SECTION 2 - DESCRIPTION OF ALTERNATIVES

2.0 INTRODUCTION

This section provides a description of the Preferred Alternative as well as information about alternatives considered but eliminated from further consideration as part of the study. The No-Build Alternative was also reviewed relative to the current and future needs of the airport and to provide a baseline for comparison of environmental impacts among the other alternatives.

2.1 PREFERRED ALTERNATIVE

After considering numerous alternatives and evaluating their impacts, a Preferred Alternative was selected. When compared to other alternatives, the Preferred Alternative best meets the purpose and need of the project while minimizing environmental impacts. The Preferred Alternative includes an extended primary runway, improved lighting, new navigational aids, new taxiways, additional hangars, and closure of one crosswind runway. Figure 3 shows the proposed improvements included as part of the Preferred Alternative. Additionally, the critical aircraft would remain the same as it currently (G5) is after implementation of the Preferred Alternative.

2.1.1 Primary Runway

As part of the Preferred Alternative, Runway 9L/27R would be extended 1,800 feet to the west and 1,200 feet to the east, to a length of 6,000 feet of paved runway surface (Figure 3). This would maximize the length of Runway 9L/27R without relocating the surrounding roads and would provide additional runway length to safely accommodate the critical aircraft. Additionally, it would provide the airport with two runways that can accommodate critical aircraft operations. Based on field investigations, no obstruction removal would be necessary to extend runway 9L/27R.

2.1.2 Hangars

In order to meet the large demand for hangar space at OSUA, the following facilities would be constructed as part of the Preferred Alternative:

- Aircraft T-hangars (15 bay with two storage units)
- Aircraft T-hangars (12 bay with an aircraft wash bay, restrooms, and one storage unit)
- Aircraft Community Hangar (clear span with 12 office suites)
- Row hangar (4 bays for multiple aircraft, with capabilities for office suites)

2.1.3 Lighting and Navigational Aids

The existing lighting system along RWY 9L/27R would be relocated to accommodate the Preferred Alternative and provide a comprehensive lighting system for the airport. In addition, an ILS would be installed on Runway end 27R. Two possible sites have been preliminarily identified for the ILS outer marker (a fenced area approximately 30' x 30' in size and containing communications equipment). Both of these sites are located approximately five miles east of runway end 27R, in the northeast quadrant of the Maple Canyon Avenue/Dublin-Granville Road (State Route 161) intersection. Negotiations are currently under way with the City of Columbus and a private property owner, respectively, who own these two sites. The City of Columbus site is at Fire Station Number 6, and the privately owned site is a parking lot adjacent to the fire station.

2.1.4 Taxiways

As part of the Preferred Alternative, Taxiway G would be extended 1,800 feet to the west and 1,200 feet to the east, to a length of 6,000 feet. Connector taxiways would be constructed from the ends of Runway 9L/27R to the ends of Runway 9R/27L (Taxiway K on the west and Taxiway J on the east). Taxiway A would be realigned, and a new 3,000-foot segment would be constructed. Additionally, Taxiway F would be extended approximately 250 feet to the north (Figure 3).

2.1.5 Safety Areas

In order to meet FAA standards for a D-III primary runway, the safety areas for RWY 9L/27R would need to be relocated and expanded. Table 5 illustrates the existing safety area dimensions and FAA design standards that will be used for this runway.

Table 5. Existing Runways, Taxiways and Safety Areas at OSUA.

Criteria	Existing RWY 9L/27R	FAA Required Design Standards ARC D-III*
Runway Safety Area	300 ft x 150 ft	1,000 ft x 500 ft
Object Free Area	240 ft x 250 ft	1,000 ft x 800 ft
Runway Protection Zone	1000 ft x 250 ft x 450 ft	2,500 ft x 1,000 ft x 1,750 ft

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

A Runway Safety Area (RSA) is defined as a surface surrounding the runway that is constructed to reduce the risk of damage to airplanes in the event of an undershoot, overshoot, or an excursion from the runway during landing or take-off. The RSA parallels the runway and also extends some distance past the end of the runway out to a specific distance, dependent upon the size of the critical aircraft utilizing the airport. The RSA must be clear of all objects and graded for potential use.

The Object Free Area (OFA) is defined as a two-dimensional area that extends beyond the end of the runway and is clear of all obstructions and objects, except those that aid in navigation of airplanes. Similar to the RSA, the size of the OFA is dependent upon the size of the critical aircraft utilizing the airport.

The RPZ is defined as a three-dimensional area that controls the height of objects within the approach slope of the runway. The purpose of the RPZ is to enhance the protection of people and property on the ground. The RPZ begins 200 feet beyond the end of the runway pavement that is usable for takeoffs and landings. These boundaries vary in size depending on the type of approach category of the particular runway. An approach slope of 50:1 is used for GPS/ILS approach procedures, while an approach slope of 34:1 is used for non-precision landings using instrumentation. An approach slope of 20:1 is used for non-precision visual landings.

2.1.6 Closure of Runway 14/32

The Preferred Alternative would include the closure and removal of RWY 14/32 in order to maximize the efficiency and safety of future operations with an extended RWY 9L/27R. This closure is included in the OSUA ALP which has been approved by FAA and is consistent with the OSUA Master Plan. Figure 3 shows the location of this closure.

2.1.7 Cost

Based on the OSUA Master Plan, the cost of the Preferred Alternative would approximately be $6 million. This includes runway and facility construction and extension of lighting and navigational aids.

2.2 ALTERNATIVES ELIMINATED

A variety of build alternatives were investigated to meet recommended FAA runway length standards. Additionally, as required by FAA Order 5050.4A, the *Airport Environmental Handbook* (USDOT 1985), the No-Build, Construction of a New Airport, and Expand Other Existing Airport Alternatives were examined. The alternatives listed below were eliminated from further consideration for one or more the following reasons:

- The purpose of and need for the project was not met by the alternative
- The cost of the alternative was unreasonable in relation to the benefits provided
- The negative impacts caused by the alternative were unacceptable

2.2.1 Alternative I (Extend Runways 9R/27L)

Alternative I included extension of runway end 9R by 1,000 feet for a total length of 6,000 feet. The extension of Runway 9R would require the acquisition of approximately 27 acres of residential property containing 112 housing units. The acquisition would be required to protect the runway protection zone. This alternative also calls for upgrading the approach to Runway 27L to precision instrument capability, which would require the purchase of approximately 12 acres of single-family residential property and 20 homes. The cost of purchasing 39 acres and 132 homes, as well as the related negative social impacts of this alternative, led to its elimination.

2.2.2 Alternative II (No-Build Alternative)

The No Build Alternative would not involve any capital improvements to the existing facilities at OSUA. This alternative would consist of continued operations using the existing airport facilities. This alternative was not chosen as the Preferred Alternative because it does not meet the purpose of and need for the project as described in Section 1 of this EA. The No Build Alternative would not bring the airport into compliance with current FAA design standards for runway length for D-III aircraft. For this reason, the No Build Alternative was eliminated from consideration. It is only discussed in subsequent portions of this EA where it serves as a baseline for comparison to the Preferred Alternative.

2.2.3 Alternative III (Construct New Airport at Different Location)

This alternative included construction of a new airport at a different site. The existing airport is conveniently located to serve the population centers in Franklin County, the City of Columbus, and surrounding suburbs. Communities within this area have experienced a significant increase in residents and commercial development over the past 20 years, creating a demand for airport services at this location. The cost for a new airport would be far greater than the cost for upgrading OSUA as proposed. In addition, negative impacts related to constructing a new airport would be great compared to expansion of the existing facilities. The time frame for completion of a new airport would be a minimum of five years, with seven to ten years being more realistic. During this time, airport user needs described in Section 1 would continue to go unmet. For these reasons, this alternative was dismissed from consideration.

2.2.4 Alternative IV (Expand Other Existing Airport Sites)

There are seven airports that are within a 20-mile radius of OSUA. A 20-mile radius was selected because it represents an approximate 30-minute drive time to travel to the airport under consideration, depending on traffic and weather conditions. This time frame is considered an acceptable travel time that people are willing to drive to reach an airport. The alternate airports and a brief description of their facilities are listed in Table 6.

Table 6. Alternative Airport Sites Located Within 20 Miles of OSUA.

Airport Name	Primary Runway	Secondary Runway(s)	Lighting/Navigational Aids
Columbus Bolton	5,200 ft x 100ft.	NA	REIL, AWOS, ILS
Columbus Southwest	2,382 ft. x 120 ft.	NA	LIRL, PAPI
Union County	4,218 ft. x 75 ft.	NA	MIRL, REIL, PAPI
Madison County	4,000 ft. x 75 ft.	NA	MIRL, REIL, PAPI
Port Columbus	10,250 ft. x 150 ft.	8,000 ft. x 150 ft.	HIRL, MALSR, ILS, GPS
Rickenbacker	12,000 ft. x 150 ft.	12,000 ft. x 200 ft.	AWOS, PAPI, ILS, MALSR
Delaware Municipal	5,000 ft. x 100 ft.	NA	MIRL

Columbus Southwest, Union County, and Madison County Airports do not have the instrument landing system capabilities, nor the primary runway length or crosswind runways required to accommodate the aircraft volumes and types that are present at OSUA. The runway lengths of less than 4,500 feet would not be an acceptable alternative to the desired runway length of 6,000 feet, nor would it satisfy the purpose and need as stated in Section 1. Additionally, these airports do not have the facilities or hangar space to efficiently handle the corporate users associated with OSU. The cost for upgrading these airports to ARC D-III standards and construction of adequate facilities would be much greater than the cost of upgrading the facilities at OSUA. Therefore, these airports we eliminated from consideration.

Columbus Bolton Field Airport does not have the primary runway length, crosswind runways or facilities required to accommodate the aircraft volumes and types that are present at OSUA. This airport is located in a residential area of Columbus which has not been identified for business or corporate growth, while OSUA is located in a part of Columbus which supports greater economic activity. Additionally, Bolton Field is surrounded by residential development which would lead to land use conflicts if the airport were to be expanded.

Delaware Municipal Airport (DMA) has the facilities required to accommodate the aircraft volumes and types that are present at OSUA, but it does not have the primary runway length or a crosswind runway to accommodate the aircraft volumes and types from OSUA. Additionally, as shown by the waiting list for hangar space at OSUA, the current user demand is focused in Columbus at OSUA and not in outlying areas like those near DMA. The waiting list for T-hangars at OSUA totals over eighty individuals, dating as far back as January, 1997. The hangar waiting list also includes over 20 individuals/companies desiring community hangar space at this airport, dating as far back as April, 1995. Currently, there is hangar space at DMA, but due to the location of OSUA, most companies and individuals are remaining on the waiting list at OSUA rather than relocating to DMA. The cost for upgrading DMA to ARC D-III standards would be much greater than the cost of upgrading the runway and facilities at OSUA. Also, user demand is not nearly as great at Delaware Municipal Airport. Therefore, this airport was eliminated from consideration.

Port Columbus and Rickenbacker Airports do have the facilities, runway lengths, and hangar space to accommodate the aircraft volumes and types that are present at OSUA. However, as stated above, due to economic conditions, user demand is for facilities at OSUA (individuals and companies are currently waiting on the OSUA list rather than relocating to either of these alternative airports even though the facilities and runway lengths are there). Additionally, OSUA is classified as a reliever airport by FAA. The concept of a reliever airport is to provide separation of use types at airports within close proximity each other. In this case, OSUA handles corporate and individual users that might otherwise reduce the efficiency of operations at Port Columbus. OSUA also separates corporate users from the cargo users that primarily utilize Rickenbacker Airport. Due to the current demand at OSUA and its designation as a reliever airport, these two alternative airports have been eliminated from consideration.