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INTRODUCTION. The purpose of this chapter is to present a range of development alternatives for Nut Tree Airport in terms of concepts and reasoning. This chapter provides a description of the various factors and influences, which will form the basis for the Airport's long-term development program. In concert with the role of the Airport and community input received in the planning process, several basic assumptions have been established that are intended to direct the development of the Airport in the future.

Assumption One. This assumption recognizes the role of the Nut Tree Airport. Consistent with the vision themes presented in Chapter A, *Introduction and Vision*, the Airport will continue to serve as a full-service general aviation facility; will continue to be a gateway to the area; will continue to serve as part of the local community; will continue to be sustained by supportive intergovernmental relationships; and will continue to strive to maximize compatibility with the surrounding community. Scheduled passenger service activity does not occur at the Airport presently and is not anticipated in the future.

Assumption Two. The Airport will be developed and operated in a manner that is consistent with local ordinances and codes, federal and state statutes, federal grant assurances, and Federal Aviation Administration (FAA) regulations.

Assumption Three. The third assumption states that based on the types and sizes of aircraft currently operating and projected to operate at the Airport, the existing Airport Reference Code (ARC) B-II design standards are appropriate and will be maintained throughout the planning period.

Assumption Four. The Airport will continue to accommodate aircraft operations with reliability and safety. The current instrument approaches serving Runway 20 provide visibility minimums as low as 1-mile. Because wind conditions during times of poor visibility significantly favor approaches to Runway 20, the existing visual approach to Runway 2 will be maintained while the existing approach visibility minimum to Runway 20 will be considered for improvement (from 1-mile to ¾-mile).

Assumption Four. The fourth assumption relates to the potential need for the Airport to provide additional runway length to accommodate future aircraft operations. While a runway extension is not currently recommended according to FAA guidance, the County is required through FAA grant assurances to protect for expandability and adaptability as the Nut Tree Airport serves an important role in the national airport system. It is possible that the extension of Runway 2/20 will be beneficial and justifiable during the 20-year planning period in order to most efficiently accommodate aircraft operators. It is possible that the ideal future runway length, as described in the previous chapter and confirmed by airport users, is a runway length of 5,500 feet.

Assumption Five. Because the amount of landside development area at any airport is at a premium, the fifth assumption is that the plan for future airport development should strive to make most efficient use of the available area for aviation-related activities, including general aviation facilities. Aviation-use areas should be developed to be compatible with surrounding land uses.

Assumption Six. The sixth assumption focuses on the relationship of the Airport to off-airport land uses and the compatible and complementary development of each. To the maximum extent possible, future facilities will be designed to promote the compatibility of the operation of the Airport with the environs.

Preliminary Goals and Objectives for Airport Improvement

Accompanying the previously discussed assumptions are some preliminary goals and objectives, which have been established for purposes of directing the plan and establishing continuity with regard to future improvement of the Airport. These goals and objectives take into account several categorical considerations relating to the needs of the Airport, both in the short-term and the long-term, including safety, noise, capital improvements, land use compatibility, financial and economic conditions, public interest and investment, and community recognition and awareness.

The following preliminary goals and objectives can be adjusted following receipt of input at the public meeting, but ultimately are intended to guide the preparation of recommendations provided in this Airport Master Plan Update and direct potential future improvements at Nut Tree Airport.

- **Plan to safely accommodate the forecast aircraft fleet with facilities properly sized to accommodate demand.**
- **Program facilities to be constructed when demand is realized (construction is to be driven by actual demand, not forecast demand).**
- **Ensure that the future development of the Airport will continue to accommodate a variety of general aviation activities, ranging from small general aviation users to medium sized corporate aviation operators.**
- **Enhance the self-sustaining capability of the Airport and maximize the financial feasibility of future improvements.**
- **If deemed important, develop land acquisition priorities (i.e., fee simple and/or easement), related to airport safety, future airport improvement, and land use compatibility.**
- **Encourage the protection of existing public and private investment in land and facilities, and advocate the resolution of any potential land use conflicts, both on and off airport property.**
- **Plan and develop the Airport to be as environmentally compatible as possible with the community and minimize environmental effects on airport property and on property adjacent to the Airport.**
- **Provide effective direction for the Airport through the preparation of a rational improvement program.**

Airside Development Concepts and Alternatives

Introduction

Because all other airport functions relate to and revolve around the basic runway/taxiway layout, airside alternatives must be examined and evaluated prior to the examination of landside alternatives. It is essential that the initial improvement recommendations for the Airport be commensurate with the anticipated needs and requirements of airport users; however, the long-term improvement program for the facility must also be considered and

planned for to ensure the capability to accommodate potential activity levels (i.e., an appropriate amount of room should be reserved for potentially needed facilities). The main objective of the planning recommendations presented herein is to identify future improvements that will result in a runway/taxiway system capable of efficiently accommodating forecast aviation activity.

Airside Background Summary

Runway 2/20 ARC Dimensional Criteria: As presented in the previous chapter, Runway 2/20 is currently designed in accordance with Airport Reference Code (ARC) B-II design criteria, as specified by the FAA. These are the standards that apply to the "Design Aircraft", in consideration of wingspan and approach speed, which currently utilize this runway.

The Airport meets or exceeds all of the ARC B-II design standards with only two exceptions. First, the Runway Object Free Area (ROFA) is penetrated by the perimeter fence and by the Putah South Canal near the approach end of Runway 2. Second, the Taxiway Object Free Area (TOFA) is penetrated by the perimeter fence and RV storage area near the approach end of Runway 20. Correction of these non-standard conditions will be considered in the alternatives analysis.

Based upon the Airport's existing and projected operational activity, the ARC B-II design standard is the appropriate dimensional criteria designation for this runway. This is not a change from design standards used in previous planning studies for Nut Tree Airport.

Runway 2/20 Runway Dimensions: The existing runway length of 4,700 feet is adequate in accommodating 100 percent of the small aircraft fleet (i.e., aircraft with more than 10 seats), as specified in the previous chapter in consideration of the Airport's elevation, design temperature, and difference in runway elevation. In consideration of larger general aviation aircraft [i.e., aircraft weighing between 12,500 pounds and 60,000 pounds (the business jet types that currently operate at the Airport)] it should be noted that this family of aircraft is restricted at times from operating from the Airport to further destinations. It is important for this Airport Master Plan Update to consider the potential to provide additional runway length to better accommodate regular operations by the current fleet of business jet aircraft.

Runway 2/20 Pavement Strength: The existing runway is constructed of asphalt and has a published gross weight bearing capacity of 30,000 pounds single wheel landing gear configuration. It is assumed that the parallel taxiway and apron pavement strength match the runway; however, it is strongly recommended that all airfield pavements be periodically tested to properly ascertain existing pavement strengths.

Runway 2/20 Instrument Approach Criteria: Currently instrument approach procedures at Nut Tree Airport serve Runway 20 with visibility minimums as low as 1-mile. The effects of providing improved instrument approach procedures with as low as ¾-mile approach visibility minimums should be considered in the alternatives analysis.

Runway 2/20 Lighting & Navigational Aids: Presently, the runway at Nut Tree Airport is equipped with Medium Intensity Runway Lights (MIRLs), with Precision Approach Path Indicators (PAPIs) and Runway End Identifier Lights (REILs) serving each runway end. The MIRLs should be maintained in consideration of the existing instrument approach procedures.

In order to achieve ¾-mile visibility minimums for improved instrument approach capabilities, an approach lighting system will be required. This has been analyzed in the formulation of the airside alternatives.

Parallel Taxiway System: Runway 2/20 is equipped with an existing parallel taxiway system (i.e., Taxiway "A"), which serves the east side of the runway. In addition, Medium Intensity Taxiway Lights (MITLs), which are presently in place on Taxiway "A" should also be maintained. The existing taxiway system has been evaluated with respect to existing and future departure ends of the runway. Every effort should be made to physically separate the airport roadways from taxiways, to prohibit unauthorized vehicles from accessing the Airport's aircraft movement areas, which will assist in the safety and security monitoring of the Airport.

Relationship to the Putah South Canal: The Canal is located in relatively close proximity to the southwest end of the runway. Although consideration has been given to relocation of the Canal to resolve object clearing standard issues or provide an area for a potential runway shift or runway extension, the expense of moving the Canal is considered to be excessive, unless some other factor is discovered which would demand further examination.

The following airside alternatives illustrate the critical issues and recommendations described previously. In addition, a brief summarization of potential environmental impacts is provided to assist the County with the selection of a recommended alternative.

Airspace and Instrument Approach Procedure Considerations: Utilizing the planning guidance found in FAR Part 77, *OBJECTS AFFECTING NAVIGABLE AIRSPACE* and FAA Advisory Circular 150/5300-13, *AIRPORT DESIGN*, the presented alternatives were analyzed, screening each for the *general conditions* of height hazards impacts and instrument approach and departure procedure considerations. Such impact and considerations may present themselves as a result of a proposed change to the location of a runway end or the improvement of an instrument approach procedure. At this generalized level of evaluation, it appears that Alternatives Four and Five could have potential conflicts that may be of concern. However, the exact

determination of height hazards and potential impacts requires significant evaluation including analysis of accurate existing conditions data. Following the initial discussion of alternatives and after factoring the feedback received, a preferred alternative (or combination of alternatives) will form the basis of the Conceptual Development Plan (CDP) for the Airport. This CDP will be screened in greater detail to better define the Part 77 and instrument approach issues for final evaluation.

Airside Alternative Concept One – Retain Existing Conditions

The runway length requirements of those aircraft using the Airport on a regular basis (more than 500 annual operations) are met with the existing length of Runway 2/20 and it is recommended that at a minimum, this runway length be maintained at 4,700 feet. Alterative One would correct the non-standard ROFA on the southwest end of the Runway and the non-standard TOFA associated with Taxiway "A" near the approach end of Runway 20 (the northeast end) through seeking "Modification of Standards" from the FAA. In order for a Modification of Standard to be granted, an "adequate level of safety" for the modified criteria must be demonstrated and will only be granted if no other feasible improvement can be programmed.

- **Runway 2/20 Dimensions:** Runway 2/20 would be maintained at its existing length of 4,700 feet.
- **Runway 20 Approach Visibility Minimum:** The instrument approach visibility minimums for Runway 2/20 would be maintained at 1-mile.
- **Runway 2/20 Lighting:** The Medium Intensity Runway Lights (MIRLs) serving Runway 2/20 would be maintained. The Precision Approach Path Indicator (PAPI) lights and Runway End Identifier Lights (REILs) at each end of the runway would be maintained.
- **Taxiway System:** The taxiway system would remain as presently configured.
- **Taxiway Lighting:** The Medium Intensity Taxiway Lights (MITLs) on Taxiway "A" would be maintained.
- **Property/Easement Acquisition:** No property acquisition is required.

Alternative One. Potential Environmental Concerns

There is no change in the configuration of the Runway; therefore, there is no change in environmental effects, including aircraft generated noise.

Alternative One Implementation Considerations:

- If Modifications of Standards are granted by the FAA, the existing runway length of 4,700 feet is to be retained.

- It is likely that the FAA will not grant the Modification of Standards or that FAA will only grant a temporary Modification of Standards until funding is available to correct these non-standard conditions.
- Aircraft operational effects are not changed from present conditions.
- No land acquisition is required.
- The Airport will continue to serve the same aircraft types that it serves presently.
- The alternative does not provide improved instrument approach capabilities.

A graphic layout of Alternative One is shown in the following figure entitled *AIRSIDE ALTERNATIVE CONCEPT ONE – RETAIN EXISTING CONDITIONS*.

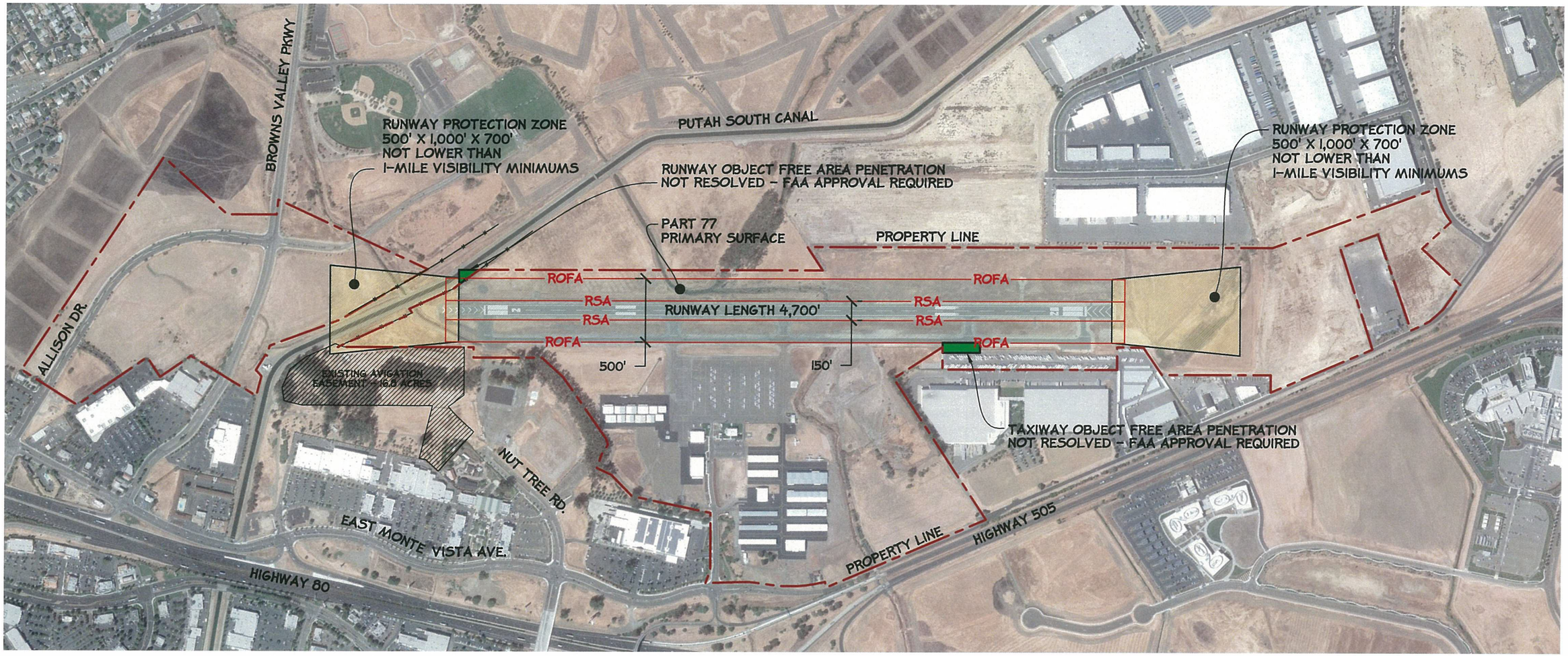


FIGURE E1

AIRSIDE ALTERNATIVE CONCEPT ONE - RETAIN EXISTING CONDITIONS

Airside Alternative Concept Two – Shift the Runway 180' North for FAA ROFA Compliance

As explained in the previous chapter, the runway length requirements of those aircraft using the Airport on a regular basis (more than 500 annual operations) are met with the existing length of Runway 2/20 and it is recommended that at a minimum, this runway length be maintained at 4,700 feet. Airside Alterative One would correct the non-standard ROFA penetration by shifting Runway 2/20 approximately 180 feet to the north. In other words, 180 feet is removed from approach end of Runway 2 (the southwest end) and 180 feet is added to the approach end of Runway 20 (the northeast end) maintaining the existing runway length of 4,700 feet. Airside Alternative One would also correct the non-standard TOFA associated with Taxiway "A" near the approach end of Runway 20 through land acquisition, perimeter fence relocation and removal of other objects.

- **Runway 2/20 Dimensions:** Runway 2/20 would be maintained at its existing length of 4,700 feet.
- **Runway 20 Approach Visibility Minimum:** The instrument approach visibility minimums for Runway 2/20 would be maintained at not-lower-than 1-mile.
- **Runway 2/20 Lighting:** The Medium Intensity Runway Lights (MIRLs) serving Runway 2/20 would be maintained. The Precision Approach Path Indicator (PAPI) lights and Runway End Identifier Lights (REILs) at each end of the runway would be relocated.
- **Taxiway System:** A taxiway extension and new connector taxiways would be constructed at each end of Runway 2/20 in addition to new aircraft run-up areas in accordance with the runway shift.
- **Taxiway Lighting:** The Medium Intensity Taxiway Lights (MITLs) on Taxiway "A" would be maintained and MITLs would be installed on the new connector taxiways.
- **Property/Easement Acquisition:** A small parcel of land would be acquired near the approach end of Runway 2/20 and the perimeter fence would be relocated in this area to correct the non-standard TOFA.

Alternative Two. Potential Environmental Concerns

There are no known threatened or endangered species or known critical habitat in the vicinity of the 180-foot runway shift. The proposed shift would not be expected to significantly affect air or water quality other than temporary construction related impacts. The proposed runway shift would slightly alter flight tracks and the location of the 65 CNEL noise contour; however, the 180 shift of the contour would not be expected to encompass any noise sensitive land uses or otherwise result in significant noise impacts.

The runway shift would encroach upon a FEMA designated 100-year floodplain. During the NEPA process that would be required before this improvement could be constructed the

County would be required to show that no practicable alternative outside the floodplain exists. A significance determination on the floodplain encroachment would then have to be made. It is likely that the encroachment would not be considered significant.

Alternative Two Implementation Considerations:

- The shift of the runway would allow the existing runway length of 4,700 feet to be retained.
- Aircraft operational effects would be shifted slightly to the northeast.
- FAA object clearing standard issues are resolved.
- A small amount of land acquisition is required.
- The Airport will continue to serve the same aircraft types that it serves presently.
- Does not provide improved instrument approach capabilities.

A graphic layout of Alternative Two is shown in the following figure entitled *AIRSIDE ALTERNATIVE CONCEPT TWO – SHIFT THE RUNWAY 180 FEET NORTH FOR FAA ROFA COMPLIANCE.*

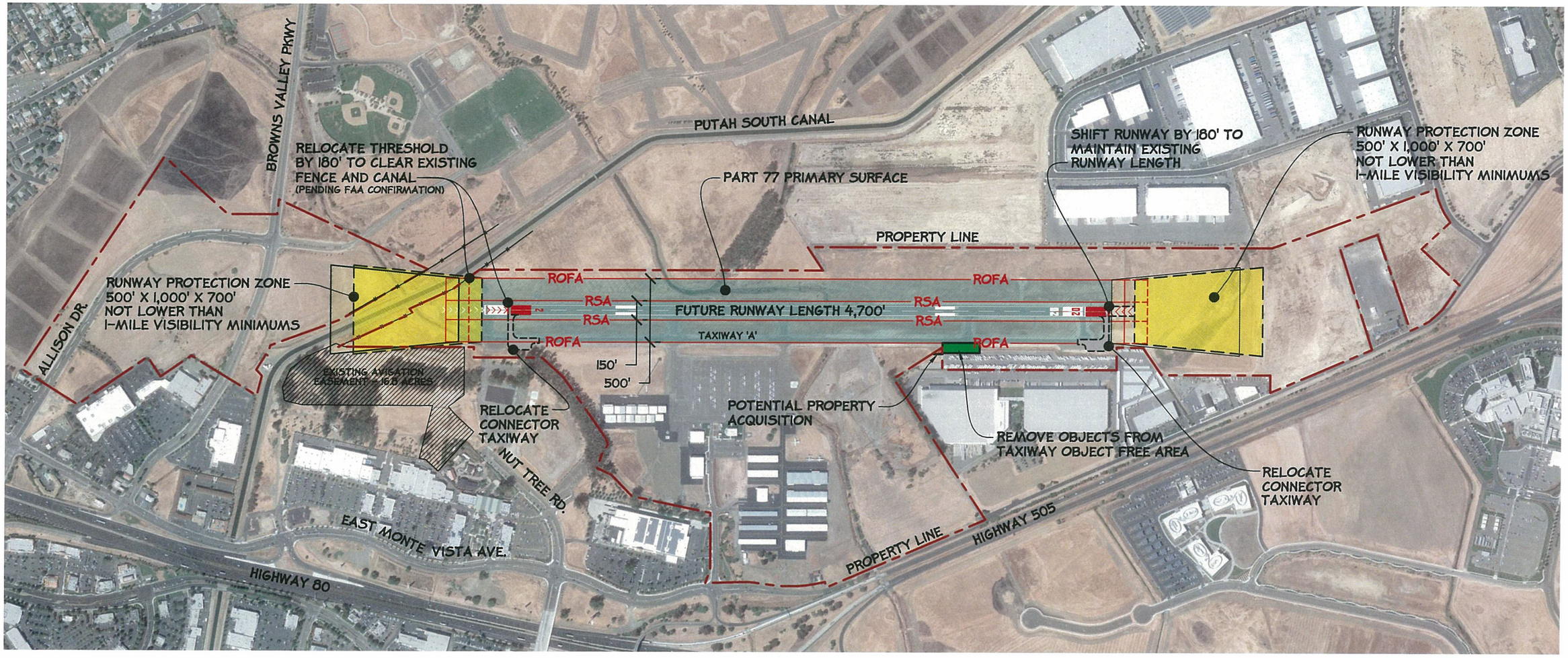


FIGURE E2

AIRSIDE ALTERNATIVE CONCEPT TWO – SHIFT THE RUNWAY 180' NORTH FOR FAA ROFA COMPLIANCE

Airside Alternative Concept Three – Shift and Extend Runway to 5,500 Feet

As noted above, the runway length requirements of those aircraft using the Airport on a regular basis (more than 500 annual operations) are met with the existing length of Runway 2/20 and it is recommended that at a minimum, this runway length be maintained at 4,700 feet. However; the Airport currently accommodates approximately 250 to 300 annual operations by more demanding aircraft that could benefit from additional runway length. It is anticipated that during the planning period, the number of operations by aircraft which could benefit from additional runway length will exceed the FAA's justification threshold of 500 annual operations. Consequently, it is considered prudent planning to examine a potential runway extension alternative in this Master Plan Update. Airside Alternative Three provides a runway extension of Runway 2/20 to a future runway length of 5,500 feet. Airside Alternative Three would also correct the non-standard ROFA by shifting Runway 2/20 approximately 180 feet to the north. In other words, this alternative would remove 180 feet from the approach end of Runway 2 and add 980 feet (800-foot extension plus 180-foot shift) to the approach end of Runway 20.

Airside Alternative Three would also correct the non-standard TOFA associated with Taxiway "A" near the approach end of Runway 20 through land acquisition and perimeter fence relocation.

- **Runway 2/20 Dimensions:** Runway 2/20 would be shifted 180 feet to the north, and extended 800 feet to the north (980 total feet) for a future runway length of 5,500 feet.
- **Runway 20 Approach Visibility Minimum:** The instrument approach visibility minimums for Runway 2/20 would be maintained at not-lower-than 1-mile.
- **Runway 2/20 Lighting:** The Medium Intensity Runway Lights (MIRLs) serving Runway 2/20 would be maintained. The Precision Approach Path Indicator (PAPI) lights and Runway End Identifier Lights (REILs) at both ends would be relocated in accordance with the runway shift and extension.
- **Taxiway System:** A taxiway extension and a new connector taxiway would be constructed at the approach end of Runway 20 in addition to new aircraft run-up areas in accordance with the runway extension. A new connector taxiway and aircraft run-up area would also be constructed at the approach end of Runway 2 in accordance with the runway shift.
- **Taxiway Lighting:** The Medium Intensity Taxiway Lights (MITLs) on Taxiway "A" would be maintained and MITLs would be installed on the new parallel taxiway extension and on the new connector taxiways.
- **Property/Easement Acquisition:** A small parcel of land would be acquired east of Runway 2/20 to correct the non-standard TOFA and approximately 8.5 acres of

land is recommended for acquisition to accommodate the shifted Runway Protection Zone (RPZ).

Alternative Three. Potential Environmental Impacts

There are no known threatened or endangered species or known critical habitat in the vicinity of the 980-foot runway shift/extension. The proposed shift/extension would not be expected to significantly affect air or water quality other than temporary construction related impacts. The proposed runway shift/extension would slightly alter flight tracks and the location of the 65 CNEL noise contour; however, the 980-foot shift of the contour would not be expected to encompass any noise sensitive land uses or otherwise result in significant noise impacts.

The runway extension would encroach upon a FEMA designated 100-year floodplain. During the NEPA process, the County would be required to show that no practicable alternative outside the floodplain exists. A significance determination on the floodplain encroachment would then have to be made; however, it is likely that the encroachment would not be considered significant.

It is possible that a small portion of the runway extension and associated Runway Safety Area (RSA) could impact a wetland according to the U.S. Fish and Wildlife Service's National Wetland Inventories maps. The placement of fill material in wetlands is regulated by the U.S. Army Corps of Engineers. During the required NEPA process which would precede the implementation of improvements associated with this alternative, the wetlands would have to be officially delineated and if wetlands impacts would occur, a permit from the U.S. Army Corps of Engineers may be required.

Alternative Two Implementation Considerations:

- The shift and extension of the runway would allow the provision of a runway 5,500 feet in length, a length which would allow the types of business jets that currently operate at the Airport to operate more efficiently.
- Aircraft operational effects would be shifted marginally to the northeast.
- FAA object clearing standard issues are resolved.
- Land acquisition is required.
- The Airport will continue to serve the same aircraft types that it serves presently.
- Does not provide improved instrument approach capabilities.

A graphic layout of Alternative Three is shown in the following figure entitled *AIRSIDE ALTERNATIVE CONCEPT THREE – SHIFT AND EXTEND RUNWAY TO 5,500 FEET.*

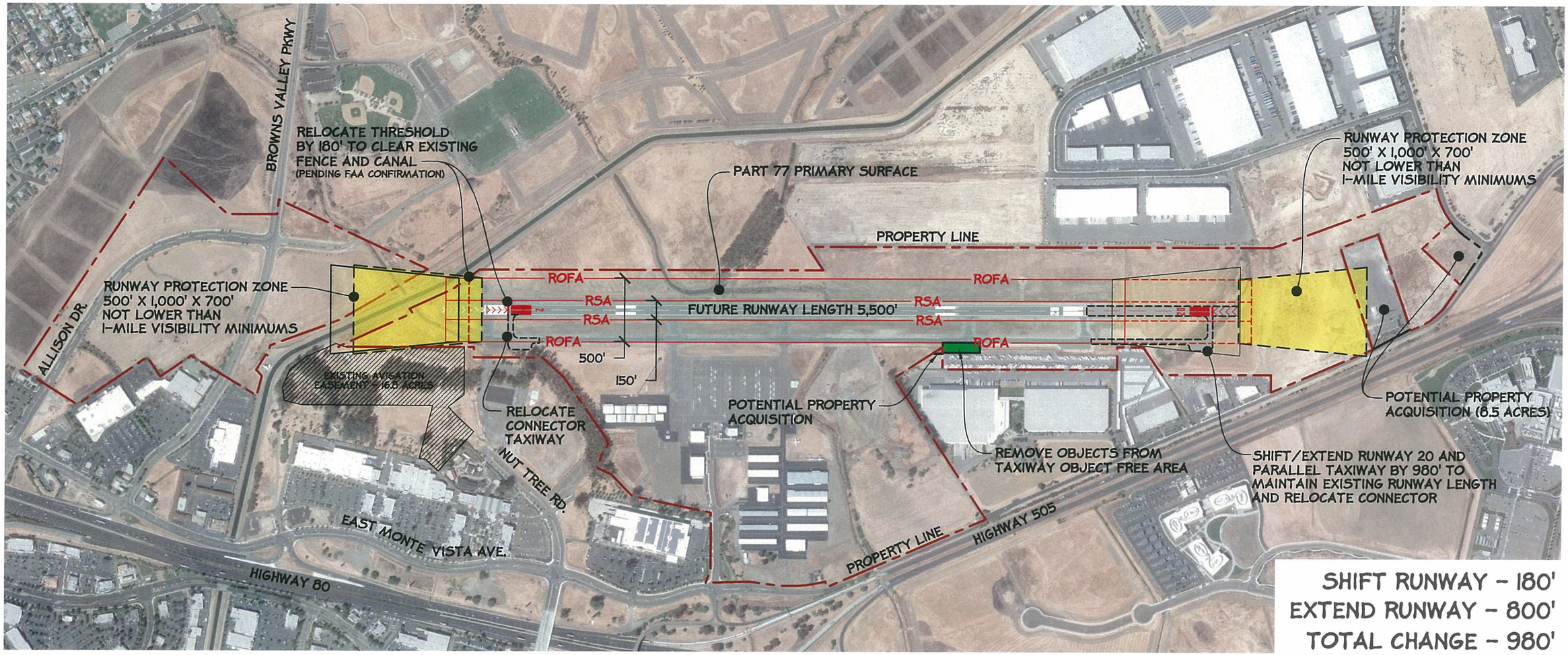


FIGURE E3

AIRSIDE ALTERNATIVE CONCEPT THREE - SHIFT & EXTEND RUNWAY TO 5,500'

Airside Alternative Concept Four – Shift and Extend Runway, Including Improved Instrument Approach Capabilities

As with the previous alternative concept, Airside Alternative Four examines the potential to extend the runway to a future runway length of 5,500 feet. Alternative Four would also correct the non-standard ROFA by shifting Runway 2/20 approximately 180 feet to the north. In other words, this alternative would remove 180 feet from the approach end of Runway 2 and add 980 feet (800-foot extension plus 180-foot shift) to the approach end of Runway 20.

Airside Alternative Concept Four would also correct the non-standard TOFA associated with Taxiway "A" near the approach end of Runway 20 through land acquisition and perimeter fence relocation. Alternative Four also includes a reduced approach visibility minimum (1-mile to ¾-mile) for Runway 20. The ¾-mile visibility minimum requires physical improvements (an approach lighting system), and dimensional criteria improvements including a larger FAR Part 77 Primary Surface and a larger Runway Protection Zone (RPZ).

- **Runway 2/20 Dimensions:** Runway 2/20 would be shifted 180 feet to the north, and extended 800 feet to the north (980 total feet) for a future runway length of 5,500 feet.
- **Runway 20 Approach Visibility Minimum:** The instrument approach visibility minimum for Runway 20 would be reduced from 1-mile to ¾-mile.
- **Runway 2/20 Lighting:** The Medium Intensity Runway Lights (MIRLs) serving Runway 2/20 would be maintained. The Precision Approach Path Indicator (PAPI) lights and Runway End Identifier Lights (REILs) at both ends would be relocated in accordance with the runway shift and extension. Also, to achieve the ¾-mile approach visibility minimum, it is recommended that a medium intensity approach lighting system (MALS) be installed.
- **Taxiway System:** A taxiway extension and a new connector taxiway would be constructed at the approach end of Runway 20 in addition to new aircraft run-up areas in accordance with the runway extension. A new connector taxiway and aircraft run-up area would also be constructed at the approach end of Runway 2 in accordance with the runway shift.
- **Taxiway Lighting:** The Medium Intensity Taxiway Lights (MITLs) on Taxiway "A" would be maintained and MITLs would be installed on the new parallel taxiway extension and on the new connector taxiways.
- **Property/Easement Acquisition:** Approximately 16.1 acres of land would be acquired east and west of Runway 2/20 out to the boundary of the 1,000-foot wide primary surface. Approximately 8.5 acres of land would also be acquired to accommodate the shifted Runway Protection Zone (RPZ) and approximately 4.4 acres of

easements would be acquired for the RPZ. The FAA strongly recommends airport sponsor control of RPZs.

Alternative Four. Potential Environmental Impacts

There are no known threatened or endangered species or known critical habitat in the vicinity of the 980-foot runway shift/extension. The proposed shift/extension would not be expected to significantly affect air or water quality other than temporary construction related impacts. The proposed runway shift/extension would slightly alter flight tracks and the location of the 65 CNEL noise contour; however, the 980-foot shift of the contour would not be expected to encompass any noise sensitive land uses or otherwise result in significant noise impacts.

The runway extension would encroach upon a FEMA designated 100-year floodplain. During the NEPA process, the County would be required to show that no practicable alternative outside the floodplain exists. A significance determination on the floodplain encroachment would then have to be made. It is likely that the encroachment would not be considered significant. It is possible that a small portion of the runway extension and associated Runway Safety Area (RSA) could impact a wetland according to the U.S. Fish and Wildlife Service's National Wetland Inventories maps. The placement of fill material in wetlands is regulated by the U.S. Army Corps of Engineers. During the NEPA process, the wetlands would have to be officially delineated and if wetlands impacts would occur, a permit from the U.S. Army Corps of Engineers may be required.

Alternative Four Implementation Considerations:

- The shift and extension of the runway would allow the provision of a runway 5,500 feet in length, a length which would allow the types of business jets that currently operate at the airport to more efficiently function.
- Aircraft operational effects would be shifted to the northeast.
- FAA object clearing standard issues are resolved.
- Land acquisition and easement acquisition is required.
- The Airport will continue to serve the same aircraft types that it serves presently.
- Provides improved instrument approach capabilities.

A graphic layout of Alternative Four is shown in the following figure entitled *AIRSIDE ALTERNATIVE CONCEPT FOUR – SHIFT AND EXTEND RUNWAY TO 5,500 FEET INCLUDING IMPROVED INSTRUMENT APPROACH CAPABILITIES.*

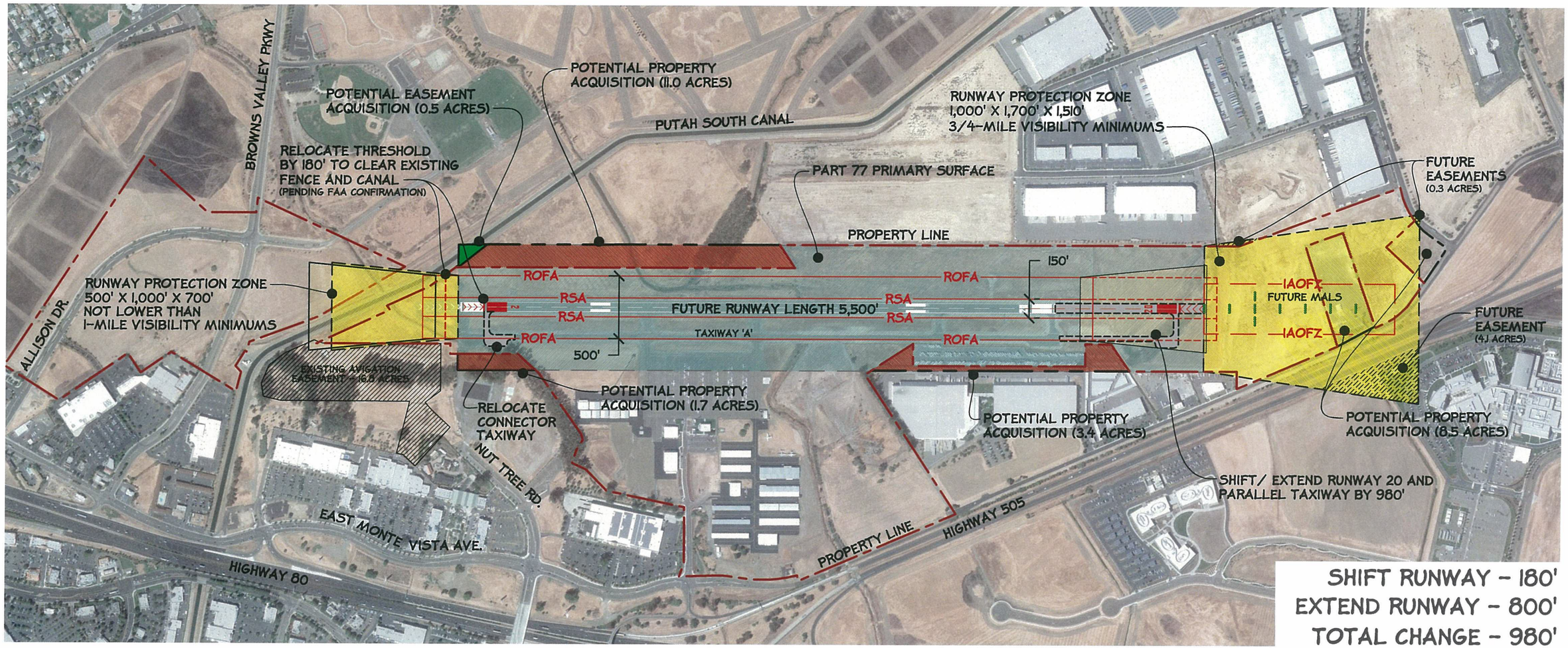


FIGURE E4

AIRSIDE ALTERNATIVE CONCEPT FOUR - SHIFT & EXTEND RUNWAY TO 5,500', INCLUDING IMPROVED INSTRUMENT APPROACH CAPABILITIES

Airside Alternative Concept Five – Retain Recommendations from Existing Planning Documents

The most current Nut Tree Airport Planning Document is the 2007 Airport Layout Plan (ALP), which indicates that the runway should ultimately be extended to 5,600 feet, with the provision for precision instrument approach capabilities (less than ¾-mile visibility minimum to both runway ends. The existing ALP does not indicate how the non-standard object clearing standards would be resolved on the south end of the Runway; therefore, it is assumed that the Putah South Canal would be relocated in some manner.

- **Runway 2/20 Dimensions:** Runway 2/20 would be extended by 900 feet to the northeast to provide an ultimate runway length of 5,600 feet. The width of the runway would be required to increase to 100-feet (from its existing width of 75 feet) to meet the requirements for the precision instrument approaches. Also, while not illustrated on the existing ALP or the following alternative graphic, the RSA and ROFA width and length off of the runway ends increases.
- **Runway 20 Approach Visibility Minimum:** The instrument approach visibility minimums for Runway 2/20 would be improved to less than ¾- mile.
- **Runway 2/20 Lighting:** The Medium Intensity Runway Lights (MIRLs) serving Runway 2/20 would be maintained, as would the Precision Approach Path Indicator (PAPI) lights. Both ends of the runway would be equipped with a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR).
- **Taxiway System:** The ultimate parallel taxiway system would be relocated from its current position (providing 240 feet between the runway centerline and the taxiway centerline) to a position that would provide 300 feet of separation.
- **Taxiway Lighting:** The Medium Intensity Taxiway Lights (MITLs) on new Taxiway "A" would be maintained.
- **Property/Easement Acquisition:** Approximately 16.1 acres of land would be acquired east and west of Runway 2/20 out to the boundary of the 1,000-foot wide primary surface. Approximately 8.5 acres of land would also be acquired to accommodate the shifted Runway Protection Zone (RPZ) and approximately 32.8 acres of easements would be acquired for the RPZs (26 acres for the Runway 20 RPZ and 6.8 acres for the Runway 2 RPZ). The FAA strongly recommends airport sponsor control of RPZs.

Alternative Five. Potential Environmental Concerns

There are no known threatened or endangered species or known critical habitat in the vicinity of the 900-foot runway extension. The proposed extension would not be expected to significantly affect air or water quality other than temporary construction related impacts.

The proposed runway extension would slightly alter flight tracks and the size of the 65 CNEL noise contour; however, the slightly longer 65 CNEL contour would not be expected to encompass any noise sensitive land uses or otherwise result in significant noise impacts.

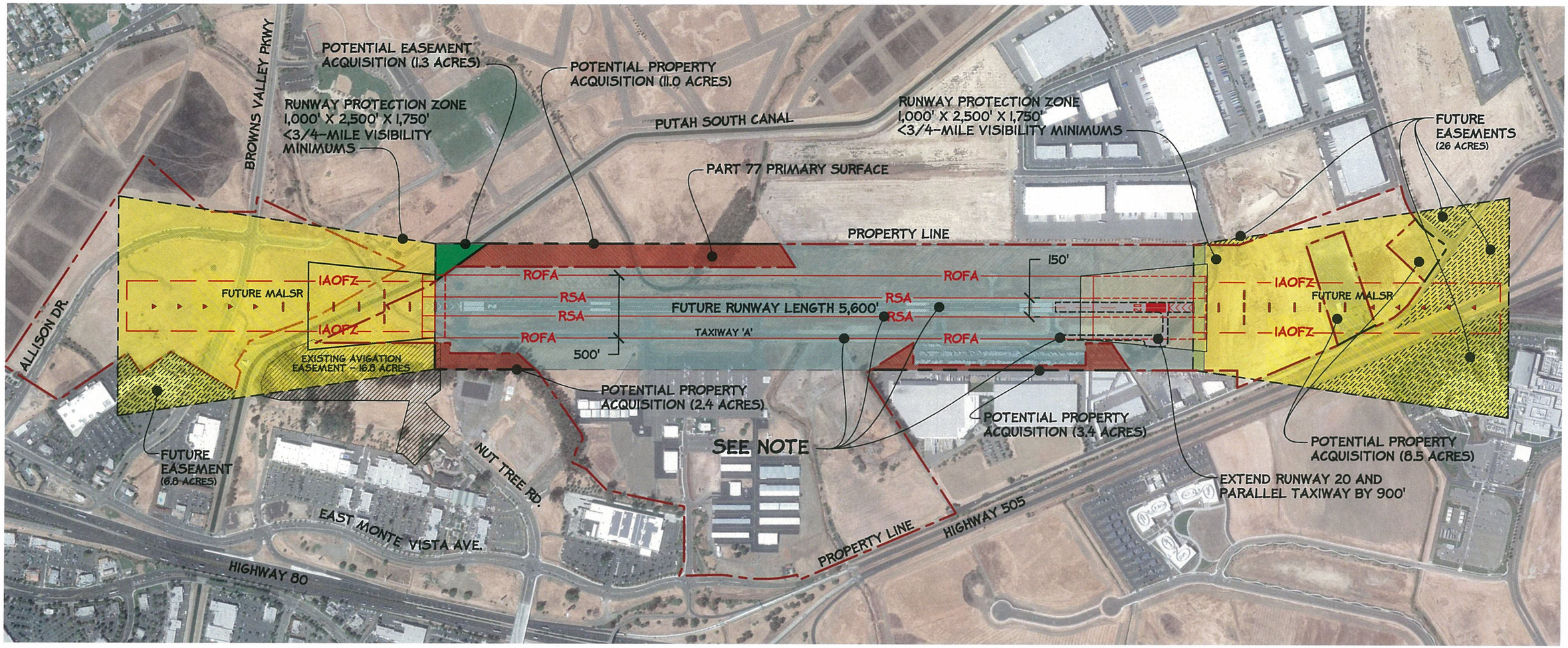
The runway extension would encroach upon a FEMA designated 100-year floodplain. During the NEPA process, the County would be required to show that no practicable alternative outside the floodplain exists. A significance determination on the floodplain encroachment would then have to be made. It is likely that the encroachment would not be considered significant.

It is possible that a small portion of the runway extension and associated Runway Safety Area (RSA) could impact a wetland according to the U.S. Fish and Wildlife Service's National Wetland Inventories maps. The placement of fill material in wetlands is regulated by the U.S. Army Corps of Engineers. During the NEPA process, the wetlands would have to be officially delineated and if wetlands impacts would occur, a permit from the U.S. Army Corps of Engineers may be required.

Alternative Implementation Considerations:

- The extension of the runway would allow the provision of a runway 5,600 feet in length, a length which would allow the types of business jets that currently operate at the Airport to operate more efficiently.
- Aircraft operational effects would be shifted to the northeast.
- Significant land and easement acquisition is required.
- The Airport will continue to serve the same aircraft types that it serves presently.
- Provides improved instrument approach capabilities

A graphic layout of Alternative Five is shown in the following figure entitled *AIRSIDE ALTERNATIVE CONCEPT FIVE – RETAIN RECOMMENDATIONS FROM EXISTING PLANNING DOCUMENTS.*



NOTE: IN ORDER TO ACHIEVE PRECISION APPROACH MINUMUMS, A NUMBER OF DIMENSIONAL CRITERIA CHANGES WOULD BE REQUIRED, INCLUDING AN INCREASE IN RUNWAY WIDTH FROM 75' TO 100', AN INCREASE IN RUNWAY/TAXIWAY SEPARATION FROM 240' TO 300', AN INCREASE IN RSA SIZE, AN INCREASE IN THE SIZE OF THE ROFA, AMONG OTHER THINGS. THESE DIMENSIONAL CRITERIA ARE NOT ILLUSTRATED ON THE EXISTING ALP.

FIGURE E5

AIRSIDE ALTERNATIVE CONCEPT FIVE – RETAIN RECOMMENDATIONS FROM EXISTING PLANNING DOCUMENTS

Airside Alternative Analysis Preliminary Summary

The primary purpose of an Airport Master Plan Update is to recognize improvements that are needed components of a long-term physical development plan that achieves the community's objectives related to accommodating future aviation demand. By recognizing those potentially needed improvements, the Airport's Sponsor (Solano County) can then take steps to protect the ability to construct those improvements at some point in the future when they are needed and if the improvement projects are financially feasible and environmentally appropriate.

No conclusions can be reached at this point concerning a long-term recommended improvement concept for Nut Tree Airport. These alternative improvement concepts that are the subject of this working paper will be discussed in a public forum on December 8, 2010. Following receipt of input during and subsequent to that meeting and in consultation with Solano County, an overall improvement program will be formulated for the Airport, which will be used as a basis to complete the Airport Master Plan Update.

Next Steps

It is recognized that there are some additional areas of analysis that will be required before development options for the airport can be fully vetted and a decision be made by Solano County as to the development concept that should be moved forward in the planning process. These more detailed required analysis areas certainly include aircraft noise and other environmental considerations; along with airport land use compatibility planning has been established in consideration of State of California guidance and decisions on land use planning that are made on a local level require further land use review.

The idea at this early stage of alternative concept analysis is to review the range of options and, hopefully, narrow the number to one or more that appear to be feasible. The more detailed analysis can then be developed for those alternative concepts that are believed to be feasible. The next steps that will include the more detailed analysis include:

- Master Plan Update

  - **Working Paper Four**. Working Paper Four (WP4) will include noise analysis, the conceptual development plan(s), airport improvement program and financial plan.
  - **Public Information Meeting # 5.** A Master Plan Update public information meeting will be held to present and receive comments on Working Paper Four.

- **Draft Final Report.** Working Papers one through four with revisions and updates will form the basis for the Draft Final Report of the Nut Tree Airport Master Plan Update.
- **Provisional Acceptance of the Planning Document.** Solano County will be asked to provisionally accept the Airport Master Plan Update and its recommend conceptual development plan. Other verification, analysis, and documentation follows.

❖ Other Significant Required Documentation Before the Master Plan Update Can be Adopted or Approved by Solano County

- **California Environmental Quality Act (CEQA) Documentation.** Either an Environmental Impact Report (EIR) or a Mitigated Negative Declaration (MND) will need to be prepared on the Airport Master Plan Update before Solano County can officially (and not provisionally) adopt or approve the master plan document.

❖ Other Significant Required or Recommended Documentation Prior to Major Project Construction.

- **National Environmental Policy Act (NEPA) Documentation.** As a requirement of federal grant funding to support the capital development of Nut Tree Airport, project-specific NEPA documentation will be required before federal funding can be used. This documentation can be in the form of a Categorical Exclusion, a federal Environmental Assessment (EA), or a federal Environmental Impact Statement (EIS).
- **Airport Land Use Compatibility Planning.** Solano County currently has an Airport Land Use Compatibility Plan for Nut Tree Airport. However, significant off-airport land use approvals have been made in recent years and on-airport land use changes may be an outgrowth of the Nut Tree Airport Master Plan Update. A reconciliation of land uses is highly recommended. According, Solano County should consider updating the current Land Use Compatibility Plan for Nut Tree Airport (ALUCP) prior to the construction of significant airport improvements that maybe included in the Conceptual Development Plan (CDP) for the Airport.