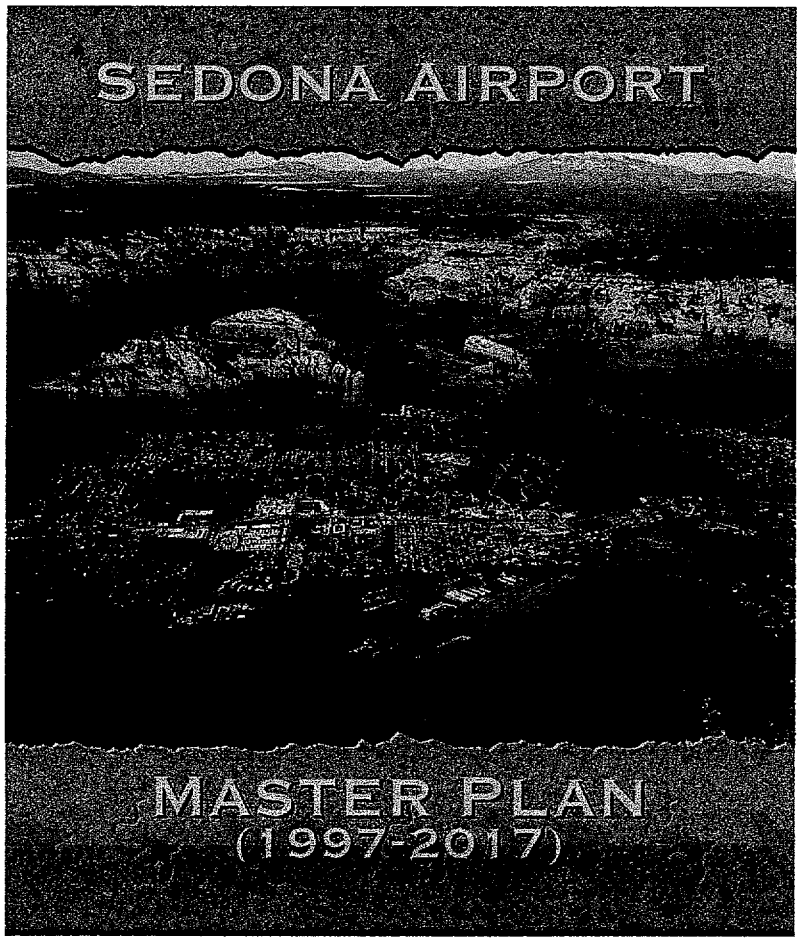


DEVELOPMENT ALTERNATIVES

Chapter 5
DEVELOPMENT ALTERNATIVES

5.1 INTRODUCTION

Yavapai County and Sedona Airport Administration provide the overall guidance for the operation and development of Sedona Airport. It is the responsibility of Sedona Airport Administration to market, develop, and operate the airport to the betterment of the City of Sedona and its surrounding communities. This responsibility is best served when the affected communities and airport management focus on the following objectives:

- Provide the maximum amount of air service possible for the communities.
- Operate the airport as an attractive, efficient, safe, and environmentally compatible facility.
- Market and develop the airport facilities and available land as economic development opportunities.

To meet these objectives, development of facilities should be undertaken in such a manner as to minimize operational constraints. Flexibility in airport development is essential to assure adequate capacity and minimize financial commitments until market potential is realized.

The previous chapter quantitatively identified the future facility requirements. In this chapter, physical development alternatives to meet those requirements are identified and evaluated.

5.2 ALTERNATIVES ANALYSIS PROCESS

The alternative identification process was initiated with the preliminary identification of four airport development concepts; this was followed by a simple exclusionary evaluation that eliminated three of the four concepts. Then, from the preferred development concept, four (4) airside development and two (2) land-use/land-side development alternatives were identified and comparatively evaluated. Finally, this resulted in the selection of a preferred airside development, as well as, a land-use/land-side development alternative from which a detailed airport development plan was prepared.

5.3 PRELIMINARY IDENTIFICATION OF DEVELOPMENT CONCEPTS

In the early stages of this master plan element, four airport development concepts were identified including:

1. **"Do Nothing" Concept**. Maintain the airport in its present condition without the recommended improvements identified in the previous chapter.

2. **Move to Other Surrounding Airport(s)**. Existing airport would close and all based aircraft and operations would be displaced. Other airports would experience increased aviation demand and need for facility improvements to accommodate that demand.

3. **Develop a New Airport**. A new Sedona Airport would be constructed and the existing airport would be closed. The new airport would, at a minimum, meet the existing airport's infrastructure with future improvements made to accommodate forecast demand.

4. **Improve the Existing Airport.** The existing airport would be maintained and improved to accommodate future demand.

These concepts were based on a broad consideration of the airport's long-term options. While the airport master plan's objective primarily sought to address development needs associated with the existing airport, other options were identified for consideration.

5.4 EXCLUSIONARY EVALUATION OF ALTERNATIVE DEVELOPMENTS

An exclusionary evaluation was conducted to identify any fatal errors associated with each airport development concept to determine which concepts should be eliminated from further study. This effort resulted in the elimination of the first three concepts as described below.

❶ "Do Nothing" Concept

A "Do Nothing" policy at the Sedona Airport would magnify the facility deficiencies over time as based aircraft and operations demand increased. This would progressively impact both local and transient airport users and, thus, make the airport less desirable to business traffic. While the primary advantage is the low cost, inadequate facilities could negatively impact the airport's long-term economic viability and contribution to the community and regional airport system. Finally, the "Do Nothing" alternative is not consistent with the ultimate goals and objectives of the Sedona Airport Administration and Yavapai County. This alternative was eliminated from further consideration.

❷ Move to Other Surrounding Airports

The two closest airports to Sedona are Flagstaff Pulliam Airport, located 28 miles north, and Cottonwood, located 19 miles west. These airports would experience the majority of the displaced aviation demand for facilities. This could significantly impact the airports accommodating this displaced demand since Sedona Airport has over 100 based aircraft, 80 hangars and over 6 FBO/Tour operators. Although Flagstaff Pulliam and Cottonwood Airport may have sufficient land available for expansion, one or both airports could near capacity as their projected growth, in addition to Sedona Airport's displaced demand and anticipated growth, is realized. Further, Sedona's current location plays an integral part in the regional airport system, serves a number of pilots residing in the Sedona area, accommodates much of the tourist traffic, and positively benefits the Sedona economy (see Appendix B, Financial Section). This alternative is undesirable and was eliminated from further consideration.

❸ Develop A New Airport

In 1987, the Verde Valley/Sedona Area Regional Airport Needs Assessment Study was prepared to determine, through the 2010 planning period, the feasibility of relocating the Sedona Airport to a regional facility located in the Verde Valley between Cottonwood and Sedona. This study was prepared for the Arizona Department of Transportation. The community rejected the proposal. Today, Sedona Airport is a well-established facility. The majority of future facility requirements can be accommodated through the planning period and beyond. While a new airport site could accommodate a longer runway, the capital investment required would be considerable, making a new airport a significant financial constraint. Thus, this alternative was also eliminated from further consideration.

❹ Improve the Existing Airport

Improving the existing airport is the preferred development concept for the same reasons that the other three concepts were not desirable. This development concept maintains the integrity of the current investment, serves the current aviation demand, offers an opportunity for continued and functional landside development to accommodate future demand, and avoids displacing demand that would in turn disrupt and overburden the regional airport system. With this concept selected, airside and landuse/landside development alternatives were identified.

5.5 AIRSIDE ALTERNATIVES

Airside facilities, by their very nature, are the focal point of the airport complex. Because of their role as the point of transition between air operations and ground operations, and the fact that they physically dominate airport land use, airside requirements are the most critical in the identification of reasonable airport development alternatives.

5.5.1 Identification of Airside Alternatives

The development of airside alternatives examined various ways that the recommended airside facilities could be provided. The various airside alternatives attempted to maximize the utilization of existing facilities, and provide, when possible, maximum runway length within reasonable topographic, engineering, environmental and development cost constraints. The four airside alternatives include:

1. Continue to maintain existing runway and request a "Modification to FAA Design Standards" for the runway safety area. This alternative proposes maintaining the existing runway at its current length of 5,130 feet without meeting the FAA's Runway Safety Area (RSA) requirements. Thus, Yavapai County, in coordination with SAA, would submit to the FAA a request for modification to the current RSA design standard. The RSA is centered about the runway at a width of 150 feet for the full length of the runway plus 300 feet off each end. While Sedona meets the RSA width requirements, it does not have the proper grading 150 feet off each runway end. The request for modification submittal would request that the airport's existing runway safety area dimensions be approved for the Sedona Airport in lieu of costly grading and/or a displaced threshold which would result in less runway landing length.

2. Establish a displaced threshold to meet runway safety area dimension requirements. As discussed in Chapter 4, Runway 3 and 21 ends include ground sloping down by as much as five percent in the first 140 feet from the runway edge; the required maximum slope is three percent the first 200 feet. This alternative would consist of grading the runway safety areas to be brought up to FAA design standards. However, establishing a displaced threshold of 300 feet at each runway end would shorten the available pavement for landing to 4,830 feet. Further, it would weaken the ability of the airport to accommodate some of its current and forecast aircraft fleet mix.

3. Extend runway to 6,340 feet. This alternative would require a runway extension to both ends to obtain an additional 1,210 feet of pavement length for a total of 6,340 feet. This runway length would accommodate 100 percent of the small aircraft fleet. The runway extension would require land acquisition from the U.S. Forest Service, an Environmental Assessment to identify potential impacts associated with the extension, and significant fill off the runway ends where the terrain drops off to meet the FAA design standards for runway grade.

4. Realign existing runway to accommodate a 7,710-foot total runway length. Alternative 4 would require a new runway alignment on the mesa and relocation of existing facilities to maintain proper separation from the air operations area. Similar to Alternative 3, this alternative would also require land acquisition from the U.S. Forest Service, an Environmental Assessment to identify potential impacts associated with the realignment, and earthwork to meet the FAA design standards for runway grade. This alternative would accommodate 100 percent of the small aircraft fleet as well as 75 percent of the large aircraft fleet (less than 60,000 pounds) at 60 percent useful load.

5.5.2 Comparative Evaluation and Selection of Preferred Airside Alternative

While Alternatives 1 and 2 were considered feasible, Alternatives 3 and 4 were eliminated from further analysis (also discussed in Chapter 4). These alternatives were dismissed since land acquisition, significant fill, disruption to existing operations, and costly relocation of facilities on an already land-constrained airport site are considered cost prohibitive and impractical. In other words, the costs associated with these alternatives far outweighed the benefits.

Following the elimination of Alternatives 3 and 4, Alternatives 1 and 2 were examined further. This resulted in the selection of a preferred alternative – Alternative 1. The cost for Alternative 1 is minimal and will provide the least amount of disruption to airport operations. Alternative 2 was eliminated since this alternative results in the loss of runway landing length, an undesirable condition for the Sedona Airport.

In Alternative 1, the existing runway serves 75 percent of the small aircraft fleet. In fact, the 5,130-foot runway length accommodates the majority of single-engine aircraft operating and forecast to operate at Sedona. In addition, aircraft operating at less than maximum gross weight and/or during lower temperatures require less runway length. Therefore, the existing runway length of 5,130 feet may accommodate an even greater percentage of Sedona aircraft operations during such conditions.

Alternative 1 still requires FAA approval of a 'request for modification' to RSA standards. This request will initiate a process in which the FAA will conduct its own internal study of the RSA issue.

5.6 LAND USE/LANDSIDE DEVELOPMENT ALTERNATIVES

5.6.1 Identification of Land Use /Landside Alternatives

Land use development alternatives were identified in advance of detailed development plans to promote additional discussion of the airport's long-term development goals. This effort allowed a thoughtful consideration of what the PAC, County, City, and airport-related staff envision for the airport's future. This process included discussion of the following: Section 16 restrictions facing the airport; the impact of the scenic overlook on airport access, circulation and safety; the future of the existing non-aviation land uses; and the implications of choosing to promote/emphasize specific types of development (FBO, corporate aviation, private GA, non-aeronautical, etc.). This discussion surrounded two land use development alternatives identified as Alternatives A and B (see Appendix B, Alternatives section).

Alternatives A and B are similar in nature since the majority of the necessary airport improvements would ultimately be located by function and/or in an area that already has related development. In other words, much of the proposed development is additive and the existing configuration of the airport does not lend itself to numerous options.

Alternative A

The General Aviation emphasis in Alternative A is defined as future development to provide additional facilities to private owners of aircraft and basic services to the based aircraft users (such as additional private hangars, oil reclamation facilities, etc.). Typically, these developments are non-revenue producing facilities and accommodate private aircraft users. Highlights of Alternative A included the following:

Aeronautical & Non-Aeronautical Reserve

- 17 acres west of the Sky Ranch Lodge and 10 acres surrounding the Masonic Lodge

Airport Support and Maintenance Areas

- 2 acres north of the Terminal Building Area and south of the Sky Ranch Lodge Lease Property

FBO/Corporate Areas

- 3 acres west of Apron A and east of the Helipad
- Additional 5 acres for Helicopter FBO

General Aviation Areas

- 20 acres west location, 9 acres west of the Apron A
- Center Location - 8 acres center of airfield between Terminal Area and Taxilane BO
- East Location - 4 acres east of Taxilane B5

Access and Circulation Roads

- Up to 1 mile of improved entrance to the airport and hangar areas
- Additional automobile parking for airport users and the public

Alternative B

The emphasis of Alternative B is defined as future development to provide additional facilities to Fixed Based Operators (FBOs), Corporate (Aviation Business Related) and Potential Scheduled Air Service. Typically, these developments are revenue-producing facilities and accommodate more commercial and business activities. Highlights of Alternative B include:

Aeronautical & Non-Aeronautical Reserve

- 17 acres west of the Sky Ranch Lodge and 10 acres surrounding the Masonic Lodge

Airport Support and Maintenance Areas

- 2 acres north of the Terminal Building Area and south of the Sky Ranch Lodge Lease Property

FBO/Corporate Areas

- 5 acres west of Apron A and 4 acres east of the Terminal Area; additional 5 acres for Helicopter FBO

General Aviation Areas

- 9 acres west of the Apron A
- Center Location - 4 acres center of airfield between Terminal Area and Taxilane BO
- East Location - 4 acres east of Taxilane B5

Access and Circulation Roads

- Up to 1 mile of improved entrance to the airport and hangar areas with additional automobile parking areas for the public and airport users

It is important to note that Sedona Airport is a **Section 16** Airport. Therefore, airport land use is restricted to aviation purposes only. However, some of the existing airport uses do not comply with this restriction. Property adjacent to these non-aviation uses is designated as "Aeronautical and Non-Aeronautical Reserve" until demand for this property is realized. Aeronautical use will be restricted to areas close and potentially beneficial to the Airport's operations. This basically describes areas with airside access and potential areas for expansion of the existing terminal building. These land use designations represent potential revenue-generating land areas.

Hangar Development

As a subset to Land Use Alternatives A and B, two hangar development options were prepared of which either could be integrated with Alternative A or B. However, the presentation and discussion of the two hangar development options resulted in the immediate elimination of one. This was due to the airport's existing development progress and near-term plans for expansion that could only be properly integrated with one of the two options. Therefore, only one hangar development option resulted in the 'alternatives identification' process.

Airport Access and Circulation

In addition to the roadway identification in Alternatives A and B, access and circulation were addressed in further detail. The proposed improvements presented during the alternatives identification process included:

- Centralizing the main airport road with access to the terminals and hangar areas
- Paving and clearly marking the new access road throughout the airport for easier access and circulation near the private hangar areas on the east side of the airport
- Widening the access road at the entrance to accommodate large bus turnaround areas and parking

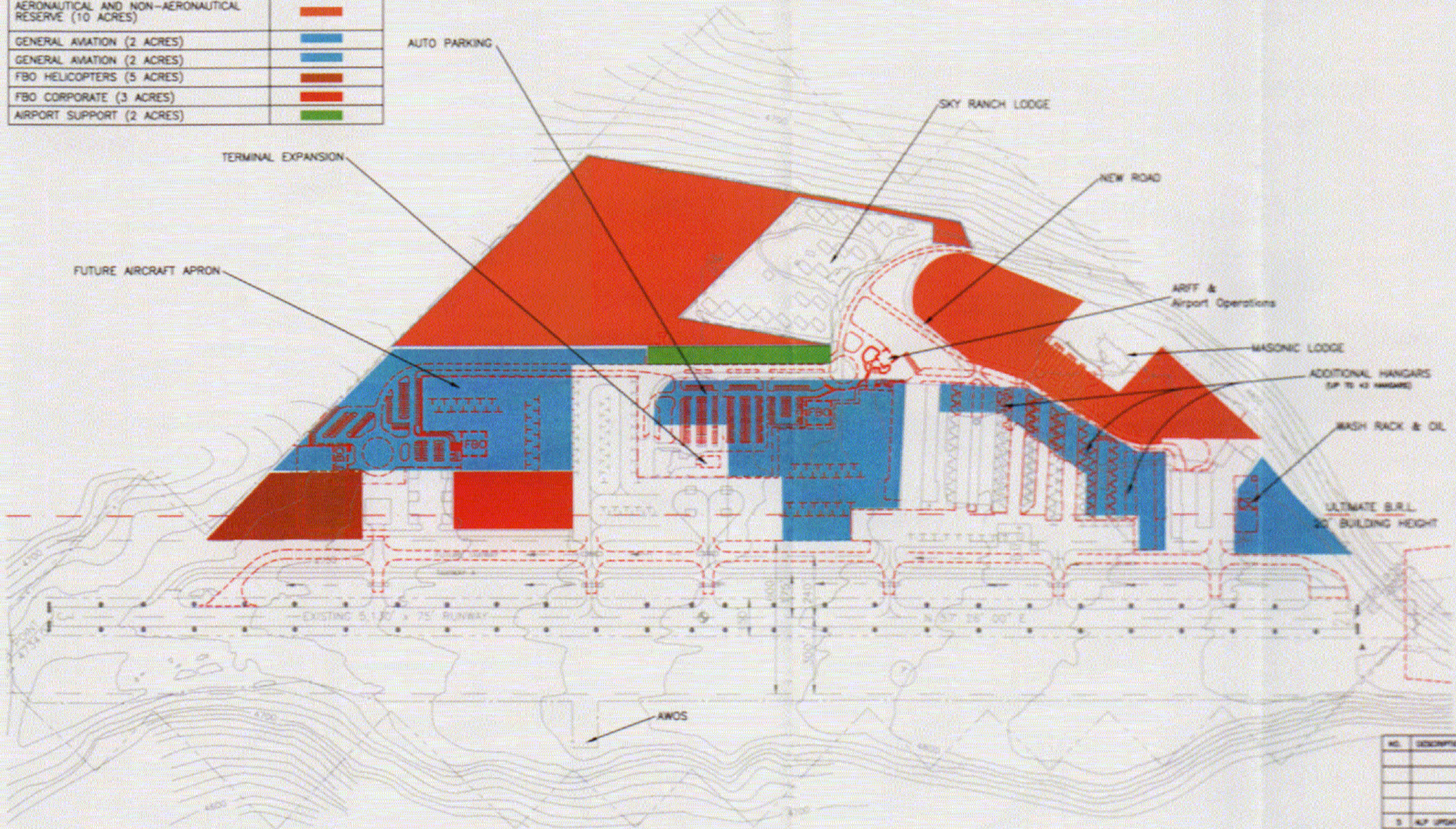
5.6.2 Comparative Evaluation and Selection of Preferred Alternative

The consensus during a Planning Advisory Committee meeting was that **Alternative A** with **modifications** would represent the preferred land use development concept.

The comparative evaluation of Alternatives A and B consisted of a PAC work session, which divided members up into three groups. Each group discussed the airport's goals and issues in relation to the two alternatives and conducted a brief evaluation. The evaluation addressed whether there were any significant differences between the alternatives. Each group completed a worksheet to address such differences numerically under eight general categories to include: environmental, demand forecasts, cost-effectiveness, future flexibility, logical implementation, efficiency, agency compatibility, and design standards and regulations. The comparative evaluation resulted in an insignificant difference in the numerical rating; however, the PAC strongly agreed that Alternative A, with modifications (some extracted from Alternative B), was the direction for the Sedona Airport. Exhibit 5-1 illustrates the preferred alternative – Alternative A with modifications.

LEGEND

AERONAUTICAL AND NON-AERONAUTICAL RESERVE (17 ACRES)	
GENERAL AVIATION (8 ACRES)	
GENERAL AVIATION (9 ACRES)	
AERONAUTICAL AND NON-AERONAUTICAL RESERVE (10 ACRES)	
GENERAL AVIATION (2 ACRES)	
GENERAL AVIATION (2 ACRES)	
FBO HELICOPTERS (5 ACRES)	
FBO CORPORATE (3 ACRES)	
AIRPORT SUPPORT (2 ACRES)	



NO.	DESCRIPTION OF WORK	DATE	BY	APPROVED
5	ALP UPDATE	12/98	LT/RC	

SEDONA AIRPORT

SEDONA, ARIZONA

PREFERRED ALTERNATIVE

SCALE	JOB NO.	DATE	EXHIBIT
1"=200'	81442800	6/98	5-1

Shepherd Consulting Inc.

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The modifications to Alternative A included the placement of an FBO facility in an area central to the airport, but set back far enough to minimize view obstruction and the determination that the "scenic overlook" would not be moved from its current location. In addition, as discussed in the Facility Requirements Chapter, there is a property boundary discrepancy of approximately 11.2 acres, which appears to be owned by the Forest Service rather than Yavapai County. While only a small part of the property in question contains existing airport facilities, the preferred airport development alternative reflects additional development on part of this 11.2-acre parcel.

Once the basis for land use development was established with the selection of Alternative A, progress toward a detailed Airport Layout Plan (ALP) followed. These efforts included details such as identifying aircraft parking apron configurations (tiedowns, taxilanes) auto parking configurations (vehicle spaces, circulation) and the airport roadway system. Further, a note has been added stating that property discrepancy exists and that Yavapai County is in the process of resolving it.

For the airport roadway system (including parking configurations), two development options were identified. Option 1 included "rondels" and Option 2 included "straight intersections." The PAC selected the latter, which is represented on the airport layout plan drawing. Appendix B, Alternatives section, provides the illustrations of these two options as well as the outline of advantages and disadvantages for each that were presented to the PAC.

5.7 CONCLUSION

The proposed airport development described in this chapter is the result of the Sedona Airport Master Plan PAC's discussion and input. A further refinement of airport development proposed for Sedona is presented in Chapter 7, Airport Plans.