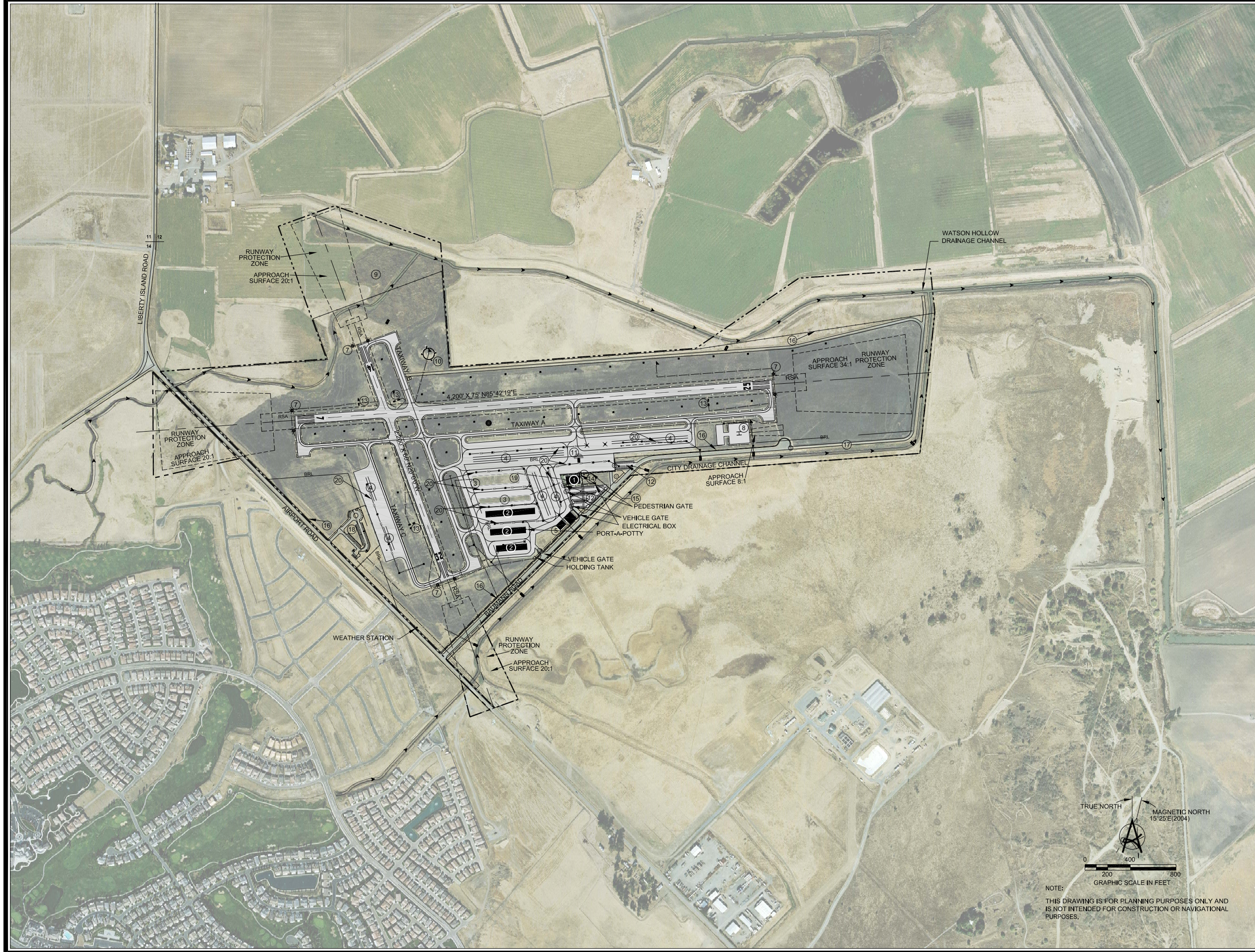
<u>Runway</u>	<u>Orientation</u>	<u>Physical Dimensions (feet)</u>	<u>Effective Gradient (%)</u>
7-25	East-West	4,200 by 75	0.00
14-32	North northwest-South southeast	2,200 by 60	0.00

The runway orientation for Runway 7-25 is north 85 degrees, 42 minutes, and 19 seconds east, true. The runway orientation for Runway 14-32 is north 20 degrees, 00 minutes, and 00 seconds west, true.



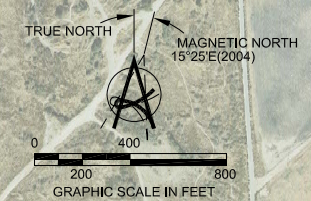
RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

EXISTING AIRPORT FACILITIES



LEGEND	
---	AIRPORT PROPERTY LINE
▬	AIRFIELD/APRON PAVEMENT
▬	BUILDING/FACILITIES
---	BUILDING RESTRICTION LINE (BRL)
---	FENCE
⊙	GATE
⊙	ROTATING BEACON
⊙	FUEL ISLAND
⊙	AIRPORT REFERENCE POINT (ARP)
---	THRESHOLD LIGHTS
---	WIND SOCK
---	REIL
---	PAPI-2
---	HELIPORT
---	EXISTING GROUND CONTOURS
---	DRAINAGE CHANNEL
---	HYDRANT
---	CATCH BASINS
---	ELECTRICAL LINE
---	SEWER LINE
---	STORM DRAIN LINE
---	TELEPHONE LINE
---	WATER LINE
---	RUNWAY SAFETY AREA
11 12	SECTION CORNER
14	

EXISTING FACILITY LEGEND	
1	TERMINAL BUILDING
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	REIL
8	HELIPORT
9	SUMP
10	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	PAPI-2
14	ROTATING BEACON
15	APRON SECURITY LIGHTING
16	FENCE
17	PERIMETER ROAD
18	AIRPORT INDUSTRIAL PARK
19	TRANSFORMER
20	V-GUTTER



NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

VARIES CONSULTANTS LTD.

RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

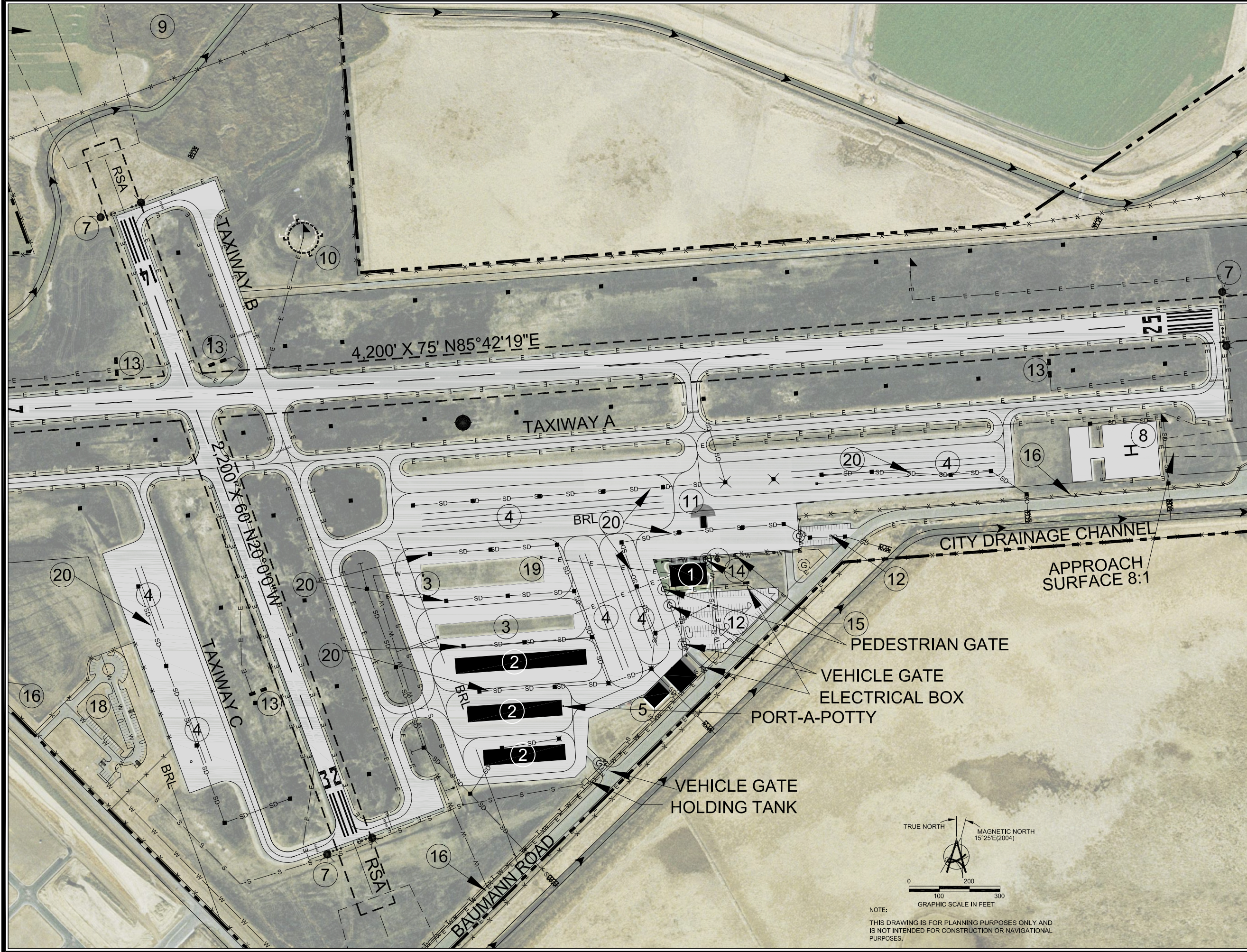
FIGURE
3-1

NAME: RVA-31-Existing Facilities-B.dwg PLOT SCALE: 1"= 800'
DATE: Jun 1, 2007 TIME: 9:49am



RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

EXISTING TERMINAL AREA FACILITIES

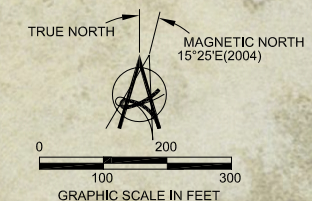


LEGEND

EXISTING	
---	AIRPORT PROPERTY LINE
---	AIRFIELD/APRON PAVEMENT
---	BUILDING/FACILITIES
---	BUILDING RESTRICTION LINE (BRL)
---	FENCE
⊙	GATE
⊙	ROTATING BEACON
⊙	FUEL ISLAND
⊙	AIRPORT REFERENCE POINT (ARP)
⊙	THRESHOLD LIGHTS
⊙	WIND SOCK
⊙	REIL
⊙	PAPI-2
⊙	HELIPORT
---	EXISTING GROUND CONTOURS
---	DRAINAGE CHANNEL
---	HYDRANT
---	CATCH BASINS
---	ELECTRICAL LINE
---	SEWER LINE
---	STORM DRAIN LINE
---	TELEPHONE LINE
---	WATER LINE
---	RUNWAY SAFETY AREA
---	SECTION CORNER

EXISTING FACILITY LEGEND

1	TERMINAL BUILDING
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	REIL
8	HELIPORT
9	SUMP
10	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	PAPI-2
14	ROTATING BEACON
15	APRON SECURITY LIGHTING
16	FENCE
17	PERIMETER ROAD
18	AIRPORT INDUSTRIAL PARK
19	TRANSFORMER
20	V-GUTTER



NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

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RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

FIGURE
3-2

NAME: RVA-31-Existing Facilities-8.dwg PLOT SCALE: 1"= 300'
DATE: Jun 1, 2007 TIME: 10:05am

Both runways are asphalt paved, in good condition, painted with nonprecision runway markings and equipped with medium intensity runway lights (MIRL).

There is a full-length parallel taxiway on the south side of Runway 7-25. There are entry/exit taxiways at both ends of the runway and another two exit taxiways from the runway. There is a full-length parallel taxiway on the east side of Runway 14-32. There are entry/exit taxiways at both ends of the runway and another exit taxiway from the runway. There is also a shorter 1,500-foot parallel taxiway on the west side of Runway 14-32 that serves an aircraft parking apron. The main parallel taxiways are both 240 feet from the runway centerline. The taxiways are 35 feet wide.

The heliport, near the east end of Runway 7-25, is 180 feet by 180 feet and is concrete paved. The heliport has perimeter lights. There are two helicopter parking pads in close proximity to the landing/takeoff helipad with a short paved connecting taxiway.

3.2.2 Pavement Strength

According to the latest FAA Form 5010-1, *Airport Master Record*, last inspected in December 2004, the runways are of asphalt construction and are considered to be in good condition. The current estimated maximum gross weight of aircraft (runway pavement strength) by aircraft landing gear configuration is as follows:

Aircraft Maximum Gross Weight (pounds)

<u>Runway</u>	<u>Single-wheel</u>	<u>Dual-wheel</u>
7-25	30,000	--
14-32	12,500	--

According to the Airport Pavement Management System (APMS) study completed by California Department of Transportation (Caltrans), Division of Aeronautics in 2005, there are two sections of pavement that require some type of pavement rehabilitation strategy. One area that was rated poor is the taxiway north of the fuel island that connects the aircraft parking apron to the parallel taxiway for Runway 7-25. The other area that was rated very poor is the heliport near the east end of Runway 7-25.

A slurry seal coat was applied to the runways and a portion of the parallel taxiway for Runway 7-25 in 2003.

The airfield subgrade is deteriorating with lots of cracks showing that may be due to the original design and construction. A limited study of airfield pavement conditions was conducted in 2002 as part of the FAA-funded slurry seal overlay project. Based on 10 core samples the asphalt concrete pavement thickness, along Runway 7-25,

varied from 1.75 inches to 3.00 inches. The 2002 report also noted that the actual asphalt concrete pavement thickness along the edge of the pavement was less than the thickness recommended in the 1990 and 1991 geotechnical investigations and design recommendations for construction of the new airport.

3.2.3 Drainage

The airfield, terminal area, aircraft parking apron and hangar area are drained by catch basins, valley gutters and drainage inlets and underground storm drainage piping. The water drains into the drainage channels south, east and north of the Airport. There is a low area (sump) northeast of Runway 14-32 that is often full of water and is served by an outfall for the airfield drainage.

Some of the drainage inlets are on the taxiway centerlines in the aircraft parking apron and hangar areas, and the drainage inlet angles are too steep causing aircraft to bottom out and strike their propellers. Some inlets are marked with an “X,” and are to be avoided.

3.3 AVIGATION

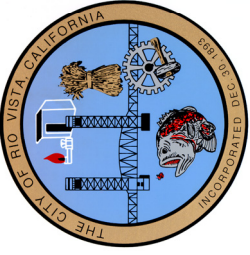
Avigation (air navigation) considerations include airspace and air traffic control, approach areas and obstructions, runway protection zones, navigational and landing aids and meteorological conditions.

The airspace in the general area above the Rio Vista Municipal Airport is Class E controlled airspace with a floor of 700 feet above ground level (AGL), with Class G uncontrolled airspace below. The Class E airspace immediately above 700 feet AGL is controlled by the Northern California (NORCAL) Terminal Radar Approach Control (TRACON) for approach/departure control. The airspace from the surface of the Airport up to 700 feet is therefore Class G uncontrolled airspace.

3.3.1 Airspace and Air Traffic Control

Figure 3-3 shows the Rio Vista Municipal Airport in relation to the major navigational aids, low altitude airways, low altitude military training routes, alert areas, military operations areas (MOA), restricted areas, instrument flight rules (IFR) approaches and other airports in the area.

There are several navigational aids that provide the basis of the low altitude airway structure in the area. A VORTAC is the co-location of a very high frequency omnidirectional radio range (VOR) and military tactical air navigational and distance measuring equipment (TACAN). A VOR/DME is a VOR with co-located distance measuring equipment (DME). The navigational aids that form the low altitude



RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

AIRSPACE CONFIGURATION

LEGEND	
V 108	LOW ALTITUDE AIRWAY
◊	COMBINED VOR AND TACAN (VORTAC)
⊙	VHF OMNI RANGE (VOR)
▶	NONPRECISION IFR APPROACH
◀	PRECISION APPROACH

SOURCE: SAN FRANCISCO SECTIONAL AERONAUTICAL CHART, FAA.

TRUE NORTH
MAGNETIC NORTH
15°25'E(2004)

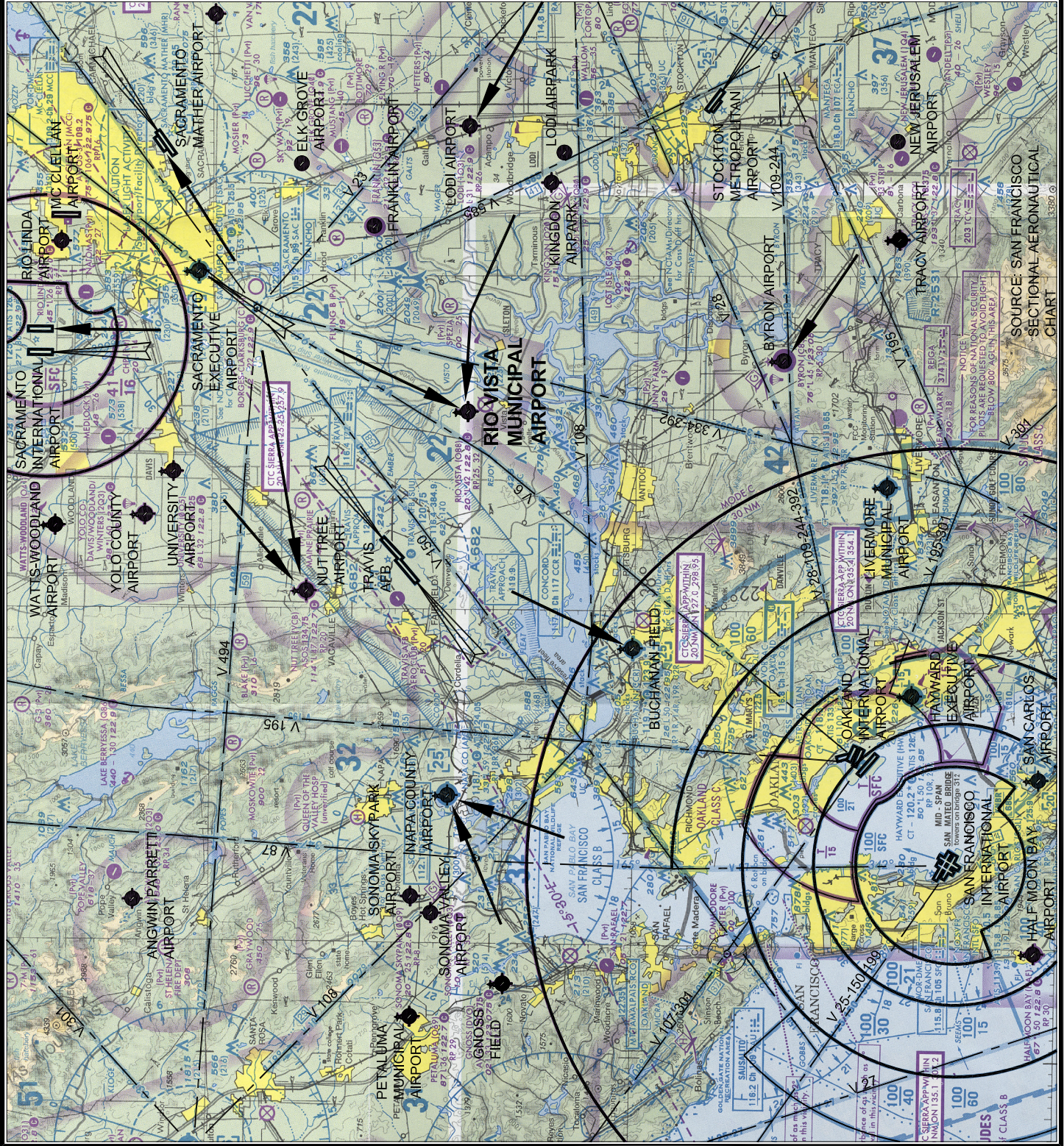


NOTE: THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

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RIO VISTA MUNICIPAL AIRPORT

FIGURE
SOLANO COUNTY, CALIFORNIA
3-3

NAME: RVA/PT/MLMA
DATE: JUN 11, 2007
TIME: 1:12PM
PLOT SCALE: 1"=10'



SOURCE: SAN FRANCISCO SECTIONAL AERONAUTICAL CHART

airways in the vicinity of Rio Vista are the Sacramento VORTAC and the Oakland VORTAC, located 16 nautical miles (NM) and 37 NM to the northeast and southwest, respectively. The Linden VORTAC at 33 NM to the east-southeast, the Concord VOR/DME at 21 NM to the southwest and the Manteca VORTAC at 33 NM to the southeast form additional airways to the east and south of the Airport.

The Travis VOR is located approximately 7.5 NM, to the northeast, from the threshold of Runway 21L at Travis Air Force Base. It is used primarily for VOR approaches to Travis Air Force Base. However, some intersections along the Victor airways in the area are identified by radials from the Travis VOR. The Travis TACAN is located on the southeast side of and near the threshold of Runway 3L at Travis Air Force Base. This navigational aid is essentially for military use only.

3.3.1.1 Published Instrument Flight Rules Procedures

There are two published instrument flight rules (IFR) approaches to the Rio Vista Municipal Airport. One approach is based on the satellite global positioning system (GPS) identified as GPS RWY 25 with straight-in minimums to Runway 25. The GPS Runway 25 minimums for approach categories A, B and C are 360 feet MSL (340 feet AGL) with one mile visibility minimum. Approach categories are assigned to aircraft based on an aircraft's approach speed. The other approach is based on the Sacramento VORTAC and is identified as VOR-A to the Airport with circling minimums only. The lowest VOR-A minimums are: for approach category A – 460 feet MSL (440 feet AGL); for approach category B – 480 feet MSL (460 feet AGL). Both approach categories A and B have a one-mile visibility minimum. Category C minimums are 620 feet MSL (600 feet AGL) with 1-1/2 miles visibility minimum. Approach category D is not authorized for either approach.

3.3.1.2 Air Traffic Control

Rio Vista Municipal Airport is within the jurisdictional area of the Oakland Air Route Traffic Control Center (ARTCC), commonly known as "Center." Oakland Center provides air traffic control (ATC) for en route IFR aircraft passing overhead of the Rio Vista Municipal Airport. Centers may delegate airspace for IFR approach/departure control. Oakland Center has delegated airspace to the Northern California (NORCAL) Terminal Radar Approach Control (TRACON) for approach/departure control for a large area of Northern California that includes Rio Vista Municipal Airport. There is no air traffic control tower (ATCT) located at the Airport; therefore, the Airport is classified by the FAA as an uncontrolled airport.

3.3.1.3 Airspace Usage

The use of airspace in the Rio Vista area is influenced primarily by the proximity of other major airports in the area. As an example, the VOR-A IFR approach procedure to the Rio Vista Municipal Airport interacts with IFR approaches to Runway 2 at the Sacramento Executive Airport. However, the IFR GPS approach to Runway 25 at Rio Vista Municipal Airport is basically independent of other IFR procedures. Terrain is not a major factor, allowing minimum en route altitudes (MEA) to be as low as 2,000 feet in the vicinity of Rio Vista.

There are basically no IFR interactions between Rio Vista Municipal Airport and Travis Air Force Base. Oakland Center has delegated approach/departure terminal airspace to Travis Radar Approach Control (RAPCON) that is separate from that delegated to NORCAL.

The airspace around the Rio Vista area serves a wide range of civil and military aircraft operations, both IFR and visual flight rules (VFR). The main difference between IFR and VFR is that the pilot maintains spatial orientation of the aircraft by references to instruments for IFR operations and by visual reference to the ground for VFR operations. VFR activity requires good visibility, whereas IFR activity can be accomplished in poor visibility. Meteorological conditions that permit flight under VFR rules are prescribed in the Federal Aviation Regulations (FAR), Part 91, *General Operating and Flight Rules*, Paragraph 155, *Basic VFR Weather Minimums*, in terms of visibility and distance from clouds.

3.3.1.4 Instrument Flight Rules Operations

As arriving aircraft approach the Rio Vista Municipal Airport terminal area, the air traffic controller directs the arriving aircraft to descend to a lower altitude. If the arriving aircraft is above and descending into NORCAL's airspace, Oakland Center transfers control to an approach controller at NORCAL TRACON who then has the responsibility of controlling the arriving aircraft to final approach course for the airport of intended landing. In the radar environment of approach control, radar vectoring is generally used for navigation to the final approach. As the aircraft nears the final approach fix, the pilot is cleared to change to the designated common traffic advisory frequency (CTAF) of 122.8 to advise other traffic in the area of his location and operational intentions.

3.3.1.5 Visual Flight Rules Operations

Unlike IFR flights, VFR flights are not controlled by the air traffic control system, except when operating within the airspace of an airport with an operating control tower, such as Sacramento Executive Airport (Class D airspace) or Sacramento

International Airport (Class C airspace). In the Rio Vista area, Class G uncontrolled airspace extends from the surface upward to 700 feet above the ground with Class E controlled airspace above that level. The significance of Class E airspace to VFR traffic is that the basic VFR weather minimums are higher in controlled airspace than in the uncontrolled airspace below that which surrounds the Airport.

The Rio Vista Municipal Airport is within one of the busiest VFR corridors in the State of California between the San Francisco Bay Area and Sacramento. A significant portion of the air traffic between the San Francisco Bay Area and Sacramento traverses the Rio Vista area. For some of the traffic using this northeast-southwest corridor, the Rio Vista Municipal Airport is the origin or destination airport.

Rectangular VFR airport traffic patterns have been established for each runway with left-hand turns for Runways 7 and 14 and with right-hand turns for Runways 25 and 32. The traffic pattern altitude is 1,020 feet MSL for all aircraft; i.e., 1,000 feet above ground level (AGL). Runway 25 is the calm wind runway. For all runways it is recommended that aircraft climb to 700 feet before turning. The helicopter traffic pattern is south of Runway 7-25 at an altitude of 520 feet MSL; i.e., 500 feet AGL.

3.3.2 Approach Areas and Obstructions

The FAA Form 5010-1, *Airport Master Record*, and other charts and documents were reviewed to identify obstructions as defined by Federal Aviation Regulations FAR Part 77, *Objects Affecting Navigable Airspace*. FAR Part 77 establishes imaginary surfaces related to airports and their runways that are used to identify obstructions.

The following tabular data shows the FAR Part 77 approach slopes compared with existing obstacles/obstructions, controlled approach slopes and other information relative to the controlling obstacles/obstructions.

Runway Number	Runway Elevation (feet)	FAR Part 77 Slope	Actual Slope	Controlling Obstacle/Obstruction Location from Runway Threshold, Related to Extended Runway Centerline		
				Type	Height Above Threshold (feet)	Location
7	20	20:1	50:1	N/A	N/A	N/A
25	20	34:1	50:1	N/A	N/A	N/A
14	20	20:1	50:1	N/A	N/A	N/A
32	20	20:1	15:1	Road	15	430 feet along and 125 feet to northeast

According to the latest FAA Form 5010-1, *Airport Master Record*, last inspected in December 2004, there was a pole off the end of Runway 32 that was the controlling obstruction. However, this pole has since been removed by the City. Previously, Baumann Road was listed as the controlling obstruction to Runway 32 at a point 430 feet along and 125 feet to the southeast of the runway along the extended runway centerline. The required 15-foot clearance above the road resulted in only a 15:1 actual approach slope. Therefore, Baumann Road is now the controlling obstruction to Runway 32 as noted in the preceding tabulation.

3.3.3 Runway Protection Zones

All four runway protection zones (RPZ) are entirely within the airport property line. A portion of the runway protection zone for Runway 7 is west of Airport Road and portions of the runway protection zone for Runway 32 are west of Airport Road and also south of Baumann Road. Runway protection zone dimensions are no longer based on FAR Part 77 approach surface dimensions. The dimensions are now established in FAA Advisory Circular 150/5300-13, *Airport Design*, for each individual runway, by approach visibility minimums for, and by category of aircraft that the individual runway will serve. The runway protection zones for a runway are at ground level, and the approach surface slopes are inclined planes above the ground. The following tabular data shows the type of existing runway protection zone and dimensions established for each runway approach end based on the new criteria for Runway 7-25.

Runway	Protection Zone	Length in Feet	Inner Width in Feet	Outer Width in Feet
7	Nonprecision	1,000	500	700
25	Nonprecision	1,000	500	700
14	Visual	1,000	250	450
32	Visual	1,000	250	450

3.3.4 Navigational and Landing Aids

The Rio Vista Municipal Airport underlies the 189 degree radial of the Sacramento VORTAC at a distance of 16 NM. The 132 degree radial of the Travis VOR overlies the Airport also.

Runways 7-25 and 14-32 are both equipped with medium intensity runway lights (MIRL). The parallel and entry/exit taxiways are equipped with medium intensity taxiway lights (MITL). The apron edge taxiways are not lighted.

There is a precision approach path indicator (PAPI-2), at each end of both runways, each with a visual glide angle of 4 degrees. The runway lights and PAPI-2s are pilot-controlled. There are also runway end identifier lights (REIL) at each end of both runways.

The universal communications (UNICOM) is no longer operational. The common traffic advisory frequency is 122.8. An airport rotating beacon is located on the south side of the aircraft tiedown area. There is a segmented circle and lighted wind indicator located on the east side of, and near the end of, Runway 14.

There are also lighted windsocks located near the end of Runway 25 and at the heliport.

3.3.5 Meteorological Conditions

FAA criteria for aircraft operations requires a runway orientation resulting in a crosswind component not exceeding the limit of the most critical aircraft more than 5 percent of the time, thereby providing at least 95 percent wind coverage. The most critical aircraft for the Rio Vista Municipal Airport are in airport reference codes (ARC) A-I (e.g., Cessna 150, Beech Bonanza) and B-I (e.g., Cessna 402, Piper 31-Navajo) with a limited crosswind component of 10.5 knots (12 mph).

Based on observations recorded 24 hours per day for three years at the U. S. Coast Guard Station in Rio Vista, the wind data collected indicates the orientation of Runway 7-25 provides 92.83 percent wind coverage. The orientation of Runway 14-32 provides 77.68 percent wind coverage. Both runway orientations combined provide 98.16 percent wind coverage for the most critical aircraft expected to use the Airport with 10.5 knot (12 mph) crosswinds. The U. S. Coast Guard Station is 2-1/2 NM south of the Airport on the west side of the Sacramento River.

The mean daily maximum temperature of the hottest month is 91 degrees Fahrenheit. The temperatures range from an average low of 31 degrees Fahrenheit to a high of 102 degrees Fahrenheit. The average high temperatures in Rio Vista are 53 degrees Fahrenheit in January and 86 degrees Fahrenheit in July. The average low temperatures are 40 degrees Fahrenheit in January and 57 degrees Fahrenheit in July. Most of the wind occurs during the summer with an average speed of 12 knots. The prevailing winds are from the west to northwest. The average rainfall ranges from 0.01 inches in July to 3.43 inches in January with an annual total of 16.00 inches.

There is a weather station on the west side of the Airport, along Airport Road, that is owned by the Yolo - Solano Air Quality Management District but is not used for aviation purposes.

3.4 GENERAL AVIATION

There are two aircraft parking apron tiedown areas (approximately 600,000 and 120,000 square feet) on the Airport. The larger apron is south of Runway 7-25 and provides space for about 75 tiedowns with chains and anchors. There is also space on the smaller apron for 12 tiedowns west of Runway 14-32 on the west side of the Airport. Transient aircraft can park on the larger apron at any of the tiedowns provided west of the terminal building. There are apron lights only on the south side of the aircraft parking apron near the terminal building.

There is space for 46 aircraft in City owned T-Hangars and six aircraft in two other hangars on the west side of the terminal area. Dan Simpson and Fields Aviation have hangars at the south end of the terminal area.

Fields Aviation provides aircraft maintenance, restorations and interiors services from a hangar and space in the terminal building. Om Air provides avionics services from space in the terminal building. The Travis Aero Club Flight Training Center recently relocated to the Airport and has space in the terminal building. There are restrooms in the terminal building and a port-a-potty at the end of the T-hangar Building B.

The City provides 100 low-lead fuel from a self-serve 24-hour credit card fuel island north of the terminal building.

There is a concrete heliport south of Runway 25, which is used primarily for helicopter training by operators from other airports. There is a parking helipad on the apron to the west of the landing/takeoff heliport with space for two helicopters.

Several agricultural aircraft operators use the Airport at various times of the year with fixed-wing aircraft. These include Harding Flying Service and Alexander Ag Flying Service.

3.5 AIRPORT ACCESS AND PARKING

Access to the Airport from Rio Vista is via State Highway 12 to Church Road and Airport Road to Baumann Road, a distance of about 3 miles. The Airport is about 2 miles north of State Highway 12.

Vehicular parking is provided in the vicinity of the Airport terminal building.

There is a gravel perimeter service road around the south, east and north sides of Runway 7-25. The gravel road extends east from the parallel taxiway near the end of Runway 14 to the drainage channel east of Runway 7-25 and then south and west along the drainage channel to Baumann Road.

Ground transportation is available from Delta Cab Taxi.

3.6 AIRPORT SUPPORT FACILITIES

Airport support for the Rio Vista Municipal Airport includes the following facilities.

Airport management offices are located in the terminal building.

The nearest City of Rio Vista Fire Department station is located downtown approximately 3 miles away on Main Street near Fourth Street.

Security is provided by the City of Rio Vista Police Department.

The 100 low-lead fuel is stored in two below ground 8,000-gallon tanks. There is a fueling island in the terminal area and fuel is available 24 hours a day using an automated credit card system.

Water is provided by the City of Rio Vista. There is an 8 inch water line serving the terminal area that connects to a recently-completed 10 inch water line along Baumann Road. There is a 10-inch water line along Airport Road on the west side of the Airport.

The Airport has a sewage holding tank along Baumann Road and sewage is pumped out and trucked to the Rio Vista Wastewater Treatment Plant twice a week.

Solid waste is collected and conveyed by the Rio Vista Sanitation Service and is transferred to a transfer station in Concord.

Electrical power is provided by PG&E.

Telephone service is provided by Frontier Communications. There is a pay phone outside the terminal building.

There is a liquid propane tank in the terminal building which the City leases from Sheldon Gas.

There is 4-foot high fencing and gates in the terminal area. The gates are padlocked and some are left open during the day. There are no automatically controlled access gates.

There is 6-foot chain link fencing extending west from the two individual hangars along Baumann Road to Airport Road, and then along Airport Road to north of the Airport Industrial Park. There is also 6-foot chain link fencing east of the terminal area to the gate on Baumann Road south of the end of Runway 25.

There is barbed wire fencing south and east of the drainage channel around the south and east sides of the Airport. There is barbed wire fencing north of the perimeter road north of Runway 7-25. The barbed wire fencing extends north of the drainage channel north of Runway 14-32 and west to Airport Road and south along Airport Road to the Industrial Park. The barbed wire fencing is in poor condition in many areas.

The Airport property west of Airport Road and south of Baumann Road is not fenced.

3.7 OTHER AREAS

The Airport is zoned as airport commercial (C-2-A). However, a 12 acre parcel on the west side of the Airport is designated as a limited industrial/employment district [I/E(L)], Airport Industrial Park, on the 2001 City of Rio Vista General Plan. There is an industrial park with infrastructure already developed on a portion of this parcel. The Watson Hollow business entity intended to lease a portion of this parcel of Airport property located on the west side adjacent to Airport Road. The parcel includes the aircraft parking apron and part of the parallel taxiway west of Runway 14-32. The status of this proposed lease is currently being resolved.

There are access easements onto the Airport from west of Runway 14-32 and north of Runway 7-25 in the original property agreements for acquisition of the land for the new airport. The status of these agreements are currently being resolved.

Watson Hollow Creek crosses the northwest corner of the Airport. The Watson Hollow drainage channel crosses the north side of the Airport. There is a City owned drainage channel that extends across the south and east sides of the Airport and connects into the Watson Hollow drainage channel.

A portion of the airport north of Runway 14-32 and the Watson Hollow Creek and drainage channel is used for agriculture.

There used to be a 4 inch PG&E gas pipeline that crossed the east side of the Airport under the east end of Runway 7-25 and the parallel taxiway. This pipeline and another gas pipeline, 700 feet to the east, have been disconnected, deactivated and left in place.

3.8 OFF-AIRPORT LAND USE

According to the City of Rio Vista General Plan 2001, the land to the south and east of the Airport within the City of Rio Vista is designated for agricultural/open space (AG/OS) use and includes part of the runway protection zone for Runway 32. The City has recently built a new wastewater treatment plant (WW) immediately south of the Airport and Baumann Road on 160 acres owned by the City. The treatment ponds are enclosed. The land to the west of the Airport and Airport Road is designated for neighborhood residential (NR) use and includes part of the runway protection zone for Runway 32. The land immediately to the west of Runway 7-25, across Airport Road, is designated as open space (OS) use and includes part of the runway protection zone for Runway 7. The land to the north of the Airport is designated for agricultural (AG) use and is within Solano County.

The Trilogy and Homecoming residential developments and Rio Vista Golf Course are located to the west and south of the Airport.

Chapter 4

AIRPORT FACILITY REQUIREMENTS

4.1 INTRODUCTION

The major elements of the Airport, which were described in Chapter 3, must be analyzed individually and balanced in relation to one another as part of the Airport master planning process for the Rio Vista Municipal Airport. These major elements are:

- Airfield
- Avigation
- General Aviation
- Airport Access and Parking
- Airport Support Facilities
- Other Areas
- Off-Airport Land Use

The existing facilities must be evaluated and their ability to satisfy forecast aviation demand throughout the planning period, as set forth in Chapter 2, must be determined. From these evaluations, the requirements for any additional facilities and improvements can be established. These requirements will, in turn, provide the basis for the recommended 2025 Airport Master Plan Update.

A summary of the major requirements for facilities and improvements at the Airport through the year 2025 is presented in Table 4-1. Existing facilities are also listed for purposes of comparison.

4.2 AIRFIELD

The following analysis of airfield requirements covers runway and taxiway dimensions, airfield pavement, and airfield capacity.

4.2.1 Airport Classification

According to Federal Aviation Administration (FAA) planning criteria, Rio Vista Municipal Airport is classified as a General Aviation Airport in the *National Plan of Integrated Airport Systems* (NPIAS). General aviation airports serve those communities that do not receive scheduled commercial service. Rio Vista Municipal Airport is classified as a Regional General Aviation Airport in the *California Aviation*

Table 4-1

EXISTING FACILITIES AND FUTURE REQUIREMENTS
Rio Vista Municipal Airport
2006-2025

	Existing	Future			
	2006	2010	2015	2020	2025
AIRFIELD					
Runway 7-25					
--Length (feet)	4,200	4,700	5,400	5,400	5,900
--Width (feet)	75	75	75	75	75
Pavement strength (pounds)					
-- Single-wheel aircraft	30,000	30,000	30,000	30,000	30,000
-- Dual-wheel aircraft	--	60,000	60,000	60,000	60,000
Runway 14-32					
--Length (feet)	2,200	2,200	2,200	2,200	2,200
--Width (feet)	60	60	60	60	60
Pavement strength (pounds)					
-- Single-wheel aircraft	12,500	12,500	12,500	12,500	12,500
-- Dual-wheel aircraft	--	12,500	12,500	12,500	12,500
Heliport					
--Length (feet)	180	180	180	180	180
--Width (feet)	180	180	180	180	180
Taxiways					
--Width (feet)	35	35	35	35	35
General Aviation					
Aircraft tiedown positions	75	75	75	75	75
Hangar spaces	52	60	65	70	80
AIRPORT ACCESS AND VEHICULAR PARKING					
Access road lanes (two way)	2	2	2	2	2
Total parking area (spaces)	160	160	160	160	160

SOURCE: Aries Consultants Ltd.

System Plan (CASP). Regional airports provide the same access as community airports. They may provide international access. They are located in an area with a larger population base than Community airports while serving a number of cities or counties. They serve the same activities as Community airports with a higher concentration of business and corporate flying and accommodate most business, multi-engine and jet aircraft. They provide most services for pilots and aircraft including aviation fuel. They have a published instrument approach and may have a control tower. The Rio Vista Municipal Airport is listed in the *California Aviation System Plan, 2003 System Requirements Element*, as one of four airports in the San Francisco Bay Area Region as requiring 24-hour on-field weather service, such as an automated weather observing system (AWOS), that is considered a high priority.

4.2.2 Airfield Dimensions

Airfield dimensions are determined by several factors; including airport classification, aircraft type, weight, approach speed, and wingspan of the most demanding aircraft. Generally speaking, no one aircraft can be expected to be the most demanding in all of these factors. Aircraft that may be the determinant for runway length may not be the most demanding aircraft for considerations of lateral separations of the runways, taxiways, and taxilanes. Further, facilities used for small aircraft (12,500 pounds or less maximum gross takeoff weight) will have some different dimensional requirements than those facilities used by large (more than 12,500 pounds maximum gross takeoff weight) aircraft.

4.2.3 Airport Reference Code

FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, establishes an airport reference code (ARC) to identify specific design criteria appropriate for the types of aircraft expected to be accommodated at a particular airport. The ARC has two components. The first is a letter referring to the “aircraft approach category” in terms of approach speed. The second is a Roman numeral referring to the “airplane design group” in terms of wingspan. Aircraft in a lower ARC would be accommodated by a higher ARC (i.e., A-I fits into B-II).

According to the ARC definitions contained in FAA AC 150/5300-13, the existing airfield dimensions generally meet the criteria for an ARC of A-II/B-II, such as the Beech King Air and Cessna Citation II. The parallel taxiway separation, for both runways, is 240 feet, runway centerline to taxiway centerline. This is the required separation for ARC A-II/ B-II. The existing 30,000 pound pavement strength for single-wheel aircraft for Runway 7-25 is adequate for some large aircraft. However, the existing pavement strength for Runway 14-32 is adequate only for small aircraft of 12,500 pounds or less. The existing runway protection zones (RPZs) for Runway

7-25 meet the requirements for large aircraft in approach categories A and B for visual and not less than 1-mile visibility minimums. The existing RPZs for Runway 14-32 meet the requirements for small aircraft exclusively for visual and not less than 1-mile visibility minimums. The Airport is currently used, primarily by small aircraft in ARC A-I, such as the Cessna 150 or the Beech Bonanza A36, up to small aircraft in ARC B-I, such as the Beech Baron 58 or the Cessna 421 Golden Eagle. Some larger turboprop and business jet aircraft in ARC B-II, such as the Beech King Air and Cessna Citation, use the Airport occasionally.

4.2.4 Runway Length

FAA AC 150/5325-4A, *Runway Length Requirements for Airport Design*, provides design standards and guidelines for determining recommended runway length. For aircraft of 60,000 pounds or less, runway length curves are provided for families of aircraft. The FAA has derived these curves with data from FAA approved aircraft flight manuals and assumed loading conditions.

The recommended runway lengths to accommodate 100 percent of small airplanes (12,500 pounds or less maximum gross takeoff weight) at Rio Vista Municipal Airport, corrected for a mean maximum daily temperature of 91 degrees Fahrenheit and elevation of 20 feet mean sea level (MSL) are as follows:

- Less than ten (10) passenger seats = 3,700 feet
- Ten (10) passenger seats or more = 4,200 feet

For aircraft between 12,500 and 60,000 pounds maximum allowable gross takeoff weight FAA AC 150/5325-4A has recommended runway length curves for 75 and 100 percent of the fleet at 60 and 90 percent useful load. Useful load consists of passengers and baggage, cargo and usable fuel. For the Rio Vista Municipal Airport the recommended runway lengths, corrected for elevation (20 feet MSL) temperature (91 degrees Fahrenheit) and runway gradient (0.00 percent) are as follows:

<u>Percent of Fleet</u>	<u>Percent of Useful Load</u>	<u>Runway Length (feet)</u>
75	60	4,700
75	90	6,800
100	60	5,400
100	90	8,400

Runway gradient corrections are for takeoffs which are generally more demanding than landings. However, for some turbojet aircraft landings on a wet or slippery runway may be more demanding. A correction, without the runway gradient correction, may be required to accommodate these aircraft.

4.2.5 Runway 7-25

The existing runway length of 4,200 feet with a runway gradient of 0.00 percent is adequate to accommodate 100 percent of the small airplanes of 12,500 pounds or less allowable gross takeoff weight with ten passenger seats or more. Some aircraft of more than 12,500 pounds allowable gross takeoff weight can operate from this runway length on an occasional basis (less than 500 operations per year according to FAA AC 150/5325-4A). Additionally, some other large aircraft could operate from this runway, under conditions of low temperature and/or dry runway conditions. Some large aircraft (more than 12,500 pounds allowable gross takeoff weight) can be accommodated with the lateral separation standards that exist for this runway. Existing taxiway separation and other dimensional standards, such as runway protection zones (RPZ), runway safety areas (RSA), and runway object free areas (ROFA) will accommodate aircraft in ARC A-II and B-II. When operations reach 500 annual operations by a higher ARC they should be accommodated. A runway extension to at least 4,700 feet and, preferably, to at least 5,400 feet would be required to accommodate larger aircraft.

According to the *California Aviation System Plan*, the minimum runway length for a Regional Airport, like Rio Vista Municipal Airport, should be sufficient to accommodate 100 percent of the aircraft fleet at 60 percent useful load. This requires a runway length of 5,400 feet at Rio Vista Municipal Airport.

Based on input from users of the Airport, it is expected that aircraft requiring a longer runway length will be based at the Airport and an ultimate runway length of 5,900 feet should be planned for.

The existing 75-foot width of Runway 7-25 is adequate for ARC A-II/B-II aircraft.

4.2.6 Crosswind Coverage

The crosswind coverage for Runway 7-25 is 92.83 percent for a 10.5 knots (12 statute miles per hour) crosswind component as shown on the existing FAA approved airport layout plan (ALP) wind rose. According to FAA AC 150/5300-13 a crosswind runway is recommended when the main runway orientation provides less than 95 percent coverage. The crosswind coverage for Runway 14-32 is 77.68 percent for a 10.5 knots crosswind. The crosswind coverage for both Runways 7-25 and 14-32 is 98.16 percent for a 10.5 knots crosswind component. Therefore, the two runway orientations provide adequate crosswind coverage for aircraft in ARC A-I/B-I, and Runway 14-32 is required for use by these aircraft.

The required crosswind component coverage for aircraft in A-II/B-II is 13 knots. Based on the wind rose on the existing ALP, the crosswind coverage for Runway 7-25 for a crosswind component of 13 knots is 96.38 percent. Therefore, Runway 14-32 is not required for aircraft in ARC A-II/B-II and should be designed to accommodate ARC A-I/B-I aircraft only.

4.2.7 Runway 14-32

The recommended runway length for 75 percent of the small airplanes would be 2,500 feet and 80 percent of that length would be 2,000 feet. The existing length of Runway 14-32 of 2,200 feet would appear to be adequate. However, FAA Advisory Circular 150/5325-4A states that a crosswind runway should be 80 percent of the main runway, which would be 3,360 feet.

The minimum length for the crosswind runway to accommodate small aircraft (12,500 pounds or less) in ARC A-I/B-I would be 2,200 feet. To accommodate all small aircraft in ARC A-I/B-I with 10 seats or more, the crosswind runway would be 3,360 feet in length. However, there are environmental, engineering and other constraints to extending Runway 14-32.

The existing 60-foot width of crosswind Runway 14-32 is adequate for ARC A-I/B-I aircraft.

4.2.8 Airfield Capacity

The FAA technique for estimating airfield capacity (FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*) was used to compute hourly capacity and annual service volumes for both the existing airfield and potential improvements evaluated as part of this study.

A main runway and crosswind runway airfield, with parallel taxiways, has an hourly capacity of about 90 operations during visual flight rule (VFR) conditions. This same runway would have an hourly capacity of about 30 to 40 operations during instrument flight rules (IFR) conditions.

The peak hour demand is forecast to be 34 operations per hour during an average day and peak month by the end of the planning period. The hourly capacity is adequate to accommodate forecast hourly demand with only minor delays during IFR conditions (when operations would normally be reduced). It can be expected that improved IFR approaches and procedures will be published during the planning period that will improve IFR capacity.

Annual service volume (ASV) is a reasonable estimate of an airport's annual capacity in terms of aircraft operations that may be used as a reference in airport planning. The ASV is the annual volume of aircraft operations beyond which the average delay to each aircraft increases rapidly with relatively small increases in aircraft operations and beyond which the levels of service on the airfield deteriorate, e.g., waiting time for takeoff.

The ASV of a main runway and crosswind runway airfield with parallel taxiways and IFR approach procedures is estimated at about 230,000 operations. By comparison, according to the forecasts presented in Chapter 2, air traffic is expected to reach a level of only 52,500 aircraft operations by 2025. Therefore, the two runway airfield would provide adequate capacity to accommodate the forecast demand throughout the 2025 planning period. The crosswind runway is primarily to accommodate small aircraft in strong crosswinds.

4.2.9 Heliport

The existing heliport located south of Runway 7-25, near the threshold of Runway 25, is too close to the centerline of Runway 7-25 for independent simultaneous operations. The heliport centerline is 400 feet from the centerline of Runway 7-25. The requirement for independent simultaneous operations is 700 feet from centerline to centerline. For the present and forecast operations this should not create a capacity or operational problem. However, consideration could be given to helicopters landing and taking off on the runway and hover taxiing to the nearby helicopter parking positions. This would reduce the potential for confusion as to the independence of helicopter operations. Pilots should use the common traffic advisory frequency (CTAF) of 122.8 to advise other pilots in the area, and possible service vehicles on the Airport, of his/her position and intentions of aircraft movement.

4.2.10 Taxiways

The existing taxiway system is basically adequate for the forecast demand for small and some large aircraft (12,500 pounds or more) with an occasional (less than 500 operations a year) large aircraft in ARC A-II/B-II. Additional entry/exit taxiways and extensions to the existing parallel taxiways will be required in conjunction with any runway extensions.

4.2.11 Other Airfield Dimensions

Applicable runway and separation standards which apply to the Rio Vista Municipal Airport, from FAA AC 150/5300-13, are shown in Table 4-2. For comparative

Table 4-2

**AIRPORT DIMENSIONAL AND SEPARATION STANDARDS
(feet)**

ITEM	AIRPORT REFERENCE CODE			
	A-I/B-I ¹	A-I/B-I ²	A-II/B-II ²	C-II ²
Runway Width	60	60	75	100
Runway Shoulder Width	10	10	10	10
Runway Blast Pad Width	80	80	95	120
Runway Blast Pad Length	60	100	150	150
Runway Safety Area Width	120	120	150	500
Runway Safety Area and Object Free				
Area Length Beyond Each Runway End	240	240	300	1,000
Runway Object Free Area Width	250	400	500	800
Obstacle Free Zone Width	250	400	400	400
Runway Centerline to Taxiway Centerline	150	225	240	300
Runway Centerline to Aircraft Parking Area	125	200	250	400
Taxiway Width	25	25	35	35
Taxiway Shoulder Width	10	10	10	10
Taxiway Safety Area Width	49	49	79	79
Taxiway Object Free Area Width	89	89	131	131
Taxiway Centerline to Parallel Taxiway Centerline	69	69	105	105
Taxiway Centerline to Fixed or Movable Object	44.5	44.5	65.5	65.5
Taxilane Centerline to Fixed or Movable Object	39.5	39.5	57.5	57.5
Runway Protection Zone ^{3,4,5}				
Length	1,000	1,000	1,000	1,700
Inner Width	250	500	500	500
Outer Width	450	700	700	1,010

1. For small aircraft (12,500 pounds or less) exclusively with visibilities not less than 3/4 mile.
2. ARC A-I/B-I, A-II/B-II, and C-II for large aircraft (over 12,500 pounds) with visibilities not less than 3/4 mile.
3. Runway protection zone dimensional standards are for visual runways and runways with not lower than one (1) statute mile approach visibility minimums.
4. For both small and large aircraft a nonprecision approach with, or not lower than, 3/4 statute mile approach visibility minimums, the runway protection zone has a length of 1,700 feet, inner width of 1,000 feet and outer width of 1,510 feet.
5. For both small and large aircraft, a precision runway protection zone has a length of 2,500 feet, inner width of 1,000 feet and outer width of 1,750 feet.

SOURCE: FAA AC 150/5300-13 *Airport Design*.

purposes, and for use in evaluating alternatives or potential runway extension, standards are also included in Table 4-2 for aircraft in ARC A-I/B-I, A-II/B-II and C-II large airplanes (over 12,500 pounds) as well as for small aircraft in ARC A-I/B-I.

The FAA design criteria require runway safety areas (RSA), runway object free areas (ROFA) and runway obstacle free zones (ROFZ) to be provided of specified width and length, beyond the ends of the runways, based on the existing and expected airplane design groups that will use the runways. The RSA, ROFA and ROFZ are rectangular areas centered about the runway centerline.

For Runway 7-25, assuming large aircraft in ARC B-II are to be accommodated on a regular basis, the required RSA is 150 feet wide and extends 300 feet beyond the runway ends. The required ROFA is 500 feet wide and extends 300 feet beyond the runway ends. The required ROFZ is 400 feet wide and extends 200 feet beyond the runway ends. Where an approach lighting system exists, the inner ROFZ extends from 200 feet beyond the runway end to 200 feet beyond the last light unit in the approach lighting system.

For Runway 14-32, assuming that small aircraft in ARC A-I/B-I are to be accommodated the required RSA is 120 feet wide and extends 240 feet beyond both ends of the runway. The required ROFA is 250 feet wide and extends 240 feet beyond both ends of the runway. The required ROFZ is 250 feet wide and extends 200 feet beyond the runway ends.

Applicable taxiway design and separation standards for ARC A-I/B-I and A-II/B-II at Rio Vista Municipal Airport are shown in Table 4-2. The FAA taxiway design criteria for ARC A-I/B-I require taxiway safety areas (TSA) of 49 feet in width and taxiway object free areas (TOFA) of 89 feet in width and for ARC A-II/B-II a TSA of 79 feet in width with a TOFA of 131 feet in width.

4.2.12 Pavement Strength

The estimated existing airfield pavement strength for Runway 7-25 is 30,000 pounds and for Runway 14-32 is 12,500 pounds for single-wheel landing gear configuration as shown in Table 4-1. This strength is adequate for the aircraft presently using the Airport. However, if heavier aircraft are introduced at the Airport then runway pavement overlays or reconstruction may be required. A pavement strength of up to 60,000 pounds to accommodate a dual-wheel landing gear configuration on Runway 7-25 should be considered during the alternatives evaluation phase of this study.

According to the Airport Pavement Management System (APMS) study, completed by California Department of Transportation (Caltrans), Division of Aeronautics, in

2005, there are two sections of pavement that require some type of pavement rehabilitation strategy. One area that was rated poor is the taxiway north of the fuel island that connects the aircraft parking apron to the parallel taxiway for Runway 7-25. The other area that was rated very poor is the heliport near the east end of Runway 7-25. Helicopters could land and takeoff on the runways rather than the heliport as noted elsewhere in the report.

4.2.13 Drainage

Some of the drainage inlets on the aircraft parking aprons in the terminal area are on the taxiway centerlines and the drainage inlet angles are too steep causing aircraft to bottom out and strike their propellers. Some inlets are marked with an “X” and are to be avoided. These drainage inlets need to be raised.

Depending upon the alternative airport development concept selected by the City, it may be necessary to extend the airfield drainage system to the east. This could involve relocating the drainage channel further to the east around the east end of the airfield or constructing a bridge or culverts for any runway and taxiway and perimeter access road extensions to the east. Alternatively, the drainage channel could be extended directly to the east to connect into the existing Watson Hollow drainage channel east of the Airport.

4.3 AVIGATION

Avigation (air navigation) considerations include: (1) airspace and air traffic control; (2) approach areas and obstructions, runway protection zones (formerly called clear zones); and (3) navigational and landing aids.

4.3.1 Airspace and Air Traffic Control

Existing airspace procedures and air traffic control (ATC) facilities for airspace above the Rio Vista Municipal Airport provide for safe, orderly and expeditious flow of air traffic. Airspace and ATC considerations do not limit the capacity of aviation activity at Rio Vista Municipal Airport, and they are not expected to limit capacity in the future. Forecast demand does not indicate qualification for an air traffic control tower (ATCT) by the year 2025.

In the vicinity of the Rio Vista Municipal Airport, existing procedures stated in the *Aeronautical Information Manual (AIM)*, published by the FAA, in paragraphs 4-1-9 b and c, *Communicating on a Common Frequency*, and, *Recommended Traffic Advisory Practices*, are adequate for the present and forecast traffic levels. These sub paragraphs provide information about the common traffic advisory frequency (CTAF)

program and recommended communications procedures. The CTAF for Rio Vista Municipal Airport is 122.8 and is listed in the *Airport/Facility Directory* and *U.S. Terminal Procedures, Southwest Volume 2*, published by the FAA National Aeronautical Charting Office (NACO).

The common traffic advisory frequency (CTAF) of 122.8 will continue to be the individual pilot's means for advising other pilots in the area and possible service vehicles on the airport of his/her position and intentions of aircraft movements. Northern California (NORCAL) Terminal Radar Approach Control (TRACON) will continue to provide approach/departure control for the Rio Vista Municipal Airport. The Oakland Air Route Traffic Control Center (ARTCC), commonly known as Center, will continue to provide en route air traffic control for aircraft passing overhead of and outside of NORCAL TRACON's delegated airspace.

4.3.2 Approach Areas and Obstructions

According to the FAA Form 5010-1, *Airport Master Record*, last inspected in December 2004, and other charts and documents, there are no penetrations to the Federal Aviation Regulations FAR Part 77 *Objects Affecting Navigable Airspace*, approach surfaces to the existing Runways 14 and 25. According to the FAA Form 5010-1, *Airport Master Record*, the FAR Part 77 approach surface to Runway 32 had a 30-foot penetration by a light pole. The light pole was located along Baumann Road and has since been removed by the City together with the two adjacent light poles. FAR Part 77 establishes imaginary surfaces, related to airports and their runways, which are used to identify obstructions. Previously, FAA indicated that Baumann Road penetrated the FAR Part 77 approach surface to Runway 32. FAR Part 77 calls for a clear height of 15 feet above this public road. However, FAA Advisory Circular 150/5300-13, *Airport Design*, Appendix 2, *Runway End Siting Requirements*, Table A2-1, *Approach/Departure Requirements Table*, Line 2, which provides criteria for visual runways only, indicates that the Runway 32 threshold would not need to be displaced or relocated because of Baumann Road.

It appears that Airport Road would penetrate the FAR Part 77 34:1 approach surface to Runway 7 if a nonprecision approach, with straight-in minimums, is established to Runway 7 in the future. Table A2-1, *Approach/Departure Requirements Table*, Line 5, which provides criteria for runways expected to accommodate IFR day or night operations serving approach category A and B aircraft, indicates that the Runway 7 threshold would also not need to be displaced or relocated because of Airport Road.

All on-airport buildings are located outside of the established building restriction lines (BRL) which are set at 500 feet from the Runway 7-25 centerline, on the south side of the runway, and set at 500 feet on both sides of the Runway 14-32 centerline, south of

Runway 7-25. Apparently no BRL has been established north of Runway 7-25 and a BRL should be established to accommodate a building at least 20 feet high. The BRL north of Runway 7-25 should be at least 390 feet from the runway centerline for nonprecision approaches and 640 feet for precision approaches. North of Runway 7-25, the BRL to the east of Runway 14-32 should also be set at 500 feet from the runway centerline.

The existing 500 feet BRL would be on the edge of the primary surface for any precision instrument approach to Runway 7-25. To preserve the full capability of a precision approach, a BRL of at least 640 feet from the Runway 7-25 centerline should be considered which would allow buildings of 20 feet in height at the BRL. The existing terminal building is located at approximately 675 feet from the runway centerline that would allow a 25-foot high building for a precision approach.

At Rio Vista Municipal Airport, the runway visibility zone (RVZ) between the ends of Runways 25 and 32 is defined by a line that connects the visibility points that are equidistant from the runway ends and the intersection of the runway centerlines. There are no obstructions to the existing RVZ. A clear line of sight is recommended between the ends of intersecting runways. However, there will be an unobstructed line of sight within the RVZ.

4.3.3 Runway Protection Zones

The existing runway protection zones (RPZs), formerly called clear zones, are adequate in size for forecast activity through the planning period to the year 2025 for the current approach procedures. The existing RPZs were established when the dimensions were based on the FAR Part 77 approach surface, out to where the surface was 50 feet above the runway threshold. The existing RPZ dimensions for Runway 7-25 are 1,000 feet long, 500 feet inner width and 700 feet outer width. The existing RPZ dimensions for Runway 14-32 are 1,000 feet long, 250 feet inner width and 450 feet outer width.

The current RPZ dimensional standards established in FAA Advisory Circular 150/5300-13, *Airport Design*, are shown in Table 4-2. Basically, to accommodate large aircraft in approach categories A and B with visibility minimums of visual and not lower than 1-mile for Runway 7-25 at the Airport, the dimensions would be 1,000 feet long, 500 feet inner width and 700 feet outer width. However, to provide for large aircraft in ARC A-II/B-II with a nonprecision approach, with or not lower than 3/4 statute mile approach visibility minimums, the runway protection zone would have a length of 1,700 feet long, 1,000 feet inner width and 1,510 feet outer width. To provide for a precision IFR approach for any aircraft, large or small, would require RPZ dimensions of 2,500 feet long, 1,000 feet inner width and 1,750 feet outer width.

To provide RPZs for small aircraft exclusively with visibility minimums of visual and not lower than 1 mile would require RPZ dimensions of 1,000 feet long, 250 feet inner width and 450 feet outer width. These are the same as the existing RPZ dimensions for Runway 14-32. All of the currently required RPZs for both runways are within the Airport boundary.

4.3.4 Navigational and Landing Aids

In light of progress in the development of the global positioning system (GPS) and wide area augmentation system (WAAS) new IFR procedures using the new technology will probably be developed at low activity airports within the planning period. In general WAAS provides greater accuracy than GPS alone for those aircraft appropriately equipped. Improved, or additional, GPS procedures would enhance the attractiveness of the Airport particularly for business aviation users.

It is possible that GPS procedures for Runways 7, 14 and 32 with straight-in minimums will be available in the near term. A GPS approach with WAAS to Runway 25 with vertical guidance down to a nonprecision minimum descent altitude (MDA) should be possible. A lateral precision with vertical guidance (LPV) GPS approach down to “instrument landing system (ILS) minimums” (200 feet AGL) may be possible in the intermediate term. However, for visibility minimums of 3/4 mile or lower, a primary surface width of 1,000 feet is required compared to a primary surface width of 500 feet for visibility minimums of 1 mile or greater.

With new navigational technology comes new terminology. New GPS IFR approach procedures will be identified as area navigation RNAV (GPS). In the minimums section of the published procedure new terminology will appear. LNAV means lateral navigation without vertical guidance, VNAV means vertical navigation and LNAV/VNAV is like a nonprecision approach with vertical guidance. LPV means lateral precision with vertical guidance. In the paragraph above each of the procedures may be identified as RNAV (GPS) RWY 25. In the minimums section the first example could have LNAV MDA meaning no vertical guidance (similar to a nonprecision approach down to around 500 feet AGL). The second example could have LNAV/VNAV DA meaning vertical guidance (similar to a nonprecision approach with vertical guidance down to around 350 feet AGL). The third example could have LPV DA meaning lateral precision with vertical guidance (similar to an ILS approach with vertical guidance down to 200 feet AGL). All three of these minimums could be published in the minimums section of the procedure.

These minimums apply according to the equipment capability aboard the individual aircraft making the approach and the available/existing supporting ground

infrastructure. Without adequate supporting infrastructure higher minimums will be required.

On some RNAV (GPS) procedures the term GLS PA DA appears in the minimums section. However, NA (not authorized) is shown instead of minimums. None of these procedures have been approved. The GLS (NA) minima line will be removed when LPV minima are published.

Existing navigational aids are basically adequate through the planning period to the year 2025. New medium intensity runway lights (MIRL) should be planned for any extension of either runway. Medium intensity taxiway lights (MITL) should be planned for any taxiway extension. The existing precision approach path indicators (PAPI) and runway end identifier lights (REIL) at the end of any runway to be extended will have to be relocated along with any runway extension.

Installation of an automated weather observing system (AWOS) or automated surface observing system (ASOS) could facilitate IFR approaches and provide all aircraft pilots with useful meteorological data when departing or arriving at the Airport. Obstructions (e.g., vegetation, buildings.) related to AWOS/ASOS installations within a radius of 500 feet should be at least 15 feet lower than the wind sensor, which is usually between 30 and 33 feet above ground level, and within a radius of 1,000 feet no higher than 10 feet above the wind sensor. Ideally, the minimum distance from the runway centerline for the sensor is 500 feet and the maximum distance is 1,000 feet. However, according to FAA Order 6560.2B, *Siting Criteria for Automated Weather Observing Systems (AWOS)*, the sensors may be located closer to the runway as long as they are outside the runway or taxiway object free area, runway or taxiway safety area, obstacle free zone or instrument flight procedures surfaces as described in FAA AC 150/5300-13, *Airport Design*, or FAA Handbook 8260.3B, *United States Standard for Terminal Instrument Procedures (TERPS)* criteria.

The universal communications (UNICOM) equipment should be restored to operation.

Additional airfield signage will be required that meets current FAA design standards. Any new taxiways will also need to be labeled in accordance with FAA criteria. The Airport rotating beacon requires rehabilitation.

4.4 GENERAL AVIATION

On the basis of the general aviation activity forecasts presented in Table 2-5, it is estimated that space will be required for about 80 based aircraft by the year 2025.

Based on discussions with airport tenants and users, it is estimated that a higher percentage of aircraft owners and potential users of the Airport would prefer to hangar their aircraft than can currently be accommodated. The City already has a waiting list for people wanting hangars. It is estimated that by the year 2025 at least 95 percent of the based aircraft could be attracted to, and accommodated by, T-hangars and conventional hangars in up to 80 spaces. Providing space for additional hangar facilities will allow for construction of additional hangars capable of accommodating larger twin-engine aircraft. Because of the important role the Airport serves for the businesses in the City of Rio Vista area (e.g., restaurants, shops, agriculture, recreation and the Bass Festival) that will continue to grow in the future, space should also be provided for corporate/executive aviation facilities. Ideally, any new aircraft storage hangars should be consolidated in the same general area.

It is desirable to provide for larger aircraft in a separate tiedown area from small aircraft, and a tiedown area should continue to be provided for itinerant aircraft near the terminal building. It is estimated that about 25 tiedown spaces will be needed by the year 2025. About 5 of the tiedowns will accommodate the based aircraft and the other 20 will be for transient aircraft. (Note: There are currently about 75 based and itinerant aircraft tiedown parking positions.) At certain times of the year, there is a considerably greater demand for itinerant aircraft parking spaces. Some tiedown spaces should be located close to, or part of, future fixed base operator/commercial aviation facilities.

Space is also required for helicopter activity. This includes the landing and takeoff heliport south of Runway 25 and the space provided near the takeoff and landing heliport for helicopter parking facilities. In the future, as noted earlier, consideration could be given to helicopters landing and taking off on the runway.

At present, there are two hangars at the south end of the terminal area that can be used for fixed base operator/commercial aviation activity. Additional space should be provided for future fixed base operator/commercial aviation activity. The lease plots should have expansion capability and access to the airfield and provide adequate vehicular parking space for employees and patrons. In addition, sufficient areas should be reserved for other aviation-related activities, including aircraft refueling, aircraft pollution abatement facility and vehicular parking areas.

The agricultural aircraft operations, by itinerant aircraft, should be conducted in an area(s) of the Airport that meets the FAA design and operational standards as well as environmental considerations.

4.5 AIRPORT ACCESS AND PARKING

At present, there are two access roads into the Airport on the south and west sides. Baumann Road enters the Airport from Airport Road on the south. There is also access into the Airport Industrial Park area on the west side of the Airport from Airport Road. These should be adequate to serve the Airport through the planning period, depending upon the long-term development concept selected for the Airport.

There is a need for controlled access gates leading onto the Airport from Baumann Road and the terminal area vehicular parking lot. At present the gates are left open during the day. The gravel perimeter service road needs to be extended to the west from the segmented circle to the taxiway parallel to Runway 14-32. The gravel road is in need of repair.

If the parcel north of the Airport is acquired and developed for aviation uses, it may be necessary to develop a new public access road along the south, east and north sides of the Airport to serve this area. A separate airfield perimeter road may have to be provided. Alternatively, a new public access road may be developed from the north.

Vehicular parking spaces should be provided in the terminal area for public and employee parking. Parking for visitors and employees should be provided within individual lease plot boundaries. The number of parking spaces required would depend upon the City policy with respect to whether or not aircraft owners are allowed to park their vehicles in their hangars or on their tiedown spaces.

4.6 AIRPORT SUPPORT FACILITIES

Airport support facilities include airport administration/terminal facilities, fuel storage, airport maintenance facilities, drainage and utility systems and aircraft rescue and fire fighting (ARFF) equipment.

The terminal building is currently used for several aviation related activities including Airport Management, Fields Aviation, Om Air and the Travis Aero Club. In the future other aviation uses may be accommodated in the terminal building especially if some of the current tenants move into their own facilities.

While there is no current requirement for an ARFF facility on the Airport, the Airport should continue to have written procedural agreements with the City of Rio Vista Fire Department to guarantee response in any emergency. A site could be provided on the Airport for a future multi-use fire station.

The current fuel storage system consists of two below ground 8,000-gallon double-wall fuel tanks. Both tanks are used to store 100 low lead fuel. Space should also be provided for a future Jet A fuel storage tank. These can accommodate future needs. The fueling system operates with a 24-hour automated self-serve credit card system.

The Airport may require additional aircraft parking apron area security lighting when new areas of the Airport are developed. This lighting should be photocell-controlled and installed at locations on the apron where the poles themselves do not present a hazard or obstruction. An emergency generator will also be required for the airfield lighting, airport rotating beacon and other airport facilities.

An aircraft pollution abatement facility should be provided.

Airport maintenance equipment will continue to be stored in the City Corporation Yard on St. Francis Street away from the Airport. In the future, some space should be provided on the Airport for airport maintenance equipment.

The future requirements for utilities and drainage will be based on the recommended 2025 Airport Master Plan Update concept selected by the City.

Water is provided by the City of Rio Vista and can be extended to accommodate future airport needs.

At present the Airport has a sewage holding tank along Baumann Road and sewage is pumped out and trucked to the Rio Vista Wastewater Treatment Plant twice a week. The City has recently built a new northwest sewage treatment plant immediately south of the Airport across Baumann Road that the Airport will eventually be connected to.

Standard 6-foot high chain link and barbed wire perimeter fencing should be installed in the terminal area and around any future aviation-related development on the south and west sides of the Airport. The existing 4-foot high fencing in the terminal area and barbed wire fencing around the Airport property should also be replaced with standard 6-foot high chain link and barbed wire fencing.

4.7 OTHER AREAS

There is an approximate 12 acre parcel on the west side of the Airport designated as a limited industrial/employment district, [I/E(L)], Airport Industrial Park on the City's General Plan. The infrastructure for the first phase of the Airport Industrial Park has already been developed.

The Watson Hollow drainage channel crosses the north, east and south sides of the Airport. Depending upon the Airport development concept selected, it may be necessary to realign the City drainage channel around the south and east ends of the Airport. It may be necessary to bridge or culvert the existing City drainage channel for any future extension of Runway 7-25, parallel taxiways, perimeter and access roads around the east end of the Airport. Alternatively, the City drainage channel could be extended to the east to tie directly into the Watson Hollow drainage channel further to the east.

4.8 OFF-AIRPORT LAND USE

According to the City of Rio Vista General Plan 2001, the land to the south and east of the Airport within the City of Rio Vista is designated for agricultural/open space (AG/OS) use. The City has recently built a new wastewater treatment plant immediately south of the Airport and Baumann Road on 160 acres owned by the City. The treatment ponds are enclosed. The land to the west of the Airport and Airport Road is designated for neighborhood residential (NR) use. The land immediately to the west of Runway 7-25 is designated as open space (OS) use. The land to the north of the Airport is designated for agricultural (AG) use and is within Solano County.

The Trilogy and Homecoming residential developments and Rio Vista Golf Course are located to the west and south of the Airport and are continuing to be built. New developments are planned on the Brann and Gibbs Ranches to the west and northwest of the Airport.

The land to the east of the Airport is under the jurisdiction of the State of California, Delta Protection Commission's Primary Zone of the Delta. The Delta Protection Commission's jurisdiction includes all of the lands north of Airport Road. The Airport and the new wastewater treatment plant are consistent with the Delta Protection Commission's policies in these areas. The goals of the Delta Protection Commission's Regional and Management Plan are to "protect, maintain and, where possible, enhance and restore the overall quality of the delta environment, including, but not limited to, agriculture, wildlife habitat, and recreational activities." Any proposed expansion of the Airport in the Primary Zone area will have to be reviewed by the Delta Protection Commission.

The Airport Land Use Compatibility Plan (ALUCP) for the new Rio Vista Municipal Airport was adopted by the Solano County Airport Land Use Commission (ALUC) in 1988. The ALUCP sets out land use compatibility policies for noise, safety and airspace protection considerations. The Solano County Airport Land Use Compatibility Review Procedures were amended and adopted by the ALUC in June 2002. The current ALUCP is based on a future extension of the crosswind Runway

14-32 to the north to 3,200 feet; 160,000 annual aircraft operations; and the possibility of a precision instrument approach procedure to Runway 25. The Airport Land Use Compatibility Plan will need to be reviewed by the ALUC to determine if any changes are required based on the recommendations of the Airport Master Plan Update.

Chapter 5

AIRPORT MASTER PLAN

5.1 INTRODUCTION

The 2025 Airport Master Plan Update (the Plan) for Rio Vista Municipal Airport is illustrated on Figure 5-1. The Terminal Area and Access Plan is illustrated on Figure 5-2. The Plan integrates long-term airfield and terminal area requirements with current and forecast aviation needs and airport access and parking needs. It represents a guide for airport development through the year 2025 planning period and indicates possible developments beyond the year 2025 for which land should be reserved.

Four Airport development concepts were formulated and evaluated for review prior to the City Council's selection of the long-range 2025 Airport Master Plan Update concept presented on Figure 5-1. The alternative development concepts are described and illustrated in Appendix A. Alternative concepts were prepared and reviewed with the City and the Airport Advisory Commission on November 15 and December 24, 2004, and February 22, June 6, July 7 and September 26, 2005. Another alternative was the "No Action" alternative.

The Draft Airport Master Plan Update was discussed with the City and the Airport Advisory Commission on December 16, 2005. The Airport Master Plan was refined based on additional input from the Federal Aviation Administration (FAA); State of California, Department of Transportation, (Caltrans), Division of Aeronautics; City and the Airport Advisory Commission including meetings on January 17 and May 15, 2006 and further discussions with the City. The Airport Advisory Commission reviewed the Airport Master Plan Update on August 29, 2006 and recommended the City Council adopt the Airport Master Plan Update. The Planning Commission reviewed the Airport Master Plan Update on November 29, 2006.

The primary functional areas of the Plan, as illustrated on Figure 5-1, are:

- Airport Property
- Airfield
- Avigation
- General Aviation
- Airport Access and Parking
- Airport Support Facilities
- Other Areas
- Off-Airport Land Use



RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

AIRPORT MASTER PLAN

LEGEND

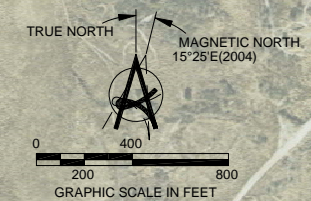
EXISTING	ULTIMATE	DESCRIPTION
---	---	AIRPORT PROPERTY LINE
---	---	AIRFIELD/APRON PAVEMENT
---	---	BUILDING/FACILITIES
---	---	BUILDING RESTRICTION LINE (BRL)
---	---	FENCE
---	---	GATE
---	---	ROTATING BEACON
---	---	FUEL ISLAND
---	---	AIRPORT REFERENCE POINT (ARP)
---	---	THRESHOLD LIGHTS
---	---	WIND SOCK
---	---	REIL
---	---	PAPI-2
---	---	HELIPORT
---	---	EXISTING GROUND CONTOURS
---	---	DRAINAGE CHANNEL
---	---	HYDRANT
---	---	CATCH BASINS
---	---	ELECTRICAL LINE
---	---	SEWER LINE
---	---	STORM DRAIN LINE
---	---	TELEPHONE LINE
---	---	WATER LINE
---	---	RUNWAY SAFETY AREA
---	---	RUNWAY OBJECT FREE AREA
11	12	SECTION CORNER
14		

FUTURE FACILITY LEGEND

A	AWOS
B	COMMERCIAL AVIATION USES
C	HANGAR SITES
D	REIL
E	PAPI-2
F	POLLUTION ABATEMENT FACILITY
G	GATE
H	TRAVIS AERO CLUB
I	CITY MAINTENANCE
J	JET A FUEL TANK
K	AGRICULTURAL AIRCRAFT APRON

EXISTING FACILITY LEGEND

1	TERMINAL BUILDING
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	REIL
8	HELIPORT
9	SUMP
10	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	PAPI-2
14	ROTATING BEACON
15	APRON SECURITY LIGHTING
16	FENCE
17	PERIMETER ROAD
18	AIRPORT INDUSTRIAL PARK
19	TRANSFORMER
20	V-GUTTER



NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

V ARIES CONSULTANTS LTD.

RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

FIGURE
5-1

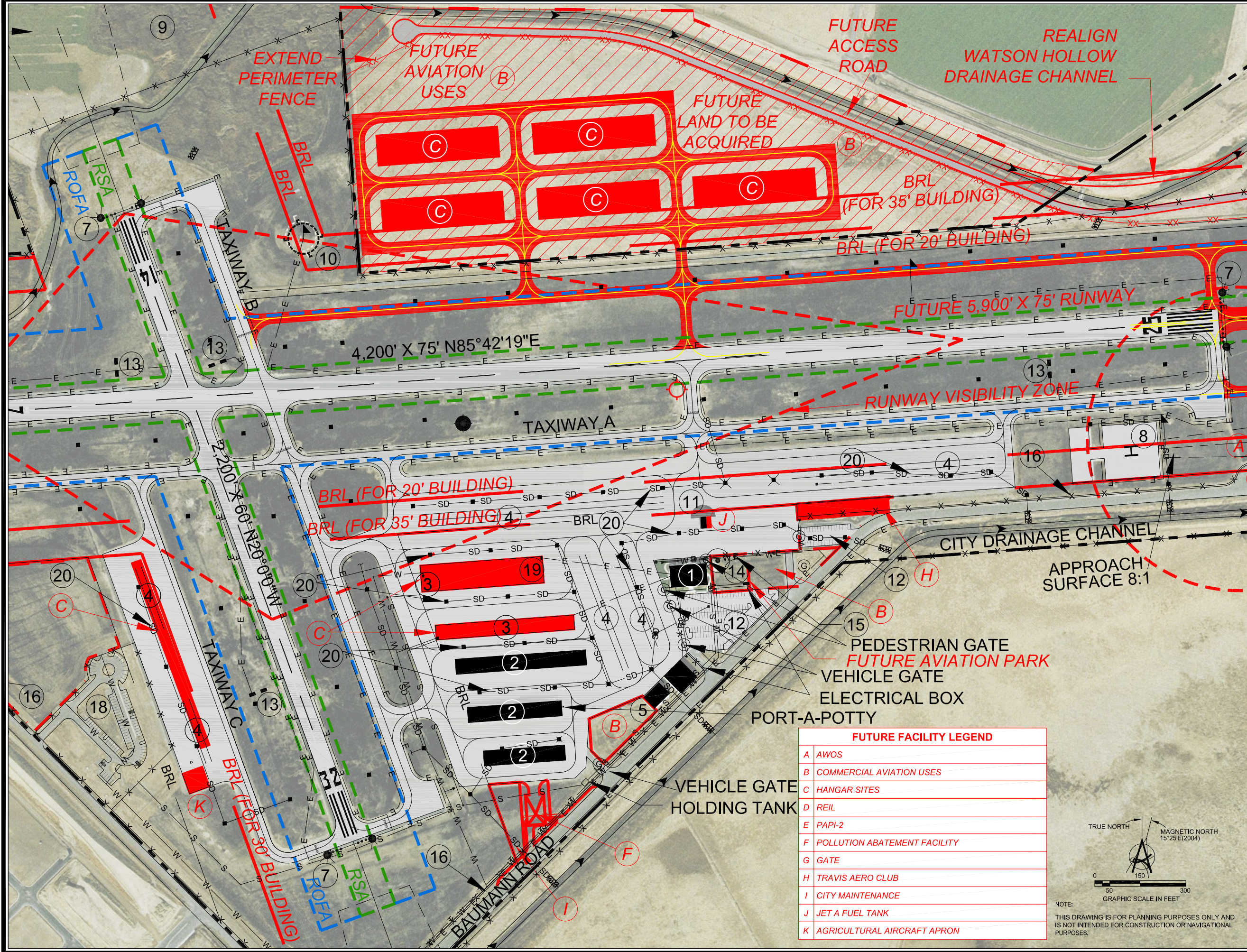
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DATE: Jun 1, 2007

PLOT SCALE: 1"= 400'
TIME: 1:17pm



RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

TERMINAL AREA AND ACCESS PLAN



LEGEND

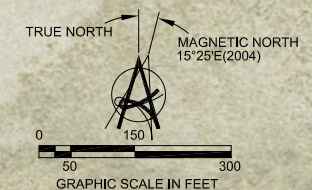
EXISTING	ULTIMATE	DESCRIPTION
---	---	AIRPORT PROPERTY LINE
---	---	AIRFIELD/APRON PAVEMENT
---	---	BUILDING/FACILITIES
---	---	BUILDING RESTRICTION LINE (BRL)
---	---	FENCE
⊙	⊙	GATE
⊙	⊙	ROTATING BEACON
⊙	⊙	FUEL ISLAND
⊙	⊙	AIRPORT REFERENCE POINT (ARP)
---	---	THRESHOLD LIGHTS
---	---	WIND SOCK
---	---	REIL
---	---	PAPI-2
---	---	HELIPORT
---	---	EXISTING GROUND CONTOURS
---	---	DRAINAGE CHANNEL
---	---	HYDRANT
---	---	CATCH BASINS
---	---	ELECTRICAL LINE
---	---	SEWER LINE
---	---	STORM DRAIN LINE
---	---	TELEPHONE LINE
---	---	WATER LINE
---	---	RUNWAY SAFETY AREA
---	---	RUNWAY OBJECT FREE AREA
---	---	SECTION CORNER

EXISTING FACILITY LEGEND

1	TERMINAL BUILDING
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	REIL
8	HELIPORT
9	SUMP
10	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	PAPI-2
14	ROTATING BEACON
15	APRON SECURITY LIGHTING
16	FENCE
17	PERIMETER ROAD
18	AIRPORT INDUSTRIAL PARK
19	TRANSFORMER
20	V-GUTTER

FUTURE FACILITY LEGEND

A	AWOS
B	COMMERCIAL AVIATION USES
C	HANGAR SITES
D	REIL
E	PAPI-2
F	POLLUTION ABATEMENT FACILITY
G	GATE
H	TRAVIS AERO CLUB
I	CITY MAINTENANCE
J	JET A FUEL TANK
K	AGRICULTURAL AIRCRAFT APRON



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RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

FIGURE
5-2

NAME: RVA-51-Master Plan.dwg
DATE: Jun 1, 2007

PLOT SCALE: 1"= 300'
TIME: 12:42pm

A summary of the recommendations for the use of land adjacent to the Airport boundary to ensure long-term compatibility with airport and aircraft operations is also presented in this chapter. General adherence to land use recommendations and circulation patterns, as shown on Figure 5-1, will ensure that continuing development of the Airport may take place in an orderly manner within the framework of long-range potential development.

From a physical planning standpoint, the important consideration is to reserve or protect sufficient land now (before the surrounding land is further developed) for the development of airport facilities capable of accommodating possible long-range air traffic requirements associated with potential demand. Future community development can then be guided by the long-range air traffic potential so that, should the forecast demand become a reality, the Airport will be protected from encroachment by incompatible land uses, and the surrounding community will be protected from Airport operations. On the other hand, actual physical facilities should be constructed only as the demand arises.

The time to protect for future capabilities is now, even though some of these improvements may not be needed or financially feasible for the City to implement for many years. The Airport Master Plan is a long-range plan to be implemented in phases as the demand warrants and as funding can be arranged.

In addition to the Airport development described in this chapter, the master planning process should properly provide for the reservation of sufficient land to accommodate facilities that may be required beyond the year 2025. The purpose is to preserve the long-range development potential of the Airport, thereby guaranteeing the longevity of the Airport beyond the current planning period.

There are several reasons for planning in this manner. If air traffic demand increases more rapidly than is forecast in this report, facilities beyond those recommended herein through the year 2025 may be needed. Conversely, if air traffic demand increases more slowly than is forecast, the construction of facilities may be deferred until the demand develops.

The primary purpose of the Terminal Area and Access Plan is to ensure that the necessary land area will be reserved for future general aviation and other facility expansion requirements. In addition, the Terminal Area and Access Plan, like the Airport Master Plan, should be sufficiently flexible to permit expansion of individual elements as exact requirements are determined without affecting the overall terminal area concept. Specific tenant and user space requests will be necessary to establish precise dimensions and design requirements for the terminal area and related facilities.

The basic elements of the Plan are described below.

5.2 AIRPORT PROPERTY

It is recommended that the City acquire certain lands outside the present Airport property line for future Airport development and protection as follows:

- Acquire about 74 acres to the east for the extension of Runway 7-25 and associated runway protection zone (RPZ). This land is owned by the State of California, Department of Water Resources/State Reclamation Board.
- Acquire about 35 acres of privately owned land to the north of Runway 7-25 for development of future aviation uses.

The land to be acquired to the east is within the City limits. The land to be acquired to the north is within the City's urban growth boundary and sphere of influence but currently outside the City limits.

These acquisitions will provide land within the Airport boundaries for an RPZ for extended Runway 7-25 that will accommodate the development of a nonprecision instrument approach with visibility minimums of not less than 1-mile for extended Runway 25 and for development of future hangars on the north side of the Airport.

Ideally, the City should acquire all the land for the runway extension and RPZ for the Runway 7-25 extension east to the drainage channel. However, in areas beyond the end of the runway, where land acquisition is infeasible, or not pursued by the City, an aviation easement should be acquired and zoning controls that are compatible with aircraft operations over affected areas should be imposed.

The FAA recommends that control of the runway protection zone is preferably exercised through the acquisition of sufficient property interest in the runway protection zone. Most land uses are prohibited in the runway protection zone including residences and places of public assembly (e.g., churches, schools, hospitals, shopping centers and office buildings) and fuel storage. The runway protection zones should be cleared of incompatible objects and activities.

5.3 AIRFIELD

The recommended year 2025 airfield configuration, illustrated on Figure 5-1, retains the two existing runways and provides for the extension of Runway 7-25 to the east.

Additional taxiways to provide adequate capacity to handle the forecast air traffic demand are also provided for in the Plan. This includes extension of the existing parallel taxiway in conjunction with the runway extension and a new parallel taxiway on the north side of Runway 7-25.

Extension of Runway 7-25 would allow aircraft to depart with heavier useful loads, i.e., passengers, cargo and fuel. More passengers or cargo can mean more efficiency for many flights. Because there is a trade-off involved between passengers, cargo and fuel, when the payload is low more fuel can mean longer flights without time-consuming stops for refueling.

Retention of Runway 14-32 provides adequate crosswind coverage for aircraft in airport reference code (ARC) A-I/B-I, (e.g., Cessna 150 and Piper Cherokee). Runway 7-25 alone does not provide adequate crosswind coverage for these aircraft. With both runways the crosswind coverage for aircraft in ARC A-I/B-I is 98.16 percent.

5.3.1 Runway 7-25

This runway is planned as an ultimate 5,900-foot runway with a width of 75 feet to handle business jet and large propeller aircraft (e.g., Beech King Air and Cessna Citation III) in ARC B-II of over 12,500 pounds expected to use the Airport during the planning period. It is recommended that Runway 7-25 be extended 1,700 feet to the east. Blast pads 150 feet long and 95 feet wide are provided for at each end of the extended Runway 7-25. Holding aprons are also provided at each end of the extended runway.

A 150-foot wide runway safety area (RSA), extending 300 feet beyond both ends of extended Runway 7-25 should be provided. A 500-foot wide runway object free area (ROFA) extending 300 feet beyond both ends of the extended runway should also be provided. The existing pavement strength is adequate for the aircraft presently using and expected to use the Airport in the future, including some business jets. However, the runway pavement would need strengthening if regularly used by aircraft, heavier than 30,000 pounds or 60,000 pounds single or dual-wheel configuration, respectively, in the future.

Medium intensity runway lighting (MIRL) should be installed along the runway extension. The existing runway end identification lights (REIL) and precision approach path indicators (PAPI-2) at the existing end of Runway 25 will need to be relocated along with the runway extension. Nonprecision instrument markings should be painted on both ends of Runway 7-25 from the future thresholds to the midpoint of the runway. Runway aiming point markings at 1,020 feet from each threshold should be painted on both ends of the extended runway.

5.3.2 Runway 14-32

Runway 14-32 is retained in the Plan as a crosswind runway to accommodate aircraft in ARC A-I/B-I when crosswind components exceed 10.5 knots (12 statute miles per

hour) on Runway 7-25. A RSA extending 240 feet beyond the physical ends of Runway 14-32 and 120 feet wide is provided. A ROFA extending 240 feet beyond both ends of the runway and 250 feet wide is provided.

The existing pavement strength of 12,500 pounds for single-wheel gear configuration is adequate to accommodate the aircraft in ARC A-I/B-I that are expected to regularly use Runway 14-32. The existing medium intensity runway lighting (MIRL) is adequate for existing and future operations. MITL should be installed along the entire length of the short parallel taxiway and entrance and exit taxiways on the west side of the Runway.

5.3.3 Heliport

The Plan retains the existing heliport located south of Runway 7-25 and east of the main aircraft parking apron with its existing configuration, including a landing and takeoff heliport and two adjacent helicopter parking positions. However, consideration could be given in the future to not designating an official heliport on the Airport in which case helicopters would land and takeoff on the runways and hover taxi to the helicopter parking positions.

5.3.4 Taxiways

The Plan provides for the extension of the existing parallel Taxiway A for a full-length parallel taxiway south of Runway 7-25, and for a new partial parallel taxiway to the north of Runway 7-25. Other new portions of the planned taxiway system include entry/exit taxiways at the new end of Runway 25 and two intermediate taxiways to the north of Runway 7-25. Additionally, new taxiways are provided for access to future aviation uses on the land to be acquired to the north of Runway 7-25 and the existing Airport boundary. The new taxiways should be at least 35 feet in width. Medium intensity taxiway lighting (MITL) should be installed along any new parallel taxiway extension, entry/exit taxiways and other taxiways.

5.4 AVIGATION

Avigation (air navigation) considerations in the Plan are airspace and air traffic control, approach areas and obstructions, runway protection zones, and airport navigational and landing aids.

5.4.1 Airspace and Air Traffic Control

Existing airspace and air traffic control (ATC) procedures and facilities provide for safe, orderly and expeditious flow of traffic. However, recent advancements suggest a nonprecision area navigation (RNAV) global positioning system (GPS) instrument flight rules (IFR) approach procedure with vertical guidance down to approximately

250 to 300 feet above ground level (AGL) would enhance the capabilities and increase the utility of the Airport. The FAA is proposing to cancel the existing VOR-A nonprecision instrument approach to the Airport in the near future. The City should request FAA develop additional GPS approach procedures for the Airport.

The Plan provides facilities with adequate capacity to accommodate forecast demand. The Plan does not create any additional airspace interactions in relation to other airports in the area.

5.4.2 Approach Areas and Obstructions

The Plan provides for future approach slope surface ratios of 34:1 for both ends of Runway 7-25 and retains approach slope surface ratios of 20:1 for both ends of Runway 14-32. Runways 14 and 25 have no penetration to their respective FAR Part 77, *Objects Affecting Navigable Airspace*, approach surfaces. Runways 7 and 32 have penetrations to their respective FAR Part 77 approach surfaces. However, both runway ends meet the criteria contained in FAA Advisory Circular 150/5300-13, *Airport Design*, Appendix 2, *Runway End Siting Requirements*, Table A2-1, *Approach/Departure Requirements Table*, Line 2, for Runway 32 and Line 5 for Runway 7 and would not need to be displaced or relocated.

Building restriction lines to accommodate buildings 20 and 35 feet high are provided for in the Plan on both the north and south sides of Runway 7-25. The BRL for a 20-foot high building is set at 390 feet from the Runway 7-25 centerline and for a 35-foot high building is set at 500 feet from the Runway 7-25 centerline. For Runway 14-32 the existing building restriction lines are set at 500 feet on both sides of the runway. This provides the required taxiway object free area for aircraft in design group II along the east side of the runway adjacent to the hangars. Along the west side the BRL is relocated to approximately 330 feet from the Runway 14-32 centerline to allow for future hangar development on the existing aircraft parking apron. This separation would allow a 30-foot high building. The future building restriction lines have no existing or planned building penetrations.

There are no existing or planned obstructions to the required clear line of sight for the runway visibility zone between Runways 25 and 32 with the recommended extension of Runway 7-25 to the east.

5.4.3 Runway Protection Zones

Runway protection zones (RPZ) for all four existing runway ends provide for visual and not lower than 1-mile visibility instrument approaches. For Runway 7-25 the RPZs accommodate aircraft in ARC A-II/B-II and for Runway 14-32 the RPZs accommodate small aircraft exclusively in ARC A-I/B-I. All of the existing RPZs are

adequate for future operations. However, the RPZ for Runway 25 will need to be relocated when the runway is extended to the east.

If it is not feasible for the City to pursue land acquisition of all the land to the east, then it is recommended that an aviation easement be obtained for the remaining portion of the RPZ for the extended Runway 25. The recommended land acquisition and aviation easement is described earlier in this chapter.

5.4.4 Navigational and Landing Aids

The existing navigational and landing aids are basically adequate for existing and future aircraft operations. However, medium intensity runway and taxiway lighting (MIRL and MITL) should be provided along runway and taxiway extensions and new taxiway segments as stated earlier in this chapter. The existing PAPI-2 and REIL will require relocation in conjunction with the Runway 25 extension.

An automated weather observing system (AWOS) is provided for in the Plan to be located approximately 250 feet to the east of the existing heliport, near the end of Runway 25, and below the heliport approach surface ratio of 8:1. An AWOS is required for a Regional Airport in the California Aviation System Plan as noted earlier in the Report. An AWOS would facilitate IFR approaches and provide pilots with current meteorological data when departing from or arriving at the Airport.

5.5 GENERAL AVIATION

The general aviation facilities are proposed to remain primarily south of Runway 7-25 as illustrated on Figure 5-2. Additional space is reserved north of Runway 7-25, on land to be acquired, and west of Runway 14-32. Approximately 30 acres have been retained in the Plan for general aviation uses such as hangars, tiedowns, fixed base operators and other commercial aviation service operators in these areas within the existing airport property

An aircraft parking apron area for itinerant aircraft and based aircraft tiedowns is retained in the present general aviation area south of Runway 7-25 and north and west of the terminal building.

It is recommended that hangars continue to be consolidated on the south side of the terminal area as illustrated on Figure 5-2. Over 10 acres are provided that can be developed to accommodate over 80 hangar spaces. Space is reserved for development of corporate/executive hangars on existing concrete pads at the north end of the existing terminal area hangar development.

Space is reserved for future commercial aviation lease lots between the existing Airport access road (Baumann Road) and the aircraft parking apron and also east of the terminal building. About 8 acres west of Runway 14-32 could potentially be developed for commercial aviation lease lots. However, this area is designated as a limited industrial/employment district on the 2001 City of Rio Vista General Plan.

An approximate 25 acre area to the north of Runway 7-25 is reserved for future aviation uses that could include commercial aviation lease lots and hangar development. A future parallel taxiway and entry/exit taxiways are proposed to serve future aviation uses in this area and the new taxiways would connect to Runway 7-25 and to the existing aircraft parking apron taxiways to the south. Vehicular access would either be off an extension of the Airport access road to the east around the end of Runway 7-25 or alternatively from the north off Liberty Island Road.

The Plan calls for the conversion to hangar facilities of an underutilized aircraft parking apron area to the west of Runway 14-32 with space for up to 20 hangars.

The Plan calls for the terminal building to continue to be utilized by aviation related businesses and activities. This would include commercial aviation/fixed base operator, pilots' lounge and airport administration.

The Travis Aero Club will lease a parcel east of the terminal building and install a 15,000 square foot hangar(s) facility. They will also lease the adjacent vehicular parking lot. In the future, the Travis Aero Club may relocate their office space from the terminal building to their new hangar facility.

An aircraft pollution abatement facility (wash rack) is proposed south of the existing hangar buildings near Baumann Road that would meet current environmental regulations. With appropriate fencing the facility could be expanded to be used for washing City owned vehicles.

An aircraft parking apron for agricultural aircraft to load on is proposed at the south end of the aircraft parking apron west of Runway 14-32. The apron would have a concrete berm around it to contain any spills together with a separator and filter, and drainage system. Vehicular access could be provided off Airport Road through the Airport Industrial Park.

The existing landing and takeoff heliport is retained in its current location near the end of Runway 25 for emergency, government and other helicopter users, including training. However, as noted earlier, if it becomes too costly for the City to maintain the heliport, helicopters could land and takeoff on the runways.

5.6 AIRPORT ACCESS AND PARKING

The present Baumann Road access road onto the Airport, off Airport Road, is adequate to serve the south side of the Airport through the planning period. An extension of Baumann Road will be required to the east and around the extension of Runway 7-25 to provide future public access to aviation related development on the north side of the Airport. This may require a minor realignment of part of the Watson Hollow drainage channel north of the current end of Runway 25 so that the new access road meets the FAA required separation from the centerline of Runway 7-25. Alternatively, a new public access road to the north side of the Airport could be developed off Liberty Island Road. In either case, new culverts/bridges will be required across the existing drainage channels that surround the Airport.

Alternatively, the City drainage channel on the south and east sides of the Airport could be realigned to the east to connect to the Watson Hollow drainage channel east of the Airport to allow for the runway extension and new access and perimeter roads around the east end of the Airport. Access to the west side of the Airport will continue to be provided off Airport Road. Controlled access gate(s) will be needed off Baumann Road at the south end of the Airport.

An extended perimeter service road is proposed around the south, east and north sides of the Airport around the extension of Runway 7-25.

Vehicular parking spaces should be retained in the area, by the terminal building, for public and employee parking. Additional space for future parking needs in this area could be provided by expanding the vehicular parking spaces towards the northeast. Parking for visitors and employees should also be provided within individual lease lot boundaries.

5.7 AIRPORT SUPPORT FACILITIES

The Plan provides space for the following airport support facilities.

5.7.1 Aircraft Rescue and Firefighting

While there is no current requirement for an aircraft rescue and firefighting (ARFF) facility on the Airport, the City should continue to have a written procedural agreement with the City of Rio Vista Fire Department to guarantee response in any emergency.

5.7.2 Airport Maintenance Baseyard and Fuel Storage

Airport Maintenance

Airport management offices will continue to be located in the terminal building. In the future, some space for a City maintenance baseyard is proposed in the area adjacent to the proposed aircraft pollution abatement facility on the south side of the Airport off Baumann Road.

Fuel Storage

An automated 24-hour self-serve, credit-card system was installed when the Airport opened with two below-ground 8,000 gallon double walled fuel tanks. Both are now used for 100 low lead fuel. A new 12,000 gallon above-ground tank with appropriate containment system is recommended to store Jet A fuel that would increase aviation activity and revenues at the Airport, e.g., from fuel sales, and based and transient turboprop jet aircraft, including the new very light jets.

5.7.3 Fencing and Security

Existing fencing will need replacing and relocating as the aviation facilities are expanded to meet FAA standards of a 6-foot high chain link fence with barbed wire on top. Standard 6-foot high chain link and barbed wire perimeter fencing should be installed along the expanded airport perimeter and also around any future aviation-related development on the south and north sides of the Airport. The existing 4-foot high chain link fence in the terminal area and 4-foot barbed wire around the Airport should be replaced with standard 6-foot high chain link fencing. There may also be a requirement for new or improved Airport fencing and signage as a result of evolving airport security requirements.

Additional security lighting should be installed along the aircraft parking apron and hangar area. A card reader access control system should be installed for existing and future vehicle access control gates. A security camera system should be installed on the Airport. The security requirements for general aviation airports have not yet been established by the Transportation Security Administration (TSA), and these may result in additional security measures to implement.

5.7.4 Utilities

Improvements will be required to the utility systems as described below.

Water

The water infrastructure should be extended to provide domestic service to all future airport businesses. Additionally, installation of additional fire hydrants at strategic locations throughout the Airport in accordance with City Fire Department spacing requirements would be prudent. Where practical, the distribution system should be looped to provide service redundancy.

Sewage

The City of Rio Vista municipal sewer system should be extended from the Airport to the new wastewater treatment plant recently built across Baumann Road from the Airport. At that time sewer improvements should be designed to specifically serve future aviation businesses, as well as development on the west and north sides of the Airport.

Electric and Telephone

Electrical and telephone extensions will be required to serve the recommended aviation development on the south side of the Airport as well as the recommended airfield improvements and any development on the north and west sides of the Airport. An emergency generator should be installed for the airfield lighting, airport rotating beacon and other airport facilities. The old emergency generator from the Trilogy Development, west of the Airport, will be relocated to the Airport and installed next to the terminal building.

Drainage

Future development of the Airport will require modifications to the drainage system that surrounds the Airport. Improvements could include an extension of the City drainage channel and perimeter road around the east end of the Airport when Runway 7-25 is extended. Additional bridges or culverts under the expanded airfield (runway and taxiways), and access and perimeter roads will be needed. Alternatively, the City drainage channel could be extended directly east to connect to the existing Watson Hollow drainage channel further to the east.

5.8 OTHER AREAS

The Plan recommends that about 12 acres west of Runway 14-32 be retained for future nonaviation commercial/industrial uses in an area that has already been partially developed for these uses. Consideration could be given to using the undeveloped 8 acres of this parcel for commercial aviation lease lots. However, this area is designated as a limited industrial/employment district on the 2001 City of Rio Vista General Plan.

Continued agricultural use of a portion of the Airport north of Runway 14-32 and the Watson Hollow Creek should be consistent with FAA guidance for agricultural activities on Airports in FAA AC 150/5200-33A, *Hazardous Wildlife Attractants On or Near Airports*.

There are plans for gas exploration and the drilling of at least one gas well on the Airport. The proposed drilling site is southeast of the end of Runway 14-32.

5.9 AIRPORT LAYOUT PLAN

The recommended Airport Master Plan serves as the basis for the Airport Layout Plan. The Airport Layout Plan, Terminal Area and Access Plan, Airspace Plan and Airport Property Map (Exhibit A) for the Rio Vista Municipal Airport derived from all the foregoing plans and analyses, are included in Appendix B. The Airport Layout Plan was submitted to the FAA and FAA issued a conditional approval of the Airport Layout Plan on March 5, 2007.

5.10 OFF-AIRPORT LAND USE

This section presents off-airport land use recommendations that relate to the City of Rio Vista General Plan, Solano County Airport Land Use Commission and the Delta Protection Commission.

5.10.1 City of Rio Vista General Plan

The 2001 City of Rio Vista General Plan indicates future neighborhood residential (NR) uses immediately west of the Airport along Airport Road in the Trilogy Development. Open space (OS) and limited industrial/employment district [I/E(L)] uses are also planned west of Runway 7-25. Further to the north, and immediately northwest of the Airport, future neighborhood residential (NR) land uses are also planned for the Brann and Gibbs Ranches development projects. Other surrounding areas are retained as agricultural (AG) or agricultural/open space (AG/OS) land uses to the north, east and south.

The Airport Master Plan and City General Plan need to be coordinated to maximize compatible land uses in the Airport vicinity. This is particularly important as a longer Runway 7-25 is recommended in the Airport Master Plan. This runway extension could impact, and be impacted by, development to the west of the Airport. An elementary school is planned for the area to the west of the Airport but a specific site is not identified on the General Plan and this requires an investigation by the Caltrans, Division of Aeronautics.

5.10.2 Solano County Airport Land Use Commission

The compatibility of the proposed surrounding development with the Airport Master Plan Update recommendations should be reviewed in accordance with the guidelines in the latest *California Airport Land Use Planning Handbook* prepared in 2002 by Caltrans. The 1988 Rio Vista Airport Land Use Compatibility Plan will require updating by the Solano County Airport Land Use Commission (ALUC) to reflect the Airport Master Plan Update recommendations and current Caltrans land use guidelines. The Airport Master Plan Update was submitted to the ALUC for a consistency determination prior to adoption of the Airport Master Plan Update by the City. The ALUC reviewed the Airport Master Plan Update for consistency on May 10, 2007 and determined that the Airport Master Plan Update was inconsistent with the current Airport Land Use Compatibility Plan because of the recommended extension of Runway 7-25. The ALUC also voted to update their Airport Land Use Commission Plan contingent on funding being available.

It is recommended that the City continue to require aviation easements for any development within the Airport Influence Area defined in the Airport Land Use Compatibility Plan. The aircraft traffic patterns are to the north of Runway 7-25 and east of Runway 14-32 to minimize aircraft overflights and noise impacts on surrounding development.

5.10.3 Delta Protection Commission

The land to the east of the Airport is owned by the State of California, Department of Water Resources/State Reclamation Board and under the jurisdiction of the Delta Protection Commission (DPC). The Airport Master Plan Update was provided to the DPC for their review and comments. The DPC responded that, from the information made available to the DPC by the City, it appeared that the proposed 35 acre land acquisition to the north is not subject to the Delta Protection Act. However, it appeared that the proposed 74 acre land acquisition to the east is within the purview of the Delta Protection Act and is, therefore, subject to consistency with the Management Plan pursuant to the Delta Protection Act. The DPC noted that, “with respect to consistency with the Delta Protection Act and the Management Plan, it is incumbent upon the City to clearly demonstrate how the proposed expansion of Runway 7-25 to accommodate aircraft (with a takeoff weight greater than 12,500 pounds) ---- would be consistent with the Delta Protection Act and the Management Plan, particularly, Utilities and Infrastructure Policy 6. Specifically, it should be clarified how the expansion would not constitute an expansion of a general aviation airport”. Representatives of the City and DPC met on January 22, 2007 to discuss these issues. The City also responded to the DPC comments as part of the Initial Study/Mitigated Negative Declaration process.

The City responded that the proposed extension of Runway 7-25 would be consistent with the Act and the Management Plan, particularly Utilities and Infrastructure Policy 6. Publicly-owned airports such as the Rio Vista Municipal Airport, in contrast to virtually all the privately-owned airports in the Legal Delta, are designed and constructed in a manner that:

- Protects the facility from the effects of subsidence,
- Avoids existing transmission lines and through federal regulations identifies the location of any future such lines relative to the Airport,
- Accounts for high winds and fog through design factors such as runway orientation, wind studies, weather monitoring, specialized aircraft approach and departure procedures, and the installation of navigational aids, and
- Respects the environment, including raptors and waterfowl, by compliance with the federal National Environmental Policy Act and the California Environmental Quality Act.

As a consequence of having applied FAA regulations and guidelines to the original design and development of the Rio Vista Municipal Airport, subsidence, transmission lines, and high winds and fog are not a factor. The Airport is located so no transmission line(s) affect runway approach and departure areas. The Airport has a crosswind runway so the Airport can operate in high winds and from any direction. The Airport has nonprecision instrument approach procedures so the Airport can operate in fog or low visibility conditions. In addition, the proposed runway extension and proposed installation of an automated weather observing system (AWOS) offers the potential of a precision instrument approach procedure that would allow the Airport to operate in even lower visibility conditions than at present for properly equipped aircraft and qualified pilots. The Airport is located in an area that is not subject to high raptor and waterfowl use. No privately-owned airport in the Legal Delta meets all these criteria.

In respect to Finding 12, the Airport is the only publicly-owned and operated airport in the Legal Delta. The other airports in the Legal Delta are privately-owned and private-use small airstrips which historically operate at the owner's discretion and close when the owner determines there is a better use for the land the airstrip sits on. Therefore, only the Rio Vista Municipal Airport can be counted on to provide air transportation access in support of agriculture related businesses, conservation, recreation and other land uses and activities in the Legal Delta.

The airport improvements proposed in the Airport Master Plan Update are needed to enhance and more effectively accommodate agriculture and agricultural support activities. The Airport is used by agricultural aircraft to load, to refuel and for aircraft maintenance. It is also used by farmers and agricultural businesses with aircraft for

their business and personal air transportation. Agriculture uses in the Delta will be a primary beneficiary of the runway extension and airport improvements.

The Airport is the only airport in the Delta that can be utilized to provide a staging area for aviation assistance and support in case of natural or man-made emergencies and disasters. The Airport will be able to better support the Delta for disaster relief (be it people, animals, birds or vegetation) for the associated delivery of emergency supplies, evacuation, search and rescue, and medical emergency transportation support. This capability will be enhanced with the extension of the runway.

The Airport is at the very edge of the Legal Delta and not in the middle. This is relevant in that the issues raised in Policy 6, are accommodated within federal design and development standards and regulations that govern publicly-owned airports. The proposed area for lengthening Runway 7-25 has supported gravel extraction for several decades and is poor soil for agriculture. In addition, the Airport provides a buffer area between the primary zone of the Delta and the ongoing urbanization of Rio Vista.

There is low potential of the land being used again for agriculture. Since it is so close to areas of the City which are already developed and being developed and close to the existing Airport and new wastewater treatment facilities, it is unlikely that a farm or ranch would be started there.

The Airport is a destination airport for the Delta and for people wanting to go boating, fishing, hunting, and for other recreational and conservational activities in the Delta. The Airport will be able to better support air transportation to/from the proposed new environmental agency offices that are in the planning stages for the Old Army Base that was turned over to the City.

The expansion of the Airport will be of substantial benefit to the Delta economy, in general, and agriculture, in particular. For example, extending the runway will allow small package air cargo and other aircraft to get critical parts needed for agricultural and mineral extraction interests in a timely manner. In general, the economic and accessibility benefits to the Delta could be significant.

An Airport, inherently, is a large, protected open space area with already protected zones around it that are controlled by Federal Aviation Administration and California Department of Transportation (Caltrans), Division of Aeronautics, regulations and guidelines that will perpetually keep the 'open space vista' on the airport property even with the proposed, phased runway extension. No buildings are planned for the extended runway area that would reach into Area 2.

The City concurs that some changes proposed in the Airport Master Plan Update constitute a boundary change (physical expansion) for the Rio Vista Municipal Airport, a “general aviation airport” within the strict interpretation of Policy 6. The continuing growth of aircraft operations, the location of new businesses on the Airport and other activities on the Airport constitute an economic expansion of the Airport.

5.11 ENVIRONMENTAL EVALUATION

An Initial Study/Mitigation Negative Declaration has been prepared for adoption of the Airport Master Plan Update and has been provided to the City as a separate document.

Chapter 6

CAPITAL IMPROVEMENT PROGRAM

6.1 INTRODUCTION

The phased Capital Improvement Program for the Rio Vista Municipal Airport and the estimated costs of the Airport improvements recommended as part of the Airport Master Plan Update are presented in this chapter.

6.2 CAPITAL IMPROVEMENT PROGRAM

A three-phase prioritized Capital Improvement Program has been developed as a guide for future development to meet estimated short-range (Phase I, 2006 through 2010), intermediate-range (Phase II, 2011 through 2015), and long-range (Phase III, 2016 through 2025) Airport requirements. Phasing of the program reflects an assessment of the (1) relative priorities of various proposed projects, and (2) the approximate timing of the anticipated requirements.

Phase I projects are considered to be the highest priority items and should be implemented as soon as practicable to meet the Phase I forecast requirements for facilities and to preserve the capability for future Airport development and help achieve financial stability and growth. Phase II and III projects should be implemented only as the actual needs are demonstrated by the demand for Airport facilities and services and as financing arrangements are made.

The phasing of the Capital Improvement Program is presented on Figure 6-1, Airport Phasing Plan. An approximate planning cost estimate for each improvement for the recommended three-phase Capital Improvement Program is presented in Table 6-1. A summary of the total Capital Improvement Program is presented in Table 6-2.

Total costs for all projects included in the three-phase Program are estimated in 2006 dollars. These costs would be incurred as follows:

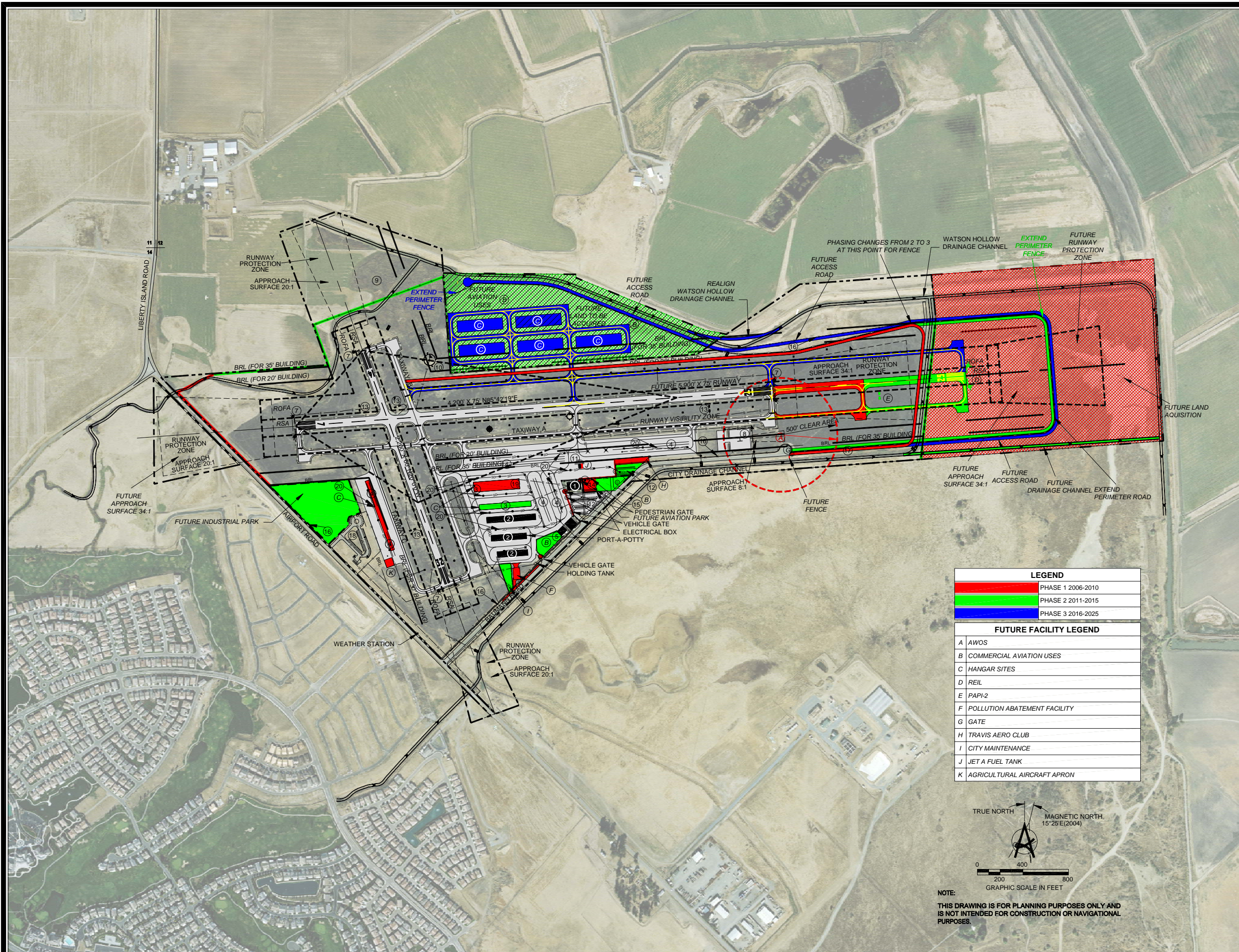
Phase I	\$ 5,759,500
Phase II	4,042,300
Phase III	<u>4,315,000</u>
Total	<u>\$14,116,800</u>

The estimated net project costs to the City for the three-phase Program are \$649,097 after recognition of the receipt of Federal Aviation Administration (FAA) Airport Improvement Program grants and State of California, Department of Transportation (Caltrans), Division of Aeronautics grants.



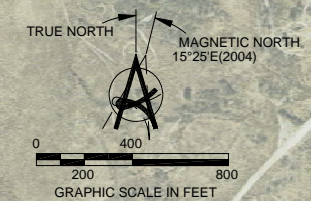
RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

AIRPORT PHASING PLAN



LEGEND	
[Red Box]	PHASE 1 2006-2010
[Green Box]	PHASE 2 2011-2015
[Blue Box]	PHASE 3 2016-2025

FUTURE FACILITY LEGEND	
A	AWOS
B	COMMERCIAL AVIATION USES
C	HANGAR SITES
D	REIL
E	PAPI-2
F	POLLUTION ABATEMENT FACILITY
G	GATE
H	TRAVIS AERO CLUB
I	CITY MAINTENANCE
J	JET A FUEL TANK
K	AGRICULTURAL AIRCRAFT APRON



NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

LEGEND	
[Dashed Line]	AIRPORT PROPERTY LINE
[Thick Grey Line]	AIRFIELD/APRON PAVEMENT
[Thin Grey Line]	BUILDING/FACILITIES
[Red Line]	BUILDING RESTRICTION LINE (BRL)
[Green Line]	FENCE
[Circle with Center]	GATE
[Circle with Dot]	ROTATING BEACON
[Circle with X]	FUEL ISLAND
[Circle with Square]	AIRPORT REFERENCE POINT (ARP)
[Circle with Triangle]	THRESHOLD LIGHTS
[Circle with Square]	WIND SOCK
[Circle with Triangle]	REIL
[Circle with Square]	PAPI-2
[Circle with Square]	HELIPORT
[Dashed Line]	EXISTING GROUND CONTOURS
[Dashed Line]	DRAINAGE CHANNEL
[Circle with Square]	HYDRANT
[Circle with Square]	CATCH BASINS
[Circle with Square]	ELECTRICAL LINE
[Circle with Square]	SEWER LINE
[Circle with Square]	STORM DRAIN LINE
[Circle with Square]	TELEPHONE LINE
[Circle with Square]	WATER LINE
[Dashed Line]	RUNWAY SAFETY AREA
[Dashed Line]	RUNWAY OBJECT FREE AREA
11 12	SECTION CORNER
14	

EXISTING FACILITY LEGEND	
1	TERMINAL BUILDING
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	REIL
8	HELIPORT
9	SUMP
10	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	PAPI-2
14	ROTATING BEACON
15	APRON SECURITY LIGHTING
16	FENCE
17	PERIMETER ROAD
18	AIRPORT INDUSTRIAL PARK
19	TRANSFORMER
20	V-GUTTER

V ARIES CONSULTANTS LTD.

RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

FIGURE
6-1

NAME: RVA-61-Phasing Plan.dwg PLOT SCALE: 1"= 400'
DATE: Jun 1, 2007 TIME: 1:41pm

Table 6-1

**CAPITAL IMPROVEMENT PROGRAM
Rio Vista Municipal Airport
2006-2025**

PHASE I IMPROVEMENTS (2006-2010)	Total	City	FAA ^a	State ^b	Other
Land Acquisition					
-- Acquire 74 acres to the east ^c					
Footnote c					
Airfield					
-- Prepare Environmental Assessment/Environmental Impact Report for runway and taxiway extensions	300,000	7,875	285,000	7,125	0
-- Design and construct Runway 7-25 and parallel taxiway extensions (800 feet)	1,400,000	36,750	1,330,000	33,250	0
-- Slurry seal runways and taxiways	345,000	9,056	327,750	8,194	0
-- Develop Pavement Maintenance Plan	15,000	394	14,250	356	0
Navigational Aids					
-- Extend medium intensity runway lights	85,000	2,231	80,750	2,019	0
-- Extend medium intensity taxiway lights	100,000	2,625	95,000	2,375	0
-- Rehabilitate signage and beacon	145,000	3,806	137,750	3,444	0
-- Relocate PAPI-2 and REIL on Runway 25	40,000	1,050	38,000	950	0
-- Conduct obstacle survey	60,000	1,575	57,000	1,425	0
Terminal Area					
-- Install additional apron lighting	60,000	1,575	57,000	1,425	0
-- Construct new corporate hangars	1,800,000	0	0	0	1,800,000
-- Install surveillance video cameras	15,000	15,000	0	0	0
-- Develop Aviation Park	10,000	10,000	0	0	0
-- Install privately-owned hangars on west apron	500,000	0	0	0	500,000
Infrastructure					
-- Replace westside perimeter fence (6-foot chainlink)	48,000	1,260	45,600	1,140	0
-- Install automated vehicle access gate	18,000	473	17,100	428	0
-- Install two pedestrian access gates	4,500	118	4,275	107	0

CAPITAL IMPROVEMENT PROGRAM--continued
Rio Vista Municipal Airport, 2006-2025

	Total	City	FAA ^a	State ^b	Other
PHASE I IMPROVEMENTS (2006-2010) -- continued					
Infrastructure -- continued					
-- Install Jet A fuel system	200,000	200,000	0	0	0
-- Construct drainage improvements	54,000	1,418	51,300	1,283	0
-- Grade and recompact perimeter road	60,000	1,575	57,000	1,425	0
-- Design and construct pollution abatement facility	310,000	8,138	294,500	7,363	0
-- Design and construct agricultural aircraft parking apron	190,000	4,988	180,500	4,513	0
Total Phase I Improvements	5,759,500	309,906	3,072,775	76,819	2,300,000
PHASE II IMPROVEMENTS (2011-2015)					
Land Acquisition					
-- Acquire 35 acres to the north ^c					
Airfield					
-- Design and construct Runway 7-25 and parallel taxiway extensions (900 feet)	2,200,000	57,750	2,090,000	52,250	0
Navigational Aids					
-- Extend medium intensity runway lights	56,300	1,478	53,485	1,337	0
-- Extend medium intensity taxiway lights	205,000	5,381	194,750	4,869	0
-- Relocate PAPI-2 and REIL on Runway 25	40,000	1,050	38,000	950	0
Terminal Area					
-- Construct new hangars (20)	1,000,000	0	0	0	1,000,000

Footnote c

Table 6-1

CAPITAL IMPROVEMENT PROGRAM--continued
Rio Vista Municipal Airport, 2006-2025

	Total	City	FAA ^a	State ^b	Other
PHASE II IMPROVEMENTS (2011-2015) -- continued					
Infrastructure					
-- Construct City maintenance facility	150,000	150,000	0	0	0
-- Install new eastside perimeter fencing (6,700 feet)	167,500	4,397	159,125	3,978	0
-- Extend perimeter road to the east (3,200 feet)	84,000	2,205	79,800	1,995	0
-- Replace northwest side perimeter fencing (2,600 feet)	69,500	1,824	66,025	1,651	0
-- Install new northside perimeter fencing (2,800 feet)	70,000	1,838	66,500	1,663	0
Total Phase II Improvements	4,042,300	225,923	2,747,685	68,692	1,000,000
PHASE III IMPROVEMENTS (2011-2025)					
Airfield					
-- Construct northside parallel taxiway	1,960,000	51,450	1,862,000	46,550	0
-- Construct northside hangar taxiways	1,540,000	40,425	1,463,000	36,575	0
Navigational Aids					
-- Extend medium intensity taxiway lights	463,000	12,154	439,850	10,996	0
Infrastructure					
-- Construct northside access road (8,800 feet)	352,000	9,240	334,400	8,360	0
Total Phase III Improvements	4,315,000	113,269	4,099,250	102,481	0
TOTAL CAPITAL IMPROVEMENT PROGRAM	14,116,800	649,097	9,919,710	247,993	3,300,000

a. Assumes Federal Aviation Administration (FAA) Airport Improvement Program grants for 90 percent of eligible project costs.
b. Assumes Caltrans grants will be available for 2.5 percent funding of all FAA Airport Improvement Program grants.
c. Land acquisition is subject to future appraisals and negotiations.

SOURCE: City of Rio Vista and Aries Consultants Ltd.

Table 6-2

**SUMMARY OF CAPITAL IMPROVEMENT PROGRAM
Rio Vista Municipal Airport
2006-2025**

	Total	City	FAA^a	State^b	Other
PHASE I IMPROVEMENTS (2006-2010)					
-- Airfield	2,060,000	54,075	1,957,000	48,925	0
-- Navigational Aids	430,000	11,288	408,500	10,213	0
-- Terminal Area	2,385,000	26,575	57,000	1,425	2,300,000
-- Infrastructure	884,500	217,968	650,275	16,257	0
Total Phase I Improvements	5,759,500	309,906	3,072,775	76,819	2,300,000
PHASE II IMPROVEMENTS (2011-2015)					
-- Airfield	2,200,000	57,750	2,090,000	52,250	0
-- Navigational Aids	301,300	7,909	286,235	7,156	0
-- Terminal Area	1,000,000	0	0	0	1,000,000
-- Infrastructure	541,000	160,264	371,450	9,286	0
Total Phase II Improvements	4,042,300	225,923	2,747,685	68,692	1,000,000
PHASE III IMPROVEMENTS (2016-2025)					
-- Airfield	3,500,000	91,875	3,325,000	83,125	0
-- Navigational Aids	463,000	12,154	439,850	10,996	0
-- Infrastructure	352,000	9,240	334,400	8,360	0
Total Phase III Improvements	4,315,000	113,269	4,099,250	102,481	0
TOTAL CAPITAL IMPROVEMENT PROGRAM	14,116,800	649,097	9,919,710	247,993	3,300,000

SOURCE: City of Rio Vista and Aries Consultants Ltd.

The FAA Airport Improvement Program funds 95 percent of eligible projects. Caltrans funds 2.5 percent of the Federal 95 percent (2.4 percent of total project costs), and the City is responsible for the remaining 2.6 percent of the total project costs based on current FAA Airport Improvement Program and State of California legislation. Projects eligible for FAA Airport Improvement Program grants for Phase I total \$3.2 million. Of the total \$3.2 million, the City local match for these grant funds are estimated to total \$84,906 after recognition of the State's contribution of 2.5 percent of FAA Airport Improvement Program grants. The \$2.3 million estimated to construct up to 16 corporate hangars west of the terminal building and 20 T-hangars on the west apron is assumed to be funded privately.

6.3 Extension of Runway 7-25

The extension of Runway 7-25 by 800 feet to the east to a length of 5,000 feet in the initial phase of the Capital Improvement Plan is eligible for FAA Airport Improvement Program grant funding as shown in Table 6-1. The total cost to extend Runway 7-25 is estimated to be about \$2 million including the environmental, runway and taxiway lights, and relocation of the precision approach path indicators (PAPI-2) and the runway end identifier lights (REIL). The FAA has indicated that strong justification from the City will be required for FAA funding for a runway extension. The Rio Vista Municipal Airport is competing with other airports, not only in Solano County and the San Francisco Bay Area, but also in the State, for FAA funding for runway extensions.

The FAA will require supporting documentation for funding of a runway extension in the form of commitments from existing and potential airport users. The supporting documentation will need to be in the form of letters from airport users including the type of aircraft that will use the Airport if the runway is extended. Written commitments in the form of hangar leases, ground leases, and other forms of verification will be required. The City will need to make a strong case for justification of FAA Airport Improvement Program funding for the extension of Runway 7-25.

The City recognizes the strategic location of the Rio Vista Municipal Airport and the part the Airport could play in the event of a catastrophic disaster, e.g., earthquake, flood, fire. The extension of Runway 7-25 was included in a Federal legislative funding agenda under the Department of Homeland Security. Discussions were held with the Federal Emergency Management Administration (FEMA) for the potential funding for a runway extension to provide a base of operations for FEMA in the event of a levee break as the Airport is on high ground. These discussions included potential construction of hangars for shelters and emergency storage facilities. The City should continue to pursue these development potentials and alternative sources of funding.

6.4 Airport Property and Land Acquisition

The project costs totaling \$5.8 million in Phase I and \$4 million in Phase II do not include the cost of land acquisition of about 74 acres of land to the east of the Airport in Phase I to accommodate the future extension of Runway 7-25 to 5,900 feet and the future runway protection zone. The cost of acquisition of about 35 acres of land on the north side of the Airport recommended in Phase II of the Capital Improvement Program is also not included. The costs of acquiring property will be subject to appraisals and negotiations with the individual property owners, including land owned by the State of California Department of Water Resources/State Reclamation Board, Sacramento-San Joaquin Drainage District to the east and privately-owned land to the north. The costs associated with the land acquisition are eligible for 95 percent FAA Airport Improvement Program funding.

In 1985 FAA funded land acquisition for the new airport totaling 273.86 acres that were acquired by the City (Refer to Airport Layout Plan, Sheet 5 of 5, Airport Property Map, Exhibit A in Appendix B). There were several conditions of the 1988-1989 Airport Purchase and Relocation Agreement with private landowners that have not yet been followed through on and finalized by the City and landowners. A 49-year lease for one-half of a parcel along Airport Road, referred to as the Airport Business Park, was made a condition of the acquisition of 167.13 acres of the Airport property. As of 2006, the lease agreement has not been entered into, and the portion of the one-half of the parcel to be included in the lease has not been delineated.

As a condition of the acquisition of 24.81 acres of land on the northwest portion of the Airport property, the City granted aircraft access to the airport runways from adjacent privately-owned property not acquired by the City. Livestock access around the east end of the Airport main runway and across the Watson Hollow Drain was granted; an ingress and egress easement was granted along the north side of the Watson Hollow Drain levee; and the City agreed to share in the maintenance and repair costs of the Drain in an amount proportional to the water the City may take. For the 24.81 acres of property actually acquired by the City, the City agreed to a 49-year lease if the City did not use the property for airport-related purposes. As of 2006, there is no lease agreement for use of the 24.81 acres.

The City should take the appropriate steps required to resolve the conditions of the original Airport Purchase and Relocation Agreement as soon as practicable to be able to certify clear title to the Airport property to the FAA.

6.5 Security Requirements

The President signed into law the Aviation and Transportation Security Act on November 19, 2001 establishing the Transportation Security Administration (TSA)

within the U. S. Department of Transportation. While TSA activities have been concentrated on the larger commercial service airports since its inception, the TSA is required to develop security requirements for general aviation airports. The TSA published *Security Guidelines for General Aviation Airports* in May 2004 and notes that the guidelines are not regulatory and the recommendations should not be considered mandatory. The guidelines provide options, ideas and suggestions for the airport sponsor, tenants and users in an attempt to provide consistency across the Nation with regard to security at general aviation facilities. The intent of the guidelines is to provide a living document that will continue to be refined with input from the various stakeholders Nationwide.

The Aircraft Owners and Pilots Association partnered with the TSA to develop a nationwide Airport Watch Program that uses the more than 650,000 pilots as eyes and ears for observing and reporting suspicious activity. The Airport Watch Program includes warning signs for airports, informational literature, and a training video to teach pilots and airport employees how to enhance security at their airports.

To date, there are no mandatory security requirements for general aviation airports. However, future security recommendations for the Rio Vista Municipal Airport could include additional fencing, lighting, access control systems, signs, law enforcement actions, and security procedures that could have a cost impact on the development of the Airport as the TSA continues to update and refine the recommendations for general aviation airports.

The City has recognized the need for security for the Airport and recently received an FAA Airport Improvement Program design grant for additional apron lighting, improved perimeter fencing, and key-controlled vehicle and pedestrian access gates. The installation of surveillance video cameras on the Airport is also planned.

6.6 Federal Aviation Administration Airport Capital Improvement Plan

The City received an FAA Airport Improvement Program grant for \$181,500 in fiscal year 2006 representing 95 percent of projects totaling \$191,100. A Caltrans grant was also received for \$9,075 representing 5 percent of the total Airport Improvement Program grant. These grants were awarded to install an automated weather observing system (AWOS), remove obstructions, and design for the rehabilitation of the perimeter road, airport drainage, apron lighting and perimeter fencing. Preparation of the Airport Property Map, Exhibit A, was also included.

The latest Airport Capital Improvement Plan submitted to the FAA includes about \$1.2 million in capital improvement projects for the Airport. These projects are included in the Phase I projects in Table 6-1. The projects and cost estimates will require refinement and prioritizing when the FAA requests updated Airport Capital Improvement Plans in future years.

FINANCIAL PLAN

7.1 INTRODUCTION

The purpose of the financial plan is to summarize the annual historical operating results of the Rio Vista Municipal Airport Proprietary Fund to provide a basis for assessing the ability of the Fund to meet the requirements for funding future capital improvement projects from operating sources. The Fund is operated to account for Airport operations that are financed and operated in a manner similar to private business enterprises.

7.2 FINANCIAL ANALYSIS

The financial analysis is intended to indicate order-of-magnitude strategies and is presented in Table 7-1 as a statement of historical revenues and expenses from fiscal years ending 2003 through 2005 and the City's operating budget for fiscal year 2006.

7.2.1 Historical Revenues and Expenses

The historical revenues and expenses of the Airport Proprietary Fund from fiscal years 2003 through 2006 are presented in Table 7-1. Historically, the major source of operating revenues from airport operations has been from the rental of City-owned Airport hangars and fuel sales.

Historically, the major operating expenses for the Airport have been for salaries and wages that accounted for an average of 30 percent of total operating expenses; utilities accounted for an average of 11 percent of total operating expenses. Other expenses, including supplies and materials, maintenance and repair, communications, professional services, and miscellaneous expenses accounted for the remaining annual expenses.

Overall, the operating revenues and expenses resulted in a net operating surplus averaging \$4,500 annually from fiscal year 2003 to fiscal year 2005. A net operating loss of over \$56,000 was expected in fiscal year 2006.

There are several reasons for the decrease in revenues and increase in expenses beginning in fiscal year 2005. Fuel sales dropped in fiscal year 2005 as one of the fuel tanks at the Airport was inoperable due to a mandated change in the type of fuel that could be used in aircraft. The existing fuel in the tank was disposed of by the City and the tank was retrofitted and cleaned, and became operational again

Table 7-1

HISTORICAL AND FORECAST OPERATING REVENUES AND EXPENSES
Rio Vista Municipal Airport
2003-2011

	Historical					Forecast				
	2003 ¹	2004 ¹	2005 ¹	2006 ²	2007	2008	2009	2010	2011	
OPERATING REVENUES										
Rents	147,471	147,594	143,177	134,675	180,000	185,000	191,000	197,000	203,000	
Sale of Fuel	27,108	32,121	14,246	10,000	12,000	24,000	30,000	36,000	42,000	
Caltrans Annual Grant	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	
Access Fees				4,300	5,000	5,500	6,000	6,500	7,000	
Miscellaneous Income	0	2,897	4,842	6,905	0	0	0	0	0	
Subtotal	184,579	192,612	172,265	165,880	207,000	224,500 #	237,000 0	249,500	262,000	
OPERATING EXPENSES										
Salaries and Wages/Overhead	33,882	45,320	82,369	128,039	130,000	134,000 #	138,000	142,000	146,000	
Professional Services	0	5,247	7,797	4,175	5,000	5,000	5,000	5,000	5,000	
Supplies and Materials	10,874	9,498	12,973	17,163	14,000	15,000	16,000	17,000	18,000	
Utilities	32,247	13,187	14,936	12,650	13,000	13,500	14,000	14,500	15,000	
Insurance	5,769	0	18,461	12,540	13,000	13,000	8,000	8,000	8,000	
Maintenance and Repair	6,594	4,820	22,409	12,392	11,000	12,000	13,000	14,000	15,000	
Communications	2,306	1,709	599	2,195	2,100	2,200	2,300	2,400	2,500	
Interest Expense	127,718	35,576	34,712	26,293	24,000	20,000	7,000	7,000	7,000	
Miscellaneous	4,896	806	1,117	7,224	4,000	4,000	4,000	4,000	4,000	
Subtotal	224,286	116,163	195,373	222,671	216,100	218,700 #	207,300 0	213,900	220,500	
OPERATING SURPLUS (DEFICIT) AVAILABLE TO FUND THE CAPITAL IMPROVEMENT PROGRAM	-39,707	76,449	-23,108	-56,791	-9,100	5,800	29,700	35,600 0	41,500	
OTHER EXPENSES										
Depreciation Expense	225,758	236,243	250,951	250,000	250,000	250,000	250,000	250,000	250,000	

1. City of Rio Vista Financial Statements for Fiscal Years Ending June 30th.

2. City of Rio Vista, Expenditure Status Report, June 30, 2006

beginning in fiscal year 2006. Increases in expenses were accounted for beginning in fiscal year 2005 when administrative support and finance department staff time were allocated to the Airport Proprietary Fund. In addition, beginning in fiscal year 2005, the cost of the Airport's portion of the City liability insurance was allocated to the Airport Proprietary Fund.

Depreciation expenses applied to the Airport Proprietary Fund have averaged \$238,000 annually for fiscal years 2003 through 2005. As the depreciation expenses are nonfunded expenses of the Airport Proprietary Fund, they have not been included in the operating expenses.

The Airport has three outstanding debts that are being retired. The first debt was incurred in 1994 totaling \$716,530.80 for construction of 46 hangars on the Airport that will be retired in December 2008. A vehicles/equipment lease was entered into in 1998 totaling \$95,069.25 that will be retired in 2013. A loan totaling \$332,880 from the sewer and water funds in fiscal year 2003 was made to offset accumulated losses in the Airport Proprietary Fund that will be retired in fiscal year 2013.

7.2.2 Forecast Revenues and Expenses

The financial projections presented in Table 7-1 and discussed in this section have been prepared on the basis of information and assumptions set forth in the text. These rely on information and assumptions from the sources indicated without verification of such data. Although the information and assumptions used constitute reasonable bases for preparation of the forecasts, the achievement of any financial projection may be affected by fluctuating conditions and is dependent on the occurrence of future events that cannot be assured. Therefore, the actual results achieved may vary from the projections, and such variation could be material.

The projected revenues and expenses of the Airport Proprietary Fund from fiscal years 2007 to 2011 presented in Table 7-1 reflect a set of assumptions under which there would be no major changes or improvements in tenant/user rates and charges except as noted.

The financial analysis for the Rio Vista Municipal Airport has been prepared based on the following data and assumptions:

- The financial information is based on the City's fiscal year beginning July 1 through June 30 unless otherwise noted.
- All sources of income derived from airport uses will be credited to the Airport Proprietary Fund and will be used only for maintaining, operating and improving the Airport as required by Federal Grant Assurances.

- The Aviation Activity Forecasts presented in Chapter 2 form a reasonable basis for this financial analysis.
- No major capital improvement projects will be undertaken during the forecast period other than those presented in the Capital Improvement Program.
- The projected dollars are based on 2006 dollar values.
- The development of facilities recommended in this report will be developed and managed to produce the maximum net revenue to the City consistent with providing reasonable levels of public facilities and services.
- All present leases and agreements will continue in force with no major changes in their financial provisions other than existing rental adjustments already provided for.
- Federal Aviation Administration (FAA) Airport Improvement Program grants have not been considered as part of this financial analysis.
- The annual non-matching \$10,000 grant from State of California, Department of Transportation, Division of Aeronautics (Caltrans) has been included in the operating revenue. Caltrans grants for matching FAA Airport Improvement Program grants have not been considered as part of this financial analysis.

7.2.2.1 Operating Revenues

- Rental income from tiedowns, ground leases for hangars, and fuel flowage fees are projected to increase commensurate with an increase in based aircraft and aircraft operations and a recent 22 percent increase in hangar rents by the City. New ground leases will be entered into for hangar construction, including a ground lease for the construction of the Travis Aero Club facilities.
- Fuel sales will continue to increase commensurate with Airport operations. The City will install a Jet A fuel system to accommodate small jets that use the Airport.
- Caltrans will continue to provide the annual non-matching \$10,000 grants that may be used for both capital improvements and maintenance and operations.
- Access fees will increase as activity at the Airport increases. The City recently initiated a \$100 annual access fee for use of the terminal building facilities.

7.2.2.2 Operating Expenses

- Salaries and wages are projected to increase about 3 percent annually. City administrative support and finance department staff expenses should be accounted for separately in the future.
- Supplies and materials expenses will increase as the City continues to develop the airport.
- Utility expenses are projected to increase at an estimated 6 percent annually as new facilities are developed on the Airport, e.g., runway and taxiway lighting extensions, apron lighting, video surveillance cameras. Based on a recommendation of the Airport Advisory Commission, the City issued a Request for Proposal to install separate meters on the individual hangars. The responses to this request should be followed through on as the Airport utility expenses could be reduced if individual hangar tenants were responsible for their own utility expenses.
- The Airport's portion of the City's liability insurance will continue to be allocated to the Airport Proprietary Fund. The City should consider a separate insurance policy for the Airport that could reduce the total annual cost of insurance liability.
- Maintenance and repair expenses will increase as new facilities are added.
- Interest expenses will decrease as the debt service on the hangars will be retired in fiscal year 2008.
- Depreciation expenses are non-cash expenses and have not been included in the operating expenses. It should be noted that Federal Aviation Regulations specifically exclude the computation of depreciation or use allowance on facilities and equipment funded either directly or indirectly by the Federal government, including the cost of land.

Based on the projected operating results of the Airport Proprietary Fund, the City can operate with close to a \$30,000 average annual surplus beginning in fiscal year 2009, providing no unforeseen major capital outlay expenses are incurred.

Based on the Phase I of the Capital Improvement Program, an estimated \$17,000 will be required on an annual basis from the Airport Proprietary Fund to implement the recommended projects over the initial five-year period. The \$17,000 annual requirement will be to fund the City's share of FAA Airport Improvement Program grants assuming Caltrans grants are available to fund 2.5 percent share of the Federal grants. An additional \$225,000 will be required for projects that are not eligible for

FAA Airport Improvement Program grants, e.g., the Jet A fueling system, installation of the surveillance video cameras, and development of the Aviation Park. In addition, the City will be required to provide the local match for land acquisition that will be based on appraisals and negotiations.

Based on the financial analysis, the Airport Proprietary Fund will not realize sufficient surplus revenues to fund the Phase I projects. If FAA Airport Improvement Program grants are awarded as presented in the Capital Improvement Program, the City will need to identify sources of funds to provide the local matching share for these grants either from local sources or potentially a Caltrans loan.

7.3 SOURCES AND USES OF FUNDS

The following identifies potential sources of funds that could be used for improvement projects at the Rio Vista Municipal Airport. Several of these sources of funds are either being used, or have been used in the past, to fund projects at the Airport.

7.3.1 Federal Aviation Administration Airport Improvement Program Grants

The Airport and Airway Trust Fund, which was established by the Airport and Airway Revenue Act of 1970, provides the revenues used to fund Airport Improvement Program projects. Taxes or user fees are collected from the various segments of the aviation community and placed in the Trust Fund. The FAA Airport Improvement Program was established by the Airport and Airway Improvement Act of 1982 and provides funding for airport planning and development. The 1982 Act, as amended, authorizes the use of monies from the Airport and Airway Trust Fund to make grants under the Airport Improvement Program. The Airport Improvement Program assists the development of a nationwide system of airports by providing funding for airport planning and development projects at airports included in the *National Plan of Integrated Airport Systems*.

The most recent reauthorization legislation for use of Airport Improvement Program funds is entitled Vision 100—The Century of Aviation Reauthorization Act (Vision 100) that was signed into law in December 2003. Vision 100 provides a multi-year program for funding under the Airport Improvement Program with increases in funding through fiscal year 2007 and provides Federal funding for 95 percent of an eligible project with a requirement for a 5 percent local (City and/or Caltrans) match. It should be noted that the Reauthorization of the Airport Improvement Program will require reauthorization beyond September 30, 2007, the end of the Federal fiscal year.

The Vision 100 legislation provides for general aviation airport entitlement grants with a maximum of \$150,000 annually for fiscal years in which the total amount of FAA Airport Improvement Program funding is \$3.2 billion or more. Based on the

Vision 100 legislation, \$3.4 billion, \$3.5 billion, \$3.6 billion, and \$3.7 billion have been authorized for Fiscal Years 2004, 2005, 2006, and 2007, respectively. The Rio Vista Municipal Airport is eligible for these annual entitlement funds. General aviation airport entitlement funds provide the City the ability to prioritize use of these funds with a greater focus on the needs of the Airport and the Community and eliminate the need to compete for general aviation airport discretionary funds for projects that may not have a high priority for FAA Airport Improvement Program funding.

The Airport has received FAA grant awards beginning in 1983 with the most recent grant award of \$181,500 received in 2005. Historically, FAA Airport Improvement Program grants have been awarded for the projects at the Airport that are listed in Table 7-2.

7.3.2 State of California

The State of California provides four financial assistance programs. (1) the State of California, Department of Transportation, Division of Aeronautics annual grant of \$10,000; (2) allows the California Transportation Commission (CTC) to allocate funds to match FAA Airport Improvement Program grants for airport and aviation purposes; (3) the acquisition and development grants administered by the State Transportation Improvement Program (STIP); and (4) the Airport Loan Program.

The State provides annual non-matching \$10,000 grants to airports that have not been designated as a “reliever” or “commercial service” airport by the FAA that may be used for both capital improvements and maintenance and operations. The annual grant may be accumulated for up to five years, or a maximum of \$50,000, and used as matching funds for an FAA Airport Improvement Program grant.

State funds can be allocated by the CTC to match an FAA Airport Improvement Program grant once an airport sponsor has accepted the grant from the FAA. The State match is available to airports that have been designated as a general aviation or reliever airport by the FAA. Only those projects that are included in the State’s Capital Improvement Program are eligible to receive matching grants. The State match will be an amount equal to 2.5 percent of the FAA Airport Improvement Program grant.

Any publicly-owned, public-use airport may apply for a State acquisition and development grant through a structured approval process. Grant projects are evaluated and prioritized by an evaluation matrix and an airport rating form with runway maintenance projects receiving the highest priority for funding. An Airport’s request may range from a minimum of \$10,000 to a maximum of \$500,000 per fiscal year.

Table 7-2

**FAA AIRPORT IMPROVEMENT PROGRAM GRANTS
Rio Vista Municipal Airport**

Grant Number	Projects	Grant Amount
1983-01	Airport Master Plan	\$ 91,328
1985-02	Acquire land for airport development and clear zones (approximately 273 acres). Land, airport development, Parcel B2 (158.39 acres); land development and clear zone; Parcel A2 (24.81 acres) and Parcel C2 (74.94 acres) and Parcel C3 (2.37 acres) and clear zone, Parcel B1 (8.03 acres), and Parcel B4 (0.71 acres) and Parcel C1 (4.61 acres); prepare engineering design for new airport and construction plans and specifications.	\$ 1,050,368
1990-03	Phase I-Site preparation, stripping and mass grading; construct Runway 7-25 (4,200 feet by 75 feet) and Runway 14-32 (2,200 feet by 60 feet), including marking, drainage and electrical preparation; parallel taxiways for Runway 7-25 and 14-32; four connector taxiways; four each holding aprons; 22 runway/ taxiway fillets, including marking, drainage and electrical preparation; construct airfield storm drainage system; miscellaneous electrical work; install perimeter fencing; construct portion of airfield tiedown apron, including marking, drainage and lighting.	\$ 3,200,400
1991-04	Phase II-Construct tiedown apron, including marking, lighting and tiedowns; install airport lighting system; MIRL on Runway 7-25 and 14-31 at both ends each; MITL for entire airfield; runway/ taxiway guidance sign system; REIL for both runways; segmented circle with lighted windcone; one supplemental windcone; electrical equipment vault building; miscellaneous electrical equipment; airport beacon.	\$ 1,000,000
1991-05	Phase III-Construct tiedown apron, including marking, lighting and drainage; access road, including curb and gutter, marking and lighting; heliport, including marking, lighting and drainage; install fencing, including three gates.	\$ 2,946,747

Table 7-2

FAA AIRPORT IMPROVEMENT PROGRAM GRANTS -- continued

Page 2 of 2

Rio Vista Municipal Airport

Grant Number	Projects	Grant Amount
0000-06	FAA has no record of this grant being issued.	\$ -
1998-07	Construct exit taxiway and water pollution abatement facility (project included sanitary sewer, water, business park {storm drainage, water, sewer, electrical, telephone, utilities}, terminal building, small hangar). Note: FAA share \$100,000; EDA share \$1,000,000; CDBG share \$500,000; Caltrans share \$200,000; and City share \$22,222 for total \$1,822,222 for the project.	\$ 100,000
2000-08	Airport Master Plan (no money allocated)	\$ -
2000-09	Rehabilitate runways and taxiways (slurry seal and restriping project); rehabilitate aprons.	\$ 243,000
2002-10	Update Airport Master Plan Study	\$ 150,000
2005-11	Install AWOS; remove obstruction; construct service road (design); improve airport drainage (design); install apron lighting (design); install perimeter fencing (design).	\$ 181,500

SOURCE: Federal Aviation Administration

The State Airport Loan Program provides financial assistance in the form of loans, repayable over a period not-to-exceed 17 years. The interest rate is based on the most recent issue of State of California bonds sold prior to the issuance of a loan agreement. Loans can be obtained for matching funds (i.e., a FAA Airport Improvement Program grant) and for revenue-generating facilities (i.e., hangars and fuel facilities).

The funds available to the Caltrans Division of Aeronautics for their financial assistance programs have been reduced in recent years to help reduce the statewide budget deficit. It is not known at this time when, and to what extent, monies will be available to fund the Caltrans Division of Aeronautics Programs.

The City receives the \$10,000 annual grant from Caltrans and the 2.5 percent matching share of FAA Airport Improvement Program grants.

7.3.3 City of Rio Vista General Fund

Financing airport improvements through a short-term loan from the City's general fund may be the most realistic method of financing development not eligible for FAA Airport Improvement Program grants or for matching the City requirement for grants. Loans from the general fund can be justified by the City on the basis that the Airport provides certain direct economic and social benefits to the Community. The City has loaned monies from the water and sewer funds to the Airport Proprietary Fund in the past.

7.3.4 Private Financing

The importance of the Airport to local economic development is enhanced with active involvement on the part of both public officials and the private business community. The City may require that all exclusive-use facilities such as hangars, fueling facilities, tiedowns, fixed base operations, and other commercial aviation facilities be provided and financed by the tenant. The City would receive ground rental while the leaseholder would receive the gross revenues and be responsible for the operational expenses and debt service obligation. Private financing places the burden of financing on the tenant while increasing the value of the Airport, which will, in turn, add to its economic attractiveness.

7.3.5 Other Sources of Funds

There are other potential sources of grants and loans that the City could consider for financing airport development projects, including grants from the Federal Public Works Program of the Economic Development Administration. There are several grant and loan programs under the U.S. Department of Agriculture Rural Development Programs including Community Facilities Direct Loans, Rural Business

Enterprise Grants and Rural Business Opportunity Grant Programs. The use of funds from these programs range from infrastructure improvements, e.g., water and sewer systems, to financing a public terminal building and/or hangars and equipment needed for public safety.

The State of California, Economic Development Administration provides grants and loans through the Department of Housing and Community Development and the Trade and Commerce Agency. The use of funds from these programs also range from infrastructure improvements to public-use terminal buildings.

The eligibility criteria to receive grants and loans under these various programs differ, and the application processes are also different. The requirement for the City's local matching share for certain grants could be as high as 75 percent of the total project costs. In addition, there are special conditions attached to certain grants and loans that the City will be obligated to meet, e.g., the creation of jobs and environmental compliance. As the availability of funds to support these programs on both the Federal and State level constantly change, the City should coordinate with the various program managers prior to considering an application for assistance.

In 1998, the City combined funds from the Federal Aviation Administration, Economic Development Administration, Community Development Block Program, Caltrans, and the City to fund development projects at the Airport totaling \$1,822,222.

7.4 FINANCIAL CONSIDERATIONS OF THE PHASE II AND PHASE III CAPITAL IMPROVEMENT PROGRAM

Beyond Phase I, it is assumed that development of the Airport will proceed according to the priorities proposed in the recommended phased development plan. It is also assumed that the implementation of the Phase II and Phase III projects will be arranged to be compatible with the financing sources and capability of the Airport as identified at the time of implementation without regard to the technical requirements that may be demonstrated.

It should be recognized that the financial feasibility of projects in the later stage will be linked to the overall management of the Airport in the short-term, the provisions of existing leases and agreements in effect, funding levels and participation rates of Federal grant programs and periodic review by the City of its lease policies and rates and charges policies.

Chapter 8

STRATEGIC BUSINESS PLAN

8.1 INTRODUCTION

The information presented in this chapter has been obtained from various documents provided by the City. Additional information was obtained during the airport master planning study from the City, members of the Airport Advisory Commission and others familiar with the Airport. The following explores potential actions the City could consider to promote and increase the economic viability of the Airport.

8.2 AIRPORT GOALS AND POLICIES

The goals and policies for the Rio Vista Municipal Airport are promulgated in the *2001 City of Rio Vista General Plan*.

The Rio Vista Airport is recognized by the City as a vital public facility and economic resource, and new residential development must take steps to ensure that its viability is not threatened.

The City shall require that development projects in the vicinity of the Rio Vista Airport consider all applicable safety policies, City standards, and land use compatibility guidelines to direct growth away from areas containing land uses that are incompatible with future development, and development shall be compatible and consistent with the Airport Land Use Plan and designated airport restricted zones.

Solano County Airport Land Use Commission 1988 Airport/Land Use Compatibility Plan for the Rio Vista Airport, adopted as a City ordinance, sets forth the standards and policies for acceptable land uses within various restrictive zones and noise areas around the Airport. The Airport and land use criteria are used to minimize risks associated with the operation of aircraft through density reducing and maximizing the amount of open land within the vicinity of the Airport.

The City's goals and policies respond to the Federal Aviation Administration's (FAA) Airport Grant Assurances that are made a condition of the City receiving Airport Improvement Program grant funding. Airport Assurance No. 21 states:

***Compatible Land Use.** It (the City) will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to*

activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft.

8.2.1 Objectives and Strategies

Objectives and strategies were prepared for the Airport based on meetings with the City, Airport Advisory Commission and others during the airport master planning process. The objectives are clear and specific statements that describe directions toward meeting the goals and policies of the City. It is the strategy statements that define the key physical and financial milestones required to accomplish the desired objectives.

8.2.1.1 Objectives

The objectives are clear and specific performance measures to target over the initial five-year period.

- Increase the financial viability of the Airport.
- Increase the utilization of the Airport.
- Increase the number of aircraft based at the Airport.
- Increase the total number of aircraft operations.
- Increase the number of aviation businesses on the Airport.

8.2.1.2 Strategies

Strategy statements are presented to accomplish the desired objectives.

- Implement the recommendations of this Airport Master Plan Update and develop facilities and services to the maximum extent possible.
- Develop and/or keep current the major documents for future use of the Airport, e.g., Airport Minimum Standards, Airport Rules and Regulations, Lease Policy Guidelines, Airport Fee Schedule.
- Maximize use of Federal Aviation Administration (FAA) Airport Improvement Program grants and State of California Department of Transportation (Caltrans), Division of Aeronautics matching grants by submitting the annual request for the Airport Capital Improvement Plan.

- Promote the development of hangars on the Airport to attract additional based aircraft and airport users.

8.3 AIRPORT FACILITIES AND SERVICES

The Rio Vista Municipal Airport (Baumann Field) is geographically located 3 statute miles north of the center of the business district of the City of Rio Vista in Solano County. The Airport is located on about 273 acres of land at an elevation of 20 feet above mean sea level. The Airport is classified as a General Aviation Airport in the Federal Aviation Administration (FAA) *National Plan of Integrated Airport Systems* and as a Regional Airport in the California Department of Transportation, Division of Aeronautics (Caltrans) *California Aviation System Plan (CASP)*.

As defined in the CASP, the Regional Airport provides access to other regions and states; may provide international access; is located in an area serving a number of cities or counties; serve recreational flying, training, and local emergencies with a high concentration of business and corporate flying; accommodate most business, multiengine and jet aircraft; provide most services for pilots and aircraft including aviation fuel; has a published instrument approach, and may have a control tower. Based on the CASP, the existing 4,200-foot Runway 7-25 at the Airport does not meet the minimum standard runway length of 4,600 feet, or recommended 5,400 feet, to accommodate 100 percent of the aircraft fleet at 60 percent useful load for this classification of airport. In addition, the Airport does not have 24-hour on-field weather services. These two enhancements are considered high priority in the CASP.

The Airport Master Plan Update presented in Chapter 5 provides for an ultimate extension of Runway 7-25 to the east from 4,200 feet to 5,900 feet with an 800-foot extension in the short-term (2006-2010) and an additional 900-foot extension in the mid-term (2011-2015). The installation of an airport weather observing system (AWOS) and the 800-foot extension of Runway 7-25 in the short-term will satisfy the requirements of a Regional Airport in the California Aviation System Plan.

8.3.1 Airport Property Development

The Airport Master Plan Update, presented earlier on Figure 5-1, presents the future land uses at the Rio Vista Municipal Airport. Specific priorities were given to the most critical aviation needs of the Airport as part of the airport master planning process. These included the airfield and runway protection zones, and those areas reserved for future public-use facilities including the terminal building, hangar facilities, aircraft parking apron, future commercial aviation facilities, and access and vehicular parking.

At the present time, there are no long-term leases for Airport property. There are several parcels available for long-term aviation/commercial leases within the existing

Airport property. These include several small parcels in the vicinity of the terminal building and along Baumann Road. A 12-acre Airport Industrial Park along Airport Road that, while owned by the City and on Airport property, clear title to the land is the subject of negotiations between the City and the former landowner. This parcel is designated as a limited industrial/employment district in the 2001 General Plan, and it may not be possible to develop this area for commercial aviation or hangars without amending the 2001 General Plan.

The acquisition of 35 acres of property on the north side of the Airport is recommended as part of the Airport Master Plan Update. These 35 acres were originally recommended to be part of the Airport property, however, because of insufficient funds being available, the City did not acquire this property when the Airport was constructed. These 35 acres have been reserved for future commercial aviation uses.

The City, FAA and airport users have already made substantial investments in the Rio Vista Municipal Airport, and the Airport Master Plan Update provides for the acquisition of land to accommodate the extension of Runway 7-25 and enhance the revenue-generating capabilities through long-term land leases thereby protecting these investments. The City should actively pursue the land acquisition as soon as practicable to provide for the future development of the Airport.

8.3.2 Existing Rates and Charges

A variable of particular importance in the financial analysis for a program of this type is the level of user rates and charges upon which projections of operating revenues are based. Future user rates and charges based on existing rates and charges are assumed in the analysis, however, it is appropriate to consider the estimated impact of future adjustments in the user rates and charges.

An analysis of current rates and charges for hangar leases and tiedown fees at those airports considered to be competing or comparable airports were obtained by the City to assess the reasonableness of the rates and charges at the Rio Vista Municipal Airport. Airports were identified as potentially competing with the Airport based on location and/or airports of similar size in terms of based aircraft and annual aircraft operations. These airports included the Byron, Franklin Field, Livermore Municipal, Napa County, Nut Tree, Petaluma Municipal, Tracy Municipal Airports and the University Airport at Davis. Rates and charges for airport facilities and services at these airports and other airports in the area are presented in Table 8-1 and discussed below.

Hangar rents ranged from \$185 a month at the Rio Vista Municipal Airport to over \$1,000 for larger hangars at the Napa County and Petaluma Municipal Airports. The

Table 8-1

**RATES AND CHARGES
Rio Vista Municipal Airport
2006**

AIRPORT	HANGAR RENTS (month)	TIEDOWNS (month)
Rio Vista Municipal Airport	\$222-\$285	\$30
Byron Airport	\$224	\$40-\$50
Franklin Field	Privately-owned Hangars \$61-\$80 Land Lease	\$30.50
Livermore Municipal Airport	\$277-\$452	\$72
Napa County Airport	T-hangar \$186-\$411 Box \$858-\$1,026	\$40-\$75
Nut Tree Airport	\$240-\$460	\$43-\$53
Petaluma Municipal Airport	\$271-\$1,780	\$49-\$53
Tracy Municipal Airport	Small \$202-\$235 Medium \$246-\$293 Large \$340-\$391	\$10
University Airport Davis	\$217-\$229	n.a.

n.a. = not applicable

SOURCE: City of Rio Vista and Aries Consultants Ltd.

range in hangar rents is attributed to the type of hangars available for rent. The City of Rio Vista recently increased the hangar rents from \$185 to \$222 per month to bring the hangar rents more in line with those at the surrounding airports. Tiedown rates ranged from \$10 per month at the Tracy Municipal Airport to \$75 per month at the Napa County Airport. The City also increased the tiedown fees from \$25 to \$30 per month to bring tiedown fees more in line with those at the surrounding airports.

It should be noted that no two airports are identical in terms of what can be considered reasonable rates and charges. There are a number of variables that apply to rates and charges at individual airports including services available, runway and taxiway system, land available for lease, the economic characteristics of the area in which an airport is located, market demand and numerous other considerations. Rates and charges for use of an airport are established based on all of these considerations, including the fair market value of the airport and its facilities, and therefore are not directly comparable to rates and charges for use of the Rio Vista Municipal Airport. It is recommended that the City establish fair rates and charges by appraisal, and incorporate the results of this appraisal into the methodology for establishing rates and charges presented later in this chapter.

8.4 OVERALL BUSINESS ISSUES

The overall business issues challenging the Rio Vista Municipal Airport will be the attraction of additional airport users and new aviation development to the Airport within a changing business environment and competition from surrounding airport facilities.

8.4.1 General Aviation Business Environment

Planning for the future in an uncertain environment is a concern for airport sponsors Nationwide and within the San Francisco Bay Area. While there was a general slowdown in demand for aviation activity nationwide following the events of September 11, 2001, FAA has predicted that a growth area for general aviation is in the business/corporate segment of the industry where increased growth in fractional ownership, corporate flying, and on-demand charter flights provide viable alternatives to travel on scheduled commercial flights.

With the increase in the business/corporate aircraft, these activities will continue to require additional facilities and services at the airports in the San Francisco Bay Area. The growth of these types of activities will have an effect on the types of general aviation facilities and services planned for in the future.

8.4.2 Small Aircraft Transportation System

The Small Aircraft Transportation System (SATS) program was established by the National Aeronautics and Space Administration (NASA). NASA's Office of Aerospace Technology is working with the FAA, the aviation industry, various federal and state agencies and the private sector and universities to develop aircraft-based technologies that will increase the safety and utility of operations at the smaller, general aviation airports. The long-term objective of the program is to provide for the routine use of advanced, small fixed-wing aircraft for transportation between communities thereby relieving highway and airport capacity and delay problems at the larger air carrier airports. The SATS program is in the research and technology development phase with development expected to continue through the next decade. There are developmental issues still to be resolved, and development of the SATS program is anticipated by 2015 and it is expected to be fully operational by 2020.

The FAA expects that the introduction of the very-light jets into the transportation system may redefine "on-demand" air taxi services by providing on-demand air transportation services between smaller communities. As the demand for these types of services increase, the City has expressed a desire to attract these types of services to the Airport. Discussions with providers of these on-demand services have been initiated by the City and should be continued.

8.4.3 Available Resources

The Airport Master Plan Update demonstrates that the Airport could play a significant role in the continuing development of the City of Rio Vista and the surrounding area. The Airport has the capability to accommodate the forecast aviation demand and contribute to the City's continued economic growth and stability in the future. Many of California's aviation facilities are currently constrained and will be even more constrained in the future. These constraints vary from airport to airport but include environmental considerations, traffic congestion, real estate economics, airspace conflicts, and the pressures of increased urbanization and surrounding incompatible development.

Land uses in the immediate vicinity of the Airport are generally compatible with the *1988 Airport Land Use Compatibility Plan (ALUP)* prepared by the Solano County Airport Land Use Commission (ALUC). Although the 1988 ALUP will require updating by the Solano County ALUC to be consistent with the Airport Master Plan Update, the ALUP provides the necessary tools for the City to preserve future compatible land uses within the Airport environs and is a significant resource for future growth and economic development of the Rio Vista Municipal Airport and the City.

While the direct generation of revenue for the maintenance, operation and development of the Airport is of primary importance, the ability to attract larger and more sophisticated aircraft within an environmentally compatible environment also will be of great importance in the future.

8.4.4 Aviation Related Businesses

There are a number of products and services directly related to general aviation that typically require location on an airport. A review of aviation directories provided a listing of over 40 general aviation products and services that are located on, or available at, other airports comparable to the Rio Vista Municipal Airport. These products and services are presented in Table 8-2 and discussed below.

Based on the information presented in Table 8-2, few general aviation products and services are currently located on the Rio Vista Municipal Airport. The Airport currently has a fixed-base operator that primarily restores antique aircraft and provides a number of other services for aircraft and pilots. At a minimum, a full service fixed-base operator should provide repair and maintenance of general aviation aircraft, aircraft engines and parts; tiedown, storage and hangar space for general aviation aircraft and all aircraft other than those operated by commercial airlines and the military; be open for services to airport users at all times the Airport is reasonably open for their use; aircraft rental; maintain adequate numbers of engines, parts, and supplies to conduct the maintenance, repair, and servicing of general aviation aircraft. In addition, many airport sponsors require fixed base operators to sell aviation fuel, oils and lubricants for general aviation aircraft. This is generally a sound requirement as it relieves the airport sponsor of the obligation, and more important, the sale of fuel by a fixed base operator gives the operator a point-of-contact with the aviation customer and thus serves as a basis for building the fixed-base operator business.

The use of general aviation aircraft for business/corporate aviation has increased significantly following the events of September 11, 2001 due to the enhanced feeling of security of using business/corporate aircraft as well as the diminished airline schedules and rigorous security precautions at the commercial air carrier airports. This segment of general aviation includes aircraft owned by corporations, private individuals and those aircraft that are fractionally owned and managed by fractional and/or management ownership companies.

The impact of accommodating increases in corporate/business aircraft has been felt at airports in the major metropolitan areas in Northern and Southern California, particularly at the commercial air carrier airports. For example, several corporate/business aviation users from the San Francisco Bay Area have relocated aircraft and crews to other airport locations in California; e.g., Sacramento

Table 8-2

GENERAL AVIATION PRODUCTS AND SERVICES
Rio Vista Municipal Airport
2006

<u>General Aviation Activity</u>	<u>On Airport</u>	<u>Not On Airport</u>
Air Ambulance		X
Air Cargo		X
Air Charters		X
Air Courier		X
Air Taxi		X
Aircraft Brokers		X
Aircraft Cleaning Services		X
Aircraft Components and Parts		X
Aircraft Interiors	X	
Aircraft Maintenance	X	
Aircraft Painting and Refinishing		X
Aircraft Rental	X	
Airframe Repair and Overhaul	X	
Automobile Rental		X
Aviation Attraction		X
Aviation Training Center ¹	X	
Avionics Sales and Service	X	
Civil Air Patrol ²	X	
Computer-Aided Test Center ²	X	
Conference Rooms and Amenities	X	
Courtesy Transportation		X
Electrical Repair		X
Fixed Wing Pilot Training ¹	X	
Flight Planning Services	X	
Flight Service Station		X
Flight Simulators		X
Flying Club ¹	X	
Freight Forwarder		X
Fueling Services	X	
General Aviation Passenger Terminal	X	
Gift/Retail Shop		X
Ground Equipment Manufacturer		X
Ground Equipment Repair		X

Table 8-2 - continued

GENERAL AVIATION PRODUCTS AND SERVICES

<u>General Aviation Activity</u>	<u>On Airport</u>	<u>Not On Airport</u>
Helicopter Charter		X
Helicopter Maintenance and Repair		X
Helicopter Pilot Training		X
Hotel		X
Pilots' Lounge	X	
Pilot Supplies and Services		X
Powerplant Repair and Overhaul	X	
Propeller Services		X
Restaurant		X
Safety and Emergency Equipment		X
Transient Aircraft Parking	X	
Upholstery Shop	X	
Weather Services		X
Window, Windshield, Shade Repair	X	

1. Limited to Military Personnel
2. Proposed

SOURCE: City of Rio Vista

International, Stockton Metropolitan, Fresno-Yosemite International and Modesto City-County Airports. The attraction of the smaller (12,500 pounds and less) corporate/business aircraft to the Airport after the development projects are complete, e.g., hangar construction and the runway extension could be considered in the longer-term. The attraction of these types of aircraft to the Airport would provide the City with real property leases, fuel flowage fees and employment opportunities.

8.4.5 Revenue-Producing Facilities

Revenues from hangar leases provide a significant source of revenue for many general aviation airports in California and other locations. Although the City's operating revenues could be increased significantly through direct hangar rents instead of real property leased for hangar development by private investment, the requirement for capital expenditures and maintenance would also be significant.

The City should initiate the development of additional hangars on the Airport. The City is currently pursuing the development of up to 16 corporate hangars on the 400-foot by 100-foot concrete pad west of the terminal building in Phase I. In addition, in Phase II, the development of 20 T-hangars on the adjacent concrete pad is estimated to cost \$1,000,000 with the total to be provided by private investment, or alternatively, by the City. Table 8-3 illustrates the financial results of the retirement of a \$1,000,000 investment by the City for a low-interest loan from Caltrans under the State's revolving loan program for revenue-producing facilities on airports. The loan assumes a loan amount of \$1,000,000 at 5.5 percent interest over a 17-year period. The monthly rental rate is assumed to be \$350 per hangar initially and increasing an average of 2 percent annually, assuming 100 percent occupancy upon completion of the hangars.

The City would essentially assume the role of developer on the Airport. The initiation of hangar development by the City would serve two purposes. One is there would be economies of scale in building all of the hangars at one time and the second one is the hangars could be designed to accommodate different types of aircraft, e.g., the business/corporate type aircraft that are either being forced out or choosing to leave the major metropolitan area airports. The City should explore the potential for this type of development as this type of activity currently represents the fastest growing segment of general aviation. Caltrans will require documentation on the requirement for the hangar development prior to permitting a loan for development.

The City has received several proposals for hangar construction on the Airport including new hangars financed by the City and privately-owned hangars constructed on airport property. The Airport Master Plan Update provides for erection of the privately-owned hangars west of the terminal building in the initial phase (five years).

Table 8-3

HANGAR AMORTIZATION SCHEDULE
Rio Vista Municipal Airport

Loan Amount: \$1,000,000	Numbers of Hangars: 20
Interest Rate: 5.5 Percent	Monthly Rental Rate: \$350
Term: 17 Annual Payments	Average Annually Increase: 2 percent

Year	Principal Balance	Interest Paid	Total Principal Payment	Total Payment	Hangar Rental Revenues	Annual Surplus	Cumulative Surplus
1	\$941,176	\$55,000	\$58,823.53	\$113,824	\$84,000	(\$29,824)	(\$29,824)
2	\$882,353	\$51,765	\$58,823.53	\$110,588	\$85,680	(\$24,908)	(\$54,732)
3	\$823,529	\$48,529	\$58,823.53	\$107,353	\$87,394	(\$19,959)	(\$74,691)
4	\$764,706	\$45,294	\$58,823.53	\$104,118	\$89,141	(\$14,976)	(\$89,667)
5	\$705,882	\$42,059	\$58,823.53	\$100,882	\$90,924	(\$9,958)	(\$99,625)
6	\$647,059	\$38,824	\$58,823.53	\$97,647	\$92,743	(\$4,904)	(\$104,530)
7	\$588,235	\$35,588	\$58,823.53	\$94,412	\$94,598	\$186	(\$104,344)
8	\$529,412	\$32,353	\$58,823.53	\$91,176	\$96,490	\$5,313	(\$99,031)
9	\$470,588	\$29,118	\$58,823.53	\$87,941	\$98,419	\$10,478	(\$88,552)
10	\$411,765	\$25,882	\$58,823.53	\$84,706	\$100,388	\$15,682	(\$72,870)
11	\$352,941	\$22,647	\$58,823.53	\$81,471	\$102,396	\$20,925	(\$51,946)
12	\$294,118	\$19,412	\$58,823.53	\$78,235	\$104,443	\$26,208	(\$25,737)
13	\$235,294	\$16,176	\$58,823.53	\$75,000	\$106,532	\$31,532	\$5,795
14	\$176,471	\$12,941	\$58,823.53	\$71,765	\$108,663	\$36,898	\$42,693
15	\$117,647	\$9,706	\$58,823.53	\$68,529	\$110,836	\$42,307	\$85,000
16	\$58,824	\$6,471	\$58,823.53	\$65,294	\$113,053	\$47,759	\$132,759
17	\$0	\$3,235	\$58,823.53	\$62,059	\$115,314	\$53,255	\$186,014

SOURCE: Aries Consultants Ltd.

The City should also consider a lease agreement for erection of the hangars on the west apron. The availability of additional hangars will attract new users to the Airport that will in turn increase aviation activity.

The loan for the existing City-owned hangars will be retired in fiscal year 2008. At that time the City could consider obtaining a Caltrans loan for new hangar construction as provided for in the Airport Master Plan Update. Alternatively, the FAA has indicated that it may be possible for the City to receive FAA Airport Improvement Program grant funding for revenue-producing facilities beginning in 2008. The \$150,000 annual general aviation entitlement funds could be used for revenue-producing facilities conditioned on (1) all other required airfield and safety requirements have been completed and (2) the Airport Improvement Program Reauthorization provides for general aviation entitlement funds beyond 2007. The financing of revenue-producing facilities through FAA Airport Improvement Program grants will not be a viable alternative if the City receives FAA grants to extend the runway.

8.5 STRATEGIC PLANNING ISSUES

The strategic planning issues have been prepared for City consideration for the future administration and management of the Airport in implementing the recommendations of the Airport Master Plan Update. These include the major administrative documents for future administration of the Airport and recommendations for establishing rates and charges for future use of the Airport.

8.5.1 Lease Policy Guidelines

The City should consider preparing Lease Policy Guidelines for future use of the Airport. Lease Policy Guidelines state the policies of the City in negotiating new or renegotiating existing leases and agreements for the use of the Airport. The guidelines would be specific in addressing City policies for maintenance provisions and remedies, hazardous materials, relocation of improvements, disposal of tenant improvements, the requirement for performance bonds, and other issues and covenants of a lease or agreement for use of the Airport. The guidelines would provide a solid framework of covenants and issues the City can use as the basis for entering into lease negotiations with a prospective tenant.

While there are no requirements by the FAA that are passed directly to any airport tenant or lessee, the City is required to pass on to concessionaires, tenants, and lessees on the Airport the provisions of Title VI of the Civil Rights Act of 1964. The City is obligated to include in all leases and agreements specific requirements when entering into a new lease or agreement after receiving FAA grant assistance obligating the Airport to Title 49 of the Code of Federal Regulations Part 21. In addition, any leases

and agreements for the use of Airport property should subject the tenant to the City obligation to comply with Federal Grant Assurances as a condition of accepting Federal grants for development of the Airport.

8.5.2 Minimum Standards

The preparation of minimum standards is highly recommended by the FAA for all airports that must comply with Federal Grant Assurances as a condition of accepting Federal grant assistance in order to ensure fair and equal opportunities for all users of the Airport. Minimum standards should detail the requirements for each type of tenant to ensure that future airport development will be compatible with all other land uses on the Airport by performance, appearance and general operating characteristics. Minimum standards should be enforced uniformly among all tenants. The Airport Advisory Commission has been developing minimum standards for the Airport and should continue to finalize these for City Council approval.

The minimum standards should then be kept current for all of the properties on the airport to establish standards to be followed by lessees in the development of leased Airport property. The minimum standards should be periodically updated as the Airport is further developed and new facilities and services become available.

The importance of minimum standards cannot be overemphasized. Experience at other airports has shown that potential aviation and nonaviation tenants and users want to be assured of stability and compatibility of all facilities on an airport in view of the substantial capital investment involved in the location and construction of new facilities.

8.5.3 Methodology for Establishing Rates and Charges

The principle underlying the establishment of rates and charges is that each tenant on the airport and each user of the airfield should pay an appropriate rate or fee for such tenancy or use. At a minimum, Airport use fees and facility rentals should be based on actual, fully-allocated costs of providing, operating, and maintaining the facilities occupied and used, including reasonable interest charges.

An Airport Fee Schedule should be prepared for various uses of the Airport. The Airport Fee Schedule is typically changed from time-to-time by City Ordinance so any changes are applied consistently to all tenants at the same time through lease and use agreements. The following sections describe factors to be considered by the City in establishing the rates and charges for use of the Airport.

8.5.3.1 Terminal Building

All terminal building space occupants, except food and beverage and any merchandising concessionaires, will pay standard rates per square foot per year for similar types of terminal building space exclusively leased. These rates should be determined on the basis of actual, fully-allocated costs incurred by the City in providing, operating, and maintaining the terminal building.

The Travis Aero Club is leasing a portion of the terminal building with no lease agreement. The City should negotiate a lease agreement with the Travis Aero Club for use of the terminal building as soon as possible.

8.5.3.2 Airfield Use

All users of the airfield should pay a field use fee regardless of any other space or ground rentals that they may be paying on the Airport. For general aviation aircraft users, a use charge can most easily be obtained through revenues recognized from the sale of fuel. As presented in Chapter 7, fuel sales decreased in 2005 due to an inactive fuel tank on the Airport that has since been retrofitted. It is expected that fuel sales will increase beginning in fiscal year 2007 and gradually increase commensurate with an increase in aviation activity through fiscal year 2011. The installation of a Jet A fuel system could greatly increase the revenues generated from fuel sales, however, the cost to install the fuel system is estimated to cost the City \$200,000. The cost to install the fuel system prior to extension of Runway 7-25 to 5,000 feet needs to be considered. The extension to 5,000 feet is intended to accommodate the type of aircraft that will maximize use of a Jet A fuel system.

The City should maintain a constant surveillance of competing fuel prices at other airports in the area.

The Capital Improvement Program provides for the construction of an agricultural aircraft parking apron in the initial phase. A special use charge should be established for use of this apron for agricultural purposes and included in the Airport Fee Schedule. This fee is most easily administered through an annual fee as many of the agricultural users will typically use this type of apron several times during the year. In addition, one-time use chargers can also be included in the Airport Fee Schedule.

8.5.3.3 Ground Rental Rates

In order to establish uniform ground rental rates in the future for various parcels of Airport property, the City could set basic ground rental rates for various types and locations of property on the Airport at current levels, e.g., long-term lease agreements and ground leases for private hangar construction. Airport land areas could then be

appraised as to their current market value and the annual ground rental rate established on the basis of a given percentage of the appraised market value of the various locations on the Airport.

In the future, increases in ground rental rates could be based on subsequent future appraisals adjusted after airport improvements are made and additional facilities and services become available. The existing rental rates can then be adjusted in proportion to the increase in the appraised value for airport property and applied consistently to all tenants.

Any ground rental rates for airport property should be determined through an appraisal of fair market value by an appraiser who is familiar with appraising airport properties and will take into consideration the current demand for aviation properties in the Rio Vista area, the availability of competitive properties, and in particular trends in the aviation industry. In addition, appraisers who are familiar with appraising airport properties recognize that there are restrictions on the use of airport property to comply with FAA requirements and other development standards as established by the City.

8.5.3.4 Pollution Abatement Facility

The Capital Improvement Program provides for the construction of an aircraft pollution abatement facility in the initial phase. It is the intent of the City to develop a separate portion of the facility for use by City-owned vehicles, busses, etc. The cost for use of this facility per vehicle should also be included on the Airport Fee Schedule.

8.6 MARKETING AND PROMOTION

The Airport Master Plan Update provides for the future development of the Airport within this fast-growing area, and the new and expanded airport facilities can be used as a catalyst for economic development. The Airport is planned to have facilities and services to be highly competitive with other airports in the area. The City will need to develop a marketing program and continue to promote the increased use of the Airport.

8.6.1 Airport Marketing

Marketing and promotional activities are typically the responsibility of Economic Development Departments within various municipalities and counties. The marketing and promotion of the Rio Vista Municipal Airport should be continued in coordination with the City of Rio Vista. The City prepared the *2003 Industrial Development Marketing Strategy & Implementation Plan* that included the Rio Vista

Airport Industrial Park. City staff is fully apprised of the area reserved for industrial development on the Airport and should be apprised of other available properties on the Airport, e.g., the small parcels along Airport Road reserved for aviation development. By keeping those responsible for economic development within the City informed as to the availability of properties on the Airport, available sites can be evaluated and marketed within the full range of available properties within the City and surrounding areas.

8.6.2 Web Site

The City should consider developing a web site specifically for the Airport, or alternatively, the Airport could be developed as a specific site under the overall web site for the City of Rio Vista. A number of airports within the State have developed web sites providing information about their individual airports including business and development opportunities, fee schedules for use of the airport, and information about the local community. In addition, airport promotional materials, a description of short-term capital improvement programs, and other pertinent information could be made available; e.g., the Airport Master Plan Update. The initial research for the potential location of a company, activity, and/or other uses is frequently through a search of available web sites. It is, therefore, critical that a web site be developed for the Airport, and kept current, so as not to eliminate the Airport, or the City, from further consideration as a potential place of doing business. The web site has emerged as one of the most effective and most important marketing tools for local business assistance and attraction of new businesses. A City employee could be designated to keep the web site current, or alternatively, a web site maintenance company could be retained for this purpose.

8.7 STRATEGIC POSITION OF THE RIO VISTA MUNICIPAL AIRPORT

The Rio Vista Municipal Airport is geographically located on the west bank of the Sacramento River in the California Delta area. The Airport is located about midway between San Francisco and Sacramento. The location of the City on a large river delta that affords recreation access, the small town atmosphere and the support of the local community to enhance economic vitality contribute to a positive economic outlook for the City.

8.7.1 Emergency Response Center

The City recognizes the strategic location of the Rio Vista Municipal Airport and the part the Airport could play in the event of a catastrophic disaster, e.g., earthquake, flood, fire. As presented earlier, discussions were held with the Federal Emergency Management Administration (FEMA) for the potential funding for a runway extension to provide a base of operations for FEMA in the event of a levee break as

the Airport is on higher ground. These discussions also included the potential construction of hangars for shelters and emergency storage facilities.

The City could consider exploring these discussions further and designate the Airport as the place to assemble in the event of a catastrophic event. The Airport has the basic infrastructure in its runways and taxiways to accommodate incoming rescue personnel and supplies and to meet outgoing evacuation requirements, e.g., residents, medevac and air ambulance.

An Incident Commander (IC) should be available on a 24-hour, 365-day basis to be the point of contact for everyone in the City. The IC can be flexible, e.g., have rotated responsibility on a regular basis or substituted when needed. It is important that a designated IC be available at all times. The IC and Airport can provide a single point-of-contact for the City in a cost effective manner.

By establishing the Airport as the point-of-contact in an emergency, the City can then initiate establishing the Airport as an important community resource to the residents and businesses within the City.

8.7.2 Community Resource

The Rio Vista Municipal Airport is a valuable community resource and greater recognition of this resource should be promoted by the City. There are a number of activities that could benefit community recognition of the Airport beginning with the concept of establishing the Airport as an emergency response center. Other activities to promote the importance of the Airport to the community include newsletters, air-shows and fly-ins, community events and press releases on special Airport activities or events. The City should consider taking an active approach to promoting the benefits and attributes of the Rio Vista Municipal Airport, and this could be accomplished using the Airport Advisory Commission.

The Aircraft Owners and Pilots Association (AOPA) has several publications providing suggestions on obtaining community support for the Airport. AOPA recommends establishing an airport support group of stakeholders that could include the Airport Manager; members of the Airport Advisory Commission; aircraft owners, pilots and aviation business owners and operators on the Airport; representatives from the City's Community Development Department; the local Chamber of Commerce; and other civic-based organizations. The airport support group can help identify existing and potential problems associated with continuing development and operation of the Airport. The Airport support group would promote the importance of the Airport to the community at community events that take place throughout the year. Activities could also include providing aviation education through attendance at the local schools and participation in meetings that concern issues that could affect the Airport.

8.8 FINANCIAL IMPLICATIONS

The Airport operates as a proprietary enterprise fund of the City of Rio Vista without tax support from the general fund, and its objective in financial management is to assure full financial self-sufficiency. Airport resources finance the maintenance of the grounds and facilities and provide the local matching share of FAA Airport Improvement Program funds. Since 1983 the Airport has received over \$8.7 million in FAA Airport Improvement Program grants. State grants, Economic Development Administration, and Community Development Block Program grants have also been received over time for various development projects at the Airport. The City needs to recognize the significant investments that have already been made in the Airport and take the necessary steps to ensure that these investments are protected.

Increased revenues to the Airport enterprise fund as a result of new development will necessarily be dependent on the type of facilities and development the City decides to pursue. Leasing property for the development of hangars in the short-term will increase revenues through a new ground leases. Based on the hangar amortization schedule presented earlier in Table 8-3, surplus revenues from the construction of hangars by the City would not be realized until year 13 under the assumptions analyzed, however, the impact of higher rental rates for hangars could be evaluated. In addition, there will be maintenance costs to the City associated with owning hangars on the Airport.

The merits and potential of further development on the Rio Vista Municipal Airport have been discussed previously; however, it should be emphasized that an aggressive and organized promotional program could form the keystone for the future development of the Airport. The benefits that could be realized relate, not only to the Airport, but also to the community as a whole. The intent should be to use the Airport as a tool to attract additional aviation activity and commercial/industrial uses to the City.

8.9 AIRPORT MANAGEMENT

The cornerstone to the successful implementation of the recommendations of this Airport Master Plan Update will be the retention of an airport manager who will be responsible for the operation of the Airport. The airport manager plays a key role in the economic viability of an airport. The airport manager is responsible for the safe and efficient operation of the airport and all of its facilities regardless of size. It would be advisable for the City to retain the services of an experienced airport manager as funds are expended to develop the Airport and new facilities and services become available. The long-term success of the Airport will be dependent on the management and coordination of development of the Airport in the short-term

through FAA and Caltrans grants and loans, long-term lease agreements, community involvement, and keeping cognizant of aviation needs and requirements in a changing business environment.

APPENDIX A

**ALTERNATIVE AIRPORT
DEVELOPMENT CONCEPTS**

Appendix A

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPTS

INTRODUCTION

This appendix describes the alternative airport development concepts considered for the long-range development of the Rio Vista Municipal Airport. Preliminary alternative airport development concepts were reviewed with the Airport Advisory Commission on November 15 and December 10, 2004, and February 22, 2005. Four alternative concepts were prepared and reviewed at a public meeting of the Airport Advisory Commission on July 25, 2005.

The inclusion of individual projects in the alternatives does not necessarily imply that the projects are recommended or that they should be implemented in the near future. The primary purpose is to facilitate the selection of a long-term development concept for the Airport.

The airport master planning process is essentially a decision-making process, and each alternative involves tradeoffs among the various factors. The selected airport master plan concept may well involve features from different alternative development concepts described in this appendix. The alternatives are also intended to illustrate the range of requirements needed to meet current Federal Aviation Administration (FAA) airport design standards for different aircraft design groups.

This appendix presents four alternatives for the possible future development of the Airport. The alternatives represent a broad range of development concepts.

- Alternative 1 could accommodate 100 percent of the small aircraft (12,500 pounds or less) fleet, including 10 or more seats, most large aircraft in airport reference code (ARC) B-II and, on an occasional basis, 60 percent of the business jet fleet at 60 percent useful load in ARC C-I on Runway 7-25. Additionally, 95 percent of the small aircraft (12,500 pounds or less) with less than 10 seats could be accommodated on the crosswind Runway 14-32.
- Alternative 2 could accommodate 100 percent of the small aircraft fleet and some large aircraft in ARC B-II and, on an occasional basis, some large aircraft in ARC C-I with 60 percent useful load on Runway 7-25. Additionally, 95 percent of the small (12,500 pounds or less) general aviation fleet with less than 10 seats on the crosswind Runway 14-32.

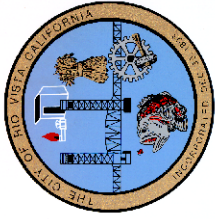
- Alternative 3 could accommodate 100 percent of the small aircraft fleet and essentially accommodate 75 percent of the business jet aircraft fleet with approximately 50 percent useful load on Runway 7-25. Additionally, 95 percent of the small (12,500 pounds or less) general aviation fleet with less than 10 seats on the crosswind Runway 14-32.
- Alternative 4 could accommodate about 75 percent of the large aircraft fleet (between 12,500 and 60,000 pounds) with 75 percent useful load on Runway 7-25. Additionally, 95 percent of the small (12,500 pounds or less) aircraft on the crosswind Runway 14-32.
- Alternative 5 is a “do nothing” alternative or retaining the existing airport facilities as illustrated on Figure 3-1.

The recommended Airport Master Plan Update concept will be finalized based on the comments received from the City; Airport Advisory Commission; FAA; State of California Department of Transportation (Caltrans), Division of Aeronautics; airport users and public review of the alternatives. Table A-1, at the end of this appendix, provides a comparison of the key features of Alternatives 1 through 4.

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 1

This alternative is designed to accommodate large (more than 12,500 pounds) aircraft including some business jets and is illustrated on Figure A-1. This alternative requires some additional land acquisition or avigation easements to the east of Runway 7-25 to provide for a nonprecision approach runway protection zone (RPZ) that will extend beyond the existing airport boundary. This alternative:

- Accommodates most large aircraft in ARC B-II with wingspans up to 79 feet (e.g., Beech Super King Air 300 and Merlin 4C) and some business jets on an occasional basis on Runway 7-25.
- Accommodates 95 percent of small aircraft with less than 10 seats in ARC A-I/B-I with wingspans up to 49 feet (e.g., Beech Bonanza and Cessna 402 Businessliner) on the crosswind Runway 14-32 when the crosswind component is more than 10.5 knots on the main runway.
- Provides nonprecision approach runway protection zones (RPZ) for both Runways 7 and 25 with not lower than 1-mile visibility.
- Provides RPZs for visual and nonprecision approaches with not lower than 1-mile visibility for Runways 14 and 32.



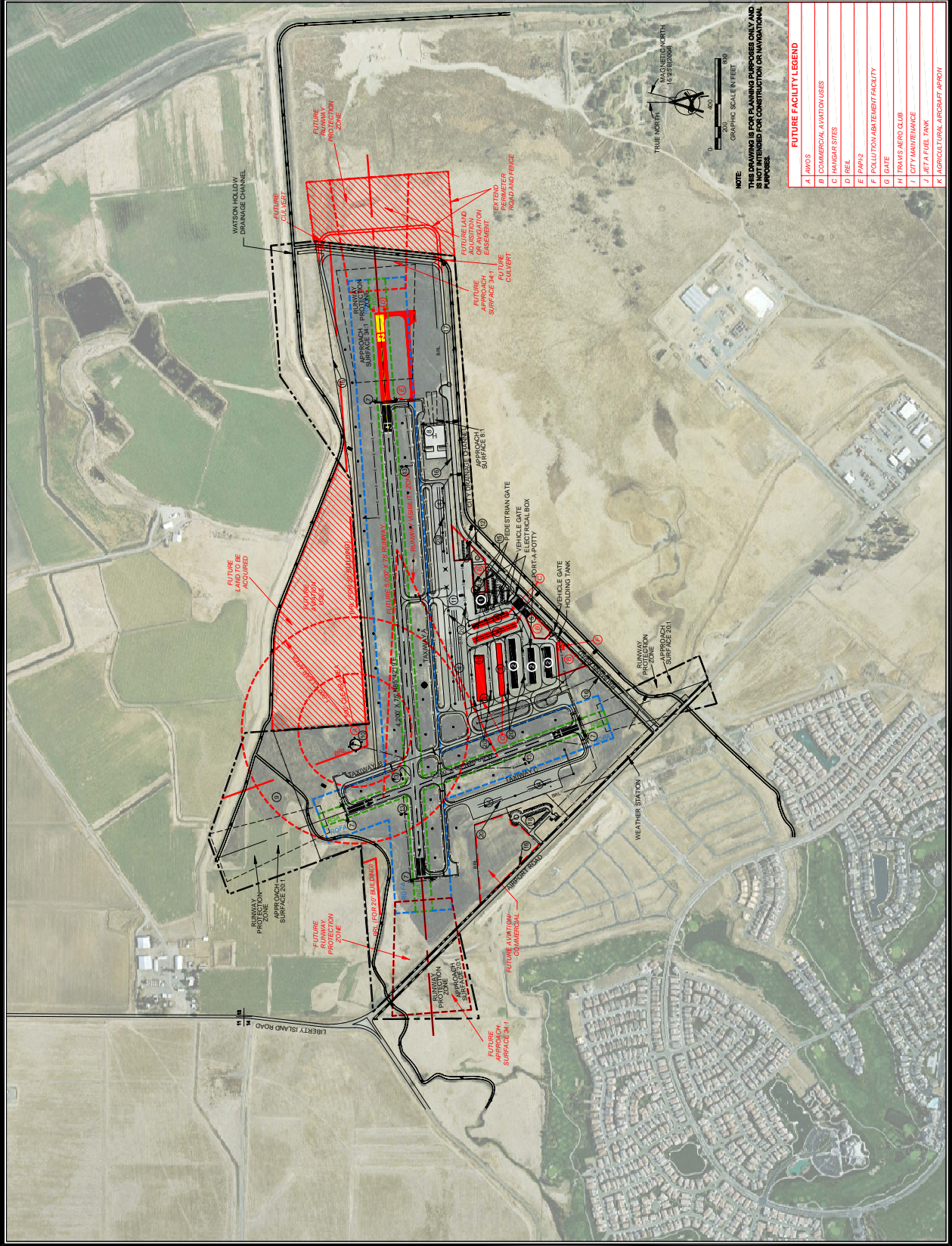
RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 1

LEGEND	
EXISTING	LEG. TABLE
---	AIRPORT PROPERTY LINE
---	AIRFIELD ASPHALT PAVEMENT
---	EXISTING BUILDINGS
---	BUILDING RESTRICTION LINE (BRL)
---	FENCE
○	GATE
○	ROTATING BEACON
○	THRESHOLD LIGHTS
○	WIND SOCK
○	AIRPORT REFERENCE POINT (ARP)
○	REIL 1
○	REIL 2
○	HELIPORT
---	EXISTING GROUND CONTOURS
---	DRAINAGE CHANNEL
---	CATCH BASINS
---	ELECTRICAL LINE
---	SEWER LINE
---	STORM DRAIN LINE
---	WATER LINE
---	RUNWAY SAFETY AREA
---	RUNWAY OBJECT FREE AREA
---	SECTION CORNER

EXISTING FACILITY LEGEND	
1	TERMINAL BUILDINGS
2	HANGARS
3	HANGAR SITES
4	TREEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDINGS
7	HELIPORT
8	SWAMP
9	PERMETER ROAD
10	BE OMBATED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	ROTATING BEACON
14	APRON SECURITY LIGHTING
15	FENCE
16	PERMETER ROAD
17	AIRPORT INDUSTRIAL PARK
18	MARKET
19	OUTLETT

FARIES CONSULTANTS LTD.
FIGURE
A-1
RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA
NAME: RW-A1-Alternative 1-B.dwg | PLOT SCALE: 1" = 800'
DATE: Jun. 1, 2007 | TIME: 11:37 AM



FUTURE FACILITY LEGEND	
A	AWOS
B	COMMERCIAL AVIATION USES
C	HANGAR SITES
D	REIL
E	PAPV2
F	POLLUTION ABATEMENT FACILITY
G	GATE
H	TOWBAR SERVICELUB
I	CITY MAINTENANCE
J	SETA FUEL TANK
K	AGRICULTURAL AIRCRAFT APRON

Land Acquisition and/or Avigation Easement

- Acquires land or obtains avigation easement over about 18 acres to east for Runway 25 runway protection zone. This land is owned by the State of California, Department of Water Resources/State Reclamation Board.
- Acquires about 34 acres to the north for future aviation uses and airport protection. This land is privately owned and outside the City limits.

Airfield

Runway 7-25

- Extends Runway 7-25 by 800 feet to the east for a total length of 5,000 feet and retains the runway width at 75 feet.
- Provides a runway obstacle free zone (ROFZ) 400 feet wide, centered on the runway, with vertical sides extending up to the horizontal surface. There are no penetrations to the ROFZ. The horizontal surface is an FAR Part 77 surface at 150 feet above the Airport elevation.
- Provides a runway safety area (RSA) 150 feet wide, centered on the runway, and extending 300 feet beyond the runway ends.
- Provides a runway object free area (ROFA) 500 feet wide, centered on the runway, and extending 300 feet beyond the runway ends.
- Retains runway centerline to taxiway centerline separation of 240 feet.

Runway 14-32

- Retains the 2,200 feet long by 60 feet wide crosswind Runway 14-32.
- Provides a ROFZ 250 feet wide, centered on the runway, with vertical sides extending up to the horizontal surface. There are no penetrations to the ROFZ.
- Provides a RSA 120 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Provides a ROFA 250 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Retains a runway centerline to taxiway centerline separation of 240 feet.

Avigation

Runway 7-25

- Provides for a nonprecision instrument approach to both runway ends.
- Provides a building restriction line (BRL) at 390 feet from the runway centerline to the north to allow for a 20-foot high building. Retains BRL at 500 feet to the south.

- Provides a new RPZ related to the Runway 25 extension at 1,000 feet long by 500 feet inner width and 700 feet outer width and provides the RPZ for Runway 7 end at 1,000 feet long by 500 feet inner width and 700 feet outer width.
- Lowers the existing 20:1 approach surfaces to both Runways 7 and 25 to 34:1 ultimately for nonprecision approaches.
- Relocates the precision approach path indicator (PAPI) and runway end identifier lights (REIL) at the Runway 25 end to relate to the new extended runway end.
- Provides medium intensity runway lights (MIRL) for Runway 7-25 extension.
- Installs medium intensity taxiway lights (MITL) on new parallel and entry/exit taxiways.
- Provides site for and automated weather observing system (AWOS) north of Runway 7-25 and east of Runway 14-32.

Runway 14-32

- Retains the BRL at 500 feet from the runway centerline on both sides of the runway.
- Retains RPZs 1,000 feet long by 250 feet inner width and 450 feet outer width.
- Retains 20:1 approach surfaces to each runway end.

General Aviation

- Reserves space for fixed base operator (FBO)/commercial aviation sites south of the aircraft parking apron and existing hangars and east of terminal building.
- Provides space for four hangar buildings in the area between the existing T-hangars and the aircraft parking apron and Runway 7-25.
- Reserves space for future commercial aviation/hangars west of Runway 14-32.
- Acquires 34 acres to the north for future aviation uses.

Airport Access and Parking

- Retains existing Baumann Road airport access and vehicular parking facilities.
- Requires new public access road around perimeter road to east to serve future aviation uses on land to be acquired to the north. The new perimeter access road would have to be located to the east to meet Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace* criteria and requires two culverts. (It would not require relocation if only used as an airfield service road.)
- Provides controlled access gates into terminal area.

Airport Support

- Uses terminal building for aviation purposes.
- Installs upgraded and extended perimeter fencing around Airport.

- Installs additional aircraft parking apron area security lighting.
- Extends utility systems to serve area to be acquired to the north.
- Provides space for aircraft pollution abatement facility south of the hangars.

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 2

This alternative is designed to accommodate 100 percent of the small (12,500 pounds or less) aircraft fleet and some large aircraft (more than 12,500 pounds) included in ARC B-II and is illustrated on Figure A-2. This alternative will require some additional land acquisition or avigation easements to the east of Runway 7-25 to provide for a precision RPZ for Runway 25 and to the west for a nonprecision RPZ for Runway 7. This alternative will require some additional land acquisition to the north of Runway 14 for a runway extension RPZ.

This is the alternative included as the Airport Compatibility Map in the current Solano County Airport Land Use Commission Plan prepared in 1988. This alternative has been upgraded to reflect current FAA airport design criteria.

- Accommodates some large aircraft in ARC B-II (e.g., Beech King Air E90 and Cessna Citation II) with wingspans of 79 feet or less on Runway 7-25.
- Accommodates 100 percent of small aircraft with less than 10 seats in ARC A-I/B-I with wingspans of 49 feet or less (e.g., Beech Baron 58) on the crosswind Runway 14-32 when the crosswind component is more than 10.5 knots on the main runway.
- Provides precision RPZ for the end of Runway 25 and nonprecision RPZ with not lower than 3/4-mile visibility for the end of Runway 7 to accommodate large aircraft in approach category B.
- Provides RPZs for visual and nonprecision approaches with not lower than one-mile visibility to accommodate small aircraft for Runway 14-32.

Land Acquisition and/or Avigation Easement

- Acquires land or obtains avigation easement over about 47 acres to the east for Runway 25 runway protection zone. This land is owned by the State of California, Department of Water Resources/State Reclamation Board.
- Acquires avigation easement over about 28 acres to the west for expanded Runway 7 runway protection zone. (This is land that would be impacted to reflect current FAA design standards for a nonprecision approach with lower than ¾ mile visibility compared to not lower than 1 mile visibility shown in the other alternatives.)
- Acquires land or obtains avigation easement over about 14 acres to the north for 1,000 foot extension of Runway 14-32.

Airfield

Runway 7-25

- Retains Runway 7-25 length at 4,200 feet and widens the runway width to 100 feet.
- Provides a ROFZ 400 feet wide, centered on the runway, with vertical sides extending up to approximately 50 feet and then at a slope of 6 to 1 to the horizontal surface. There are no penetrations to the ROFZ.
- Provides a RSA 300 feet wide, centered on the runway, and extending 600 feet beyond the runway ends.
- Provides a ROFA 800 feet wide, centered on the runway, and extending 600 feet beyond the runway ends.
- Relocates runway centerline to taxiway centerline separation from 240 feet to 300 feet.

Runway 14-32

- Extends Runway 14-32 by 1,000 feet to the north for a total length of 3,200 feet and retains the runway width of 60 feet.
- Provides a ROFZ 250 feet wide, centered on the runway, with vertical sides extending up to the horizontal surface. There are no penetrations to the ROFZ.
- Provides a RSA 120 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Provides a ROFA 250 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Provides a runway centerline to taxiway centerline separation of 240 feet.

Avigation

Runway 7-25

- Provides for ground based precision instrument landing system (ILS) approach to Runway 25 and nonprecision GPS approach to Runway 7.
- Replaces the existing 20:1 approach surfaces at each runway end with 50:1 approach surface to Runway 25 and 34:1 approach surface to Runway 7.
- Provides a BRL at 675 feet from the runway centerline for 25 feet high buildings.
- Provides precision RPZ 2,500 feet long by 1,000 feet inner width and 1,750 feet outer width for Runway 25.
- Provides nonprecision RPZ 1,700 feet long by 1,000 feet inner width and 1,510 feet outer width for Runway 7 to accommodate aircraft in approach category B with not lower than 3/4-mile visibility.
- Installs ILS glide slope facility near the end of Runway 25.

- Installs ILS localizer facility west of the end of Runway 7 and west of Airport Road. Airport Road and fencing cross localizer critical area and may require relocation.
- Installs AWOS north of Runway 7-25 next to glide slope facility.
- Re-positions existing MIRL for wider runway.
- Relocates MITL on existing parallel taxiway to new parallel taxiway.
- Installs medium intensity approach lighting system with runway alignment indicator lights (MALSR) on Runway 25.

Runway 14-32

- Retains BRL at 500 feet from the runway centerline.
- Retains RPZs 1,000 feet long by 250 feet inner width and 450 feet outer width for small aircraft in approach categories A and B with visual and not lower than 1-mile visibility.
- Retains 20:1 approach surfaces to each runway end.
- Provides MIRL for Runway 14-32 extension.
- Installs MITL on the parallel and entry/exit taxiways related to extended Runway 14-32.

General Aviation

- Reserves space for two FBO/commercial aviation sites south of the aircraft parking apron and east of terminal building.
- Provides space for three additional hangars north of existing hangar buildings.
- Reserves space for future commercial aviation/hangars west of Runway 14-32.

Airport Access and Parking

- Retains existing Baumann Road airport access and vehicular parking facilities.
- Provides controlled access gates into terminal area.

Airport Support

- Uses terminal building for aviation purposes.
- Installs upgraded perimeter fencing around Airport.

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 3

This alternative is designed to accommodate 75 percent of the aircraft fleet (between 12,500 and 60,000 pounds) with 60 percent useful load on Runway 7-25 and approximately 95 percent of the small (less than 12,500 pounds) aircraft on the crosswind Runway 14-32 and is illustrated on Figure A-3. This alternative will require some additional land acquisition or avigation easement to the east to provide for precision RPZ for Runway 25. This alternative:

- Accommodates large aircraft in ARC A-II/B-II (e.g., Beech 1900 and Rockwell Sabre 80) and all small aircraft (less than 12,500 pounds) in ARC A-II/B-II (e.g., DeHavilland DHC-6 and Beech King Air F-90) on Runway 7-25.
- Accommodates 95 percent of small aircraft in A-I/B-I (e.g., Beech Bonanza and Cessna 402 Businessliner) with wing spans up to 49 feet on the crosswind Runway 14-32 when the crosswind component is more than 10.5 knots on the main runway.
- Provides precision runway protection zone (RPZ) for Runway 25 and RPZ for visual and nonprecision approaches with not lower than one-mile visibility to accommodate large aircraft in approach category B for Runway 7.
- Provides RPZs for visual and nonprecision approaches with not lower than one-mile visibility to accommodate small aircraft for Runway 14-32.

Land Acquisition and/or Avigation Easement

- Acquires land or obtains avigation easement over about 65 acres to the east for Runway 25 runway protection zone. This land is owned by the State of California, Department of Water Resources/State Reclamation Board.
- Acquires about 34 acres to the north for future aviation uses and airport protection. This land is privately owned and outside the City limits.

Airfield

Runway 7-25

- Extends Runway 7-25 by 600 feet to the east and relocates Runway 7 threshold by 300 feet to the east for a total runway length of 4,500 feet and widens the runway width from 60 feet to 100 feet.
- Provides a ROFZ 400 feet wide, centered on the runway, with vertical sides extending up to approximately 50 feet and then at a slope of 6:1 up to the horizontal surface. There are no penetrations to the ROFZ.
- Provides a RSA 300 feet wide, centered on the runway, and extending 600 feet beyond the runway ends.

- Provides a ROFA 800 feet wide, centered on the runway, and extending 600 feet beyond the runway ends.
- Relocates the runway centerline to taxiway centerline separation from 240 feet to 300 feet.

Runway 14-32

- Retains the 2,200 feet long by 60 feet wide crosswind Runway 14-32.
- Provides a ROFZ 250 feet wide, centered on the runway, with vertical sides extending up to the horizontal surface. There are no penetrations to the ROFZ.
- Provides a RSA 120 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Provides a ROFA 250 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Provides a runway centerline to taxiway centerline separation of 240 feet.

Avigation

Runway 7-25

- Provides for precision GPS approach to Runway 25.
- Replaces the existing 20:1 approach surfaces to Runway 7-25 with 50:1 approach surface to Runway 25 and 34:1 approach surface to Runway 7.
- Provides a BRL at 640 feet from the runway centerline for 20 feet high buildings.
- Provides precision RPZ 2,500 feet long by 1,000 feet inner width and 1,750 feet outer width for Runway 25.
- Provides nonprecision RPZ 1,000 feet long by 500 feet inner width and 1,700 feet outer width for Runway 7 to accommodate large aircraft in approach category B with visual and not lower than one-mile visibility.
- Relocates the PAPI-2 and runway end identifier lights (REIL) at both ends of the runway to the relocated threshold for Runway 7 and the extended Runway 25.
- Provides AWOS site north of Runway 7-25.
- Provides MALSR for Runway 25.
- Installs MIRL on extended runway and reposition existing MIRL for wider runway.
- Relocates MITL along existing parallel taxiway to new parallel taxiway.
- Installs new MITL for extended parallel taxiway and new entry taxiways exit.

Runway 14-32

- Retains the BRL at 500 feet from the runway centerline.

- Retains RPZs 1,000 feet long by 250 feet inner width and 450 feet outer width for small aircraft in approach categories A and B with visual and not lower than 1-mile visibility.
- Retains 20:1 approach surfaces at each runway end.

General Aviation

- Reserves space for two FBO/commercial aviation sites south of the aircraft parking apron and east of terminal building.
- Provides space for four additional hangars north of existing hangar buildings.
- Reserves space for future commercial aviation/hangars west of Runway 14-32.
- Acquires 34 acres to the north for future aviation uses.

Airport Access and Parking

- Retains existing Baumann Road airport access and vehicular parking facilities.
- Requires new access road around perimeter road to east to serve future aviation uses on land to be acquired to the north. The new perimeter access road would have to be located to the east to meet FAR Part 77 criteria. It would not require relocation if only an airfield service road.
- Provides controlled access gates in terminal area.

Airport Support

- Uses terminal building for aviation purposes.
- Installs upgraded and extended perimeter fencing around Airport.
- Installs additional aircraft parking apron security lighting.
- Extends utility systems to serve area to be acquired to north.
- Provides space for aircraft pollution control abatement facility south of the terminal area.

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 4

This alternative is designed to accommodate about 75 percent of the fleet (between 12,500 and 60,000 pounds) with 75 percent useful load on Runway 7-25 and approximately 95 percent of the small (less than 12,500 pounds) aircraft on the crosswind Runway 14-32 and is illustrated on Figure A-4. This alternative will require some additional land acquisition or avigation easement to the east to provide for runway extension and a precision RPZ for Runway 25. This alternative:

- Accommodates large aircraft in ARC A-II/B-II (e.g., Raytheon Hawker 450, Beech 1900, Rockwell Sabre 40) with occasional aircraft in ARC C-I/C-II and all small aircraft (less than 12,500 pounds) in ARC A-II/B-II (e.g., DeHavilland DHC-6 and Beech King Air 350) on Runway 7-25.
- Accommodates 95 percent of small aircraft in A-I/B-I (e.g., Beech Bonanza and Cessna 402 Businessliner) with wing spans up to 49 feet on the crosswind Runway 14-32 when the crosswind component is more than 10.5 knots on the main runway.
- Provides precision runway protection zone (RPZ) for Runway 25 and for visual and nonprecision approaches with not lower than one-mile visibility to accommodate large aircraft in approach category B for Runway 7.
- Provides RPZs for visual and nonprecision approaches with not lower than one-mile visibility to accommodate small aircraft for Runway 14-32.

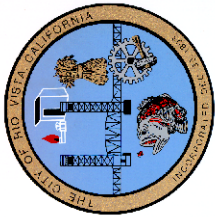
Land Acquisition and/or Avigation Easement

- Acquires lands or obtains avigation easements over about 100 acres to the east for runway extension and Runway 25 runway protection zone. This land is owned by the State of California, Department of Water Resources/State Reclamation Board.
- Acquires about 34 acres to the north for future aviation uses and airport protection. This land is privately owned and outside the City limits.

Airfield

Runway 7-25

- Extends Runway 25 end by 1,800 feet to the east and relocates Runway 7 end by 300 feet to the east for a total runway length of 5,700 feet and widens the runway width to 100 feet.
- Installs the bridge or culverts for drainage channel under runway and taxiway extensions.



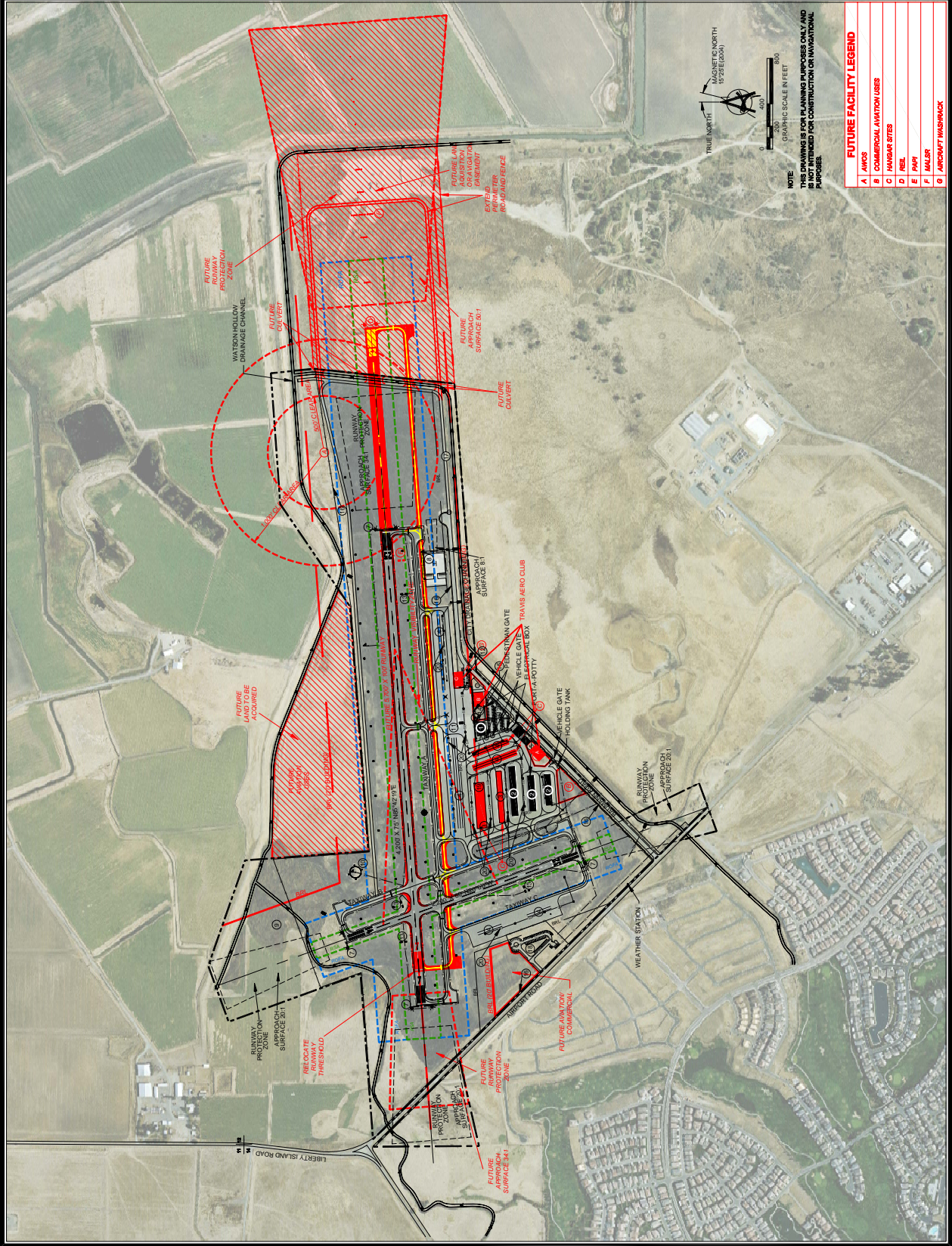
RIO VISTA MUNICIPAL AIRPORT MASTER PLAN

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPT 4

LEGEND	
EXISTING	LEGEND
—	AIRPORT PROPERTY LINE
—	AIRFIELD PAVEMENT
—	EXISTING BUILDINGS
—	EXISTING RESTRICTION LINE (BRL)
—	FENCE
—	GATE
—	ROTATING BEACON
—	APPROACH LIGHTS
—	WIND SOCK
—	REILS
—	HELP PORT
—	EXISTING GROUND CONTOURS
—	DRAINAGE CHANNEL
—	CATCH BASIN
—	ELECTRICAL LINE
—	SEWER LINE
—	STORM DRAIN LINE
—	WATER LINE
—	RUNWAY SAFETY AREA
—	RUNWAY OBJECT FREE AREA
—	SECTION CORNER

EXISTING FACILITY LEGEND	
1	TERMINAL BUILDINGS
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	HELIPORT
8	BUMP
9	BE GEMETED CIRCLE AND LIGHTED WIND SOCK
10	PERIMETER ROAD
11	PERIMETER ROAD
12	PERIMETER ROAD
13	PERIMETER ROAD
14	PERIMETER ROAD
15	PERIMETER ROAD
16	PERIMETER ROAD
17	PERIMETER ROAD
18	PERIMETER ROAD
19	PERIMETER ROAD
20	PERIMETER ROAD

TARIES CONSULTANTS LTD.
 FIGURE **A-4**
 RIO VISTA MUNICIPAL AIRPORT
 SOLANO COUNTY, CALIFORNIA
 NAME: RVA-A4-2018-04-08-0001 | LOT SCALE: 1" = 800'
 DATE: JUN 1, 2007 | TIME: 11:53 AM



NOTE: THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

FUTURE FACILITY LEGEND	
1	HWYS
2	COMMERCIAL AIRWAY USBS
3	HANGAR SITES
4	REIL
5	PMP
6	AIRPORT WASHPARK

- Provides a ROFZ 400 feet wide, centered on the runway, with vertical sides extending up to approximately 50 feet and then at a slope of 6:1 up to the horizontal surface. There are no penetrations to the ROFZ.
- Provides a RSA 300 feet wide, centered on the runway, and extending 600 feet beyond the runway ends.
- Provides a ROFA 800 feet wide, centered on the runway, and extending 600 feet beyond the runway ends.
- Relocates the runway centerline to taxiway centerline separation from 240 feet to 300 feet.

Runway 14-32

- Retains the 2,200 feet long by 60 feet wide crosswind Runway 14-32.
- Provides a ROFZ 250 feet wide, centered on the runway, with vertical sides extending up to the horizontal surface. There are no penetrations to the ROFZ.
- Provides a RSA 120 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Provides a ROFA 250 feet wide, centered on the runway, and extending 240 feet beyond the runway ends.
- Retains a runway centerline to taxiway centerline separation of 240 feet.

Avigation

Runway 7-25

- Provides for precision GPS approach to Runway 25.
- Replaces the existing 20:1 approach surfaces to both ends of Runway 7-25 with 50:1 approach surface to Runway 25 and 34:1 approach surface to Runway 7.
- Provides a BRL at 640 feet from the runway centerline for 20 feet high buildings.
- Provides precision RPZ 2,500 feet long by 1,000 feet inner width and 1,750 feet outer width for Runway 25.
- Provides nonprecision RPZ 1,000 feet long by 500 feet inner width and 700 feet outer width for Runway 7 to accommodate large aircraft in approach category B with visual and not lower than 1-mile visibility.
- Relocates the PAPI-2 and runway end identifier lights (REIL) at both ends of the runway to the relocated threshold for Runway 7 and the extended Runway 25.
- Installs MALSR on Runway 25.
- Provides space for AWOS north of Runway 7-25.
- Installs MIRL on extended runway and re-position existing MIRL for wider runway.
- Relocates MITL along existing parallel taxiway to new parallel taxiway.
- Installs new MITL for extended parallel taxiway and new entry/exit taxiway.

Runway 14-32

- Retains BRL at 500 feet from the runway centerline.
- Retains RPZs 1,000 feet long by 250 feet inner width and 450 feet outer width for small aircraft in approach categories A and B with visual and not lower than 1-mile visibility.
- Retains 20:1 approach surfaces at each runway end.

General Aviation

- Provides space for four additional hangars north of existing hangar buildings.
- Reserves space for two FBO/commercial aviation sites south of the aircraft parking apron and east of terminal building.
- Reserves space for future commercial aviation/hangars west of Runway 14-32.
- Acquires 34 acres to the north for future aviation uses.

Airport Access and Parking

- Retains existing Baumann Road airport access and vehicular parking facilities.
- Requires new public access road around perimeter road to east to serve future aviation uses on land to be acquired to the north.
- Extends perimeter road to east around new end of Runway 25 and install two culverts where perimeter road crosses drainage channel.
- Provides controlled access gates in the terminal area.

Airport Support

- Uses terminal building for aviation purposes.
- Installs upgraded and extended perimeter fencing around Airport.
- Installs additional aircraft parking apron security lighting.
- Extends utility systems to serve area to be acquired to the north.
- Provides space for aircraft pollution control abatement facility to the east of the terminal building.

COMPARISON OF ALTERNATIVES

A summary matrix comparison of key features of the alternative airport development concepts is presented in Table A-1. These were discussed at the July 25, 2005 public meeting of the Airport Advisory Commission.

Table A-1

COMPARATIVE EVALUATION OF ALTERNATIVES
Rio Vista Municipal Airport

Factor	Alternative Concept			
	1	2	3	4
Runway 7-25 Length	5,000'	4,200'	4,500'	5,700'
Runway 25 Precision Approach GPS/ILS (ground facilities)	No	Yes/ILS	Yes/GPS	Yes/GPS
Runway 7 Nonprecision Approach Minimums	1 Mile	3/4 Mile	1 Mile	1 Mile
Runway 7-25 Approach Slopes	34:1 / 34:1	34:1 / 50:1	34:1 / 50:1	34:1 / 50:1
Relocate Runway 7 Threshold	No	No	300'	300'
Runway 7-25 Building Restriction Line for 20 foot Building (feet)	390/500 ¹	640	640	640
Land to be Acquired or Avigation Easement(acres)				
- East	18	47	65	100
- North	34	14	34	34
- West	0	28	0	0
New Runway and Taxiway Bridge/Culverts	No	No	No	Yes
Additional Commercial Aviation Lease Areas	4	3	3	3
New Perimeter Access Road Culverts	Yes	No	Yes	Yes
Extend Perimeter Road to East	Yes	No	Yes	Yes
New Public Access Road Around East End	Yes	No	Yes	Yes

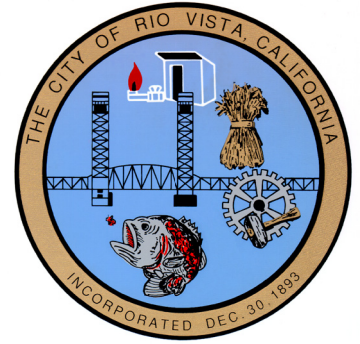
1. Existing

SOURCE: Aries Consultants Ltd.

APPENDIX B



AIRPORT LAYOUT PLAN



RIO VISTA MUNICIPAL AIRPORT

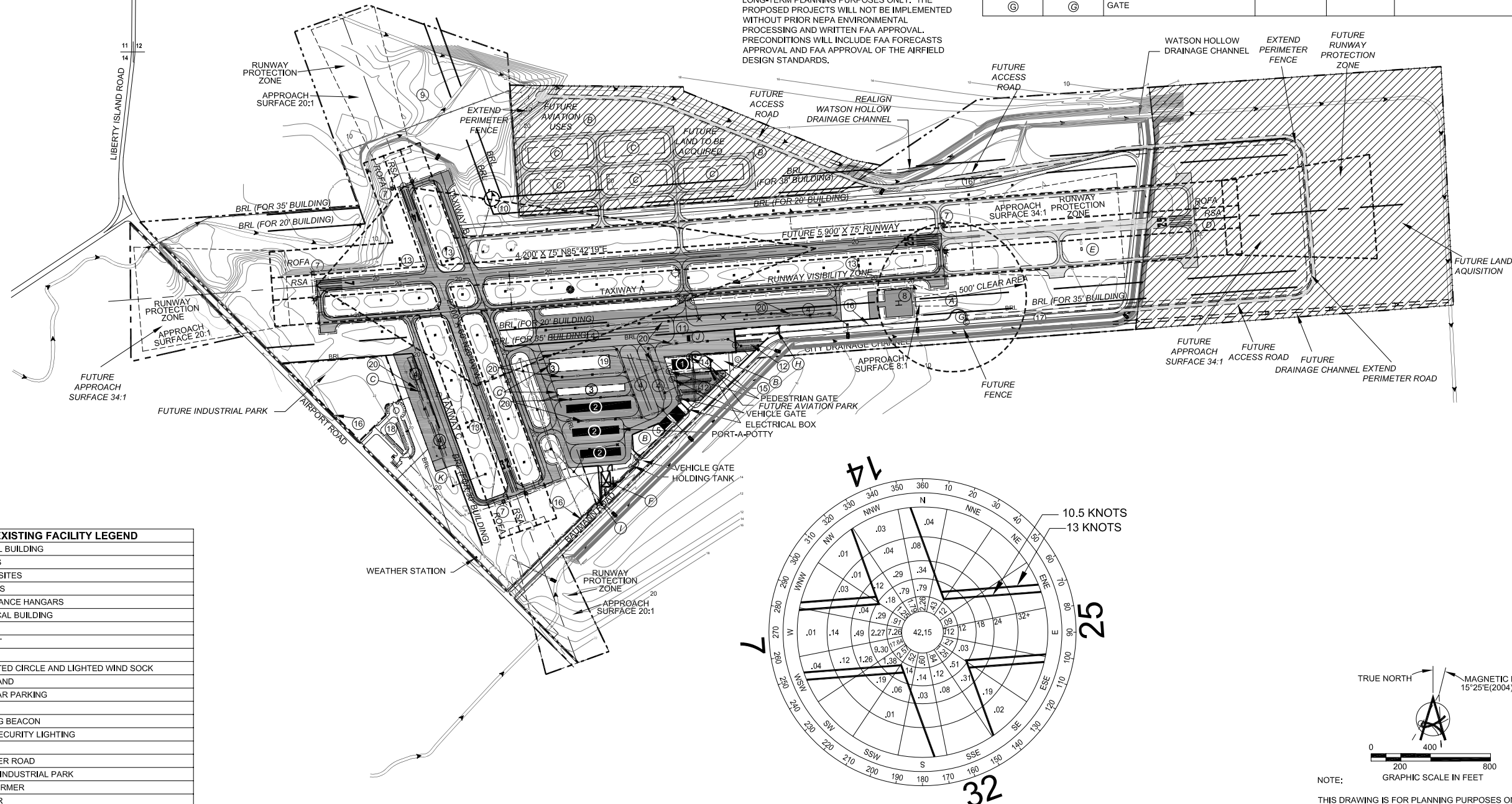
AIRPORT LAYOUT PLAN

A	AWOS
B	COMMERCIAL AVIATION USES
C	HANGAR SITES
D	REIL
E	PAPI-2
F	POLLUTION ABATEMENT FACILITY
G	GATE
H	TRAVIS AERO CLUB
I	CITY MAINTENANCE
J	JET A FUEL TANK
K	AGRICULTURAL AIRCRAFT APRON

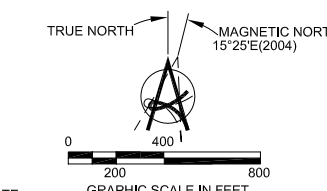
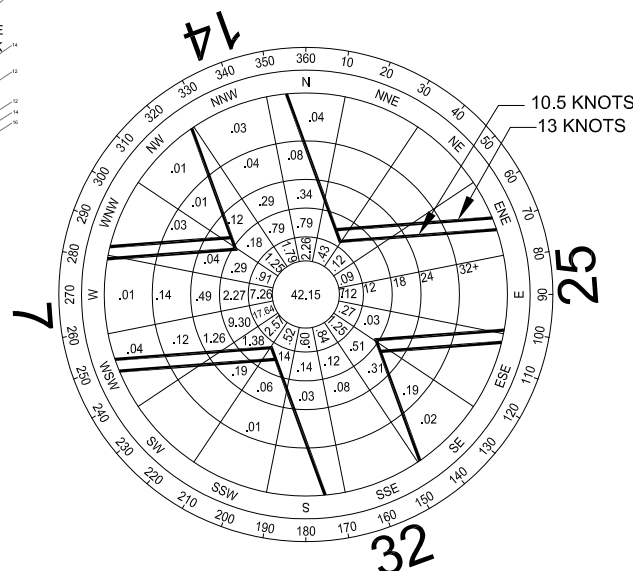
NOTE:

THE PROPOSED RUNWAY/TAXIWAY EXTENSION PROJECTS IDENTIFIED HEREIN ARE FOR LONG-TERM PLANNING PURPOSES ONLY. THE PROPOSED PROJECTS WILL NOT BE IMPLEMENTED WITHOUT PRIOR NEPA ENVIRONMENTAL PROCESSING AND WRITTEN FAA APPROVAL. PRECONDITIONS WILL INCLUDE FAA FORECASTS APPROVAL AND FAA APPROVAL OF THE AIRFIELD DESIGN STANDARDS.

EXISTING	ULTIMATE		EXISTING	ULTIMATE	
		STRUCTURE			SECTION CORNERS
		AIRFIELD/APRON PAVEMENT			RUNWAY PROTECTION ZONE
		AIRPORT PROPERTY LINE			GROUND CONTOURS
		BUILDING RESTRICTION LINE			HYDRANT
		FENCING			ELECTRICAL LINE
		AIRPORT REFERENCE POINT			SEWER LINE
		DRAINAGE CHANNEL			STORM DRAIN LINE
		LEASE LOTS			TELEPHONE LINE
		FUEL ISLAND			WATER LINE
		THRESHOLD LIGHTS			ROTATING BEACON
		WIND SOCK			LAND ACQUISITION
		RUNWAY SAFETY AREA			
		RUNWAY OBJECT FREE AREA			
		GATE			



1	TERMINAL BUILDING
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	REIL
8	HELIPORT
9	SUMP
10	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	PAPI-2
14	ROTATING BEACON
15	APRON SECURITY LIGHTING
16	FENCE
17	PERIMETER ROAD
18	AIRPORT INDUSTRIAL PARK
19	TRANSFORMER
20	V-GUTTER



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THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH AN AIRPORT IMPROVEMENT PROGRAM GRANT FROM THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS DOCUMENT 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 IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

NOTE:
THERE ARE NO OFZ OBJECT PENETRATIONS.
THERE ARE NO THRESHOLD SITING SURFACE OBJECT PENETRATIONS.
GROUND CONTOURS ARE IN NGVD29

1	ALP APPROVED	02/22/89
NO.	REVISIONS	DATE

FAA APPROVAL

BY _____
CITY OF RIO VISTA DATE _____

VARIES CONSULTANTS LTD.

RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

NAME: RVA-01-ALP-8.dwg TIME: 1:37pm
DATE: Dec 05, 2006 PLOT SCALE: 1"=800'

SHEET
1 OF 5



RIO VISTA MUNICIPAL AIRPORT

AIRSPACE PLAN

NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.

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1	ALP APPROVED	02/22/89
NO.	REVISIONS	DATE

FAA APPROVAL

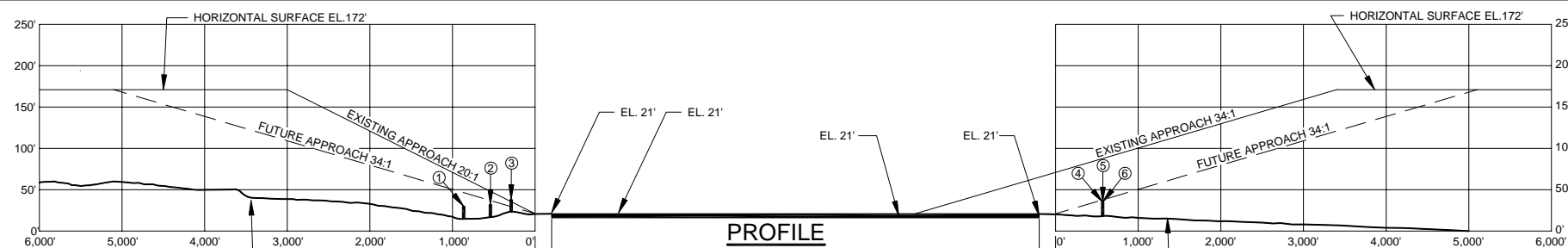
BY _____
CITY OF RIO VISTA DATE

VARIES CONSULTANTS LTD.

RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

SHEET
3 OF 5

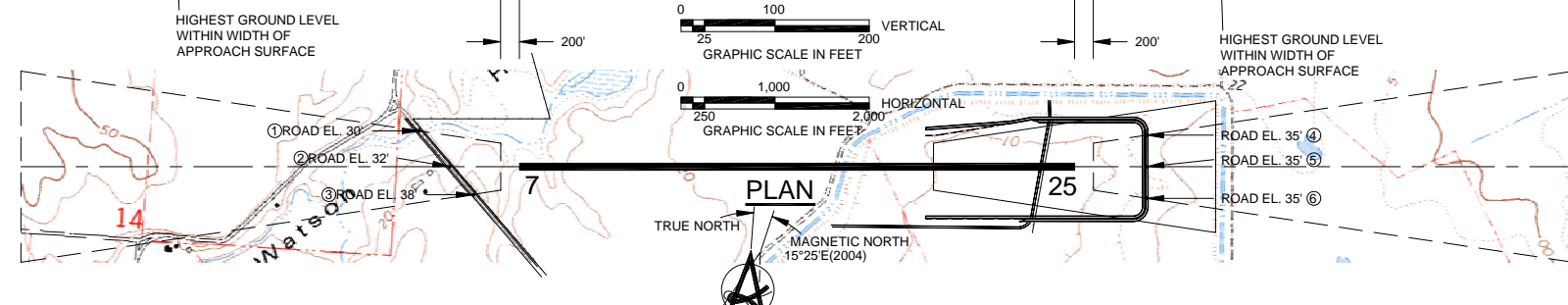
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DATE: Dec 05, 2006 | PLOT SCALE: 1"=4,000'



RUNWAY 7 - 25
OBSTRUCTION DATA

NO.	DESCRIPTION	TOP ELEV.	APPROACH SURFACE PENETRATION	DISPOSITION OF OBSTRUCTION
1	-	-	-	-
2	-	-	-	-
3	ROAD	38'	8'	CLEAR'S APPENDIX 2 CRITERIA
4	-	-	-	-
5	-	-	-	-
6	-	-	-	-

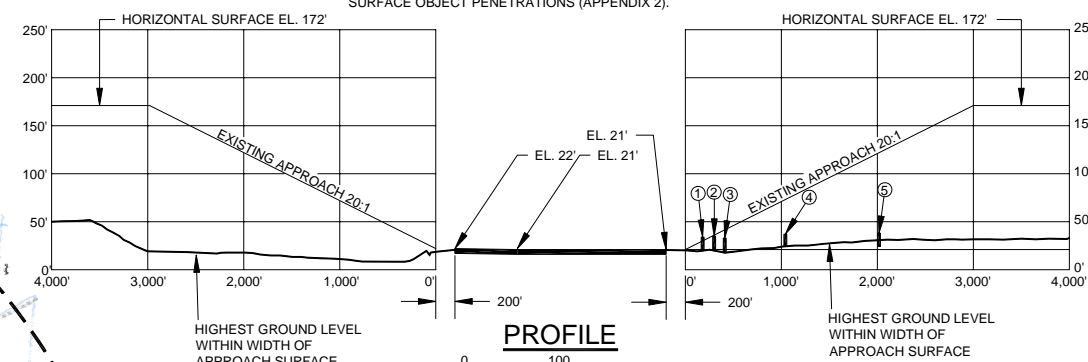
NOTE: THERE ARE NO RUNWAY END SITING SURFACE OBJECT PENETRATIONS (APPENDIX 2).



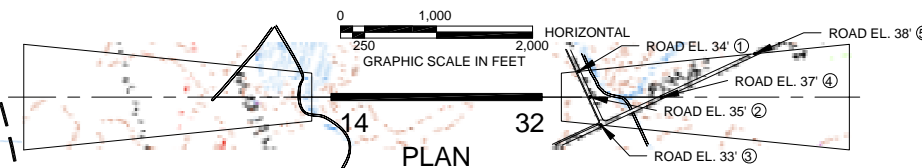
RUNWAY 14 - 32
OBSTRUCTION DATA

NO.	DESCRIPTION	TOP ELEV.	APPROACH SURFACE PENETRATION	DISPOSITION OF OBSTRUCTION
1	ROAD	34'	4'	CLEAR'S APPENDIX 2 CRITERIA
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	-	-	-	-

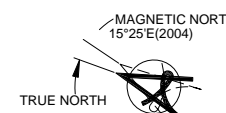
NOTE: THERE ARE NO RUNWAY END SITING SURFACE OBJECT PENETRATIONS (APPENDIX 2).



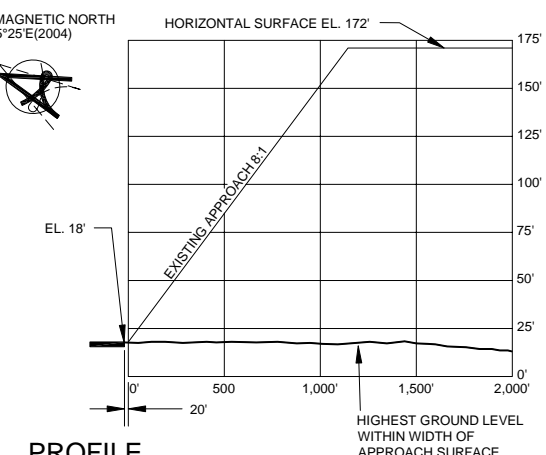
PROFILE



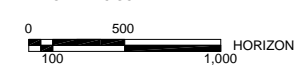
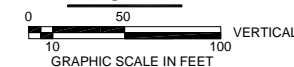
PLAN



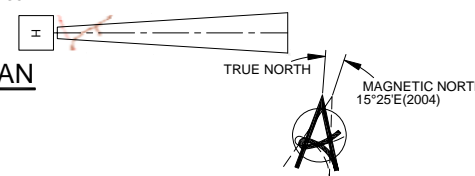
MAGNETIC NORTH
15°25'E(2004)



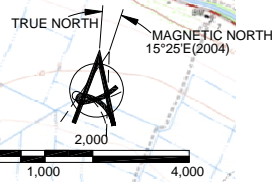
PROFILE



PLAN



MAGNETIC NORTH
15°25'E(2004)



MAGNETIC NORTH
15°25'E(2004)

1,000 4,000
GRAPHIC SCALE IN FEET

GROUND CONTOURS ARE IN NGVD29



**RIO VISTA
MUNICIPAL AIRPORT**

**TERMINAL AREA
AND ACCESS PLAN**

NOTE:
THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR NAVIGATIONAL PURPOSES.
THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH AN AIRPORT IMPROVEMENT PROGRAM GRANT FROM THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS DOCUMENT 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 IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

NO.	REVISIONS	DATE
1	ALP APPROVED	02/22/89

FAA APPROVAL

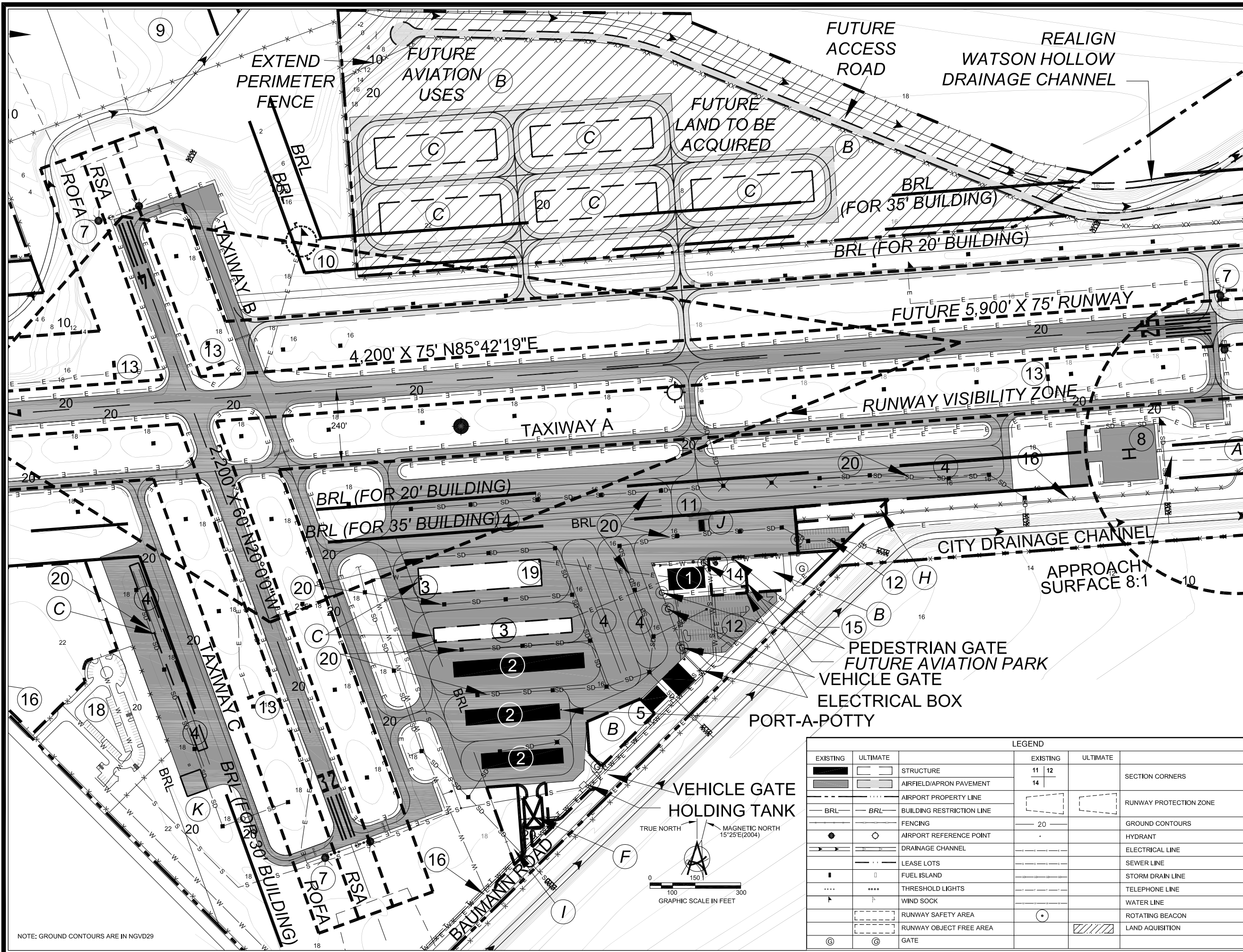
BY _____
CITY OF RIO VISTA DATE _____

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RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

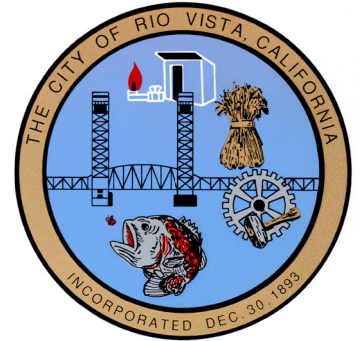
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DATE: Dec 05, 2006 PLOT SCALE: 1"=300'

SHEET
4 OF 5



		LEGEND			
EXISTING	ULTIMATE	EXISTING	ULTIMATE		
[Solid Black]	[Dashed Black]	11	12	[Dotted]	SECTION CORNERS
[Hatched]	[Dashed Hatched]	14		[Dashed]	RUNWAY PROTECTION ZONE
[Dashed]	[Dotted]			[Dashed]	GROUND CONTOURS
[BRL]	[BRL]	20		[Circle]	HYDRANT
[Circle]	[Circle]			[Line]	ELECTRICAL LINE
[Arrow]	[Arrow]			[Line]	SEWER LINE
[Circle]	[Circle]			[Line]	STORM DRAIN LINE
[Circle]	[Circle]			[Line]	TELEPHONE LINE
[Circle]	[Circle]			[Line]	WATER LINE
[Circle]	[Circle]			[Circle]	ROTATING BEACON
[Circle]	[Circle]			[Hatched]	LAND ACQUISITION
[Circle]	[Circle]				

NOTE: GROUND CONTOURS ARE IN NGVD29



RIO VISTA MUNICIPAL AIRPORT

AIRPORT PROPERTY MAP EXHIBIT A

NOTE:

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1	ALP APPROVED	02/22/89
NO.	REVISIONS	DATE

FAA APPROVAL

BY _____
CITY OF RIO VISTA DATE _____

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RIO VISTA MUNICIPAL AIRPORT
SOLANO COUNTY, CALIFORNIA

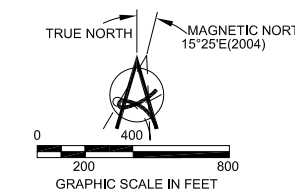
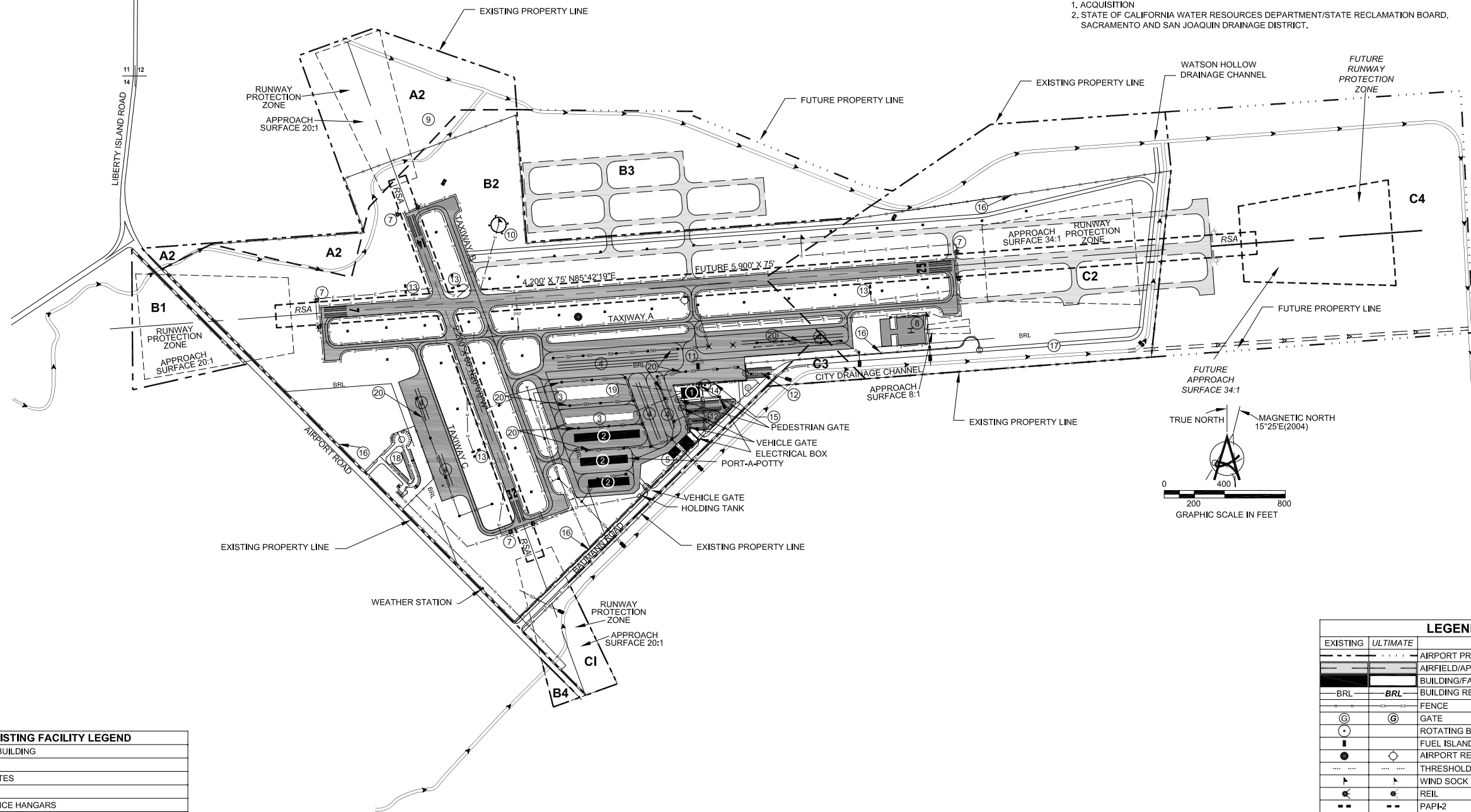
SHEET
5
OF
5

NAME: RVA-05-Property Map.dwg TIME: 12:10pm
DATE: Dec 05, 2006 PLOT SCALE: 1"=800'

FUTURE FACILITY LEGEND	
A	AWOS
B	COMMERCIAL AVIATION USES
C	HANGAR SITES
D	REIL
E	PAPI-2
F	POLLUTION ABATEMENT FACILITY
G	GATE
H	TRAVIS AERO CLUB
I	CITY MAINTENANCE
J	JET A FUEL TANK
K	AGRICULTURAL AIRCRAFT APRON

PARCEL LEGEND						
PARCEL NO.	ACRES	A.P.N	PROPERTY OWNER	DATE ACQUIRED	TO BE ACQUIRED	FAA AIP
A2	24.81	POR 48-11-29	BALDWIN, PAGE & ANN	08-15-1989		03-06-0199-02
B1	8.03	POR 48-11-14	McCORMACK, THOMAS	08-15-1989		03-06-0199-02
B2	158.39	POR 48-11-30	McCORMACK, THOMAS	08-15-1989		03-06-0199-02
B4	0.71	POR 48-11-35	McCORMACK, THOMAS	08-15-1989		03-06-0199-02
C1	4.61	POR 48-11-17	SACRAMENTO AND SAN JOAQUIN	10-06-1989		03-06-0199-02
C2	74.94	POR 48-20-06	SACRAMENTO AND SAN JOAQUIN	10-06-1989		03-06-0199-02
C3	2.37	POR 48-11-17	SACRAMENTO AND SAN JOAQUIN	10-06-1989		03-06-0199-02
B3	34.75	POR 48-11-30	McCORMACK, THOMAS		FUTURE	
C4	63.77	POR 48-11-17	SACRAMENTO AND SAN JOAQUIN		FUTURE	

NOTE:
1. ACQUISITION
2. STATE OF CALIFORNIA WATER RESOURCES DEPARTMENT/STATE RECLAMATION BOARD, SACRAMENTO AND SAN JOAQUIN DRAINAGE DISTRICT.



EXISTING FACILITY LEGEND	
1	TERMINAL BUILDING
2	HANGARS
3	HANGAR SITES
4	TIEDOWNS
5	MAINTENANCE HANGARS
6	ELECTRICAL BUILDING
7	REIL
8	HELIPORT
9	SUMP
10	SEGMENTED CIRCLE AND LIGHTED WIND SOCK
11	FUEL ISLAND
12	VEHICULAR PARKING
13	PAPI-2
14	ROTATING BEACON
15	APRON SECURITY LIGHTING
16	FENCE
17	PERIMETER ROAD
18	AIRPORT INDUSTRIAL PARK
19	TRANSFORMER
20	V-GUTTER

LEGEND		
EXISTING	ULTIMATE	
---	---	AIRPORT PROPERTY LINE
---	---	AIRFIELD/APRON PAVEMENT
---	---	BUILDING/FACILITIES
BRL	BRL	BUILDING RESTRICTION LINE (BRL)
---	---	FENCE
⊙	⊙	GATE
⊙	⊙	ROTATING BEACON
⊙	⊙	FUEL ISLAND
⊙	⊙	AIRPORT REFERENCE POINT (ARP)
---	---	THRESHOLD LIGHTS
---	---	WIND SOCK
---	---	REIL
---	---	PAPI-2
H	H	HELIPORT
---	---	EXISTING GROUND CONTOURS
---	---	DRAINAGE CHANNEL
---	---	HYDRANT
---	---	CATCH BASINS
---	---	ELECTRICAL LINE
---	---	SEWER LINE
---	---	STORM DRAIN LINE
---	---	TELEPHONE LINE
---	---	WATER LINE
---	---	RUNWAY SAFETY AREA
---	---	RUNWAY OBJECT FREE AREA
11 12	14	SECTION CORNER

APPENDIX C



GLOSSARY

APPENDIX C

GLOSSARY

Air carrier (airline): An air carrier certified under FAR Part 121, *Operating Requirements: Domestic, Flag and Supplemental Operations*, or FAR Part 129, *Operations: Foreign Air Carriers and Foreign Operations of U. S. Registered Aircraft Engaged in Common Carriage*. Aircraft operated by an airline that holds a certificate of public convenience and necessity authorizing performance of scheduled air transportation. Air carrier airlines conduct scheduled services on specified air routes operating aircraft with more than 60 seats. These air carriers may also provide non-scheduled or chartered services as a secondary operation.

Air taxi: Aircraft operated by a company or individual that performs air transportation on a scheduled or non-scheduled basis over either designated or unspecified routes, with aircraft having less than 60 seats. An air carrier certified under FAR Part 135, *Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons on Board such Aircraft*. Commuter airline flights are a special category of air taxi operations (see commuter airline).

Air traffic control (ATC): A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic. Air traffic control towers and air route traffic control centers are elements of the air traffic control system.

Air traffic control tower (ATCT): A facility located within the physical boundaries of certain airports and consisting of a tower which provides ATC to aircraft operating in the immediate vicinity of an airport.

Air route traffic control center (ARTCC): A facility established to provide ATC service to aircraft operating on instrument flight rules (IFR) flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to visual flight rules (VFR) aircraft.

Aircraft operation: A takeoff or a landing. A touch-and-go is counted as two operations.

Airplane design group: A grouping of airplanes based on wingspan or tail height. Where an airplane is in two categories, the most demanding category should be used. The groups are as follows:

- Group I: Up to but not including 49 feet (15 meters) wingspan or tail height up to but not including 20 feet.
- Group II: 49 feet (15 meters) up to but not including 79 feet (24 meters) wingspan or tail height from 20 feet up to but not including 30 feet.
- Group III: 79 feet (24 meters) up to but not including 118 feet (36 meters) wingspan or tail height from 30 feet up to but not including 45 feet.
- Group IV: 118 feet (36 meters) up to but not including 171 feet (52 meters) wingspan or tail height from 45 feet up to but not including 60 feet.

- **Group VI:** 214 feet (65 meters) up to but not including 262 feet (80 meters) wingspan or tail height from 66 feet up to but not including 80 feet.

Angle of descent: The angle, with respect to a horizontal plane, of the flight path of an aircraft descending from a higher altitude to a lower altitude (usually expressed in degrees or in feet per nautical mile). Also referred to as **descent slope**.

Approach angle: The angle, with respect to a horizontal plane, of the flight path of an aircraft descending to land at an airport (usually expressed in degrees or in feet per nautical mile). Also referred to as **approach slope**.

Approach lighting system (ALS): A standardized array of lights on the ground that provides visual cues which enable pilots of aircraft approaching the runway in conditions of darkness or poor visibility, to align the flight path of the aircraft with the extended centerline of the runway.

Approach Categories: A grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The categories are as follows:

- Category A: Speed less than 91 knots.
- Category B: Speed 91 knots or more but less than 121 knots.
- Category C: Speed 121 knots or more but less than 141 knots.
- Category D: Speed 141 knots or more but less than 166 knots.
- Category E: Speed 166 knots or more.

Automated weather observing system (AWOS): Provides current weather information at the Airport including wind direction and velocity, visibility and other pertinent data. This data can be obtained by phone and aircraft radio.

Base leg: A segment of the standard airport traffic pattern which extends at right angles from the extended runway centerline at some distance from the approach end of the runway. The base leg extends from the downwind leg of the traffic pattern to the final approach course (extended runway centerline) and is flown in the direction toward the runway centerline. The altitude of aircraft flying the base leg is usually between 1,000 and 400 feet above ground level.

Circle-to-land procedure: A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. At tower-controlled airports, this maneuver is made only after ATC authorization has been obtained and the pilot has established visual reference to the airport.

Climb gradient: The angle, with respect to a horizontal plane, of the flight path of an aircraft ascending from a lower altitude to a higher altitude (usually expressed in feet per nautical mile).

Closed traffic: An airborne maneuver by which an aircraft takes off from and lands at an airport without leaving the immediate airport vicinity (usually performed as a flight training or practice maneuver) or the airport traffic pattern flown by such an aircraft.

Community noise equivalent level (CNEL): A measure, in decibels, of the cumulative noise exposure at a given site. The CNEL mathematically increases the significance of noise events occurring during evening and nighttime hours, in response to the widely-held assumptions that such events are more intrusive than similar events occurring during daytime hours.

Commuter airline: Aircraft operated by an airline that performs scheduled air transportation over specified routes using aircraft with fewer than 60 seats. Commuter airlines provide at least five scheduled round trips per week between two or more points or carry mail.

Compatible: A designation employed to denote that a proposed land use is not prohibited or restricted within the specified zone.

Consistent: A determination made by the Airport Land Use Commission when a referral meets the conditions outlined in the Airport Land Use Plan.

Controlled Airspace: Airspace within which air traffic control service is provided to IFR flights. VFR flights can operate in controlled airspace, but must maintain distances from clouds and have visibilities as prescribed in FAA regulations.

Crosswind departure: A VFR departure procedure in which an aircraft exits the airport area by extension of the crosswind leg of the traffic pattern.

Crosswind leg: A segment of the standard airport traffic pattern which extends at right angles from the extended runway centerline at some distance from the departure end of the runway. The crosswind leg extends from the upwind leg of the traffic pattern to the downwind leg and is flown in the direction away from runway centerline.

Decibel (dB): A unit for expressing the relative intensity of sounds on a scale of zero for the average least perceptible sound to about 130 for the average pain level.

Decision altitude/decision height: A specified altitude or height (A/H) in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established. The decision altitude (DA) is referenced to mean sea level (MSL) and decision height (DH) is referenced to the threshold elevation. The required visual reference means that section of the visual aids, or of the approach area, which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.

Density of land use: The number of people a development can attract per acre.

Density of residential development: The number of dwelling units per acre in a development or proposed development.

Departure procedure (DP): See **instrument departure procedure**.

Descent slope: The angle, with respect to a horizontal plane, of the flight path of an aircraft descending from a higher altitude to a lower altitude (usually expressed in degrees or in feet per nautical mile). Also referred to as **angle of descent**.

Distance measuring equipment (DME): Equipment consisting of a ground-based radio transmitter and a specialized airborne receiver, which provides information regarding the slant-range distance, in nautical miles, of an aircraft from the ground-based DME facility. Also, by extension, any airborne maneuver, course, or flight path which is determined through the application of DME information.

Downwind departure: A VFR departure procedure in which an aircraft exits the airport area by extension of the downwind leg of the traffic pattern.

Downwind leg: A segment of the standard airport traffic pattern which is parallel to the runway of intended landing, is usually between 1/2 and 1 1/2 miles lateral to the runway, and is flown in a direction opposite to the direction of intended landing. The downwind leg is, in most instances, is the initial leg of the traffic pattern for landing aircraft. The altitude of aircraft flying the downwind leg is usually between 1,000 and 800 feet above ground level.

Enplaned passengers: The total number of revenue-producing passengers boarding aircraft, including originating, stopover, and transfer passengers, in scheduled and nonscheduled services.

Federal Aviation Regulations (FAR) Part 77: Refers to imaginary surfaces above and about the Airport used to identify obstructions as defined in FAR Part 77, *Objects Affecting Navigational Airspace*.

Fixed base operator (FBO): A provider of support services to users of an airport. Such services include fueling, hangaring, flight training, repair, maintenance and other services.

Flight Service Station (FSS): Air traffic facilities which provide pilot briefing, en route communications and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATC clearances, originate Notices to Airmen, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAIDs. In addition, at selected locations, FSSs provide En Route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.

General aviation: That portion of civil aviation which encompasses all facets of aviation except air carriers and air taxis. It includes a multitude of diverse and growing uses of aircraft, ranging from flying for enjoyment and the transportation of personnel or cargo by business firms and individuals in privately-owned aircraft, to highly specialized uses such as crop dusting, pipeline patrol and aerial advertising. It includes agricultural, industrial and business/corporate aviation, using an aircraft for flight training, the aviation of Federal, State and local governments, and miscellaneous other aviation uses.

Glide slope: Provides vertical guidance for aircraft during approach and landing. The glide slope/glide path is based on the following:

- a. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS/MLS, or
- b. Visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.
- c. Precision Approach Radar (PAR). Used by ATC to inform an aircraft making a PAR approach of its vertical position (elevation) relative to the descent profile.

Global positioning system (GPS): A space-based radio positioning, navigation and time-transfer system. The system provides highly accurate position and velocity information, and precise time, on a continuous global basis, to an unlimited number of properly-equipped users. The system is unaffected by weather and provides a worldwide common grid reference system. The GPS concept is predicated upon accurate and continuous knowledge of the spatial position of each satellite in the system with respect to time and distance from a transmitting satellite to the user. The GPS receiver automatically selects appropriate signals from the satellites in view and translates these into three-dimensional position, velocity and time. System accuracy for civil users is normally 100 meters horizontally.

Global positioning system (GPS) approach: A series of standardized, predetermined, and published aerial maneuvers which are based on navigational data received from earth-orbiting satellites and which enable aircraft to descend toward an airport with the intention of landing when meteorological conditions are such that a safe approach cannot be made solely through the use of visual information. A typical nonprecision GPS approach permits aircraft to descend to within 400 to 500 feet of the surface solely on the basis of satellite navigation aids.

Inconsistent: A determination made by the Airport Land Use Commission when a proposed local action does not meet the conditions outlined in the Airport Land Use Plan.

Instrument approach procedure: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

Instrument departure procedure (DP): A preplanned instrument flight rule (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. DPs provide transition from the terminal to the appropriate en route structure.

Instrument flight rules (IFR): A set of FAA rules, regulations, and procedures which define flight operations under conditions which do not permit navigation by means of visual information alone. Also, employed as an adjective to designate a flight plan that will enable an aircraft to operate under conditions which preclude navigation by means of visual information.

Instrument landing system (ILS): A precision instrument approach system which provides aircraft with both vertical (glide slope) and lateral guidance by means of radio signals transmitted from installations within the physical boundaries of the airport .

Instrument landing system (ILS) approach: A series of standardized, predetermined, and published aerial maneuvers which are based on vertical and lateral navigational data received from radio transmitters located within the physical boundaries of the airport and which enable aircraft to descend toward an airport with the intention of landing when meteorological conditions are such that a safe approach cannot be made solely through the use of visual information. A typical ILS approach permits aircraft to descend to within at least 200 feet of the surface.

Instrument meteorological conditions (IMC): Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.

Localizer (LOC): Equipment which provides, by means of radio signals from a transmitter located within the physical boundaries of an airport and a specialized airborne receiver, lateral course guidance for aircraft descending to land.

Localizer approach: A series of standardized, predetermined, and published aerial maneuvers which are based on lateral guidance information received by means of a localizer transmitter located within the physical boundaries of an airport and which enable aircraft to descend toward an airport with the intention of landing when meteorological conditions are such that a safe approach cannot be made solely through the use of visual information. Localizer approaches do not provide vertical guidance. However, localizers are coupled with glide slope transmitters when part of an instrument landing system. A typical localizer approach permits aircraft to descend to within 400 to 500 feet of the surface solely on the basis of radio navigation aids.

Localizer-type directional array (LDA): Equipment which provides, by means of radio signals from a transmitter located within the physical boundaries of an airport and a specialized airborne receiver, lateral course guidance for aircraft descending to land. The primary distinction between an LOC and an LDA is that the final approach course provided by the LDA is not aligned with the runway centerline. Glide slope information is never provided in conjunction with an LDA.

Localizer-type directional array (LDA) approach: A series of standardized, predetermined, and published aerial maneuvers which are based on lateral guidance information received by means of an LDA transmitter located within the physical boundaries of an airport and which enable aircraft to descend toward an airport with the intention of landing when meteorological conditions are such that a safe approach cannot be made solely through the use of visual information.

Minimum descent altitude (MDA): The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided.

Missed approach: A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. A pilot executing a missed approach prior to the Missed Approach Point (MAP) must continue along the final approach to the MAP. The pilot may climb immediately to the altitude specified in the missed approach procedure.

Missed approach course: A standardized, predetermined, and published flight path to be flown in the event of a missed approach.

Nautical mile (nm): A measure of distance equal to 6076.115 feet (1852 meters) commonly used for aviation navigation.

Non-directional beacon (NDB): A Low/Medium Frequency (L/MF) or Ultra High Frequency (UHF) radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction-finding equipment can determine his/her bearing to or from the radio beacon and “home” on, or track to or from, the station. When the radio beacon is installed in conjunction with the Instrument Landing System (ILS) marker, it is normally called a Compass Locator.

Non-directional beacon (NDB) approach: A series of standardized, predetermined, and published aerial maneuvers which are based on lateral guidance information received by means of an NDB transmitter located either at or remote from an airport and which enable aircraft to descend with the intention of landing when meteorological conditions are such that a safe approach cannot be made solely through the use of visual information.

Non-precision instrument approach procedure: An instrument approach procedure for which vertical guidance is not provided. Common types of non-precision instrument approach procedures include VOR, GPS, localizer, NDB, and LDA.

Operation: A takeoff or landing.

Precision approach path indicator (PAPI): A navigational aid installed adjacent to an airport runway which provides, by means of colored light beams, vertical course guidance to aircraft approaching to land on that runway. The usual descent slope provided by PAPI installations is 3°.

Precision instrument approach procedure: An instrument approach procedure for which vertical guidance is provided. ILS is the only common type of precision instrument approach currently in use. In the near future, certain GPS approaches will be upgraded to provide vertical guidance information, as well.

Prohibited: A determination made by the Airport Land Use Commission when a proposed local action does not meet the criteria set forth in the Airport Land Use Plan.

Rate of climb: The vertical speed or rate of change in altitude of an aircraft ascending from a lower altitude to a higher altitude (usually expressed in feet per minute).

Rate of descent: The vertical speed or rate of change in altitude of an aircraft descending from a higher altitude to a lower altitude (usually expressed in feet per minute).

Reliever airport: An airport to serve general aviation aircraft which might otherwise use a congested air carrier served airport.

Runway object free area (ROFA): The ROFA is a rectangular area centered on the runway centerline with a prescribed width and extending a prescribed distance beyond the runway ends. The ROFA requires clearing of above ground objects protruding above the runway safety area edge elevation.

Runway object free zone (ROFZ): The ROFZ is a rectangular area centered on the runway centerline with a width of 250 feet for small aircraft, 400 feet for large aircraft and extending 200 feet beyond the runway ends. Runway ends that have an approach light system (ALS), to aid pilots in identifying the runway during periods of low visibility, will also have an inner approach OFZ extending 200 feet outward from the last light in the ALS.

Runway protection zone (RPZ): The RPZ is a trapezoid in shape centered about the extended runway centerline. The RPZ dimensions depend on the type of aircraft and approach visibility minimum associated with that runway end. The RPZ generally begins 200 feet beyond the end of the area of runway usable for takeoff or landing. Land uses prohibited from the RPZ are residences and places of public assembly (churches, schools, hospitals, office buildings, shopping centers, etc.) Fuel storage facilities may not be located in the RPZ.

Runway safety area (RSA): The RSA is a rectangular area centered on the runway centerline with a prescribed width and extending a prescribed distance beyond the runway ends. The RSA shall be cleared and graded and have no potential ruts, bumps, depressions, or other surface variations. It must be drained by grading or storm sewers to prevent water accumulation. It must be free of objects except for objects that need to be located in the RSA because of their function.

Standard instrument departure (SID): See **instrument departure procedure**.

Standard terminal arrival route (STAR): A preplanned instrument flight rule (IFR) air traffic control arrival procedure published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

Straight-out departure: A VFR departure procedure in which an aircraft exits the airport area along the extended centerline of the departure runway by extension of the upwind leg of the traffic pattern.

Tactical air navigation facility (TACAN): A ground-based radio navigational aid which transmits encoded signals that enable aircraft equipped with appropriate receivers to determine both bearing and distance with respect to the facility. The information with respect to bearing is generally available only to military aircraft, while information regarding distance is usable by both military and civil aircraft. TACAN facilities are frequently co-located with VORs and called a VORTAC.

Terminal instrument procedures: The United States Standard for Terminal Instrument Procedures (TERPS) establishes the standards and criteria which the FAA uses for developing Instrument Flight Rule (IFR) procedures.

Terminal radar approach control (TRACON): An FAA air traffic control service to aircraft arriving and departing or transiting airspace controlled by the facility. The TRACON controls IFR flights. It also provides general information and air traffic information to participating VFR flights. The TRACON for the Bay Area, Northern California TRACON, is now located at Mather Airport near Sacramento.

Traffic pattern: The traffic flow that is prescribed for aircraft landing or taking off from the Airport. The components of the traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. The upwind leg is parallel to the takeoff/landing runway in the direction of takeoff/landing. The crosswind leg is at a right angle to the takeoff/landing runway off its upwind end. The downwind leg is parallel to the takeoff/landing runway in the direction opposite to takeoff/landing. The downwind leg extends from the crosswind leg to the base leg at approximately one mile from the runway centerline. A closed traffic pattern would be for an aircraft not departing from the airport, but remaining in the traffic pattern for another landing.

Uncontrolled Airspace: Aircraft are not under the control of air traffic control. Flights may be conducted clear of clouds and with 1 statute mile visibility.

Upwind leg: A segment of the airport traffic pattern which is coincident with the centerline of the departure runway. The upwind leg is the initial leg of the traffic pattern for departing aircraft and extends from takeoff to the crosswind leg or departure from the airport area.

Very high frequency omnidirectional range (VOR): A ground-based electronic navigation aid which transmits very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature. Voice features may be used by ATC or FSS for transmitting instructions/information to pilots.

Very high frequency omnidirectional range with distance-measuring equipment (VOR-DME): A ground-based radio navigational aid which combines a VOR transmitter with a DME facility and which transmits encoded signals that enable aircraft equipped with appropriate receivers to determine both relative bearing and distance with respect to the facility.

Very high frequency omnidirectional range with tactical air navigation (VORTAC): A ground-based radio navigational aid which combines a VOR transmitter with a TACAN facility and which transmits encoded signals that enable both military and civilian aircraft equipped with appropriate receivers to determine both bearing and distance with respect to the facility.

Visual approach: An approach conducted on an IFR flight plan which authorizes the pilot to proceed visually and clear of clouds to the airport. The pilot must, at all times, have either the airport or the preceding aircraft in sight. This approach must be authorized and under the control of the appropriate ATC facility. Reported weather at the airport must be ceiling at or above 1,000 feet and visibility of 3 miles or greater.

Visual flight rules (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term “VFR” is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

Visual meteorological conditions (VMC): Weather conditions specified in FAA regulations under which aircraft are authorized to takeoff, land, and maneuver under visual flight rules and by means of only visual navigational information. Electronic aids to navigation may be utilized by aircraft operating in VMC, but are not required. The visibility and cloud clearance requirements for VMC are determined by the airspace designation in which and aircraft is operating, by the aircraft’s altitude above both sea level and ground level, and by whether the aircraft is operating in daylight or at night.

VOR approach procedure: A series of standardized, predetermined, and published procedures which are based on lateral guidance information received by means of a VOR transmitter and which enable aircraft to descend toward an airport with the intention of landing even when meteorological conditions are such that a safe approach cannot be made solely through the use of visual information. The VOR facility may be located within the physical boundaries of the destination airport or at some distance from the airport. VOR approaches do not provide vertical guidance. A typical VOR approach permits aircraft to descend to within 400 to 500 feet of the surface solely on the basis of radio navigation aids.