

CHAPTER 4

AIRPORT ALTERNATIVES

AIRPORT MASTER PLAN

Prior to defining the recommended development program for Coolidge Municipal Airport, it is important to first consider development potential as well as constraints to future development at the airport. The previous chapters have focused on the airport's available facilities, existing and potential future demand levels, and the types of facilities that are needed to meet the demand. Specific attention was also given to defining Federal Aviation Administration (FAA) design standards that are applicable to the airport.

In some cases, development needs are straightforward, while for other items, alternative methods for meeting projected aviation demand should be considered. In this chapter, airport development alternatives are considered for the airport, where applicable. For each alternative,

different physical layouts are presented for the purpose of evaluation. The ultimate goal is to develop the underlying rationale which supports the recommended Master Plan Concept. Through this process, an evaluation of the most realistic and best uses of airport property is made while considering local development goals, physical and environmental constraints, and appropriate airport design standards.

Any development proposed by a Master Plan evolves from an analysis of projected needs. Though the needs were determined by the best methodology available, it cannot be assumed that future events will not change these needs. The master planning process attempts to develop a viable concept for meeting the needs caused by projected demands for the next 20 years. However, no plan of action

should be developed which may be inconsistent with the future goals and objectives of the City of Coolidge, who has a vested interest in the development and operation of the airport.

The development alternatives for Coolidge Municipal Airport can be categorized into two functional areas: airside (runways, taxiways, navigational aids, etc.) and landside (aircraft storage hangars, terminal area, aircraft parking aprons, etc.). Within each of these areas, specific facilities are required or desired. In addition, the utilization of the remaining airport property to provide revenue support for the airport and to benefit the economic development and well-being of the regional area must be considered.

Each functional area interrelates and affects the development potential of the others. Therefore, all areas must be examined individually, and then coordinated as a whole, to ensure the final plan is functional, efficient, and cost-effective. The total impact of all these factors on the existing airport must be evaluated to determine if the investment in Coolidge Municipal Airport will meet the needs of the region, both during and beyond the planning period.

The alternatives presented in this chapter have been developed to meet the overall program objectives for the airport in a balanced manner. Through coordination with the Planning Advisory Committee (PAC) and City of Coolidge, the alternatives (or combination thereof), will be refined and modified as necessary to develop the recommended development concept. Therefore, the alternatives pre-

sented in this chapter can be considered a beginning point in the development of the recommended concept for the future development of Coolidge Municipal Airport.

NO-BUILD/DO NOTHING ALTERNATIVE

In analyzing and comparing the advantages and disadvantages of various development alternatives, it is important to consider the consequences of no future development at Coolidge Municipal Airport. The “no-build” or “do nothing” alternative essentially considers keeping the airport in its present condition, not providing any type of expansion or improvement to the existing facilities (other than general airfield and City-owned hangar and building maintenance projects). The primary result of this alternative would be the inability of the airport to satisfy the projected aviation demands of the airport service area.

Coolidge Municipal Airport is an important contributor to the economic development of the regional area. The airport is a transportation link to other regional and national economic centers. Not improving Coolidge Municipal Airport to meet general aviation needs could limit economic growth for the region.

The potential for increased aviation activity at Coolidge Municipal Airport can be related to the growing population of the City of Coolidge and surrounding area and growth within the general aviation industry as a whole. The diversified economic base in the

area that includes manufacturing, trade, and service industries also offers a potential for increased private and business general aviation activity. While overall, general aviation growth will be steady but slow nationally, the demand for higher performance aircraft is experiencing the strongest growth rate. With heightened interest in commercial aviation security, corporate general aviation could expect demand for private aircraft to grow even more.

Aviation demand forecasts and analysis of facility requirements indicated a potential need for improved facilities at Coolidge Municipal Airport. Improvements recommended in the previous chapter include constructing additional taxiways, improving instrument approach procedures, providing additional airfield lighting, constructing additional hangar facilities, improving navigational aids, and improving lighting and marking aids. Without these improvements, regular users of the airport will be constrained from taking maximum advantage of the airport's air transportation capabilities.

The unavoidable consequence of the "no-build/do nothing" alternative would involve the airport's inability to attract potential airport users and expand economic development in the City of Coolidge and the surrounding region. Corporate aviation plays a major role in the transportation of business leaders and key employees. If the airport does not have the capability to meet the needs of potential users, the City's capability to attract the major sector businesses that rely on air transportation could be dimi-

nished. In addition, the airport not only serves the aviation needs of the area, but provides opportunities for non-aviation related commercial/industrial development. Due to the large amount of land available at the airport, certain areas are designated for development other than aviation, thus, further providing diversity for economic activities in the City of Coolidge and surrounding region.

Following the "no-build/do nothing" alternative would also not support the private businesses that have made investments at Coolidge Municipal Airport. As these businesses grow, the airport will need to be able to accommodate the infrastructure needs associated with their growth. Each of the businesses on the airport provides jobs for local residents, creates positive economic benefits for the community, and pays taxes for local government operations.

The City of Coolidge is charged with the responsibility of developing aviation facilities necessary to accommodate aviation demand and minimize operational constraints. Flexibility must be programmed into airport development to assure adequate capacity should market conditions change unexpectedly.

To propose no further development at Coolidge Municipal Airport could adversely affect the long term viability of the airport, resulting in negative economic effects on the City of Coolidge and surrounding communities. The "no-build/do nothing" alternative is also inconsistent with the long term goals of the FAA and Arizona Department of Transportation (ADOT) –

Aeronautics Group, which are to enhance local and interstate commerce. Therefore, this alternative is not considered to be prudent or feasible and will no longer be considered in this study.

REVIEW OF PREVIOUS MASTER PLAN

The previous Master Plan for Coolidge Municipal Airport was completed in June 1997. The study examined means by which the airport could continue to operate as a safe, efficient facility that served future aviation demands. The 1997 Master Plan was also demand-based and was designed to allow the airport to respond to aviation demand as it evolved over time.

The previous Master Plan recommended airfield improvements to include upgrading navigational aids and constructing additional taxiways. In fact, a full-length parallel taxiway was identified on the west side of the airport should aviation demand warrant such. In addition, the plan identified the need for additional hangar development. Since the time of these recommendations, the City of Coolidge has installed two-box precision approach path indicators (PAPI-2s) on each end of Runway 5-23. Several aircraft storage hangars have also been constructed to accommodate based aircraft demand. The airport layout plan (ALP) drawing shown on **Exhibit 4A** depicts the airside and landside improvements recommended in the 1997 Master Plan.

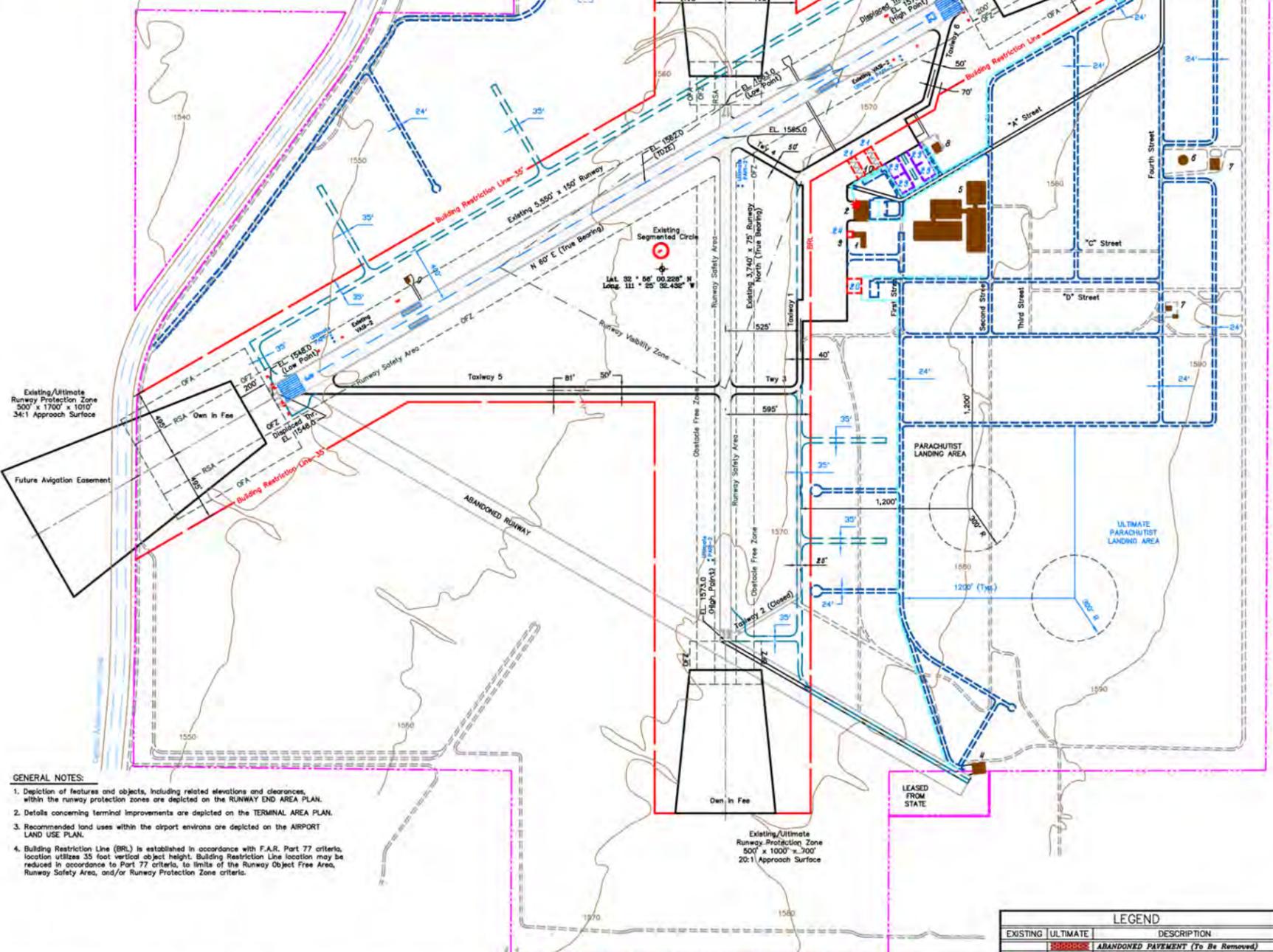
AIRPORT DEVELOPMENT OBJECTIVES

It is the overall objective of this effort to produce a balanced airside and landside complex to serve forecast aviation demands. However, before defining and evaluating specific alternatives, airport development objectives should be considered. The primary goal for the Master Plan is to define a development concept which allows for the airport to be marketed, developed, and safely operated for the betterment of the surrounding region and its users. With this in mind, the following development objectives have been defined for this planning effort.

- x Conform to FAA design and safety standards for the mix of aircraft that could potentially use the airport during the 20-year planning period of the Master Plan.
- x Develop facilities to safely and efficiently serve general aviation users and encourage increased use of the airport.
- x Provide sufficient airside and landside capacity through additional facility improvements which will meet the long term planning horizon demand levels.
- x Identify any future land acquisition needs.
- x Identify opportunities for approved non-aeronautical use of certain areas on the airport to further diversify the airport's revenue-generating potential.

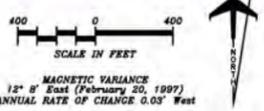
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BUILDINGS/FACILITIES		
EXISTING	ULTIMATE	DESCRIPTION
7	-	ADMINISTRATION/TRO
2	20	CONVENTIONAL HANGAR
3	-	UNDERGROUND FUEL STORAGE FACILITY
4	-	SOUTH HANGAR
5	-	DATA SALES
6	-	WATER TOWER
7	-	WATER WELL and TANKS
8	-	FIRE EQUIPMENT COMPOUND (not in use)
9	-	RUNWAY SUPERVISORY UNIT (Abandoned)
10	-	ELECTRICAL VAULT
21	-	T-HANGAR (Nested, 6 units)
22	-	WASTE WATER TREATMENT FACILITY
23	-	CORPORATE PARCELS
24	-	PUBLIC TERMINAL/ADMINISTRATION BUILDING



- GENERAL NOTES:**
1. Depiction of features and objects, including related elevations and clearances, within the runway protection zones are depicted on the RUNWAY END AREA PLAN.
 2. Details concerning terminal improvements are depicted on the TERMINAL AREA PLAN.
 3. Recommended land uses within the airport environs are depicted on the AIRPORT LAND USE PLAN.
 4. Building Restriction Line (BRL) is established in accordance with F.A.R. Part 77 criteria, location utilizes 35 foot vertical object height. Building Restriction Line location may be reduced in accordance to Part 77 criteria, to limits of the Runway Object Free Area, Runway Safety Area, and/or Runway Protection Zone criteria.

MODIFICATIONS OF FAA AIRPORT DESIGN STANDARDS			
DEVIATION DESCRIPTION	EFFECTED DESIGN STANDARD	AIRSPACE CASE NUMBER	APPROVAL DATE
None			



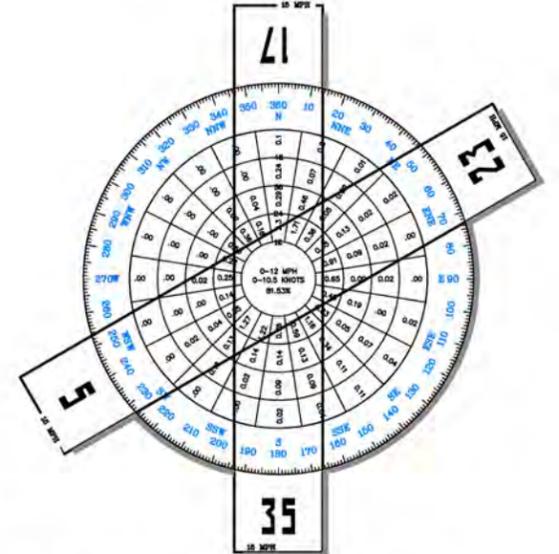
LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
(Dashed line)	(Solid line)	ABANDONED PAVEMENT (To Be Removed)
(Red line)	(Red line)	AIRPORT PROPERTY LINE
(Red dot)	(Red dot)	AIRPORT REFERENCE POINT (ARP)
(Red circle)	(Red circle)	AIRPORT ROTATING BEACON
(Red outline)	(Red outline)	BUILDING ABANDONMENT (To Be Removed)
(Red outline)	(Red outline)	BUILDING CONSTRUCTION
(Blue outline)	(Blue outline)	DRAINAGE
(Blue outline)	(Blue outline)	FACILITY CONSTRUCTION
(Blue outline)	(Blue outline)	FENCING
(Blue outline)	(Blue outline)	SECTION CORNER
(Blue outline)	(Blue outline)	ELEVATION CONTOUR
(Blue outline)	(Blue outline)	WIND INDICATOR (Lighted)

FOR APPROVAL BY:
 John Shadok City Manager DATE

AIRPORT DATA			
CITY: Coolidge, Arizona		COUNTY: Pinal, Arizona	
RANGE: 06 SE		TOWNSHIP: CIVIL TOWNSHIP	
AIRPORT SERVICE LEVEL	COOLIDGE MUNICIPAL AIRPORT	EXISTING	ULTIMATE
AIRPORT REFERENCE CODE		General Aviation	SAME
DESIGN AIRCRAFT		C-42	SAME
AIRPORT ELEVATION		1675.0 MSL	SAME
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		107° F	SAME
AIRPORT REFERENCE POINT (NAD 83)		Latitude 32° 58' 00.228" N	SAME
ARP COORDINATES (5010)		Longitude 111° 26' 32.432" W	SAME
AIRPORT and TERMINAL NAVIGATIONAL AIDS		GPS	GPS
		VOR/DME Rotating Beacon	Rotating Beacon

RUNWAY DATA	RUNWAY 5-23		RUNWAY 17-35	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE
MAX ELEVATION ABOVE MSL	1575.0	1575.0	1573.0	1573.0
AIRCRAFT APPROACH CATEGORY-DESIGN GROUP	C-II	C-II	B-II	B-II
WIND COVERAGE (12 MPH)	90.8%	90.8%	92.9%	92.9%
RUNWAY BEARING	N 60.0° E	N 60.0° E	North	North
RUNWAY DIMENSIONS	5,550' x 150'	5,550' x 150'	3,740' x 75'	3,740' x 75'
RUNWAY END-PAR PART 77 CATEGORY	Nonprecision/Nonprecision	Nonprecision/Nonprecision	Visual	Visual
RUNWAY APPROACH SURFACES	34:1, 34:1	34:1, 34:1	20:1, 20:1	20:1, 20:1
RUNWAY THRESHOLD DISPLACEMENT	50' / 35'	50' / 35'	None	None
RUNWAY STOPWAY	None	None	None	None
RUNWAY SAFETY AREA	1,000' x 400'	1,000' x 400'	300' x 150'	300' x 150'
RUNWAY OBSTACLE FREE ZONE	200' x 400'	200' x 400'	200' x 400'	200' x 400'
RUNWAY OBJECT FREE AREA (ROFA)	1,000' x 800'	1,000' x 800'	300' x 500'	300' x 500'
RUNWAY SURFACE MATERIAL	Asphalt	Asphalt	Asphalt	Asphalt
RUNWAY SURFACE TREATMENT	None	None	None	None
RUNWAY STRENGTH (in thousand lbs.) ¹	80(S)/115(D)/210(DT)	80(S)/115(D)/210(DT)	17(S)	17(S)
RUNWAY EFFECTIVE GRADIENT	0.4885%	0.4885%	0.2139%	0.2139%
RUNWAY TOUCHDOWN ZONE ELEVATION	1683 MSL, 1676 MSL	1683 MSL, 1676 MSL	1670 MSL, 1673 MSL	1670 MSL, 1673 MSL
RUNWAY MARKING	T28, Edge Centerline	T28, Edge Centerline	Basic Visual	Basic Visual
RUNWAY LIGHTING	MIRL	MIRL	None	MIRL
RUNWAY APPROACH LIGHTING	None	None	None	None
TAXIWAY LIGHTING ²	MITL	MITL	None	MITL
TAXIWAY SURFACE MATERIAL	Asphalt	Asphalt	Asphalt	Asphalt
TAXIWAY MARKING	Centerline	Centerline	Centerline	Centerline
ELECTRONIC NAVIGATIONAL AIDS	GPS	GPS	None	None
	VOR/DME			
VISUAL NAVIGATIONAL AIDS	VASI-2L (Inoperative)	PAPI-2 REIL	None	PAPI-2

¹ Pavement strengths are expressed in Single(S), Dual(D), Dual Tandem(DT), and/or Double Dual Tandem(DDT) wheel loading capacities.
² Taxiway 4 and Taxiway 8



SOURCE:
 COOLIDGE MUNICIPAL AIRPORT
 Coolidge, Arizona
 PERIOD:
 Feb. 2, 1984 - Nov. 19, 1984
 COMPILED BY:
 Henningson, Durham, Richardson, Inc
 Architects - Engineers

RUNWAY END COORDINATES (NAD 83)		
Runway	EXISTING	ULTIMATE
Runway 5	Latitude 32° 58' 01.128" N Longitude 111° 26' 07.234" W	Latitude 32° 58' 01.128" N Longitude 111° 26' 07.234" W
Runway 23	Latitude 32° 58' 01.570" N Longitude 111° 26' 08.728" W	Latitude 32° 58' 01.570" N Longitude 111° 26' 08.728" W
Runway 17	Latitude 32° 58' 28.537" N Longitude 111° 25' 10.807" W	Latitude 32° 58' 28.537" N Longitude 111° 25' 10.807" W
Runway 35	Latitude 32° 58' 28.407" N Longitude 111° 25' 11.182" W	Latitude 32° 58' 28.407" N Longitude 111° 25' 11.182" W
Runway 36	Latitude 32° 58' 21.628" N Longitude 111° 25' 30.133" W	Latitude 32° 58' 21.628" N Longitude 111° 25' 30.133" W

WIND COVERAGE		
	12 MPH	15 MPH
Runway 5-23	0.5 Knots	13 Knots
Runway 17-35	90.8%	92.0%
Runways Combined	96.1%	97.8%

Coolidge Municipal Airport
 AIRPORT LAYOUT PLAN
 Coolidge, Arizona
 PLANNED BY: Christopher M. Kaganian
 DETAILED BY: Larry B. Johnson
 APPROVED BY: James M. Harris
 July 17, 1997 SHEET 1 OF 1



- x Allow adequate separation of future airport development from the existing parachute operations being conducted in the southeast area of the airport.
- x Ensure that any recommended future development is environmentally compatible.

AIRPORT ALTERNATIVE CONSIDERATIONS

Exhibit 4B presents both airside and landside planning issues that will be specifically addressed. These issues are the result of the findings of the aviation demand forecasts and airport facility requirements evaluations, and they include input from the FAA, ADOT-Aeronautics Group, PAC, and City staff.

The remainder of this chapter will describe various development alternatives for airside and landside facilities. Within each of these areas, specific facilities are required or desired. Although each area is treated separately, planning must integrate the individual requirements so that they can complement one another.

ANALYSIS OF AIRSIDE CONSIDERATIONS

The purpose of this section is to identify and evaluate the various viable airside considerations at Coolidge Municipal Airport to meet the requirements set forth in Chapter Three. Airfield facilities are, by nature, the focal point

of an airport complex. Because of their primary role and the fact that they physically dominate airport land use, airfield facility needs are often the most critical factor in the determination of airport alternatives.

In particular, the runway system requires the greatest commitment of land area to meet the physical layout of the system as well as the required FAA safety standards. Moreover, the design of the airfield system defines minimum building set-back distances from the runway and object clearance standards. These criteria should be defined first to ensure that the fundamental needs of the airport are met. Therefore, airside alternatives will be considered prior to detailing landside alternatives.

AIRPORT REFERENCE CODE DESIGN STANDARDS

The design of airfield facilities is based, in part, on the physical and operational characteristics of aircraft using the airport. The FAA utilizes the Airport Reference Code (ARC) system to relate airport design requirements to the physical (wingspan) and operational (approach speed) characteristics of the largest and fastest aircraft conducting 500 or more itinerant operations annually at the airport. While this can at times be represented by one specific make and model of aircraft, most often the airport's ARC is represented by several different aircraft which collectively conduct more than 500 annual itinerant operations at the airport.

The critical aircraft operational threshold is used when evaluating the need to develop and/or upgrade airport facilities. This is done to ensure that an airport is cost-effectively constructed to meet the needs of those aircraft that are using, or have the potential to use, the airport on a regular basis. It should be noted that it is not uncommon for aircraft to operate at airports that are not designated to meet that aircraft's ARC. This is due to these aircraft not meeting the 500 annual itinerant operations threshold.

At Coolidge Municipal Airport, based aircraft fall within a diverse range of approach categories (A, B, and C) and Airplane Design Groups (ADGs I, II, and IV). Refer to Chapter Three for a full discussion of the ARC. The mix of transient aircraft that utilizes the airport also varies just as based aircraft. Aircraft that fall within approach category C and ADG IV are the most demanding aircraft to operate at the airport (due to their higher approach speeds and longer wingspans) and do so with a frequency of at least 500 operations annually. The Lockheed C-130 turboprop aircraft (ARC C-IV) represents the airport's current critical design aircraft.

As indicated previously, the potential exists in the future for increased use of the airport by business turboprop and jet aircraft. In the event this does occur, the majority of these aircraft would likely fall within approach categories B and C and ADGs I and II. It is expected that the Lockheed C-130 will continue to operate at the airport on a regular basis as it is currently doing. As a result, Coolidge Municipal Airport should ultimately be planned

to continue to meet ARC C-IV design standards. Alternative analysis will evaluate facility development that will meet ARC C-IV aircraft design standards on primary Runway 5-23. As previously discussed, Runway 17-35 serves to accommodate smaller aircraft, especially when crosswinds prohibit the use of Runway 5-23. As such, Runway 17-35 should be designed to conform to full ARC B-II design standards. **Table 4A** compares the existing and ultimate design requirements for Runways 5-23 and 17-35.

Object Free Area

The design of airfield facilities includes both the pavement areas to accommodate landing and ground operations of aircraft as well as imaginary safety areas to protect aircraft operational areas and keep them free of obstructions that could affect the safe operation of aircraft at the airport. The imaginary safety areas include the object free area (OFA) as previously discussed in Chapter Three.

The FAA defines the runway OFA as an area centered on the runway extending laterally and beyond each runway end, in accordance to the critical aircraft design category utilizing the runway. The OFA must provide clearance of all ground-based objects protruding above the RSA edge elevation, unless the object is fixed by function serving air or ground navigation. For ARC C-IV design standards that apply to Runway 5-23, the OFA is 800 feet wide, extending 1,000 feet beyond each runway end.

AIRSIDE CONSIDERATIONS

Runway 5-23

- Evaluate the runway for existing/ultimate Airport Reference Code (ARC) C-IV design standards
- Consider the potential for a runway extension providing for up to 8,100' of operational length
- Analyze a straight-in instrument approach procedure to each runway end providing vertical guidance with approach minimums not lower than $\frac{3}{4}$ -mile
- Improve visual approach aids to include the installation of runway end identification lights (REILs) and upgrade to a four-box precision approach path indicator (PAPI-4) system on each runway end

Runway 17-35

- Install medium intensity runway lighting (MIRL)
- Analyze a straight-in instrument approach procedure to each runway end with approach minimums not lower than one mile
- Increase the pavement strength to 30,000 pounds single wheel loading (SWL)
- Improve visual approach aids to include the installation of REILs and PAPI-2s on each runway end

Taxiways / Weather and Marking Aids

- Extend taxiway south to provide full length parallel taxiway serving Runway 17-35
- Construct hold aprons serving all runway ends
- Install medium intensity taxiway lighting (MITL) on all active taxiways
- Evaluate a west side parallel taxiway on Runway 5-23
- Implement an airfield signage system
- Evaluate the existing and ultimate taxiway system in conforming to appropriate airplane design group (ADG) standards
- Install Automated Weather Observation System (AWOS)
- Identify locations for marked helicopter parking

LANDSIDE CONSIDERATIONS

- Identify locations for potential hangar development to meet projected demand
- Analyze current and future terminal area needs and locations
- Identify potential revenue support parcels to include both airfield access and non-airfield access areas
- Analyze property on the northwest side of the airport for future development
- Expand fuel farm capacity to meet future demand
- Analyze support facilities to help further development of airport property



TABLE 4A Airfield Safety and Facility Dimensions (in feet) Coolidge Municipal Airport		
	Existing/Ultimate Runway 5-23	Existing/Ultimate Runway 17-35
Airport Reference Code (ARC)	C-IV	B-II
Approach Visibility Minimums	One mile / Not lower than ¾-mile	Visual / One mile
<i>Runways</i>		
Length	5,562 / Up to 8,100	3,871
Width	150	75
Runway Safety Area (RSA)		
Width	500	150
Length Beyond Runway End	1,000	300
Object Free Area (OFA)		
Width	800	500
Length Beyond Runway End	1,000	300
Obstacle Free Zone (OFZ)		
Width	400	400
Length Beyond Runway End	200	200
Runway Centerline to:		
Parallel Taxiway Centerline	400	240
Edge of Aircraft Parking Apron	500	250
<i>Runway Protection Zone (RPZ)</i>		
	<u>Both Ends</u>	<u>Both Ends</u>
Inner Width	500 / 1,000	500
Outer Width	1,010 / 1,510	700
Length	1,700 / 1,700	1,000
<i>Taxiways</i>		
Width	40-50 / 75	40-50 / 35
Safety Area Width	171	79
Object Free Area Width	259	131
Taxiway Centerline to:		
Parallel Taxiway/Taxilane	215	105
Fixed or Moveable Object	129.5	65.5
<i>Taxilanes</i>		
Object Free Area Width	225	115
Taxilane Centerline to:		
Parallel Taxilane Centerline	198	97
Fixed or Moveable Object	129.5	57.5
Source: FAA Advisory Circular (AC) 150/5300-13, Change 14, <i>Airport Design</i> ; 14 CFR Part 77, <i>Ob-jects Affecting Navigable Airspace</i>		

The southwestern-most portion of the OFA on Runway 5-23 is obstructed by a levee and fence that rise above the RSA edge elevation that is associated with the Central Arizona Project Canal which runs adjacent to the west side of the airport. In addition, the

OFA extends beyond airport property by approximately 100 feet into the canal. **Exhibit 4C** depicts the OFA deficiency as previously discussed. The alternatives to follow will address bringing the OFA obstruction into FAA compliance.

Runway Protection Zone

The runway protection zone (RPZ) is a trapezoidal surface which begins 200 feet from the runway threshold. The RPZ is a designated area beyond the runway end that the FAA encourages airports to own, or in some fashion maintain positive control over the types of land uses within it. The goal of the RPZ standard is to increase safety for both pilots and people on the ground. The RPZ can have objects located within its boundaries, provided the objects are not obstructions to FAA's Federal Aviation Regulation (F.A.R.) Part 77, *Objects Affecting Navigable Airspace* or FAA Order 8260.3B, *Terminal Instrument Procedures* (TERPS). It should be noted, however, that the FAA places high priority on maintaining the RPZ free of items that attract groupings of people or permanent residences.

The FAA does not necessarily require the fee simple property acquisition of the RPZ area, but highly recommends that the airport have positive control over development within the RPZ. It is preferred that the airport owns the property; however, aviation easements (ownership of airspace within the RPZ) can be pursued if fee simple purchase is not possible. It should be noted, however, that aviation easements can often cost as much as 80 percent of the full property value and may not adequately prohibit incompatible land uses from locating in the RPZ. An aviation easement would include the space below the approach surface and within the RPZ.

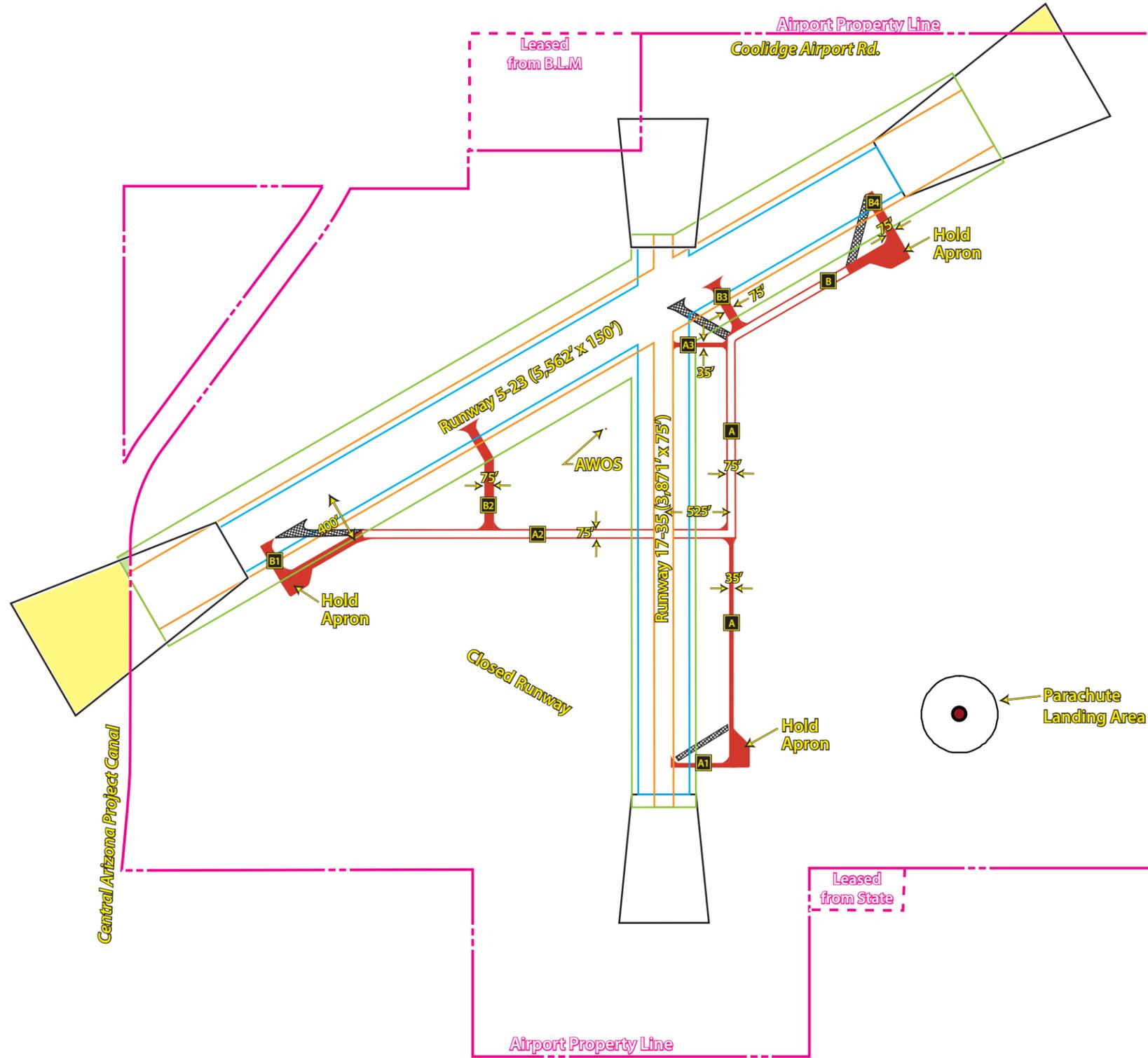
Portions of the existing RPZs off each end of Runway 5-23 extend beyond airport property as shown on **Exhibit 4C**. If the airport were to pursue a runway extension or obtain improved instrument approach procedures to this runway, the RPZs would encompass even greater area currently not controlled by the airport. The alternatives section will further discuss options related to the RPZs associated with Runway 5-23. It should be noted that a small portion of the existing Runway 17 RPZ currently extends beyond airport property into land the airport currently leases from the Bureau of Land Management. Through this lease, the airport is able to maintain positive control over land uses within this area.

RUNWAY LENGTH

Analysis in the previous chapter recommended a minimum of 5,500 feet for Runway 5-23 to satisfy the existing planning category of aircraft. This runway length is consistent with the FAA runway length requirements contained in FAA Advisory Circular (AC) 150/5325-4B, *Runway Length Requirements for Airport Design*.

The 5,562 feet of available length on Runway 5-23 can allow for unrestricted operations for many business jet aircraft when weather conditions such as mild temperatures and a non-contaminated (free of water) runway prevail. Operations become more restricted when daily temperatures climb into the 100s, which occurs on a

LEGEND	
	Airport Property Line
	Obstacle Free Zone (OFZ)
	Runway Safety Area (RSA)
	Object Free Area (OFA)
	Runway Protection Zone (RPZ)
	RPZ Uncontrolled Area
	Airfield Pavement
	Pavement to be Removed
	OFA Deficiency
	AWOS Automated Weather Observation System



frequent basis at Coolidge Municipal Airport. At these higher temperatures, aircraft operators must reduce useful loads to be able to depart on Runway 5-23. As a result, fuel or passenger loading must decrease to ensure that the aircraft can depart on the available runway length. This can increase operator costs as they must stop enroute to their final destination to take on additional fuel needed.

A review of the most demanding aircraft that utilize Coolidge Municipal Airport was studied in the previous chapter. The data revealed that a large majority of existing flights from the airport are currently regional in nature with shorter stage lengths, thus eliminating the need to stop enroute for additional fuel as just mentioned.

Several aircraft which currently utilize the airport on an infrequent basis require runway lengths longer than 5,500 feet. If business jets, such as the Cessna Citation 550 and 650, Beechjet 400, Lear 35, and Challenger 600, begin to operate at the airport on a much more regular basis, necessary justification may be made to extending the length of Runway 5-23. Some of these aircraft call for as much as 7,000 feet of available length to operate. Also, if the stage lengths of aircraft operating out of Coolidge Municipal Airport increase, additional runway length may be needed to allow increased useful loads. Under these circumstances, up to 8,100 feet of runway length may be needed to satisfy the demands of these longer stage lengths. In addition to these business jet aircraft, specialty operators located at the airport to include International

Air Response and Complete Parachute Solutions have indicated a desire to ultimately operate larger air cargo and military jump aircraft at the airport that would need at least 7,000 feet of runway length to safely accommodate their operations.

The alternatives to follow analyze two separate runway extensions. One calls for an ultimate length of 7,000 feet on Runway 5-23 while the other depicts an ultimate runway length of 8,100 feet. Due to the location of the Central Arizona Project Canal to the southwest of the airport and the likelihood that it would not be realigned, extending Runway 5-23 to the southwest is considered impracticable. There is, however, land available for development to the northeast of Runway 5-23. Therefore, the runway extension alternatives will be considered to the northeast.

It should be noted that a runway extension was also considered on Runway 17-35 during this analysis. The reasoning behind extending this runway would be to maintain Coolidge Airport Road in its existing location so as not to have to realign the roadway around a potential northeasterly extension to Runway 5-23. While realigning the roadway would be a costly endeavor, it was determined that extending Runway 17-35 to make it the airport's primary runway would be more costly and could potentially alter airfield safety.

Currently, Runway 17-35 is 3,871 feet long and 75 feet wide. Extending this runway to at least 7,000 feet and making it the airport's primary runway would require a total reconstruction

that would necessitate a substantial increase to its pavement strength, in addition to widening the runway to 150 feet in order to accommodate ADG IV aircraft. Furthermore, additional property would need to be acquired north and/or south of the airport to secure the runway extension and its associated safety areas. In addition to these physical attributes, winds at Coolidge Municipal Airport favor the use of existing primary Runway 5-23. Providing a runway length on Runway 17-35 that would exceed the existing length of Runway 5-23 could negatively impact airfield safety as aircraft would likely utilize the longer runway even though wind conditions tend to favor the use of Runway 5-23.

As a result, no alternatives depicting an extension on Runway 17-35 are presented. The width and pavement strength on Runway 5-23 accommodates the existing and ultimate critical design aircraft while also providing for more desirable wind coverage. As such, a proposed future extension to Runway 5-23 could be better justified for Coolidge Municipal Airport.

Justification for a runway extension will likely be required outside this Master Plan at the time of implementation. This justification would require letters of support from users detailing 500 annual operations by the critical aircraft requiring the additional runway length.

INSTRUMENT APPROACH CONSIDERATIONS

This section will present information regarding the potential for improved instrument approach procedures. Where possible, approach minimums should be as low as possible considering safety and financial constraints. The best approach minimums possible will prevent aircraft from having to divert to another airport, which can cause financial hardship for the aircraft operator, on-airport businesses, and the City.

A key priority which needs to be considered is protecting the airport from the potential for flight obstructions. The FAA has established criteria aimed at protecting the airport from these flight obstructions. First, FAA criterion stipulates that obstructions not be placed too near the runway ends or parallel to the runway. The obstruction clearance requirements are based on the ARC and/or the weight of the critical aircraft, as well as the type of approaches established or planned for the airport. For visual approaches and/or approaches not lower than one-mile visibility for ARC B-II aircraft, minimum obstruction clearance is required. For ARC C-IV aircraft with approach minimums lower than one-mile visibility, however, the obstruction criterion is more protective.

The two primary resources for determining airspace obstructions are Part 77, *Objects Affecting Navigable Airspace* and *Terminal Instrument Procedures* (TERPS). Part 77 is more of a filter which identifies potential obstructions, whereas TERPS is the critical tool in determining actual flight obstructions. In fact, TERPS analysis is used to evaluate and develop instrument approach procedures including visibility minimums and cloud heights associated with approved approaches.

Analysis in the previous chapter indicated that the plan should consider improved instrument approach capabilities for Runways 5-23 and 17-35. The first step in identifying potential airspace obstructions is the evaluation of the appropriate threshold siting surfaces (TSS). TSS is an imaginary surface which represents the most critical approach area nearest the runway end. The TSS is defined by the visibility minimums of the approach and aircraft type utilizing the approach. At Coolidge Municipal Airport, the lowest visibility minimum for aircraft in categories A and B is currently one mile. There are currently no approved instrument approach procedures for aircraft in approach categories C and D.

Coolidge Municipal Airport should consider approval and implementation of approaches providing not lower than $\frac{3}{4}$ -mile visibility minimums for Runway 5-23 for all categories of aircraft. Approaches providing lower than one-mile minimums will allow operations at the airport, when in the past, aircraft may have had to divert to another airport for landing, or delay

departure from their origination point awaiting weather improvements. Further, the forecast increase in the operation of business jets at the airport and the continued presence of specialty operators at the airport provides a need for improved instrument approach procedures.

As previously discussed in Chapter Three, significant advancements continue to be made in global positioning system (GPS) navigation that can provide a more cost-effective and attractive means of obtaining instrument approaches. This includes the continued development of the Wide Area Augmentation System (WAAS). WAAS provides for approaches with both course and vertical navigation. This capability was historically only provided by an instrument landing system (ILS), which requires extensive on-airport facilities. The GPS-WAAS could allow for approach minimums to be lower than one-mile visibility. For purposes of this study, alternatives will consider GPS approach procedures with vertical guidance (APV) providing for not lower than $\frac{3}{4}$ -mile visibility minimums on Runway 5-23. In addition, an approach procedure providing for not lower than one-mile visibility minimums with at least course guidance should be considered serving each end of Runway 17-35.

To achieve an approach providing less than one mile visibility minimums, the corresponding runway end will require the installation of an approach lighting system. Examples of approach lighting systems for approaches with not lower than $\frac{3}{4}$ -mile visibility minimums would include a medium intensity approach lighting system

(MALS), omnidirectional approach lighting system (ODALS), or a lead-in light system (LDIN).

TAXIWAYS

Taxiways are the primary transport surfaces linked with the runway and its operation. Such surfaces include parallel taxiways, entrance/exit taxiways, and connecting taxiways.

Taxilanes are those surfaces that would typically realize a lower level of aircraft activity because the taxilanes provide direct ingress/egress to a specific location or airport facility. An example of a taxilane would be the surface which links to an aircraft storage hangar complex, as not all aircraft will use the surface, only those traversing to and from the storage hangars.

FAA AC 150/5300-13, Change 14, *Airport Design*, provides standards for taxiway width and associated safety areas surrounding the taxiway system. As discussed in the previous chapter, these standards are based on the critical aircraft design group which will frequent that particular taxiway. Currently, all existing taxiways at the airport range in width from 40-50 feet. **Exhibit 4C** calls for the widening of certain taxiways to 75 feet in order to accommodate aircraft in ADG IV, namely the Lockheed C-130.

The current location and number of taxiways at Coolidge Municipal Airport is adequate to provide access to existing landside facilities and the

runway system. However, in order to provide increased efficiency and safety at the airport, additional taxiways should be planned. A full-length parallel taxiway serving Runway 17-35 is proposed on **Exhibit 4C**. Currently, aircraft landing on Runway 17 or departing on Runway 35 must “back-taxi” on the runway in order to arrive at their intended destination on the airfield. Extending this taxiway to the south to provide a full-length parallel taxiway is highly recommended to improve operational safety and efficiency. In addition, if Runway 17-35 were to accommodate a not lower than one-mile visibility minimum approach, as previously discussed, a full-length parallel taxiway is highly recommended. This taxiway extension should be constructed to 35 feet in width and located 525 feet from the Runway 17-35 centerline, which exceeds the separation requirements for ARC B-II design standards.

In addition, the entrance/exit taxiways at the northeast and southwest ends of Runway 5-23 and at the south end of Runway 17-35 are also depicted as being aligned perpendicular to the runway centerline to allow pilots with improved line-of-sight to the approach ends of each runway. Furthermore, an additional exit taxiway located approximately 1,900 feet north of the Runway 5 threshold is being proposed to improve airfield efficiency.

Exhibit 4C also depicts removing the existing taxiway that leads to/from the intersection of both runways and replacing it with two additional taxiways. In doing so, each of the proposed taxiways would provide en-

trance/exit access to a particular runway, providing for better separation of aircraft that could potentially be using both runways simultaneously.

As called for in the previous Master Plan, a parallel taxiway to the west of Runway 5-23 is being proposed to support landside development in the northwest quadrant of the airport. While facility requirements called for in Chapter Three can be accommodated on the east side of the airport, the development of a west side parallel taxiway should be analyzed to provide the City of Coolidge with a concept for ultimate build-out of the airport as future demand dictates. Alternatives to follow provide two concepts as they relate to the development of a west side parallel taxiway. During the course of the planning period, medium intensity taxiway lighting (MITL) should be applied to all active taxiways at the airport.

RUNWAY LIGHTING AND APPROACH AIDS

Previous analysis determined that crosswind Runway 17-35 should consider providing medium intensity runway lighting (MIRL). MIRL would provide pilots with positive identification of the runway and its alignment during nighttime and/or poor visibility conditions.

Airside considerations also call for upgrading the PAPI-2s serving each end of Runway 5-23 with PAPI-4s. As previously stated in Chapter Three, the four-box systems are better to serve faster aircraft because they are

more visible. PAPI-2s should also be considered on each end of Runway 17-35. This will enhance safety by providing pilots with visual guidance information during landings to the runway.

Runway end identification lights (REILs) should be planned for each end of Runway 5-23 in the short term planning period. The FAA indicates that REILs should be considered for all lighted runway ends not planned for a more sophisticated approach lighting system. In the event that a MALS or other type of approach lighting system was to be implemented on this runway, there would be no need for REILs. In addition, REILs are recommended on Runway 17-35 in the event that MIRL is implemented.

RUNWAY PAVEMENT STRENGTH

The pavement strength for Runway 17-35 is rated at 17,000 pounds single wheel loading (SWL). While aircraft weighing more than the certified strength can operate on the runway on a limited basis, the life span of the airport pavements can be shortened due to the utilization of these heavier loads over time.

With the number of aircraft operations forecast to increase over the next several years, an increased pavement strength rating of up to 30,000 pounds SWL on Runway 17-35 should be planned. This will meet the ultimate critical design aircraft for the runway on a regular basis.

HOLD APRONS

Hold aprons provide a location for aircraft to prepare for departure and/or bypass other aircraft. They allow aircraft to pull aside, thus, allowing following aircraft ready to depart to pass. Currently, there are no hold aprons on the airfield. Alternatives consider providing hold aprons for all runway ends at the airport as depicted on **Exhibit 4C**.

AIRFIELD SIGNAGE UPGRADE

Consideration should be given to designating all taxiways in conformance with FAA AC 150/5340-18D, *Standards for Airport Sign Systems*. **Exhibit 4C** depicts potential taxiway designations following the recommendations of the AC. The runway extension alternatives and west side parallel taxiway alternatives to follow also provide for airfield signage recommendations in the event of further development on the airfield.

AUTOMATED WEATHER OBSERVATION SYSTEM SITING

Presently, the airport is without any form of automated or actual weather observation which provides important weather details to pilots such as visibility, cloud ceilings, and altimeter settings. Wind speed and direction can be estimated by pilots using the wind cones located at various locations on the airfield.

The unavailability of current weather observation and reporting primarily

affects itinerant aircraft operations to the airport as pilots cannot readily determine weather conditions at the airport from a distant location. In the case at Coolidge Municipal Airport, local operations conducted by Complete Parachute Solutions, related to its military parachute training operations, would also benefit from having current weather reporting capability at the airport. The nearest weather reporting station is located at Casa Grande Municipal Airport, approximately 17 nautical miles to the west.

Aircraft operating under F.A.R. Part 135, *Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons on Board Such Aircraft*, conducting aircraft charter activities, are especially affected as these aircraft cannot operate at the airport unless current weather reporting is available. Section 135.213, *Weather Reports and Forecasts*, states that weather observations made and furnished to pilots to conduct Instrument Flight Rule (IFR) operations at an airport must be taken at the airport where those IFR operations are conducted. Fractional aircraft operators are also limited when there is no weather reporting. Section 91.1039, *IFR Takeoff, Approach and Landing Minimums*, states that no pilot may begin an instrument approach procedure to an airport unless that airport or the alternate airport has a weather reporting facility.

FAA Order 6560.20B, *Siting Criteria for Automated Weather Observing Systems (AWOS)* provides AWOS siting requirements. While each AWOS sensor has specific siting requirements,

all AWOS sensors should be located together and outside the runway and taxiway OFAs. Generally, AWOS sensors are best placed between 1,000 and 3,000 feet from the primary runway threshold and between 500 and 1,000 feet from the runway centerline. However, this criterion can be relaxed to meet site requirements or reduce impacts to landside development. **Exhibit 4C** calls for the AWOS to be located adjacent to the existing segmented circle and wind cone located in the midfield area of the airport. This location is approximately 2,800 feet from each end of Runway 5-23 and 600 feet from the runway centerline.

AIRSIDE ALTERNATIVES

The following section describes alternatives as they relate to airside considerations previously discussed. Within these alternatives are four scenarios regarding an extension to Runway 5-23 while improving the OFA deficiency at the southwest end of the airport. Also considered are improved instrument approach procedures, approach lighting aids, and land acquisition adjacent to the northeast and southwest sides of the airport. Finally, two alternatives are presented for a west side parallel taxiway serving Runway 5-23.

RUNWAY EXTENSION ALTERNATIVES A1 AND A2

Runway Extension Alternatives A1 and A2, depicted on **Exhibit 4D**, consider an extension on Runway 5-23 to the northeast that provides 7,000 feet

of runway length. This length would accommodate the majority of aircraft operating at Coolidge Municipal Airport. It does, however, fall short of the projected 8,100 feet needed to accommodate large aircraft with long stage lengths and increased fuel and passenger loads operating during the hot summer months when temperatures are well above 100 degrees.

In both alternatives, the proposed runway safety area (RSA), OFA, and RPZ would all extend beyond the current property boundary, necessitating the need for land acquisition to the northeast. These areas containing the RSA and OFA would need to be cleared and graded of any obstructions that could negatively affect the operation of aircraft and/or emergency response vehicles. At a minimum, the airport would need to acquire the RSA and OFA areas outside the property line, but it is further recommended that the airport purchase property that falls within the RPZ to provide a larger safety and land use compatibility buffer. At the very least, the airport should have positive control over what is developed in the future within this area through the use of an aviation easement. It should be noted that all land adjacent to the northeast side of the airport is currently owned by the State of Arizona.

The proposed runway extensions traverse Coolidge Airport Road which currently provides access to and from the airport. Any runway extension to the northeast would warrant relocating portions of the roadway. In order to provide the highest level of safety, the alternatives depict the relocated

roadway outside all safety areas including the RPZ.

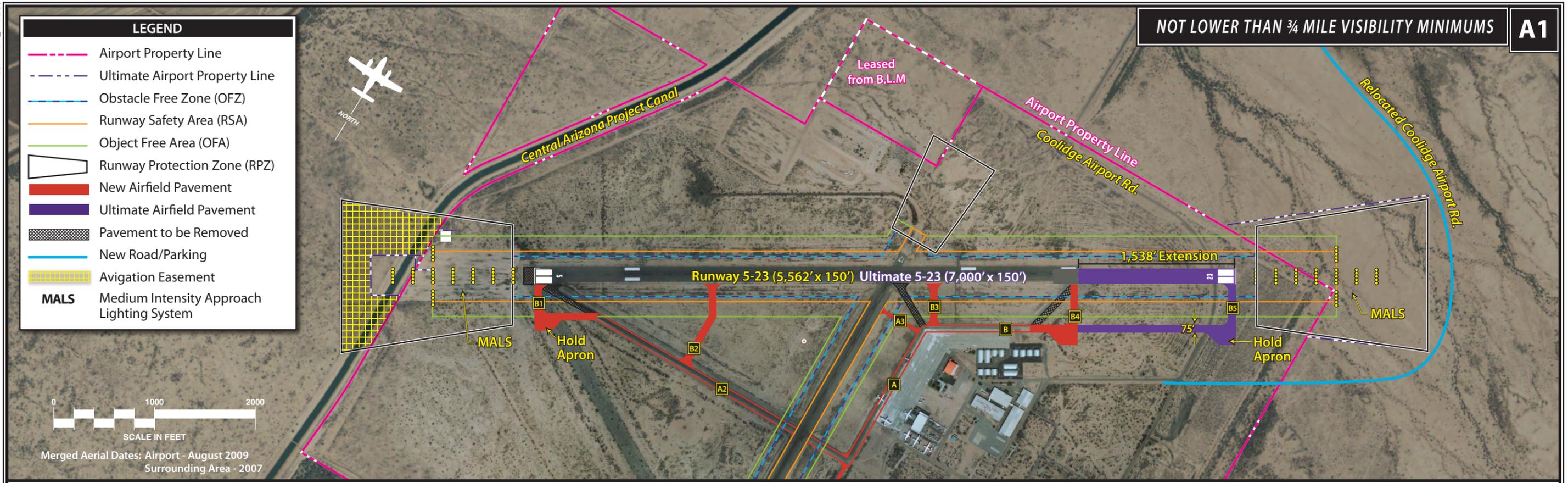
Likewise, proposing improved instrument approach procedures to each end of Runway 5-23, will further expand the RPZs as a result of the lowered visibility minimums. As indicated on **Exhibit 4D**, the RPZs for Runway 5-23 consider providing for not lower than $\frac{3}{4}$ -mile visibility minimums. In order to achieve an approach providing less than one-mile visibility minimums, the corresponding runway ends generally require the installation of an approach lighting system. A MALS is depicted on the alternatives and further engineering analysis, separate from this Master Plan, would determine the exact location of the approach lighting system. Given the terrain issues to the southwest to include the canal, implementing an approach lighting system of any kind would be challenging. Generally, the MALS lights begin approximately 200 feet from the runway threshold and are spaced to a maximum distance of 1,400 feet, as indicated on the exhibit. The FAA requires that the airport own property within 100 feet on either side of the MALS extending 200 feet from the end. With this being said, approximately 4.5 acres of land are shown as property acquisition to protect the proposed MALS extending southwest of the airport. It should be noted that in the event that either or both runway ends were served with a GPS localizer performance with vertical guidance (LPV) approach, the MALS is recommended but may not be required.

The OFA deficiency at the southwest end of Runway 5-23, discussed earlier

in this chapter, is fully mitigated in Alternatives A1 and A2. Alternative A1 considers abandoning the last 100 feet of pavement at the southwest end of Runway 5-23. All safety areas, including the OFA, are shifted 100 feet to the northeast, which removes the OFA from traversing the levee system and fence associated with the Central Arizona Project Canal. In doing so, the airport is able to gain positive control over the OFA which is desirable. In addition, a 1,538-foot runway extension is proposed to the northeast providing an ultimate usable runway length of 7,000 feet.

In Alternative A1, the total area of land outside existing airport property but within the safety areas is approximately 64 acres. The RSA and OFA combined include 6.7 acres. The proposed RPZ northeast of Runway 5-23 contains another 36 acres of land that would need to be positively controlled by the airport. To the southwest, the proposed RPZ encompasses 21 acres.

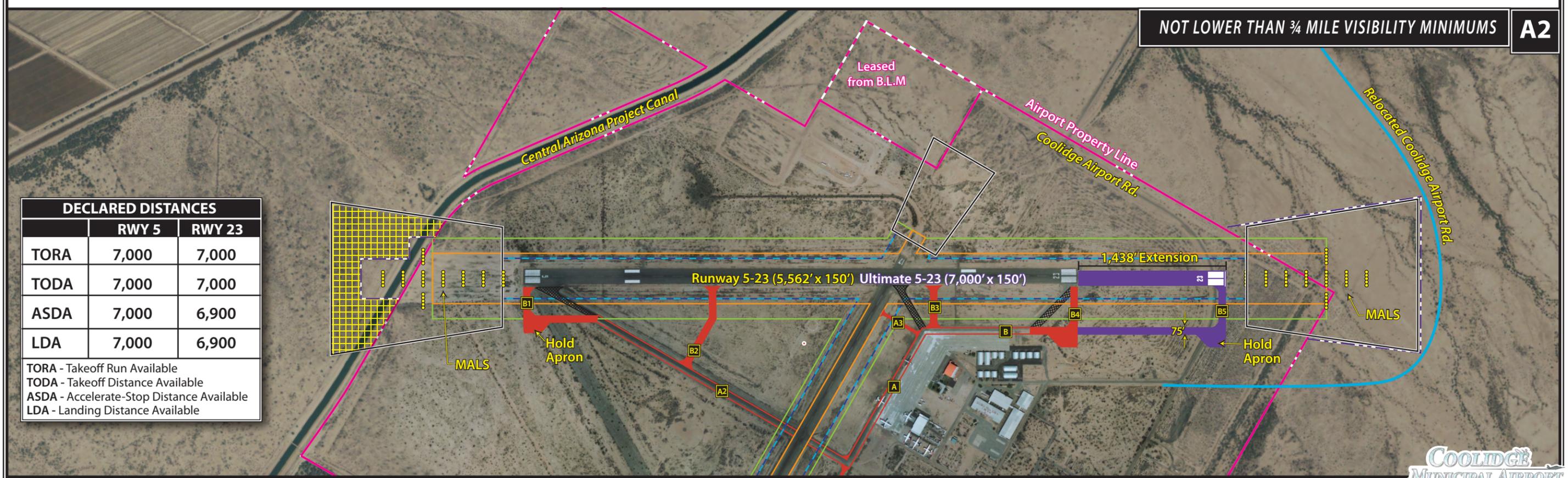
While Alternative A1 depicts a usable 7,000 feet of total runway length, Alternative A2 proposes to solve the OFA obstruction on the southwest end of the runway by limiting the amount of usable length on Runway 23 through the use of declared distances. The result is a 1,438-foot proposed runway extension to the northeast. Declared distances are the effective runway distances that the airport operator declares available for take-off run, take-off distance, accelerate-stop distance, and landing distance requirements. These are defined by the FAA as follows:



NOT LOWER THAN 3/4 MILE VISIBILITY MINIMUMS A1

LEGEND	
	Airport Property Line
	Ultimate Airport Property Line
	Obstacle Free Zone (OFZ)
	Runway Safety Area (RSA)
	Object Free Area (OFA)
	Runway Protection Zone (RPZ)
	New Airfield Pavement
	Ultimate Airfield Pavement
	Pavement to be Removed
	New Road/Parking
	Avigation Easement
	MALS Medium Intensity Approach Lighting System

0 1000 2000
SCALE IN FEET
Merged Aerial Dates: Airport - August 2009
Surrounding Area - 2007



NOT LOWER THAN 3/4 MILE VISIBILITY MINIMUMS A2

DECLARED DISTANCES		
	RWY 5	RWY 23
TORA	7,000	7,000
TODA	7,000	7,000
ASDA	7,000	6,900
LDA	7,000	6,900

TORA - Takeoff Run Available
TODA - Takeoff Distance Available
ASDA - Accelerate-Stop Distance Available
LDA - Landing Distance Available



Take-off run available (TORA) – the length of runway declared available and suitable to accelerate from brake release to lift-off, plus safety factors.

Take-off distance available (TODA) – the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA available to accelerate from brake release past lift-off to start of take-off climb, plus safety factors.

Accelerate-stop distance available (ASDA) – the length of the runway plus stopway declared available and suitable to accelerate from brake release to take-off decision speed, and then decelerate to a stop, plus safety factors.

Landing distance available (LDA) – the distance from threshold to complete the approach, touchdown, and decelerate to a stop, plus safety factors.

The ASDA and LDA are the overriding considerations in determining the runway length available for use by aircraft, because safety areas must be considered. The ASDA and LDA can be figured as the useable portions of the runway minus the area required to maintain adequate RSA and OFA beyond the end of the runway.

The FAA standard calls for only 600 feet for RSA (and corresponding OFA) prior to landing. As a result, there is no need to displace the southwest end threshold for landing operations to Runway 5. In Alternative A2, the operational length available for TORA,

TODA, ASDA, and LDA calculations utilizing Runway 5 would be 7,000 feet. The ASDA and LDA for Runway 23 take into account the need for full 1,000-foot safety areas beyond the runway end. Because there is approximately 100 feet of OFA obstructed on the southwest end, the ASDA and LDA for Runway 23 operations (take-offs and landings) would be 6,900 feet.

Implementing declared distances would require no changes to the airfield. The runway would not have to be re-marked, and none of the existing lights would have to be moved.

In Alternative A2, the total area of land outside existing airport property but within the safety areas is approximately 65 acres, similar to Alternative A1. The RSA and OFA combined include five acres. The proposed RPZ northeast of Runway 5-23 contains 35.6 acres of land that would need to be positively controlled by the airport. To the southwest, the proposed RPZ encompasses 24 acres.

It should be noted that another option not depicted on these alternatives to address the OFA deficiency currently located off the southwest end of Runway 5-23 is for Coolidge Municipal Airport to submit a request for modification to airport design standards per FAA AC 150/5300, *Airport Design*. Given the small amount of area that the OFA encompasses off airport property and the existing land use associated with the Central Arizona Project Canal, the FAA may determine that a modification to standard is sufficient. If this were the case, the southwest end of Runway 5-23 as it

currently exists would be adequate and declared distances would not apply.

RUNWAY EXTENSION ALTERNATIVES B1 AND B2

A second option for accommodating airfield needs is to provide for a runway extension allowing for up to 8,100 feet, as depicted in Alternatives B1 and B2 on **Exhibit 4E**. This runway length would further accommodate large aircraft needing increased fuel and passenger loads traveling longer stage lengths.

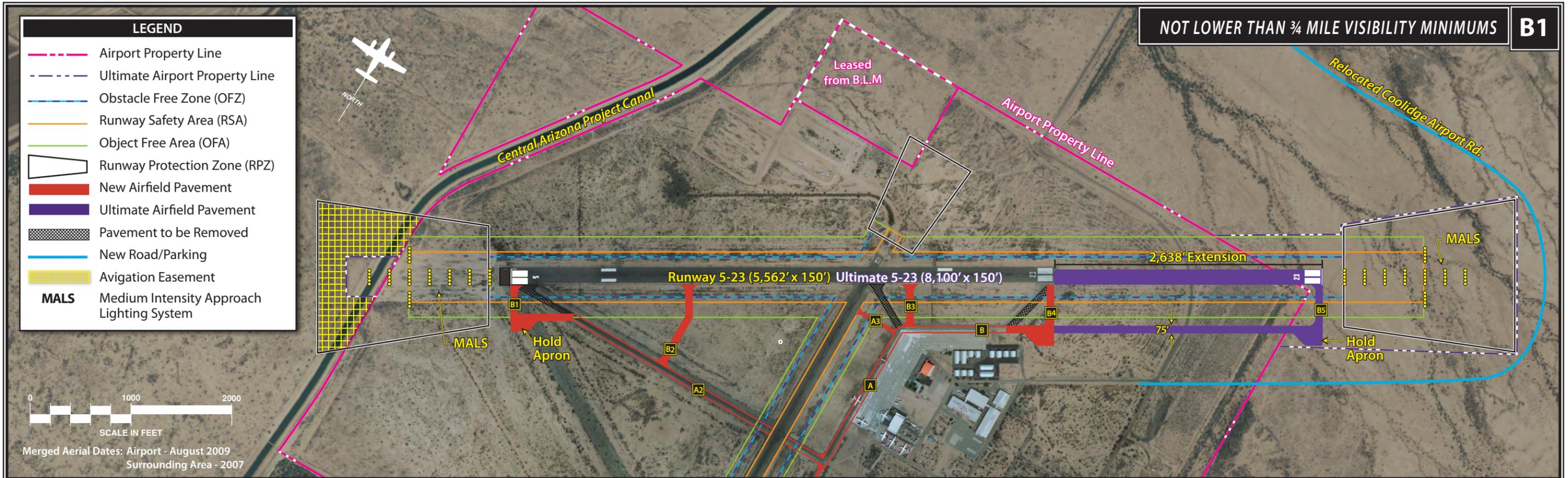
As with the previous alternatives, the OFA deficiency in the southwest area of the airport is addressed. Alternative B1 proposes to abandon 100 feet of pavement at the southwest end of Runway 5-23, allowing the safety areas to be shifted to the northeast, which further allows positive control over the OFA as it is entirely contained on airport property. A 2,638-foot runway extension is depicted to the northeast, bringing the total usable runway length to 8,100 feet. Similar to the previous alternatives, Coolidge Airport Road would need to be relocated in order to allow for the runway extension and secure the safety areas which would expand further north.

The amount of land outside existing airport property but within the safety areas is approximately 95 acres. The RSA and OFA combined include 27 acres. The proposed RPZ northeast of Runway 5-23 contains another 46 acres of land that would need to be po-

sitively controlled by the airport. To the southwest, the proposed RPZ encompasses 21.5 acres, similar to Alternative A1. In addition, approximately 4.5 acres of land adjacent to the canal are shown as future airport property in order to protect the MALS.

Alternative B2 applies declared distances in order to satisfy the OFA obstruction southwest of Runway 5-23. Similar to Alternative A2, the amount of usable length on Runway 23 is limited by approximately 100 feet in order to allow the OFA to shift to the northeast which, in turn, alleviates the levee and fence obstructions that currently penetrate the OFA. In order to allow for 8,100 feet of runway length, this alternative proposes a 2,538-foot extension to the northeast. Through the use of declared distances, aircraft operating on Runway 5 would be allowed the full runway length for take-off and landing. On the contrary, aircraft utilizing Runway 23 would be provided 8,000 feet of ASDA and LDA. As previously discussed, the airport could pursue a modification to standard on the OFA deficiency that currently exists in the southwest area of the airport that would allow the runway to remain as it currently exists without having to implement declared distances or abandon runway pavement.

The total area of land outside existing airport property but within the safety areas is approximately 94 acres in Alternative B2. The RSA and OFA combined include 25 acres and the proposed RPZ northeast of Runway 5-23 contains 45 acres of land that would need to be positively controlled by the

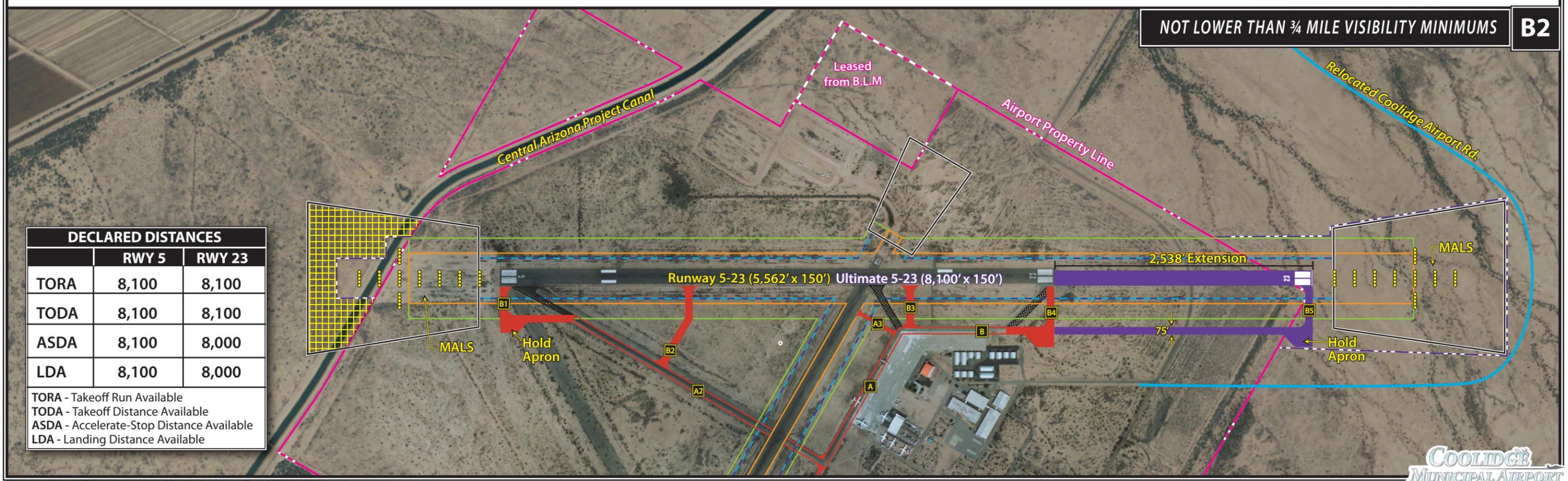


NOT LOWER THAN 3/4 MILE VISIBILITY MINIMUMS B1

LEGEND

- - - Airport Property Line
- - - Ultimate Airport Property Line
- Obstacle Free Zone (OFZ)
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Runway Protection Zone (RPZ)
- New Airfield Pavement
- Ultimate Airfield Pavement
- Pavement to be Removed
- New Road/Parking
- Avigation Easement
- MALS** Medium Intensity Approach Lighting System

0 1000 2000
SCALE IN FEET
Merged Aerial Dates: Airport - August 2009
Surrounding Area - 2007



NOT LOWER THAN 3/4 MILE VISIBILITY MINIMUMS B2

DECLARED DISTANCES		
	RWY 5	RWY 23
TORA	8,100	8,100
TODA	8,100	8,100
ASDA	8,100	8,000
LDA	8,100	8,000

TORA - Takeoff Run Available
TODA - Takeoff Distance Available
ASDA - Accelerate-Stop Distance Available
LDA - Landing Distance Available



airport. To the southwest, the proposed RPZ encompasses approximately 24 acres.

As in the previous alternatives, improved instrument approaches for Runways 5 and 23 are also considered here allowing for straight-in APV approaches with not lower than ¾-mile visibility minimums. As such, the implementation of an approach lighting system in the form of a MALS is depicted in each alternative.

WEST SIDE PARALLEL TAXIWAY ALTERNATIVES A AND B

As previously discussed, the 1997 Master Plan proposed a west side parallel taxiway that could accommodate future aviation demand at Coolidge Municipal Airport. While forecast aviation demand through the long term planning period of this Master Plan can be accommodated on property to the east of Runways 5-23 and 17-35 that is already provided with taxiway access and utility infrastructure, the ultimate goal of providing alternatives as they relate to a west side parallel taxiway is to provide the City with a potential concept allowing for ultimate build-out of the airport. As is the case with most development on airport property, demand will dictate the timing and degree to which property on the west side of Runway 5-23 will be needed. For purposes of this analysis, a 1,438-foot runway extension is depicted on **Exhibit 4F** in order to portray a taxiway running the full-length of Runway 5-23.

In order to prevent the taxiway from penetrating the RSA and obstacle free zone (OFZ) associated with crosswind Runway 17-35, Alternative A presents a full-length taxiway on the northwest side of Runway 5-23 that curves around these safety areas so as not to affect aircraft utilizing the crosswind runway. The majority of this taxiway is located 400 feet from the runway centerline, satisfying runway-to-parallel taxiway separation standards for an instrument approach providing not lower than ¾-mile visibility minimums. A portion of the taxiway does extend to approximately 600 feet from the runway centerline in order to avoid penetrating the safety areas previously discussed.

Alternative B on **Exhibit 4F** portrays a traditional parallel taxiway traversing the full-length of Runway 5-23 at a separation of 400 feet from runway centerline to taxiway centerline. In order for this to occur, it is being proposed that crosswind Runway 17-35 and its associated safety areas be shifted 400 feet south. In doing so, the proposed parallel taxiway would not penetrate the RSA and OFA that extends north of the crosswind runway. Furthermore, this alignment would better accommodate the proposed taxiway (Taxiway A3) east of the crosswind runway leading to the terminal area. Adequate airport property to the south of Runway 17-35 could accommodate this shift while allowing the airport to maintain positive control of the safety areas associated with the runway. While this alternative would be more costly due to the shifting of

Runway 17-35, it would allow for an increased area of potential development on the northwest side of the airport while also providing a more efficient airfield design. In addition, the RPZ that extends north of Runway 17-35 would shift south and be contained entirely on airport property.

In an effort to improve airfield efficiency, both alternatives depict hold aprons at each end of Runway 5-23 and a total of four entrance/exit taxiways are proposed at various locations connecting the runway and taxiway. A taxiway width of 35 feet is proposed on Alternatives A and B that would satisfy aircraft operations in ADG II.

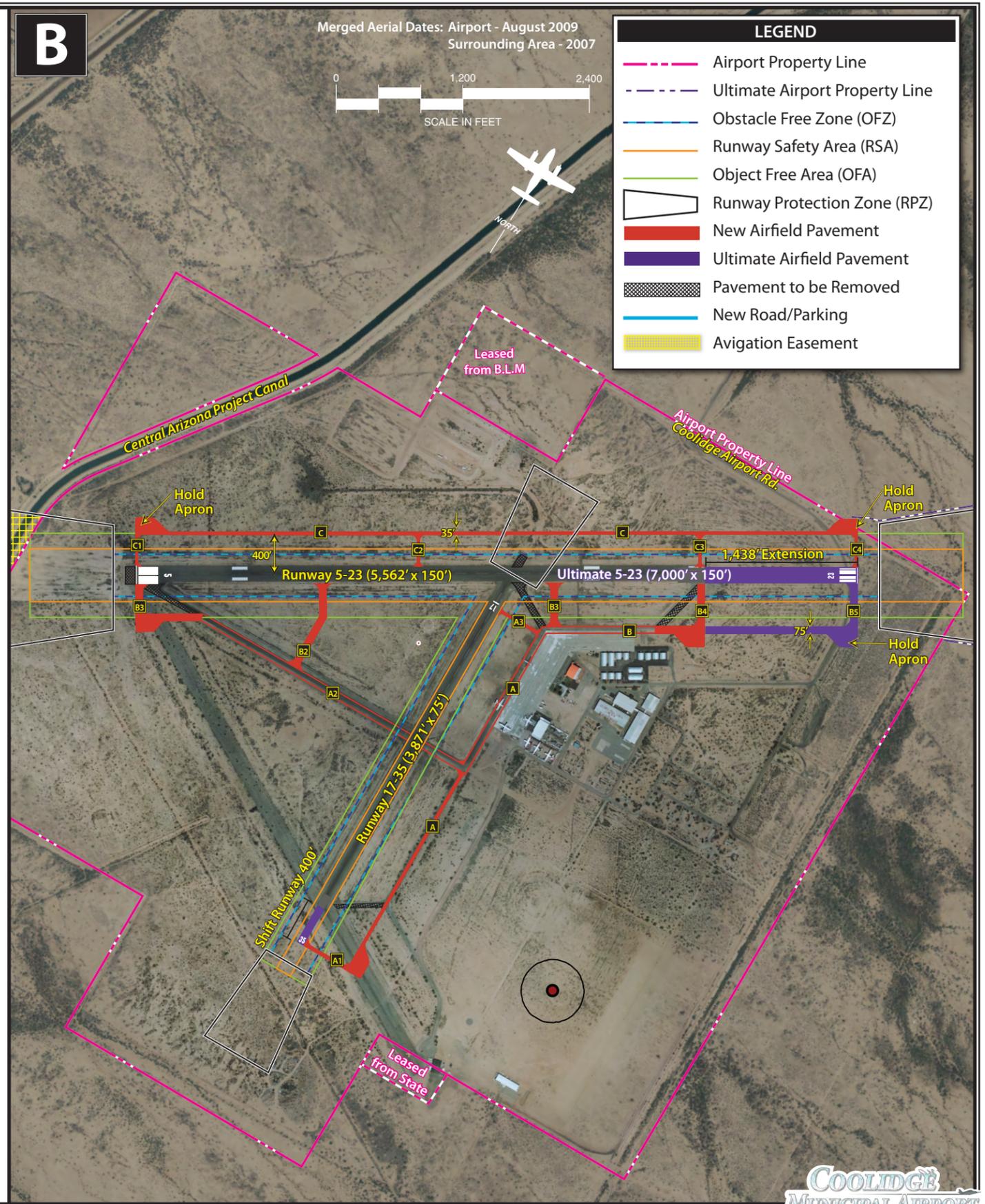
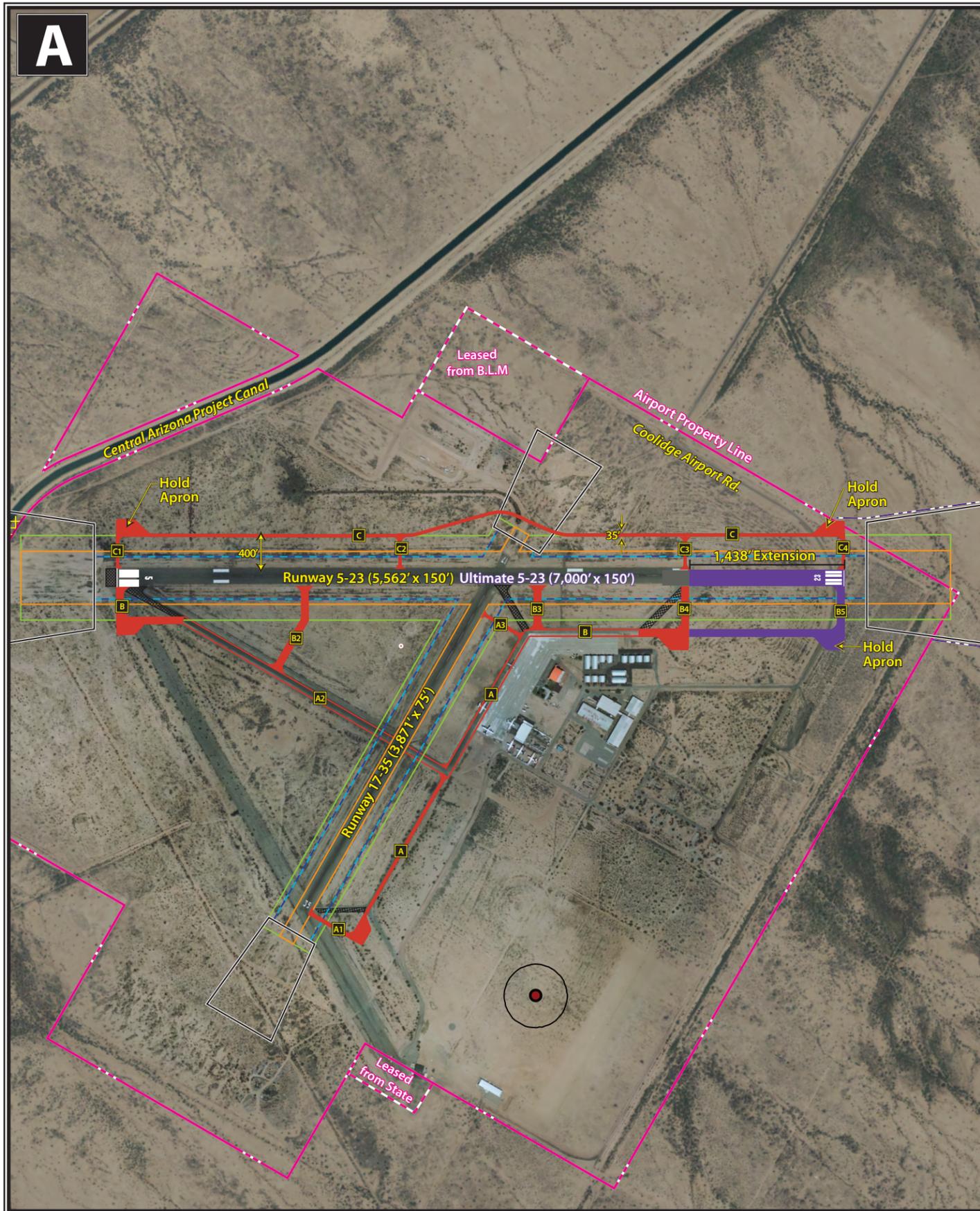
ANALYSIS OF LANDSIDE CONSIDERATIONS

The purpose of this section is to identify and evaluate viable landside alternatives at Coolidge Municipal Airport to meet program requirements set forth in the previous chapter. While the airfield is comprised of facilities where aircraft movement occurs (runways, taxiways, etc.), other “landside” functions occur outside this area. The primary aviation functions to be accomplished landside at Coolidge Municipal Airport include aircraft storage hangars, aircraft parking aprons, a general aviation terminal area, and automobile parking and access. The interrelationship of these functions is important to defining a long-range landside layout for general aviation uses at the airport. Due to the amount of land available at the air-

port, careful consideration will also be given to parcels of land that could be considered for non-aviation related uses that can provide additional revenue support to the airport and support economic development for the region.

The orderly development of the airport terminal area, those areas along the flight line parallel to the runway, can be the most critical, and often times the most difficult to control on the airport. A development approach of taking the path of least resistance can have a significant effect on the long-term viability of an airport. Allowing development without regard to a functional plan could result in a haphazard array of buildings and small apron areas, which will eventually preclude the most efficient use of valuable space along the flight line.

Activity in the aviation development areas should be divided into high, medium, and low intensity levels at the airport. The high-activity area should be planned and developed to provide aviation services on the airport. An example of the high-activity areas is the airport terminal area and adjoining aircraft parking apron, which provides tiedown locations and circulation for aircraft. In addition, large conventional hangars used for fixed base operators (FBOs), specialty aviation operators, or storing a large number of aircraft would be considered a high-activity use area. The best location for high-activity areas is along the flight line near midfield, for ease of access to all areas on the airfield. All major utility infrastructures would need to be provided to these areas.



The medium-activity use category defines the next level of airport use and primarily includes smaller corporate aircraft that may desire their own executive hangar storage on the airport. The best location for medium-activity use is off the immediate flight line, but still readily accessible to aircraft including corporate jets. Due to an airport's layout and other existing conditions, if this area is to be located along the flight line, it is best to keep it out of the midfield area of the airport, so as not to cause congestion with transient aircraft utilizing the airport. Parking and utilities such as water and sewer should also be provided in this area.

The low-activity use category defines the area for storage of smaller single and multi-engine aircraft. Low-activity users are personal or small business aircraft owners who prefer individual space in hangars. Low-activity areas should be located in less conspicuous areas. This use category will require electricity, but generally does not require water or sewer utilities.

Ideally, terminal area facilities at airports should follow a linear configuration parallel to the primary runway system. The linear configuration allows for maximizing available space while providing ease of access to terminal facilities from the airfield. Landside alternatives will address development in specific areas on the airport. Separation of activity levels and efficiency of layout will be discussed as well.

In addition to the functional compatibility of the aviation development

areas, the proposed development concept should provide a first-class appearance for Coolidge Municipal Airport. As previously mentioned, the airport serves as a very important link to the entire region whether it is for business or pleasure. Consideration to aesthetics should be given high priority in all public areas, as the airport can serve as the first impression a visitor may have of the community.

Coolidge Municipal Airport is located on approximately 1,268 acres. In order to allow for maximum development of the airport while keeping with FAA mandated safety design standards, it is very important to devise a plan that allows for the orderly development of airport facilities. Typically, airports will reserve property adjacent to the runway system for aviation-related activity exclusively. This will allow for the location of taxiways, aprons, and hangars.

In those circumstances where ultimate demand levels fall short of ultimate build-out need, some airports will encourage non-aviation commercial or industrial development. The potential for non-aviation development on airport property can provide an additional revenue source in the form of long-term land leases for the airport. As evidenced in Chapter Two, aviation-related growth is forecast to increase throughout the planning period of this Master Plan. A substantial portion of airport property will be dedicated for airfield operations and aviation use; however, planning will consider designating certain portions of airport property for non-aviation development.

The alternatives to be presented are not the only options for development. In some cases, a portion of one alternative could be intermixed with another. Also, some development concepts could be replaced with others. The final recommended plan only serves as a guide for the City. Many times, airport operators change their plan to meet the needs of specific users. The goal in analyzing landside development alternatives is to focus future development so that airport property can be maximized.

Landside alternative considerations were summarized previously on **Exhibit 4B**. The following briefly describes proposed landside facility improvements.

AIRPORT TERMINAL BUILDING

Analysis in the previous chapter indicated that existing general aviation terminal services are accommodated in a 2,000 square-foot building occupied by Coolidge Aviation. The current building caters to general aviation needs by providing FBO offices and other pilot amenities.

A terminal facility is often the first impression air travelers have of the community. A functional and attractive terminal facility is needed to secure and build air travelers' favorable opinion of a community, particularly business leaders who may be investing in the community.

Terminal Building Location

FAA AC 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*, identifies a number of basic considerations that affect the location of a terminal building. The primary considerations include the following:

1. **Runway configuration:** The terminal should be located to minimize aircraft taxiing distances, time, and the number of runway crossings.
2. **Access to transportation network:** The terminal should be located to provide the most direct/shortest routing to the regional roadway network.
3. **Expansion potential:** The long term viability of the terminal is dependent upon the ability of the site to accommodate expansion of the terminal beyond forecast requirements.
4. **FAA Geometric Design Standards:** The terminal location needs to assure adequate distance from present and future aircraft operational areas.

A review of each of these factors is listed below.

Runway configuration: The existing terminal area is situated southeast of the intersection of Runways 5-23 and 17-35 near midfield. A taxiway serves the apron adjacent to the terminal area.

Access to transportation network:

The existing terminal facility is located on Coolidge Airport Road. Coolidge Airport Road is the only roadway providing access to the airport.

Expansion potential: Space is available adjacent to the terminal facility for building expansion. Adjacent to the north side of the facility is the airport’s fuel farm and the World War II conventional hangar. To the south is a parcel of land that is being leased to a private entity for future development. Additional automobile parking could be obtained farther east of the existing parking lot associated with the terminal facility.

FAA Geometric Design Standards:

The existing terminal is located approximately 1,000 feet east of the Runway 17-35 centerline. This is well outside any area obstruction clearance area and does not impact any design standards.

As shown, the existing terminal building site meets the general recommendations of the FAA utilizing this criterion. Therefore, retention of the terminal in its existing location will be considered in one of the landside alternatives to follow. However, for planning purposes, a new terminal location will also be explored.

AIRCRAFT HANGAR DEVELOPMENT

Landside alternatives to follow will consider the construction of additional aircraft hangars at Coolidge Municipal Airport. Hangar development takes

on a variety of sizes corresponding with several different uses.

Commercial general aviation activities are essential to providing the necessary services needed on an airport. This includes businesses involved with, but not limited to, aircraft rental and flight training, aircraft charters, aircraft maintenance, line service, and aircraft fueling. These types of operations are commonly referred to as FBOs. The facilities associated with businesses such as these include large conventional type hangars that hold several aircraft. High levels of activity often characterize these operations, with a need for apron space for the storage and circulation of aircraft. These facilities are best placed along ample apron frontage with good visibility from the runway system for transient aircraft. Utility services are needed for these types of facilities, as well as automobile parking areas.

The mix of aircraft using Coolidge Municipal Airport is expected to change to include more business class aircraft which have larger wingspans. These larger aircraft require greater separation distances between facilities, larger apron areas for parking and circulation, and larger hangar facilities.

Aircraft hangars used for the storage of smaller aircraft primarily involve T-hangars or small box hangars. Since storage hangars often have lower levels of activity, these types of facilities can be located away from the primary apron areas, in more remote locations of the airport. Limited utility services

are needed for these areas. Currently, aircraft storage hangars make up over half of the combined hangar space made available at Coolidge Municipal Airport.

Other types of hangar development can include executive hangars for accommodating several aircraft simultaneously. Typically, these types of hangars are used by corporations with company-owned aircraft or by an individual or group of individuals with multiple aircraft. These hangar areas typically require all utilities and segregated roadway access.

REVENUE SUPPORT LAND USES

Due to the large amount of land on airport property exceeding the space needed for forecast aviation demand, consideration is given for the City of Coolidge to utilize portions of the airport for non-aeronautical purposes such as commercial, industrial, or manufacturing development. Currently, areas on airport property are used for these types of operations. It should be noted that the City does not have the approval to use airport property at this time for non-aeronautical purposes on specific parcels to be further discussed. This requires specific approval from the FAA. The Master Plan does not gain approval for non-aeronautical uses, even if these uses are ultimately shown in the Master Plan. A separate request justifying the use of airport property for non-aeronautical uses will be required once the Master Plan is complete. The Master Plan can be a source for developing that justification.

Federal law obligates an airport sponsor to use all property shown on an Airport Layout Plan (ALP) and/or Property Map for public airport purposes. A distinction is generally not made between property acquired locally and property acquired with federal assistance. However, property acquired with federal assistance or transferred surplus property from the federal government may have specific covenants or restrictions on its use different from property acquired locally.

These obligations will require that the City formally request from the FAA a release from the terms, conditions, reservations, and restrictions contained in any conveyance deeds and assurances in previous grant agreements. A release is required even if the airport desires to continue to own the land and only lease the land for development. The obligations relate to the use of the land just as much as they do to the ownership of the land.

U.S. Code 47153 authorizes the FAA to release airport land when it is convincingly clear that:

- a. Airport property no longer serves the purpose for which it was conveyed. In other words, the airport does not need the land now or in the future because it has no aviation-related or aeronautical use, nor does it serve as approach protection, a compatible land use, or a noise buffer zone.
- b. The release will not prevent the airport from carrying out the purpose for which the land was conveyed. In other words, the

airport will not experience any negative impacts from relinquishing the land.

- c. The release is actually necessary to advance the civil aviation interests of the counters. In other words, there is a measurable and tangible benefit for the airport or the airport system.

Ultimately, the ability of the City to use airport property for non-aeronautical revenue production will rest upon a determination by the FAA that portions of airport property are no longer needed for airport-related or aeronautical uses. To prove that land is not needed for aeronautical purposes, an assessment and determination of the area that will be required for aeronautical purposes will be needed. The Master Plan provides this analysis.

A formal request to the FAA for a release from federal obligations will have several distinct elements. The major elements of the request will include:

1. A description of the obligating conveyance instrument or grant.
2. A complete property description including a legal description of the land to be released.
3. A description of the property condition.
4. A description of federal obligations.
5. The kind of release requested. (lease or sale)

6. Purpose of the release.

7. Justification for the release.

8. Disposition and market value of the released land.

9. Reinvestment agreement. A commitment by the City to reinvest any lease revenues exclusively for the improvement, operation, and maintenance of the airport.

10. Draft instrument of release.

An environmental determination will also be required. While FAA Order 1050.1E, *Environmental Policies and Procedures*, states that a release of an airport sponsor from federal obligations is normally categorically excluded and would not normally require an Environmental Assessment, the issuance of a categorical exclusion is not automatic and the FAA must determine that no extraordinary circumstances exist at the airport. Extraordinary circumstances would include a significant environmental impact to any of the environmental resources governed by federal law. An Environmental Assessment may be required if there are extraordinary circumstances.

PARACHUTE LANDING OPERATIONS

As previously discussed, an active parachute landing area is currently located on the airport and used regularly in relation to operations conducted by Complete Parachute Solutions and

International Air Response. The landing area was recently re-surveyed and the new location is identified on **Exhibit 4G**. According to the United States Parachute Association's basic safety requirements, an active civilian parachute landing area (drop zone) shall be unobstructed from any hazards within a radial distance of 100 meters or 330 feet. Hazards can be defined as telephones or power lines, towers, buildings, open bodies of water, highways, automobiles, and clusters of trees.

Due to the nature of operations conducted by Complete Parachute Solutions as they relate to specialized military training, it has been further recommended that the parachute landing area be free of hazards within a radial distance of at least 1,000 feet. As a result, the landside alternatives to follow show no future development within these general locations from the center of the drop zone.

GENERALIZED LAND USE

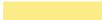
There are three large areas which are given specific attention for planned development at Coolidge Municipal Airport as depicted on **Exhibit 4G**. The first is the area on the east side of Runways 5-23 and 17-35. Currently, this is where all landside development is located on the airport, and there is still ample property for future development. Several separate parcels of land are available that could accommodate both aviation and non-aviation related development. Due to the existing infrastructure (roadways, utilities, etc.) that is in place to support future

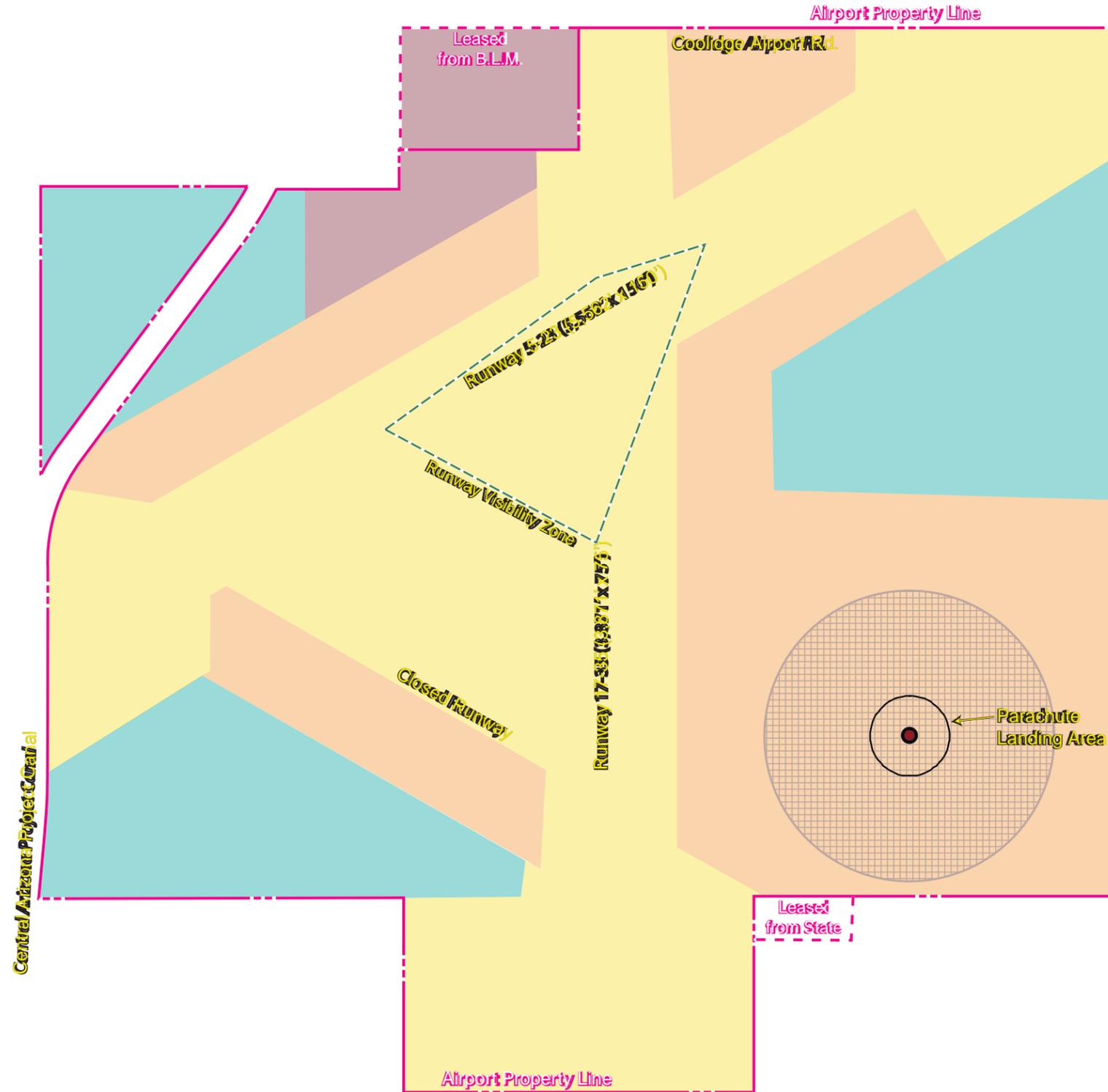
development, the east side of the airport could accommodate most, if not all, future growth needs through the long term planning period of this Master Plan. For these reasons, detailed planning has been done for this area and will be discussed in the next section.

A second area that could potentially support aviation development is on the northwest side of the airport adjacent to Runway 5-23. Approximately 162 acres of land are highlighted in the form of aviation-related and industrial/commercial development areas. It should be noted that approximately 25 acres of land are dedicated for a waste water treatment facility as proposed by the City of Coolidge.

As previously mentioned, the projections for future aviation demand can be accommodated on the east side of the airport. Therefore, development of the west side may not be needed, at least for aviation-related development, until the airport surpasses the long term planning horizon activity levels. As a result, no traditional hangar or apron development will be shown in this area, but approximately 100 acres of land is designated for future aviation-related activities along portions of the west side of Runway 5-23. It should be noted that in the event Runway 5-23 is extended, additional space could be made available for aviation-related development in this area. Access to the northwest side of the airport could be provided by extending a roadway south from Coolidge Airport Road as it enters airport property.

LEGEND

-  Airport Property Line
-  Runway Protection Zone (RPZ)
-  Air eld Operations
-  Aviation-Related Development
-  Industrial/Commercial Development or Open Space
-  Ultimate City Waste Water Treatment Facility
-  Parachute Landing Safety Area



The designated aviation-related development is also planned so it does not penetrate the runway visibility zone (RVZ). The RVZ outlines the area needed to be clear of obstructions so that aircraft on both runways can see other aircraft before it is too late to avert an accident.

In addition to the proposed aviation-related development depicted on the west side of the airport, approximately 25 acres of land would be available for potential industrial/commercial development. This type of development cannot proceed until a roadway network is provided, utility infrastructure is improved and expanded, and land would need to be cleared and graded. Extensive environmental analyses may also need to be conducted in these areas prior to any development taking place. A third area on existing airport property was also analyzed for potential development; in particular, south of the closed runway. Lack of roadway and utility access to this area makes it an unattractive location for development until all other areas on the airport have been fully developed.

LANDSIDE ALTERNATIVES

A series of landside alternatives have been examined for the east side of the airport. As previously discussed, this area can accommodate the forecast aviation demand through the planning period of this Master Plan and is the most readily available for development given existing roadway access and utility infrastructure. These alternatives consider general aviation facility

development providing for separation of activity levels. The goal of this analysis is to indicate development potentials which would provide Coolidge Municipal Airport with a specific goal for future development. The resultant plan will aid the City in strategic marketing of available airport properties.

It should be noted that the landside alternatives to follow depict a 1,438-foot northeasterly extension to Runway 5-23. As a result, additional aviation-related development would be made available adjacent to the runway extension should it occur.

LANDSIDE ALTERNATIVE A

Landside Alternative A is depicted on **Exhibit 4H**. This alternative proposes that future aviation development would continue to take place adjacent to the east side of Runways 5-23 and 17-35. Northeast of the current terminal area adjacent to the existing Runway 23 threshold, approximately eight acres of airport property are currently being leased to a private entity for future aviation-related development. The potential exists for the development of aircraft storage hangars to occupy this area as based aircraft demand dictates. Further to the northeast, approximately five acres of land is identified for future aviation development dependent on a runway extension. Facilities to support specialty aviation operators and/or FBOs could occupy this high-activity area with immediate access to the runway and taxiway system.

Moving farther south into the existing terminal area, this alternative proposes a dedicated airport terminal building in the current location of the 2,000 square-foot facility that accommodates general aviation terminal needs. To the east of this building is additional automobile parking. Immediately to the south of this proposed development is a two-acre parcel that is leased to a private entity that will be constructing a large hangar/office facility to support its specialty aviation operations in the near future. On the north side of the terminal area, a dedicated airport maintenance building is proposed that would provide storage space for airport equipment. In addition, two helicopter hardstands are depicted on the parking apron west of the terminal building. With providing for these markings, helicopters are better segregated from fixed-wing aircraft which is desirable.

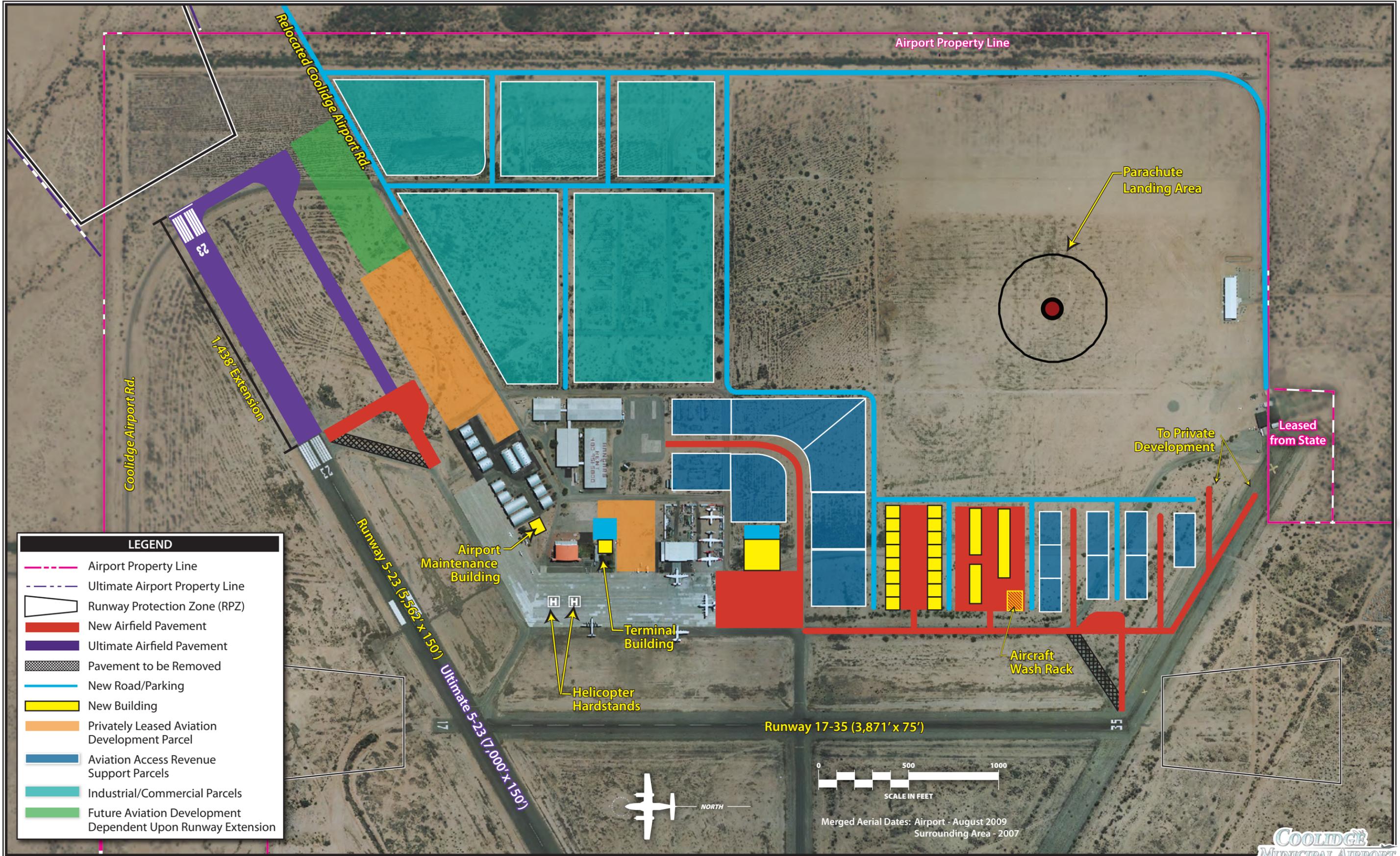
Adjacent to the south side of the existing aircraft parking apron at Coolidge Municipal Airport is proposed a large conventional hangar and associated parking apron that could support a major aircraft specialty and/or FBO operation similar to what currently exists on property immediately north being occupied by International Air Response. A taxiway extending east would provide access to several parcels of land that could further support aviation development ranging in size from approximately 1.5 to 2.5 acres. It should be noted that this proposed taxiway is located on land that has tentatively been prepared and graded for future taxiway development.

Proposed development to the south of these parcels would be dependent

upon the construction of a full-length parallel taxiway serving Runway 17-35. Assuming this would occur, additional development in the form of separate executive-style hangars are presented on **Exhibit 4H**. As mentioned earlier, these hangars are often utilized by corporate flight departments that possess their own aircraft, or an individual or group of individuals, that have separate aircraft. These facilities would be provided aircraft access via a taxiway connecting to the proposed parallel taxiway. Immediately south of these hangars are three storage hangars that could provide aircraft storage space similar to a T-hangar or box hangar. In this same general area, an aircraft wash rack is proposed.

This alternative also depicts additional aviation access parcels toward the south end of the airfield. These parcels, ranging in size from ½- to ¾-acre, could further enhance revenue support for the airport while accommodating aviation demand. Taxiways providing access to these parcels could also ultimately lead to future development on the southeast side of the airport associated with Complete Parachute Solutions.

Finally, a large area of land east of the existing terminal area is paid particular attention to in each of the three landside alternatives. As previously discussed in Chapter One, the City of Coolidge leases approximately nine acres of land east of the terminal area to a private entity who conducts non-aviation related activities. As depicted on **Exhibit 4H**, approximately 95 acres of land are divided up into



five separate parcels in this alternative to further support industrial and/or commercial development. Improved roadway networks and certain utilities would need to be extended into areas east and south of the existing terminal area in order to support the proposed development called out.

LANDSIDE ALTERNATIVE B

Exhibit 4J depicts Landside Alternative B. This alternative proposes the relocation of the existing terminal area to the south. In doing so, an airport terminal building and additional aircraft parking apron are proposed adjacent to the existing taxiway extending east from Runway 17-35. Two large aviation access support parcels are depicted on each side of the terminal building that could support high-activity aviation operations. In addition, two helicopter hardstands are shown immediately west of the proposed terminal building. Automobile access to this area would be provided by extending the existing roadway serving the terminal area farther south.

Similar to the previous landside alternative, property to the south of the airfield is dedicated for aviation development in the form of executive hangars and other aircraft storage hangars. As such, any aviation development in this area would be dependent upon the construction of a full-length parallel taxiway serving Runway 17-35.

In this alternative, the airport maintenance building and aircraft wash

rack are proposed farther south of the relocated terminal area. A taxiway extending southeast of the proposed parallel taxiway would provide airfield access to several aviation support parcels while also leading to the Complete Parachute Solutions' leasehold.

Moving to the north side of the airport, **Exhibit 4J** depicts the leased property adjacent to the east side of Runway 5-23 and potential developable property dependent upon a future runway extension. Consideration is also given to developing approximately 95 acres of existing airport property in the form of non-aviation development. In this alternative, nine smaller parcels are identified for potential industrial/commercial development to further enhance airport revenues while providing a diversified economic base for the City of Coolidge and surrounding area.

LANDSIDE ALTERNATIVE C

Major development associated with Landside Alternative C, as depicted on **Exhibit 4K**, deals with aviation demand justifying the construction of a runway extension and parallel taxiway serving Runway 5-23. In this alternative, a dedicated airport terminal building and associated aircraft parking apron are proposed in the northwest area of the airport, in addition to approximately 20 acres of property that could accommodate aviation development in the form of several activity levels such as FBO operations and aircraft storage space. Automobile access to the proposed terminal area could be provided by extending a

roadway south from Coolidge Airport Road as it enters onto airport property.

This concept allows separation between typical general aviation activities that could take place on the west side of the airport from specialty operations such as those currently being conducted by International Air Response and Complete Parachute Solutions on the east side of the airport. As previously discussed, major aviation demand to support a runway extension and landside development would need to occur at the airport in order for this concept to become reality. This would most likely happen beyond the planning period of this Master Plan; however, it does provide a forward-thinking concept moving toward future build-out of available airport property.

In Alternative C, property east of the existing runway system is provided with a mix of aviation and non-aviation development. Several airfield access support parcels are identified adjacent to Runway 17-35 in addition to specific aircraft storage hangar layouts. Finally, a large area east of the existing terminal area is separated into seven parcels that could support industrial and/or commercial development as shown on the previous alternatives.

The proposed development areas discussed in each of the three landside alternatives will need to be analyzed and studied in more detail before ever coming to fruition. As with any devel-

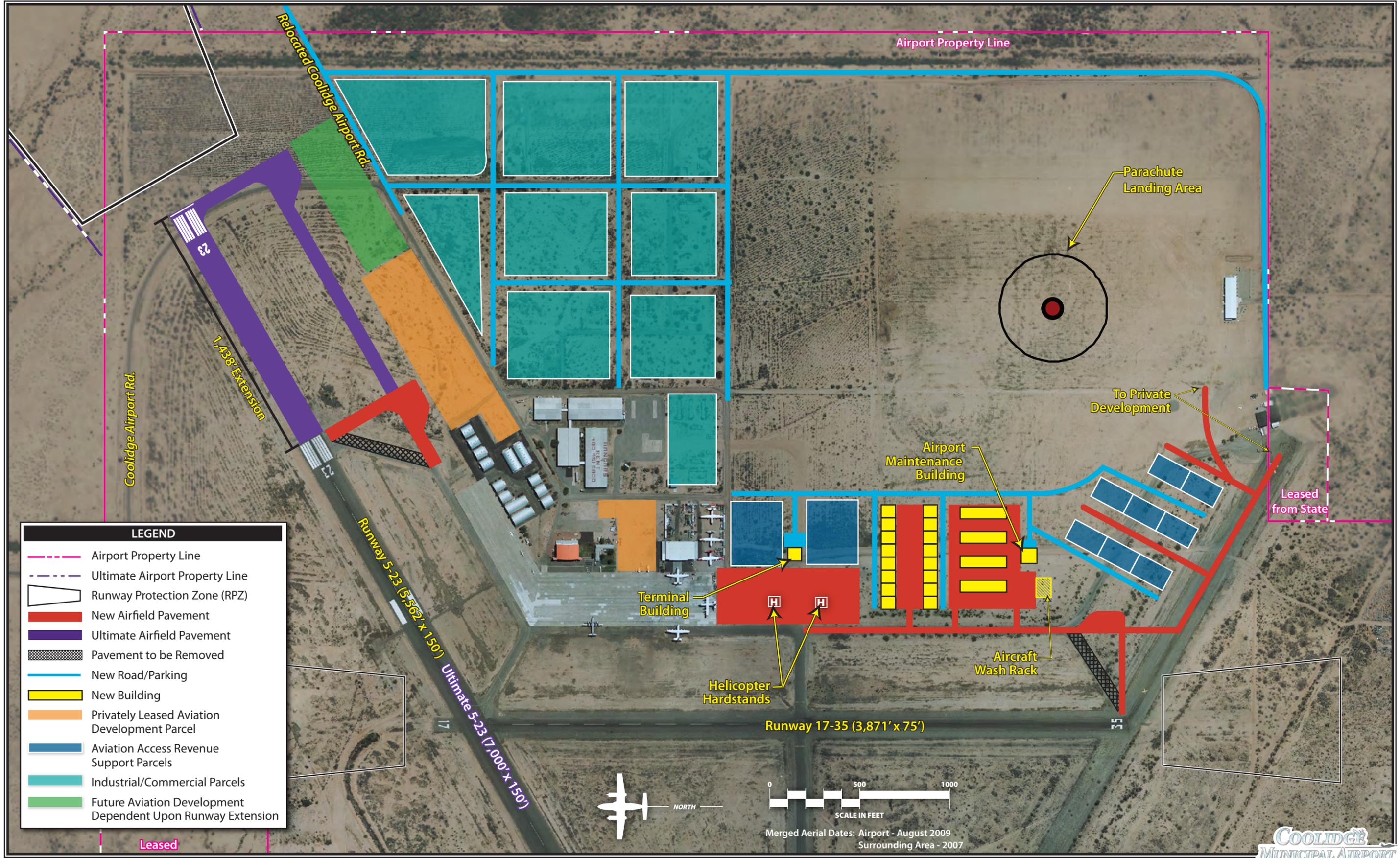
opment, these areas will have to take into account specific site preparation methods regarding grading, drainage, and utility expansion.

SUMMARY

The process utilized in assessing the airside and landside development alternatives involved a detailed analysis of short and long term requirements, as well as future growth potential. Current and future airport design standards were considered at every stage in the analysis. Safety, both in the air and on the ground, was given a high priority in the analysis of alternatives.

After review and input from the PAC and City officials, a recommended development concept will be put forth by the consultant. The resultant plan will represent an airside facility that fulfills safety design standards and a landside complex that can be developed as demand dictates. The development plan for Coolidge Municipal Airport must represent a means by which the airport can evolve in a balanced manner, both on the airside and landside, to accommodate the forecast demand. In addition, the plan must provide flexibility to meet activity growth beyond the long range planning horizon.

The following chapters will be dedicated to refining the basic concept into a final plan with recommendations to ensure proper implementation and timing for a demand-based program.



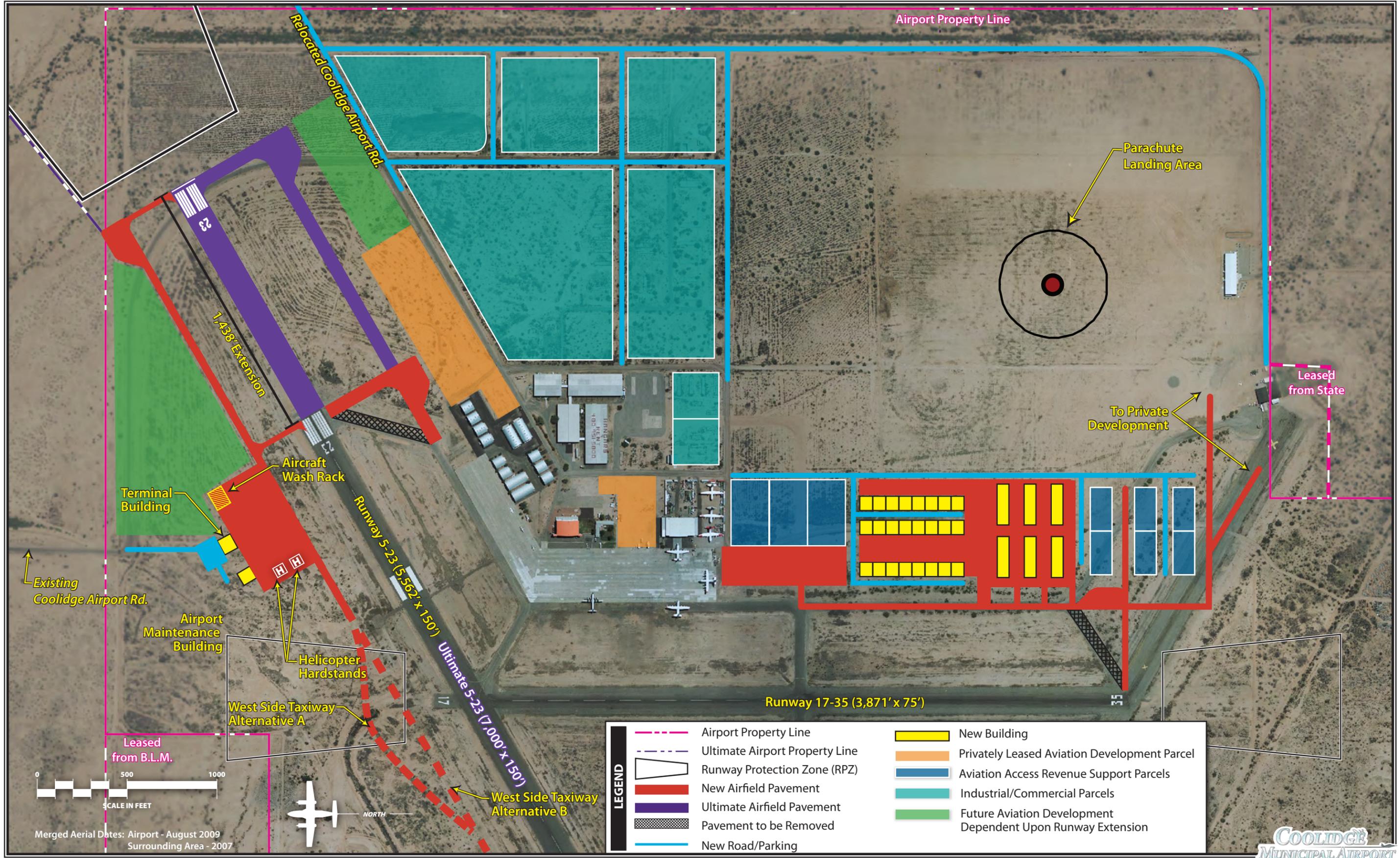
LEGEND

- Airport Property Line
- Ultimate Airport Property Line
- Runway Protection Zone (RPZ)
- New Airfield Pavement
- Ultimate Airfield Pavement
- Pavement to be Removed
- New Road/Parking
- New Building
- Privately Leased Aviation Development Parcel
- Aviation Access Revenue Support Parcels
- Industrial/Commercial Parcels
- Future Aviation Development Dependent Upon Runway Extension

NORTH

0 500 1000
SCALE IN FEET

Merged Aerial Dates: Airport - August 2009
Surrounding Area - 2007



LEGEND	
	Airport Property Line
	Ultimate Airport Property Line
	Runway Protection Zone (RPZ)
	New Airfield Pavement
	Ultimate Airfield Pavement
	Pavement to be Removed
	New Road/Parking
	New Building
	Privately Leased Aviation Development Parcel
	Aviation Access Revenue Support Parcels
	Industrial/Commercial Parcels
	Future Aviation Development Dependent Upon Runway Extension



Merged Aerial Dates: Airport - August 2009
Surrounding Area - 2007

COOLIDGE
MUNICIPAL AIRPORT

RECOMMENDED MASTER PLAN CONCEPT