

Chapter Four

Development Alternatives



Colorado City Municipal Airport

Airport Master Plan

Chapter Four

Development Alternatives



INTRODUCTION

The preceding discussion of facility requirements provides the basis for formulating alternative development concepts. Chapter 3 provided recommended development items for the airport. In some situations, multiple options exist for implementing facility requirements. In other cases, the selection of a favored project can result from a straightforward and logical discussion of the options at hand.

The Facility Requirements Chapter provided recommended development to accommodate existing and future demand at the Colorado City Municipal Airport with a B-II Airport Reference Code (ARC). The airside alternatives focus on correcting the nonstandard Runway Visibility Zone (RVZ) condition and the landside alternatives focus on selecting preferred locations for siting various sectors of aeronautical users. The goal of future development will be to place landside development facilities outside of the RVZ, to meet aviation demand in an efficient and cost effective manner and to configure facilities for the maximum potential for future upgrade or expansion.

AIRSIDE ALTERNATIVES

Fundamentally, the airside airport configuration meets the facility requirements for existing and future demand with a B-II airport reference code and $\frac{3}{4}$ -mile instrument approach minimums. There are several logical improvements, such as strengthening the airfield pavements and constructing a 480 foot extension to Runway 11/29, which do not require an extensive alternatives analysis. For example, the potential environmental impacts (including cultural resources and jurisdictional waters) and increased RVZ penetrations result in significant obstacles to extending the runway to the southeast. Therefore, the logical action is to extend the runway to the northwest where there are fewer obstacles. On the other hand, there are multiple variations and options to correcting the nonstandard RVZ conditions which warrant further analysis of each alternative to develop a preferred solution. The RVZ alternative analysis is detailed below. The advantages and disadvantages of each alternative are listed in order to conduct an overall comparative analysis. Each alternative is also shown graphically in the drawings at the end of this Chapter.

Alternative 1 Relocate Terminal and Apron

This alternative would include relocating the existing terminal building and apron outside of the RVZ.

The major advantages to this alternative are:

- Requires no shifting of Runways
- Moves the terminal building and apron outside the RVZ
- Does not reduce the length of existing runways
- No significant environmental impacts

The major disadvantages to this alternative are:

- Requires the relocation of existing facilities, because the terminal building is a sponsor-owned facility the FAA eligible costs include demolition and removal but not relocation, however new general aviation terminals are eligible to receive nonprimary entitlement funding.

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- Costs associated with relocating the facilities
 - Requires land acquisition for future landside development

Alternative 2 Shorten Runway 20

This alternative would include removing 2,047 feet from the northeast end of Runway 2/20, which would move the RVZ outside of the terminal building and apron. This alternative would reduce the length of Runway 2/20 to 3,053 feet.

The major advantages to this alternative are:

- Moves terminal building and apron out of the RVZ
- No land acquisition required
- No significant environmental impacts

The major disadvantages to this alternative are:

- Reduces the length of Runway 2/20 by 2,047 feet to 3,053 feet
- Does not meet the FAA recommended crosswind runway length
- Removes partial parallel taxiway on the crosswind runway
- Does not meet the local planning objectives of the Town of Colorado City

Alternative 3 Shift Runway 11/29

This alternative would include removing 1,804 feet from the southeast end of Runway 11/29 and adding 2,100 feet of runway to the northwest end of Runway 11/29, this would move the terminal building and the apron out of the RVZ.

The major advantages to this alternative are:

- Moves the apron and terminal building out of the RVZ
- Does not require the relocation of the terminal building and aircraft parking apron
- No impacts to wetlands/jurisdictional waters

The major disadvantages to this alternative are:

- Requires additional land acquisition
- Potential impacts to historical and archaeological resources

Alternative 4 Shift Runway 2/20

This alternative would include removing 2,047 feet from the northeast end of Runway 2/20 and adding the 2,047 feet to the southwest end of Runway 2/20, this would move the terminal building and the apron out of the RVZ.

The major advantages to this alternative are:

- Moves the apron and terminal building out of the RVZ
- Does not require the relocation of the terminal building and aircraft parking apron

The major disadvantages to this alternative are:

- Requires additional land acquisition
- Removes a portion of parallel taxiway on Runway 2/20
- Potential impact to wetlands/jurisdictional waters
- Potential impact to historical and archaeological resources

Alternative 5 Shift Runways 11/29 and 2/20

This alternative would include shifting a combination of Runway 11/29 and 2/20, Runway 11/29 would be shifted 1,000 feet to the northwest and Runway 2/20 would be shifted 1,000 feet to the southwest, this would move the terminal building and the apron out of the RVZ.

The major advantages to this alternative are:

- Moves the apron and terminal building out of the RVZ
- Does not require the relocation of the terminal building and aircraft parking apron

The major disadvantages to this alternative are:

- Requires shifting of both runways
- Requires additional land acquisition
- Removes a portion of parallel taxiway on Runway 2/20
- Potential impacts to wetlands
- Potential impacts to historical and archaeological resources

AIRSIDE ALTERNATIVES CONCLUSIONS AND RECOMMENDATIONS

As a result of the potential impacts on wetlands and archaeological resources and no apparent operational or economical benefit Alternatives 4 and 5 have been eliminated from further evaluation. Alternative 2 has also been eliminated from further evaluation because it does not meet the planning objectives of the local community and does not meet the recommendations of the FAA on crosswind runway length. Further review of Alternatives 1 and 3 costs in Tables 4-1 and 4-2 indicate Alternative 1 is significantly less costly than Alternative 3. It is recommended the project be undertaken near the end of the useful life of the apron and terminal building. At that time the existing apron could be pulverized and used as base course in the new apron and the new/replacement general aviation terminal building would be FAA eligible using nonprimary entitlement funds.

TABLE 4-1 ALTERNATIVE 1 ESTIMATED COST

Project	Total Cost	FAA Share	State Share	Local Share
Remove Existing Terminal Building	\$45,000	\$42,750	\$1,125	\$1,125
Construct New General Aviation Terminal Building	\$450,000	\$427,500	\$11,250	\$11,250
Construct New Apron (230'x300')	\$500,000	\$475,000	\$12,500	\$12,500
TOTAL COST	\$995,000	\$945,250	\$24,875	\$24,875

TABLE 4-2 ALTERNATIVE 3 ESTIMATED COST

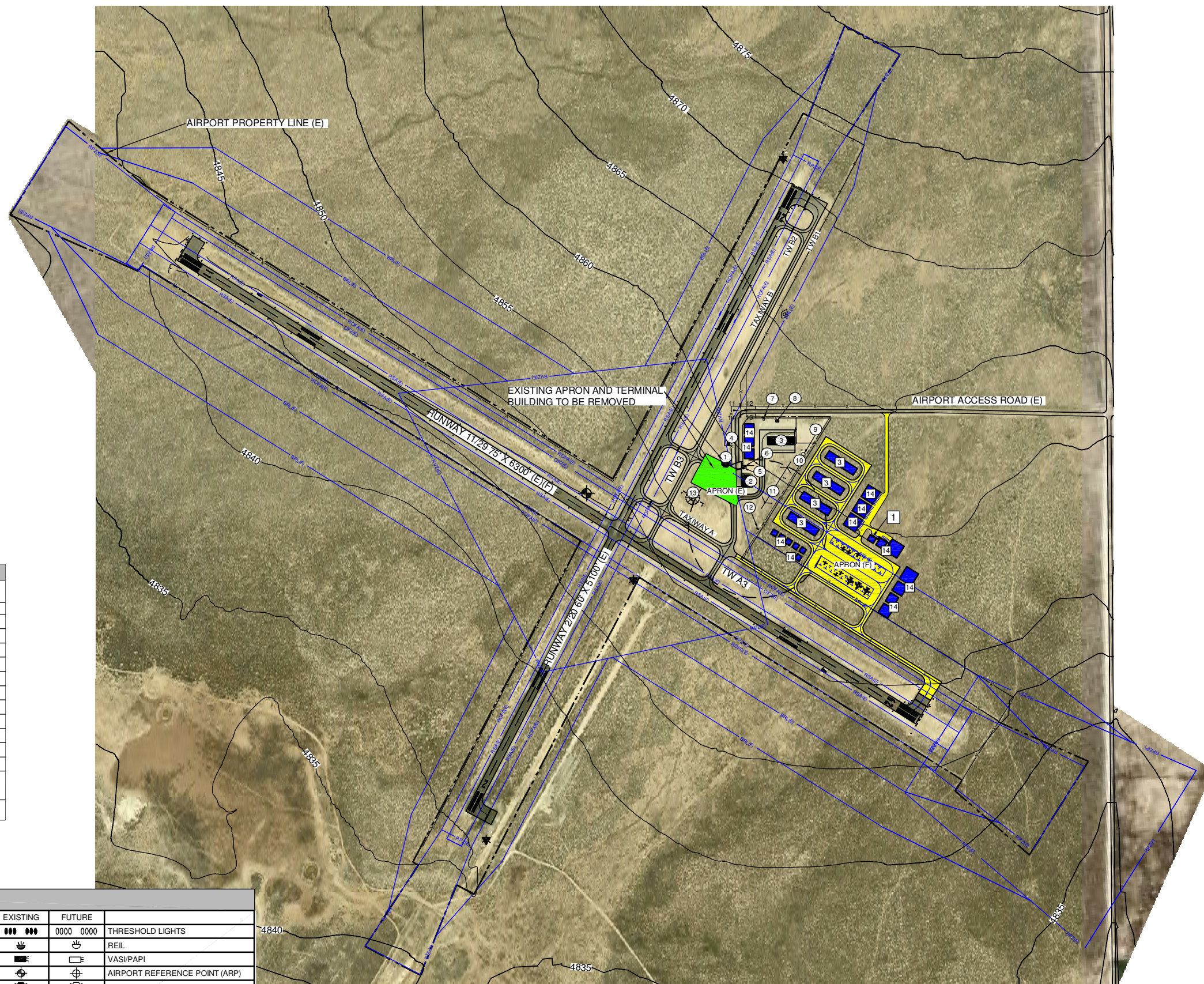
Project	Total Cost	FAA Share	State Share	Local Share
Remove 1,804' of Runway	\$100,000	\$95,000	\$2,500	\$2,500
Construct 2,100' of Runway	\$1,490,000	\$1,415,500	\$37,250	\$37,250
Fencing	\$40,000	\$38,000	\$1,000	\$1,000
Visual Aids	\$65,000	\$61,750	\$1,625	\$1,625
Lighting	\$110,000	\$104,500	\$2,750	\$2,750
Marking	\$50,000	\$47,500	\$1,250	\$1,250
Environmental Assessment	\$150,000	\$142,500	\$3,750	\$3,750
Land Acquisition (±36 acres)	\$54,000	\$51,300	\$1,350	\$1,350
TOTAL	\$2,059,000	\$1,956,050	\$51,475	\$51,475

NO DEVELOPMENT ALTERNATIVE

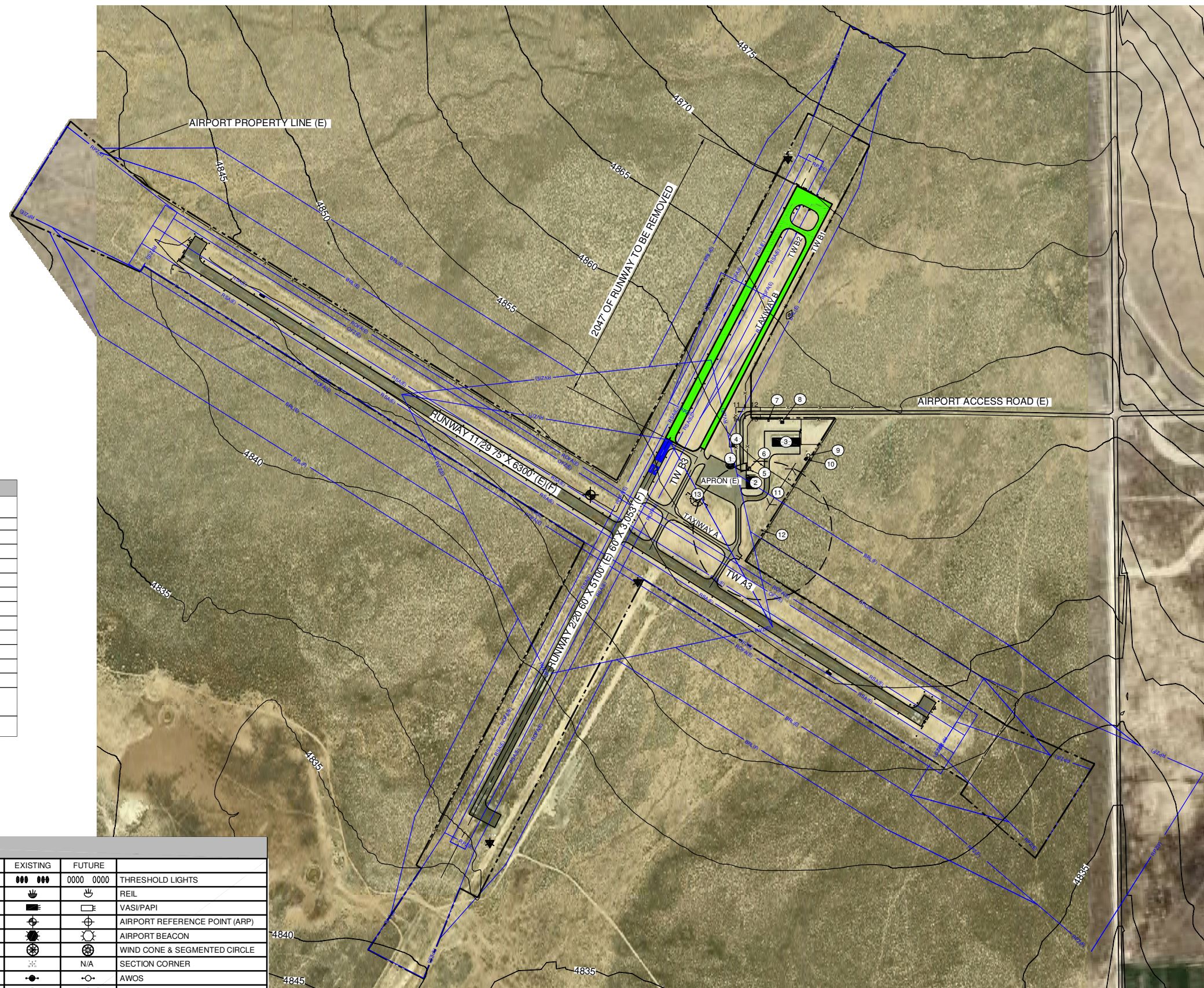
The Town of Colorado City also considered a no development alternative. However, because the airport is in need of development to correct existing design standard deficiencies and accommodate demand, this alternative was not pursued further.

SELECTION OF THE PREFERRED ALTERNATIVE

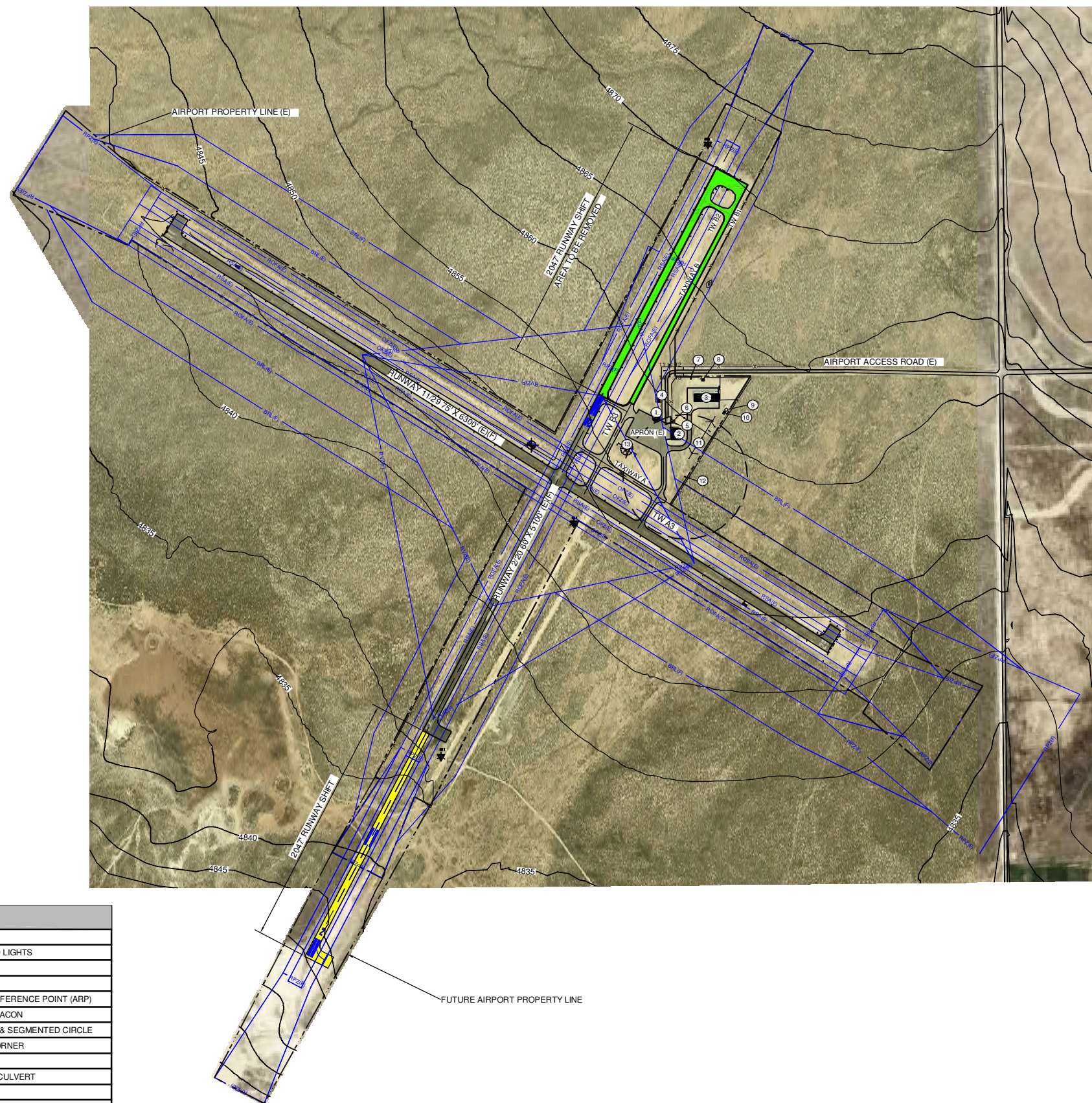
These alternatives were presented during a planning committee meeting to obtain feedback and comments along with the determination of the preferred alternative. The recommended development alternative is Alternative 1. This alternative provides the most cost effective solution, the least amount of potential environmental impacts and adequate landside development area for future demand. Figure 4-6 shows the recommended development projects at the Colorado City Municipal Airport.

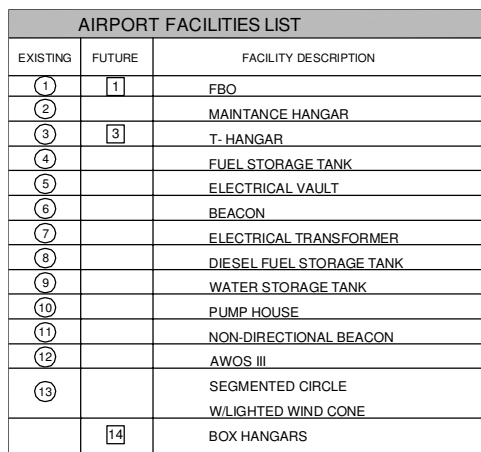


LEGEND					
EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
		RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
		OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
		RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
		RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
		RUNWAY VISIBILITY ZONE (RVZ)			AWOS
		BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
		TAXIWAY SAFETY AREA (TSA)		N/A	CONTOURS
		TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
		FENCING			MARKINGS
		TO BE REMOVED			



LEGEND					
EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
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		TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
		FENCING			MARKINGS
		TO BE REMOVED			





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REIL

VASI/PAPI

AIRPORT REFERENCE POINT (ARP)

AIRPORT BEACON

WIND CONE & SEGMENTED CIRCLE

SECTION CORNER

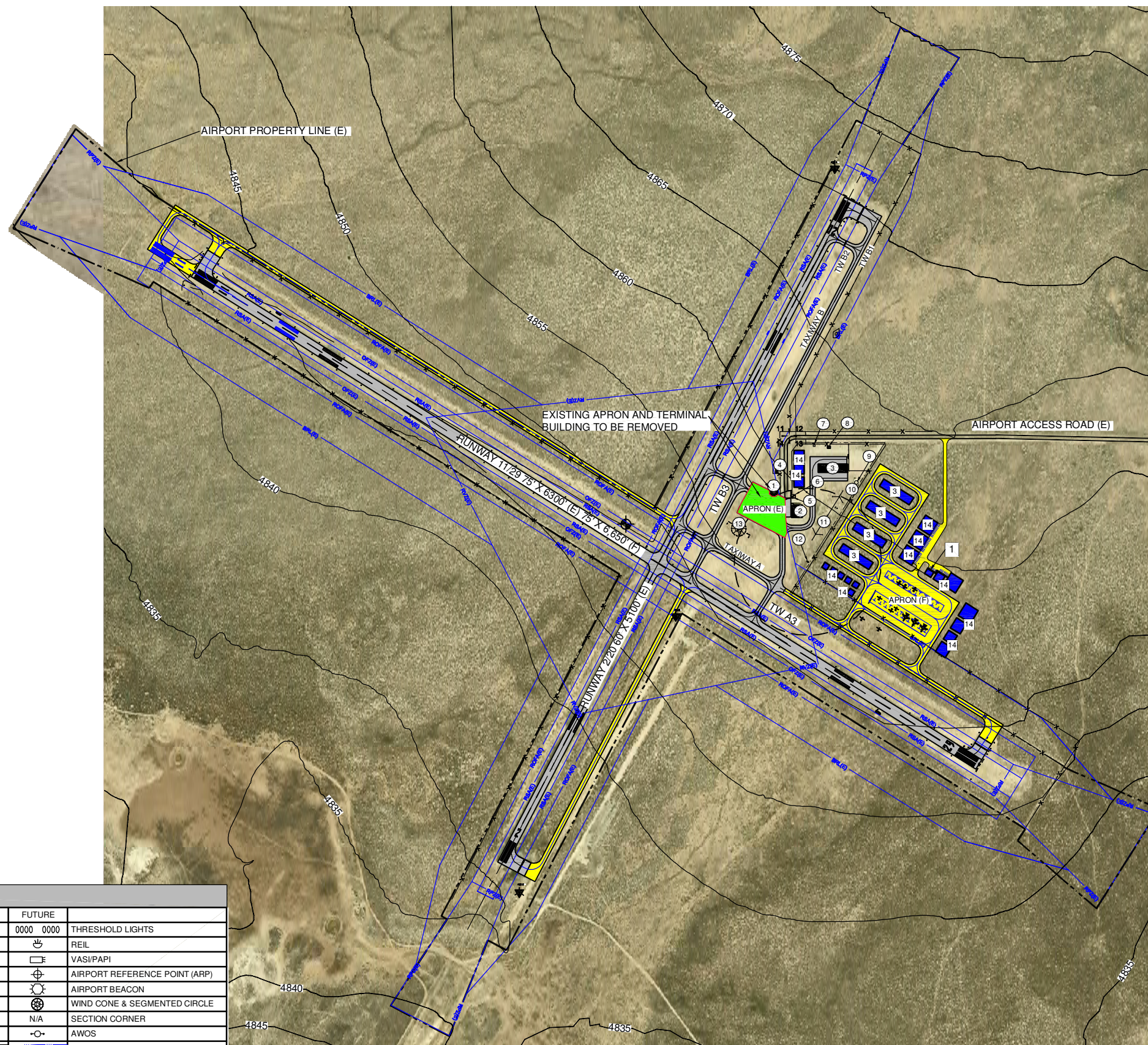
AWOS

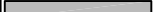
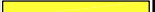






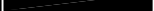







































DRAINAGE/ CULVERT

CONTOURS

ROADS

MARKINGS



LEGEND					
EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
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